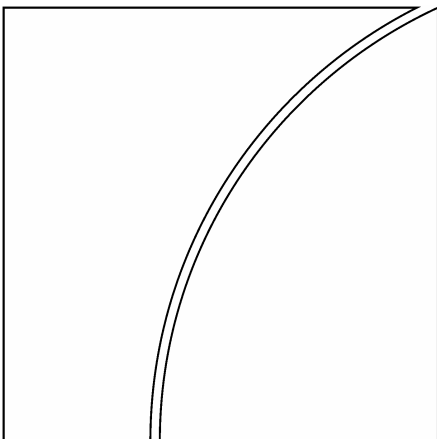


Committee on Payment and Settlement Systems



Central bank oversight of payment and settlement systems

May 2005



BANK FOR INTERNATIONAL SETTLEMENTS

Copies of publications are available from:

Bank for International Settlements
Press & Communications
CH-4002 Basel, Switzerland

E-mail: publications@bis.org

Fax: +41 61 280 9100 and +41 61 280 8100

This publication is available on the BIS website (www.bis.org).

© *Bank for International Settlements 2005. All rights reserved. Brief excerpts may be reproduced or translated provided the source is cited.*

ISBN 92-9131-685-7 (print)

ISBN 92-9197-685-7 (online)

Foreword

Central banks have always had a close interest in the safety and efficiency of payment and settlement systems. One of the principal functions of central banks is to be the guardian of public confidence in money, and this confidence depends crucially on the ability of economic agents to transmit money and financial instruments smoothly and securely through payment and settlement systems. The systems must therefore be strong and reliable, available even when the markets around them are in crisis and never themselves the source of such crisis.

Central banks have traditionally influenced payment and settlement systems primarily by being banks which provide a variety of payment and settlement services to other banks. As such, central banks provide a safe settlement asset and in most cases they operate systems which allow for the transfer of that settlement asset. It is only relatively recently that oversight has become a function that is more formal and systematic - namely a function whereby the objectives of safety and efficiency are promoted by monitoring existing and planned systems, assessing them against these objectives and, where necessary, inducing change. However, although recent, this development in the nature of oversight has been rapid and the function has now come to be generally recognised as a core responsibility of central banks.

Given this importance, and the experience that has been gained over the years, the Committee on Payment and Settlement Systems felt it would be useful to set out publicly what has been learned about effective oversight. Most of this report is descriptive and analytical, explaining why and how central banks oversee payment and settlement systems. It looks at the need for oversight, the source of central banks' responsibilities for oversight, the scope of oversight and the activities that oversight involves. In addition it looks at cooperative oversight, where more than one central bank or other authority has responsibilities for a system. However, as well as this description and analysis, the report also includes 10 principles for effective oversight, each with explanatory text. Five of the principles are generally applicable to oversight arrangements while the other five are specifically for cooperative oversight arrangements. All the principles are consistent with, and indeed largely drawn from, the previous work on payment and settlement systems published by the Committee and earlier groups reporting to the G10 Governors.

The Committee set up a Working Group on Oversight of Payment and Settlement Systems to help it produce this report. The CPSS is very grateful to the members of the working group, its chairman, Martin Andersson of Sveriges Riksbank, and the CPSS secretariat at the BIS for their excellent work in preparing this report.

Tommaso Padoa-Schioppa, Chairman
Committee on Payment and Settlement Systems

Contents

Foreword	iii
Introduction.....	1
Principles for effective oversight.....	2
A. General principles for oversight	2
B. Principles for international cooperative oversight	4
Section 1: The need for oversight	8
1.1 The importance of payment and settlement systems	8
1.2 Central banks' interest in payment and settlement systems	8
1.3 Potential market failures in payment and settlement systems	9
1.4 Central banks' oversight of payment and settlement systems	10
1.5 Concluding remarks	12
Section 2: Oversight responsibilities	13
2.1 The basis of oversight responsibilities	13
2.2 Oversight objectives.....	14
2.3 Oversight standards.....	15
2.4 Transparency	15
2.5 Concluding remarks	16
Section 3: Scope of oversight.....	17
3.1 Determining scope	17
3.2 Payment systems.....	18
3.3 Securities settlement systems and central counterparties	18
3.4 Payment instruments	19
3.6 Third-party service providers	20
3.7 Concluding remarks	21
Section 4: Oversight activities	22
4.1 Monitoring	22
4.2 Assessment	23
4.3 Inducing change.....	23
4.4 The organisation of the oversight function.....	25
4.5 Concluding remarks	27
Section 5: Cooperative oversight	28
5.1 The benefits of cooperative oversight between central banks	28
5.2 Examples of cooperative oversight between central banks	28
5.3 An analysis of cooperative oversight between central banks	30
5.4 Cooperation with other authorities	34
5.5 Concluding remarks	35

Annex 1: Sources of central banks' oversight responsibilities and powers.....	36
Annex 2: Designating systems for oversight	44
Annex 3: Extracts from the CPSIPS, RSSS, RCCP and IMF transparency code.....	46
Annex 4: Lamfalussy principles	48
Annex 5: Bibliography.....	50
Annex 6: Members of the CPSS.....	54
Annex 7: Members of the working group.....	55

Introduction

1. Oversight of payment and settlement systems is a central bank function whereby the objectives of safety and efficiency are promoted by monitoring existing and planned systems, assessing them against these objectives and, where necessary, inducing change.

2. Payment and settlement systems enable the transfer of money and financial instruments. Safe and efficient systems are fundamental to money being an effective means of payment and to the smooth functioning of financial markets. Well designed and managed systems help to maintain financial stability by preventing or containing financial crises and help to reduce the cost and uncertainty of settlement, which could otherwise act as an impediment to economic activity. Payment and settlement systems thus play a crucial role in a market economy and central banks have always had a close interest in them as part of their responsibilities for monetary and financial stability.

3. Central banks are involved in payment and settlement systems in a number of ways. A core role has always been to provide a safe settlement asset for many systems. Many central banks are also operators of one or more systems. In addition, central banks are likely to be users of at least some systems to implement their monetary policy operations and to provide banking services to their own customers. In pursuit of their public policy objectives with respect to monetary and financial stability, central banks have sought to influence the design and functioning of payment and settlement systems; as users and sometimes operators of systems they have acquired expertise in their operation.

4. Other authorities such as banking supervisors and securities regulators may have legal or other responsibilities for aspects of payment and settlement systems. Where this is the case, central banks are open to cooperation with these authorities in order to minimise the potential duplication of effort and the burden on the overseen systems. In principle, each authority should have well defined responsibilities and specific tools to carry out the responsibilities. By convention, the term oversight is reserved to designate the specific responsibilities and tools central banks have with regard to payment and settlement systems due to their unique character of being both a public authority and a bank.

5. The concept of central bank oversight of payment and settlement systems (hereafter simply "oversight") has become more distinct and formal in recent years as part of a growing public policy concern with financial stability in general. Oversight has developed in part in response to the expansion of the role of the private sector in providing payment and settlement systems. Where there has been a risk that the private sector would take insufficient account of negative externalities that could cause systemic risk, central banks have sought to pursue public policy safety and efficiency objectives by guiding and influencing system operators. And whether a system is provided by the private sector or by central banks themselves, the increasing attention to oversight also reflects the very large increase in the values of transfers cleared and settled, the increasing centralisation of activity around a small number of key systems, the increasing technological complexity of many systems and the consequent concern that systemic risk could increase if the design of key systems did not adequately address various payment and settlement risks.

6. This report explains why and how central banks oversee payment and settlement systems, looking at both the similarities and differences in approaches and discussing some of the issues that arise.¹ On the basis of the analysis in the report, the CPSS has agreed a number of principles for the effective oversight of payment and settlement systems, which are set out in the next section (below). That section also includes a revised version of the Lamfalussy principles for international cooperative oversight among central banks and, where applicable, with other authorities.² The main report is then structured as follows. Section 1 explains the importance of payment and settlement systems and why central banks oversee them. Sections 2 to 4 describe how oversight is currently carried out, focusing in particular on domestic systems. Finally, Section 5 looks at how, for certain systems, there is a need for effective cooperation between authorities, focusing in particular on international cooperation.

¹ To help prepare this report the CPSS set up a working group consisting of representatives of the CPSS central banks and the Central Bank of Luxembourg and the report is based on the oversight practices of these central banks, hereafter referred to as "the central banks represented in this report". (See Annexes 6 and 7 for a list of the members of the CPSS and of the working group.)

² See *Report of the Committee on Interbank Netting Schemes of the central banks of the Group of Ten countries* (the Lamfalussy Report) (BIS, 1990) for the original principles (an extract from the report is in Annex 4).

Principles for effective oversight

7. On the basis of the analysis in this report, this section sets out a number of principles to help central banks organise and conduct effective oversight. Part A contains general principles applicable to all oversight arrangements which central banks may find useful when reviewing their own oversight arrangements. Part B supplements these with principles for international cooperative oversight among central banks and, where applicable, with other authorities. For ease of reference each principle has been given a short title but the content of the principles can only be understood by also considering their full wording and accompanying text.

A. General principles for oversight

8. Payment and settlement systems are a crucial part of the financial infrastructure of a country and it is essential that they function safely and efficiently. Many systems meet these safety and efficiency objectives without the involvement of the public sector. However, in certain circumstances the objectives may not be met without some form of influence by central banks. Oversight should be undertaken to identify any such circumstances and, where appropriate, induce change. Oversight is a necessary complement to any other means central banks may use to achieve their public policy objectives for payment and settlement systems (such as operating certain systems themselves or providing settlement services to systems).

9. The appropriate scope of oversight depends on the relevance of different payment and settlement systems to the broad public policy objectives of safety and efficiency. The term “systems” is used in this report to refer not only to formal payment and settlement systems but also to other schemes, arrangements or institutions involving clearing, netting or settlement insofar as they are functionally similar and relevant to the oversight objectives of an individual central bank; for example, this may sometimes include netting schemes and large correspondent banks and custodians. Central banks need to have a good understanding of the payment and settlement arrangements of the economy as a whole not least in order to decide which individual systems are of sufficient relevance to the safety and efficiency objectives for oversight policy requirements or standards to be applied to them.

10. Differences between central banks in the scope of oversight reflect a variety of factors including differences in the balance between the safety and efficiency objectives and differences in local payment and settlement systems. They also reflect the fact that payment and settlement arrangements are changing as a result of emerging developments such as growth in large correspondent banks and in the use of third-party service providers. Moreover, while scope is determined by the relevance of particular systems to the oversight objectives, the need, if any, to induce change depends crucially on the nature and scale of any market failures identified.

11. These general principles are intended to be applicable regardless of such differences and developments. They are based on the analysis in this report and are consistent with the conclusions of other reports including the CPSS *Core principles for systemically important payment systems* (2001) and *Policy issues for central banks in retail payments* (2003), the CPSS-IOSCO *Recommendations for securities settlement systems* (2001) and *Recommendations for central counterparties* (2004) and the IMF *Code of good practices on transparency in monetary and financial policies* (2000). Effective oversight is always important but the role of oversight may vary according to the state of development of the economy; this is discussed further in the CPSS *General guidance for the development of payment systems* (forthcoming).

General oversight principle A: Transparency

Central banks should set out publicly their oversight policies, including the policy requirements or standards for systems and the criteria for determining which systems these apply to.

12. Central banks should be transparent about their oversight policies to enable payment and settlement system operators to understand and observe applicable policy requirements and standards. Through transparency central banks can also demonstrate an appropriate degree of consistency of oversight approach. And transparency provides a basis for judging the effectiveness of the central bank’s policies and thus for the accountability of the central bank for the performance of its oversight.

13. Transparency can be achieved in different ways but typically involves, among other things, one or more publicly available documents which clearly explain a central bank's oversight policies. These documents should set out the central bank's oversight responsibilities, including its objectives, and how it intends to meet these responsibilities, including the policy requirements or standards for systems and the criteria for determining which systems these apply to.

General oversight principle B: International standards

Central banks should adopt, where relevant, internationally recognised standards for payment and settlement systems.

14. The use of relevant international standards concerning safety and efficiency can enhance central bank oversight of payment and settlement systems. Such standards, including the CPSS *Core principles for systemically important payment systems* and the CPSS-IOSCO *Recommendations for securities settlement systems* and *Recommendations for central counterparties*, draw on the collective experience of many central banks and have been subject to public consultation. The common ground they represent also makes it easier for central banks to work together to make cooperative oversight more effective.

General oversight principle C: Effective powers and capacity

Central banks should have the powers and capacity to carry out their oversight responsibilities effectively.

15. Central banks should seek to ensure that their powers to obtain information and induce change in payment and settlement systems are in line with their oversight responsibilities for these systems. Central banks typically use a range of tools to carry out oversight and it is the effectiveness rather than the form of these tools that is important. In practice most central banks use moral suasion for their day-to-day oversight and, for some central banks, this and other existing tools are sufficient to obtain information and induce change. Other central banks have statutory powers that they can also use if necessary.

16. Central banks should have sufficient resources, including suitably qualified personnel, and an organisational structure that allows those resources to be used effectively. Although different organisational models can prove effective, in all cases it should be clear where responsibility for oversight lies within the central bank. Those involved in carrying out oversight will need to be able to draw on the skills and expertise of other central bank functions (eg legal, markets, credit, audit and IT).

General oversight principle D: Consistency

Oversight standards should be applied consistently to comparable payment and settlement systems, including systems operated by the central bank.

17. Consistent application of policy requirements and standards, including to systems operated by the central bank itself, is important not least because different systems may be in direct competition with each other (for example, different card schemes providing the same payment service, or large-value and retail payment systems both being used for large corporate payments). Central banks should clearly indicate their criteria for determining comparability (for example, the types of instruments used by a system, the types of participants in a system, or the risk attributes of a system).

18. Where central banks themselves operate payment and settlement systems, consistency is promoted by transparency about their policies for their own systems and the use of the same policy requirements and standards, applied at least as rigorously as for comparable private sector systems. Organisational separation between the central bank's oversight and operational functions helps to ensure the consistent application of policy requirements and standards.

General oversight principle E: Cooperation with other authorities

Central banks, in promoting the safety and efficiency of payment and settlement systems, should cooperate with other relevant central banks and authorities.

19. Cooperative arrangements provide a mechanism whereby individual responsibilities of central banks as overseers of payment and settlement systems and other authorities such as securities regulators and banking supervisors can be fulfilled more effectively through mutual assistance. They are without prejudice to the statutory or other responsibilities of the authorities involved. Cooperation

enhances oversight efficiency by minimising the potential duplication of effort and the burden on the overseen system. It also helps to avoid the inconsistency of policy approach that could arise if different authorities acted independently, and it reduces the possibility of gaps in oversight.

20. Cooperative oversight arrangements should be established for cross-border and multicurrency systems where such systems are of sufficient relevance to more than one central bank. The principles which the CPSS considers to be the appropriate guide for international cooperative oversight between central banks issuing different currencies are set out in Part B below.

21. Depending on national regulatory arrangements and the scope of oversight, cooperation may in some cases also be needed between central banks and other authorities such as securities regulators and banking supervisors. The CPSS considers that, with appropriate modification to allow for the particular circumstances, the principles in Part B may also provide a useful framework for cooperation in these circumstances, both internationally and domestically.

B. Principles for international cooperative oversight

22. Cross-border and multicurrency payment and settlement systems are of potential oversight relevance to more than one central bank. The principles which guide cooperative oversight between central banks in these cases were set out in the 1990 *Report of the Committee on Interbank Netting Schemes of the central banks of the Group of Ten countries* (the Lamfalussy Report). These principles have been successfully used for a variety of cooperative oversight arrangements in addition to the netting schemes that were originally their primary focus. The CPSS has reviewed the principles in the light of central banks' experience with them since 1990 and concluded that they continue to provide a useful and flexible framework for international cooperative oversight. However, the CPSS has updated the principles, in particular to make it clear that the scope of the principles is not limited to netting schemes. In line with the analysis set out in Section 5, the accompanying text has also been revised to clarify the practical application of the principles. The revised principles and text are set out below.

23. As explained below, Principle 1 applies to all cross-border and multicurrency payment and settlement systems, while the subsequent principles apply only to those systems deemed to be of sufficient relevance to oversight responsibilities to warrant a cooperative oversight arrangement. In explaining the application of the cooperative principles, the term "currency" is used to denote not just money denominated in a particular currency (eg in the case of payment systems being overseen) but also other financial assets denominated in that currency (eg in the case of settlement systems).

24. The principles apply to cooperative oversight between central banks issuing different currencies and can also provide a framework for central bank cooperative arrangements involving other authorities such as banking supervisors and securities regulators where such cooperative oversight is relevant and acceptable to the authorities concerned. The principles in no way prejudice the statutory or other responsibilities of central banks or other authorities participating in a cooperative arrangement. Rather, they are intended to provide a mechanism for mutual assistance among central banks and other authorities in carrying out their individual responsibilities in pursuit of their shared public policy objectives for the efficiency and stability of payment and settlement arrangements.

Cooperative oversight principle 1: Notification

Each central bank that has identified the actual or proposed operation of a cross-border or multicurrency payment or settlement system should inform other central banks that may have an interest in the prudent design and management of the system.

25. For the purposes of deciding whether or not to set up a cooperative oversight arrangement, the central banks to be informed of the existence of the system, or the proposal to create the system, will normally include the central banks of issue of the currencies in the system and the central banks where the system is located. These central banks should, in turn, seek to inform any other domestic authorities that may have an interest in the prudent design and management of the system. (For the purposes of prudential regulation, it may also be desirable in some cases to inform the central banks where the participants are located, which in turn should inform those supervisory or regulatory authorities which have responsibilities for the participants.) In the case of a major system that is already in existence and which handles multiple currencies, this principle could be met by requiring the system itself to inform the relevant central banks and other authorities or to publicly disclose its cross-border and multicurrency activities in a way that meant they were transparent to the relevant central

banks and other authorities. Central banks which have the relevant powers may also find it useful to require financial institutions to report their provision of or participation in any cross-border or multicurrency payment or settlement system.

26. Central banks are most concerned with the operation of large-value or wholesale systems which are, or have the potential to become, significant mechanisms for interbank settlements. But Principle 1 should be applied to all systems that may have a cross-border or multicurrency aspect without regard, in the first instance, to their apparent importance. What may appear to be a small operation in relation to the market of one country, for example, could be large in relation to the financial markets in another. Relatively small operations can also grow over time and become more significant.

27. In general, for each significant cross-border or multicurrency system it will be useful to establish a cooperative oversight arrangement that assists the central banks of the countries or regions where the system is particularly relevant to their oversight responsibilities. For systems that provide services in a large number of currencies, this may, for practical reasons, require different degrees of involvement in the cooperative oversight arrangement in order to support the oversight responsibilities of relevant central banks.

28. As noted above, in some cases the system may not currently be of sufficient oversight importance in any country (or only of importance in the country where it is located) and there may be no need for a cooperative oversight arrangement as set out in the rest of these principles. In such cases the interested central banks may find it useful to agree arrangements for continued monitoring of the system so that its importance can be periodically re-evaluated.

Cooperative oversight principle 2: Primary responsibility

Cross-border and multicurrency payment and settlement systems should be subject to oversight by a central bank which accepts primary responsibility for such oversight, and there should be a presumption that the central bank where the system is located will have this primary responsibility.

29. One of the central banks in the cooperative arrangement should, by mutual agreement, have primary responsibility for oversight of the system ("the central bank with primary responsibility"). The acceptance by a central bank of primary responsibility means that it agrees to carry out the role set out in Principle 3. It does not prejudice the ability of other central banks to fulfil their individual responsibilities and does not represent any delegation of responsibility to the central bank with primary responsibility from the other central banks.

30. The central bank with primary responsibility needs to be able and willing to carry out the agreed role. Determination of which central bank is best placed to carry out the role involves consideration of a range of factors including the oversight powers available to a central bank, the relevance of the overseen system to local financial markets and the central bank's capacity to carry out effective oversight. These criteria are often fulfilled best by the central bank where the system is located (in terms of incorporation, management and operations) and thus there is a presumption that this central bank will have primary responsibility. However, it could be agreed that another central bank or authority will have the primary responsibility. This flexibility enables an effective oversight framework to be created in many circumstances, for example if the system has little importance in the country where it is located or if it is located in more than one country.

Cooperative oversight principle 3: Assessment of the system as a whole

In its oversight of a system, the authority with primary responsibility should periodically assess the design and operation of the system as a whole. In doing so it should consult with other relevant authorities.

31. A key element of the role of the central bank or other authority with primary responsibility is to carry out periodic comprehensive assessments of the design and operation of the system as a whole on the basis of agreed policies and standards. Where applicable, internationally agreed standards such as the CPSS *Core principles for systemically important payment systems* and the CPSS-IOSCO *Recommendations for securities settlement systems* and *Recommendations for central counterparties* should be used. In carrying out the assessments, the central bank or other authority with primary responsibility should actively solicit the opinions of the other central banks and authorities in the cooperative arrangement, recognise their interests and concerns through a process of consultation, and draw on their expertise where relevant. The aim is to reach consensus but this is without prejudice

to the right of each central bank or other authority, including the one with primary responsibility, to reach its own conclusions if necessary and act on those conclusions in line with its responsibilities.

32. The central bank or other authority with primary responsibility has several other functions relating to the cooperative oversight arrangement, including (1) organising an effective, efficient and clear process for cooperation, (2) facilitating the distribution of the information needed to satisfy the respective responsibilities of the central banks and other authorities in the arrangement, (3) seeking agreement on the policies and standards to apply in carrying out the assessments, (4) seeking consensus on issues of common interest related to risks and risk management of the system, (5) providing effective communication and coordination in both routine and stressful situations involving the system, and (6) when appropriate, using its powers and influence over the system to induce necessary change.

33. Central banks and other authorities should appropriately protect confidential information received from the system while enabling such information to be shared as necessary with others in the cooperative arrangement. The open sharing of information is a key prerequisite for effective cooperation. Any limitations that do exist on the ability to share information should be clearly identified.

34. All central banks and other authorities in the cooperative arrangement should keep each other informed of relevant developments. In addition, to avoid inconsistencies in the oversight relationship with the system, individual central banks and other authorities should consult others in the cooperative arrangement as necessary before implementing policies or taking any action that could materially affect the system. Because steps taken by one central bank or other authority with respect to a system could have implications for the others in the cooperative arrangement, this principle should, as far as possible, be interpreted broadly to cover any policy or action that has a material impact on the system, including any public assessment of the system.

35. To avoid duplication, inconsistencies or gaps in oversight, all central banks and other authorities in the cooperative arrangement should agree on their responsibilities and expectations, for example in a memorandum of understanding (MoU) or similar document. It is particularly important to be clear about the objectives of the cooperative oversight, the policy requirements and standards against which the system will be assessed, the scope and frequency of the information to be shared, and the procedures for assessing the system.

Cooperative oversight principle 4: Settlement arrangements

The determination of the adequacy of a system's settlement and failure-to-settle procedures in a currency should be the joint responsibility of the central bank of issue and the authority with primary responsibility for oversight of the system.

36. An important aspect of the assessments of the design and operation of a system is consideration of the adequacy of its settlement procedures, including, where relevant, those to be invoked in the event of a participant's inability to satisfy its settlement obligations. These procedures need to be considered in relation not only to the system's overall risk management arrangements but also in relation to a variety of factors specific to each currency concerned. The factors to be considered include the soundness of the legal regime; the legal, credit and liquidity implications of a settlement disruption for the domestic money market; and the solvency and liquidity of settlement institutions for each currency. Because of its knowledge of domestic markets, and its concern for their stability, the views of the central bank of issue are particularly important in the assessment of a system's settlement arrangements. Thus, the central bank or other authority with primary responsibility has a particular duty to consult with the central bank of issue in order to reach a joint determination of the adequacy of the system's settlement and failure-to-settle procedures for a particular currency or for financial assets denominated in that currency. However, this principle is without prejudice to the importance of the central bank or other authority with primary responsibility consulting others in the cooperative arrangement about all relevant aspects of the assessments of the system, as set out in Principle 3.

Cooperative oversight principle 5: Unsound systems

In the absence of confidence in the soundness of the design or management of any cross-border or multicurrency payment or settlement system, a central bank should, if necessary, discourage use of the system or the provision of services to the system, for example by identifying these activities as unsafe and unsound practices.

37. In the course of their consultations, central banks should endeavour to ensure the prudent operation of cross-border and multicurrency systems on terms acceptable to all relevant central banks. However, if this is not possible in some cases, it is clear that each central bank must maintain its discretion to discourage the use of a system or the provision of services to a system, if, in its judgment, the system is not prudently designed or managed.

Section 1: The need for oversight

1.1 The importance of payment and settlement systems

38. Almost all economic transactions involve some form of payment. Money, in the form of either cash or bank deposits, is commonly the preferred means of payment for the purchase of goods and services and for the repayment of debts. While many smaller-value payments are made with cash, larger payments usually involve the transfer of bank deposits. Modern financial systems also involve substantial trade in financial instruments such as bonds, equities and derivatives. Payment and settlement systems enable these transfers of deposit money and financial instruments to take place. A developed market economy typically has various payment and settlement systems, including large-value and retail payment systems as well as securities settlement systems. Important roles may also fall to various other institutions that provide payment and settlement services - for example, central counterparties, large correspondent banks and custodians.³

39. For large-value payment systems and securities settlement systems, the total *value* of transactions is often such that the equivalent of annual GDP is turned over in just a few days.⁴ Interbank lending, the settlement of foreign exchange trades and securities transfers account for the major portion of the turnover in these large-value systems. The largest *volumes* of transactions are handled in the retail payment systems, such as the automated clearing houses, card schemes and cheque clearings, that are used to pay the bulk of salaries, utility bills, taxes and corporate invoices and to settle the range of transactions in goods and services that are necessary for a market economy to function.

1.2 Central banks' interest in payment and settlement systems

40. Because payment and settlement systems are essential for financial markets and the economy as a whole, central banks have always had an intrinsic interest in their safe and efficient functioning.

- *Money as a means of exchange*

One of money's fundamental purposes is as a means of exchange, and central banks are charged with supplying money that fulfils this purpose.⁵ If payment and settlement systems, which facilitate the exchange of money for goods, services and financial assets, were inefficient or failed altogether, money would not fulfil this purpose effectively and one of the key tasks of central banks, namely to maintain public confidence in money and in the instruments and systems used to transfer money, would not be achieved. Central banks thus promote safe and efficient payment and settlement systems which facilitate exchange and underpin the liquidity of financial markets.

- *Maintenance of the stability of the financial system*

Payment and settlement systems are relevant to financial stability for two main reasons. The first is that the very large values they sometimes handle creates the possibility that a failure in a system could cause broader financial and economic instability. Because systems form a network linking all those who participate in them, it is important that they are designed and operated such that the probability of financial difficulties spreading from one participant to another is very small.

³ In *A glossary of terms used in payment and settlement systems* (BIS, March 2003) a payment system is defined as "a set of instruments, banking procedures and, typically, interbank funds transfer systems that ensure the circulation of money" and a settlement system is defined as "a system used to facilitate the settlement of transfers of funds or financial instruments". As noted in Part A of the previous section, in this report, the term "system" is used to refer not only to such formal payment and settlement systems but also to other schemes, arrangements or institutions insofar as they are functionally similar and relevant to the scope of oversight of an individual central bank; for example, this may include netting schemes and large correspondent banks and custodians.

⁴ See *Statistics on payment and settlement systems in selected countries* (BIS, March 2005), Tables 15 and 17.

⁵ For example, see *The role of central bank money in payment systems* (BIS, August 2003).

The second reason arises because, in the event of financial stress, market participants or central banks may wish to supply emergency liquidity to certain participants in a payment and settlement system in an attempt to encourage the orderly settlement of transactions in the overall financial system. Safe and efficient payment and settlement systems facilitate the provision of such support should it prove necessary.

- *Implementation of monetary policy*

The smooth functioning of systems is also a necessary condition for the effective supply of central bank money in pursuit of monetary stability objectives. In many countries central banks implement monetary policy by influencing short-term interest rates through the purchase and sale of government securities or through collateralised lending. It is important that safe and efficient payment and settlement systems are available to allow a reliable transfer of funds and securities between the central bank, its counterparties and the other participants in the financial system so that the effect of these transactions and thus the impact of monetary policy is spread throughout the economy.

1.3 Potential market failures in payment and settlement systems

41. There are many payment and settlement systems that function safely and efficiently without public sector intervention. There may be some cases, however, when “market failures” lead to some systems not being as safe or as efficient as is socially optimal. The public sector has a potential role in mitigating these market failures.

(a) *Negative externalities that cause systemic risk*

42. A key public policy objective regarding payment and settlement systems is the reduction of systemic risk - ie the risk that the failure of a payment or settlement system, or the failure of one system participant to meet its obligations in a system, causes otherwise sound participants in that system to fail to meet their own obligations. Given that the payment and settlement process is so fundamental to the business of banking and to the wider economy, it is important that key systems can continue to function in situations where one or more of their participants may be suffering financial or operational stress, and that the systems are designed so as not to increase the risk of such stress arising or spreading.

43. Systemic risk is a form of “negative externality” - a situation where economic agents do not themselves pay (or fully “internalise”) all of the costs associated with their actions. In the case of payment and settlement systems, such externalities can arise when participants or operators have insufficient regard to the potential costs or loss that others would incur in the event of their failure to meet their obligations.

44. There are various reasons why negative externalities can result in a higher than optimal degree of systemic risk in key payment and settlement systems. For example, in systems in which individual payments are netted before the final settlement between the settlement banks, a failure of one bank to pay its net obligation may require other settlement banks either to “unwind” large numbers of individual transactions already processed, or to accept losses that could affect their own solvency. A negative externality exists in such systems if participants do not internalise the true social cost of a payments unwind, in particular the cost of the disruption to others that their default can cause. As another example, in systems such as real-time gross settlement (RTGS) systems where settlement is not deferred, there may nonetheless still be liquidity interdependencies. Banks generally rely on incoming payments or securities from other participants to fund their own outgoing payments or securities transfers. A negative externality exists if participants have insufficient incentives to consider the full impact on others of delaying their own outgoing payments. As a third example, operational failure in payment and settlement systems causes disruption to their users. A negative externality exists if the system designer or operator does not take into account the full effect of disruption on users and so underinvests in security and resilience.

(b) *Network externalities and coordination problems*

45. Externalities can also arise because payment and settlement systems are networks. Positive network externalities occur whenever the additional benefit of a new member is greater for the entire network (because existing members can now transact more efficiently

with more members) than it is for the new member. However, when a financial institution decides whether or not to participate in the network, it may only look at the private costs and benefits of membership and not internalise the additional benefits, if any, to the system and its users. Since realising the network benefits that are often a key factor in a successful system can depend on the participation of multiple independent institutions, a great deal of coordination between these institutions may be needed. This can be difficult if individual institutions hope that others will bear the costs of that coordination while they free-ride. In turn this may mean it is impracticable for private institutions to establish new networks and to migrate to more efficient systems from existing networks, resulting in market inertia that is inefficient from a social perspective. For example, even if all banks support the introduction of a particular system, the specific interests of banks of different sizes or which specialise in different types of business may not coincide, making it difficult to agree on a detailed design. Network problems may be particularly difficult in retail systems, where usage of the system, and correspondingly its usefulness, depends not just on the participating banks but also on the willingness of consumers and merchants to use the payment instrument concerned.

(c) *Market concentration and non-contestable monopolies*

46. Payment and settlement systems typically exhibit economies of scale; they have high fixed costs (costs independent of the number of transactions processed) and marginal costs that are very low as the number of transactions processed increases. In such an environment, concentration among a few large-scale providers, or even a natural monopoly, may be the most efficient market structure. Significant market concentration, however, may lead to a high dependency on a few key payment and settlement systems, without, by definition, readily available alternatives. For example, although many economies have more than one retail payment system (particularly where the systems are international, as with card schemes) the size of the financial sector is in some economies not large enough to support more than one large-value system. Moreover, market concentration may be significant enough to give payment and settlement providers market power that leads them to provide lower levels of services at higher prices, lower investment in risk reduction and perhaps a lower level of innovation than is socially optimal.⁶

47. Finally, although market failures or potential market failures such as those mentioned above may be a necessary condition for public sector involvement in payment and settlement systems, it is not sufficient. Policymakers must weigh the benefits of mitigating a market failure with the costs of such action. While some of the costs of implementing a public solution to a market failure are explicit and relatively measurable (eg staff costs or the costs of information gathering), other costs, as well as the benefits, can be difficult to quantify. When acting to mitigate market failures, policymakers must therefore be confident that solutions have net benefits. Moreover, even where there are net benefits, in many cases policymakers may need only to identify the failure, leaving the market itself to then implement an appropriate solution. Indeed, a key role of the public sector is to encourage transparency about how systems operate, thereby strengthening market discipline.

1.4 Central banks' oversight of payment and settlement systems

48. Central banks' interest in the safety and efficiency of payment and settlement systems is not new. Central banks have long played a crucial role in systems by providing a safe settlement asset, by in many cases operating one or more systems themselves, by participating in systems, and by contributing to the agreement and exercise of appropriate rules and standards for systems. Through the combination of their banking function and their key role in fostering public confidence in money, central banks have acquired unique expertise in the way payment and settlement systems work and the potential market failures that can exist, an expertise that they have always used to promote systems which provide an effective means of implementing monetary policy and which help to achieve financial stability.

⁶ A distinction should be made between a monopoly that is contestable and one that is non-contestable. For a contestable monopoly, the threat of entry by a new competitor may be sufficient to reduce market power. In contrast, a non-contestable monopoly may have weaker incentives to achieve efficiencies because it is unlikely to face competition.

49. The concept of central bank oversight of payment and settlement systems has, however, become more distinct and formal over the past 15 or so years. Evolving from existing central bank tasks and activities with respect to payment and settlement systems, the development of an oversight role in part reflects the expansion of the role of private sector systems and a desire to correct potential market failures. Whether a system is designed, built and operated by private institutions or by central banks themselves, the increasing importance of oversight also reflects the increasing sophistication, complexity and concentration of many systems and the very large increases in the values of transfers through them. This growth in values and concentration together have raised concerns that significant systemic risk could arise if the design and operation of systems was inadequate. Central banks have therefore seen a need to monitor developments in systems operated by the private or public sector and, where appropriate, to establish and apply relevant standards.

50. There is no unique definition of oversight (see Box 1 for some definitions taken from previously published reports). While some central banks have set out formal definitions of oversight in public statements, for others the scope of the term is implicit in the way they conduct that oversight. For the purposes of this report the following working definition is used:

“Oversight of payment and settlement systems is a central bank function whereby the objectives of safety and efficiency are promoted by monitoring existing and planned systems, assessing them against these objectives and, where necessary, inducing change.”

This definition covers the public policy objectives of oversight (safety and efficiency), its scope (payment and settlement systems) and its activities (monitoring, assessing and inducing change). These three aspects are considered further in Sections 2 to 4 respectively. The definition represents a common element applicable to all central banks, though it is not intended to prescribe individual central banks' responsibilities, objectives or activities or prescribe the role other authorities may play with respect to payment and settlement systems.

51. The definition covers not only the assessment of particular systems against any oversight policy requirements or standards that have been set for them but also the broader activity of understanding the payment and settlement arrangements as a whole in an economy. This broader understanding is needed in part to decide which systems are sufficiently relevant to the safety and efficiency objectives that they should be subject to these specific oversight requirements and standards. But it is also important in its own right because of the links between systems (created by, for example, overlapping participation or by the use of one system to settle positions in another) which mean that individual systems cannot always be assessed in isolation. Moreover, for most central banks, the public policy objectives of safety and efficiency apply to the collective payment and settlement arrangements of an economy as well as to the individual components. The broader understanding is also relevant to non-oversight aspects of the central bank's monetary and financial stability functions (for example, to understanding how the financial system works and what the impact of monetary policy will be).

52. The working definition highlights the activities of the oversight function - monitoring, assessment and inducing change - that distinguish it from other central bank payment and settlement functions such as providing settlement services or operating systems.⁷ However, these functions are complementary in the sense that all are carried out in order to achieve the public policy objectives of safety and efficiency in payment and settlement systems. Oversight is also complementary to prudential supervision (which may or may not be an additional, separate activity of the central bank) in that both contribute to financial stability. However, while effective oversight is likely to involve formal relationships with certain private sector institutions, not least those that operate systems, the aim of oversight is the safety and efficiency of a system as a whole, focusing on the interconnections between participating institutions inherent in systems. The concept of payment and settlement oversight is therefore distinct from prudential supervision and regulation, which focuses on the soundness of individual financial institutions.

⁷ Central bank payment and settlement functions can be categorised in different ways. This report focuses on the distinction between oversight and operations (with the latter covering both the operation or ownership of payment and settlement systems and the provision to these systems of services such as settlement accounts) (see in particular Section 4.4 below). Other reports sometimes refer to a third function, that of catalyst (for example, see *Policy issues for central banks in retail payment systems*, BIS, 2003). However, because the current report adopts a broad working definition of oversight, it subsumes the catalyst function within the oversight function insofar as it is carried out to achieve oversight objectives.

Box 1

Some definitions of oversight¹

Lamfalussy Report (1990):

“Central banks oversee developments in their domestic interbank markets and in the payment and settlement systems that support these markets. In their capacities as the ultimate providers of interbank settlements and as lenders of last resort, central banks have a special interest in the credit and liquidity management practices of banks, as well as the settlement arrangements that link their credit and liquidity exposures within the domestic banking system, in order to assess banks’ abilities to withstand adverse developments without the need for recourse to extraordinary central bank support. This “oversight” of the domestic payment system serves to co-ordinate the various functions of the central bank and may also involve a coordination of the responsibilities of the monetary and supervisory authorities.”

Blue Book (2001):

For payment systems: “A central bank task, principally intended to promote the smooth functioning of payment systems. The objectives of oversight are to protect the financial system from possible “domino effects” which may occur when one or more participants in the payment system incur credit or liquidity problems and to foster the efficiency and soundness of payment systems. Payment systems oversight is aimed at a given system (eg a funds transfer system) rather than at individual participants. It also covers payment instruments.”

For securities settlement systems: “A task, principally intended to promote the smooth functioning of securities settlement systems and to protect the financial system from possible “domino effects” which may occur when one or more participants in the securities settlement system incur credit or liquidity problems. The oversight of securities settlement systems is aimed at a given system (eg a securities transfer system) rather than at individual participants. It is performed by the competent financial authority/authorities and/or the central bank in accordance with the local legal framework.”

Core Principles (2001) and RSSS (2001):

“A public policy activity principally intended to promote the safety and efficiency of payment and securities settlement systems and in particular to reduce systemic risk.”

Policy issues for central banks in retail payments (2003):

“Oversight of payment systems is a public policy activity focused on the efficiency and safety of systems, as opposed to the efficiency and safety of individual participants in such systems. ... In many countries, the central bank’s oversight role is considered an integral element of its function in ensuring financial stability.”

¹ The full titles of the documents referred to in this box are as follows. Lamfalussy Report: *Report of the Committee on Interbank Netting Schemes of the central banks of the Group of Ten countries* (BIS, 1990). Blue Book: *Payment and securities settlement systems in the European Union* (ECB, 2001). Core Principles: *Core principles for systemically important payment systems* (BIS, 2001). RSSS: *Recommendations for securities settlement systems* (BIS, 2001). Policy issues for central banks in retail payments (BIS, 2003).

1.5 Concluding remarks

53. Oversight of payment and settlement systems is closely linked to other core public policy responsibilities assigned to central banks, including those for issuing money that provides a trusted means of exchange and for safeguarding financial and monetary stability. The aim of oversight is to promote public policy safety and efficiency objectives, both where market failures could mean private sector solutions fail adequately to address systemic risk or result in other unsafe or inefficient outcomes, and where payment and settlement systems are provided by central banks themselves.

Section 2: Oversight responsibilities

54. This section describes central banks' oversight responsibilities. It looks first at the basis of such oversight responsibilities (Section 2.1) and then at oversight objectives and how central banks translate those objectives into more detailed standards (Sections 2.2 and 2.3 respectively). It also considers the importance of oversight responsibilities being transparent (Section 2.4).

2.1 The basis of oversight responsibilities

55. All the central banks represented in this report have responsibility for oversight, but the sources of authority for their responsibility differ. Four central banks (ECB, D, J, SE)⁸ have their oversight responsibility set out explicitly, but briefly, in a law or treaty. In these cases the relevant law or treaty is typically the one that establishes the central bank and sets out its functions, and the reference to the oversight responsibility is a general one (eg "to promote the smooth operation of payment systems") with no further elaboration of what the responsibility involves. Another four central banks either already have (C, HK) or are about to acquire (NL, SG)⁹ detailed statutory responsibility as a result of legislation specifically concerning oversight and related matters. In these cases, the legislation not only sets out the central bank's oversight responsibility, but also explains it in some detail in terms of, for example, scope, procedures or requirements. Five other central banks (B, F, I, L, CH) lie somewhere between these first two groups in that they have an explicit reference to oversight responsibilities in the law or treaty setting out their functions that is more detailed than that of the first group although not as comprehensive as that of the second group. (However, of these five central banks, two (I, CH) have used powers or obligations set out in the primary legislation in order to issue secondary legislation setting out responsibilities and procedures in more detail, thereby creating a legal basis for their oversight that is similar in detail to that of the second group of central banks.) Another central bank (US) derives its oversight responsibilities from a range of statutory responsibilities for monetary policy, banking supervision, lender of last resort and provision of payment and settlement services. Finally, one central bank (UK) has its responsibilities set out in a memorandum of understanding agreed between the central bank, the finance ministry and the financial supervisory authority. (See Annex 1 for more information on the source of central banks' oversight responsibilities.)

56. As noted in Section 1.4, although central banks have a long and well established interest in the safety and efficiency of payment and settlement systems, the concept of central bank oversight is relatively recent. In many jurisdictions, oversight responsibilities tend to be set out explicitly in law because this is considered necessary to establish the legitimacy and effectiveness of the oversight activity as part of a normal process of codification in such jurisdictions: as oversight has developed and become more formal, it is natural for those central banks that have their other responsibilities set out explicitly in a law or treaty to also include oversight. It is also one way to increase transparency (see Section 2.4 below). In other jurisdictions oversight is one of the various means by which central banks implement their broader statutory responsibilities for monetary and financial stability and an explicit statutory reference to oversight per se is not necessary.

57. Regardless of the basis of the central bank's responsibilities, the effectiveness of oversight is likely to depend on there being an appropriate match between those responsibilities and the tools the central bank has to carry out oversight. The range of possible tools available to central banks, from moral suasion to statutory power to directly enforce oversight decisions, is discussed further in Sections 4.1 and 4.3.

⁸ The following abbreviations are used in the report to refer to individual central banks: B (National Bank of Belgium), C (Bank of Canada), ECB (European Central Bank), F (Bank of France), D (Deutsche Bundesbank), HK (Hong Kong Monetary Authority), I (Bank of Italy), J (Bank of Japan), L (Central Bank of Luxembourg), NL (Netherlands Bank), SG (Monetary Authority of Singapore), SE (Sveriges Riksbank), CH (Swiss National Bank), UK (Bank of England), US (Federal Reserve System).

⁹ The Monetary Authority of Singapore already has explicit responsibilities for the regulation of securities settlement systems and clearing houses approved under the Securities and Futures Act (2001).

2.2 Oversight objectives

58. Despite differences in their sources of authority and in terminology, central banks share the same oversight objectives of safety and efficiency. In practice, the priority given to a particular objective will depend on the assessment of the relevance of the overseen system and of any weaknesses in the system. For all central banks, tackling any potentially significant systemic risk is always a priority because of the serious consequences that can arise if the risk is realised. But where systemic risk is not an immediate issue then, for example, inadequate market infrastructure may mean that the relative priority for a central bank at a particular time is to promote efficient payment arrangements within the constraints of broad safety parameters. Or a central bank in a country where there has been a major payments fraud problem may place particular emphasis on payment system security.

59. Nevertheless, within this broad area of common agreement, there are differences of emphasis. For some central banks, there is no a priori assumption about whether safety or efficiency is more important when drawing up priorities. Priorities will depend on an assessment of the safety and efficiency implications of each case. This is the situation for the central banks that have explicit objectives for both safety and efficiency (B, HK, SE, US) and also for some others that have objectives using other wordings that are interpreted to mean both safety and efficiency: “smooth operation” (ECB,¹⁰ NL), “regular operation of payments systems” and “stable, transparent and orderly performance” for securities settlement systems and central counterparties (I), “smooth operation and security” (F), “shall arrange for the execution of ... payments and ... contribute to the stability of payment and clearing systems” (D) and “operational and financial stability of each system ... with the objective of the stability of the financial system as a whole” (L).

60. For other central banks, the safety objective generally has primacy in determining priorities, particularly for large systemically important payment systems (SIPS).¹¹ However, the safety objective is tempered by efficiency considerations and trade-offs because the two objectives cannot be completely separated. For example, a system that is safe but inefficient may be bypassed in favour of less safe but more efficient arrangements. For two central banks (C, CH), the priority accorded to safety in determining whether detailed oversight is warranted is set out in legislation.¹² Three other central banks (J, SG, UK) have both safety and efficiency objectives but emphasise that their public policy role relates to financial stability, while recognising that the efficiency impact of risk mitigation policies should be taken into account.

61. Some central banks also have other publicly stated oversight objectives. Thus the Eurosystem central banks¹³ have as objectives the “security of payment instruments used by the public” (which, along with safety and efficiency, contributes to “maintaining public confidence in the currency”) and “safeguarding the transmission channel for monetary policy”.

62. In addition to safety and efficiency, other public policy objectives such as control of money laundering, consumer protection and the avoidance of anticompetitive practices must also be addressed in the design and operation of payment and settlement systems. A variety of public authorities, including central banks, have a role in achieving these objectives. Some central banks regard this as being part of their oversight function although most do not. Whether a particular public policy objective is considered part of central bank oversight is likely to depend on how a country chooses to define “oversight” and how it allocates responsibility for various public policy objectives between the central bank and other authorities. The range of activities to secure public policy objectives concerning money laundering, consumer protection and competition is not, however, the focus of this report.

¹⁰ Article 3 of the ECB’s statute defines its payment system task to be “to promote the smooth operation of payment systems”. However, in terms of powers, Article 22 says that it “may make regulations ... to ensure efficient and sound” systems.

¹¹ See *Core principles for systemically important payment systems* (CPSIPS).

¹² The Swiss National Bank also has a long-standing legal responsibility to facilitate the operation of cashless payment systems, a task which it regards as a basis for acting as a catalyst rather than as overseer.

¹³ The Eurosystem central banks are the ECB and the national central banks of the euro area.

2.3 Oversight standards

63. In many cases, central banks have translated their oversight objectives into specific standards that certain payment and settlement systems must meet. Such standards contribute to transparency and consistency where the objectives alone are insufficient to give those being overseen a clear indication of how they are going to be assessed.¹⁴

64. In practice the standards applied are usually based on two sets of international standards, namely the CPSIPS and the RSSS.¹⁵ The recently published RCCP¹⁶ are likely to play a similar role in future. These standards draw on the experience of many countries and their use represents an area of common ground for central banks which is particularly useful when it comes to cross-border oversight arrangements in which overseers need to cooperate (see Section 5).

65. For payment systems, including retail systems, that are systemically important,¹⁷ the CPSIPS have been adopted by all the central banks represented in this report. In most cases this has been done formally through a public document. The Eurosystem has also adopted a subset of the CPSIPS for other important retail systems. A number of central banks have publicly adopted the RSSS as their oversight standards for securities settlement systems, while the ESCB,¹⁸ in cooperation with the Committee of European Securities Regulators (CESR), has developed oversight standards based on the RSSS. There are many other cases where the central bank's oversight is in practice based on international standards even if this policy has not been set out explicitly.

66. Where no international standards exist, central banks have in some cases developed their own standards or policy requirements for systems they oversee. For example, the Eurosystem has developed its own standards for e-money, while four central banks have developed or are developing their own standards for payment instruments (F, I, NL, SG). Two central banks (I, US) have issued sound practices for business continuity planning in payments, clearing and settlement.¹⁹ Central banks also make use of good practices developed primarily for other purposes (eg audit practices developed by the Basel Committee on Banking Supervision) or benchmark their countries' systems against those of others. Finally, in some cases, such as in tackling foreign exchange settlement risk, central banks have worked together by developing a common strategy that each seeks to have implemented.²⁰

2.4 Transparency

67. All 15 central banks represented in this report have published some type of formal policy document setting out their oversight role, thus giving transparency to the extent and nature of their responsibilities, including objectives, scope and standards. The transparency of oversight responsibilities has many benefits.²¹ It is desirable that those being overseen should understand the overseers' aims and expectations. More generally, transparency provides a basis for others to judge the effectiveness of the central bank's policy and thus for the accountability of the central bank for the performance of its oversight. At the same time, it is important that, as with any other public policy activity, increased visibility of the central bank's oversight role does not weaken market discipline; central banks therefore also emphasise that responsibility for meeting any oversight standards rests with the overseen systems themselves.

¹⁴ Oversight standards, directly relating to safety and efficiency objectives, should be distinguished from technical standards such as message formats (although the use of common technical standards may help to achieve oversight standards).

¹⁵ *Recommendations for securities settlement systems*.

¹⁶ *Recommendations for Central Counterparties* (BIS, 2004).

¹⁷ Several central banks have at least one retail system overseen in the same way as a large-value system (see Section 3.2).

¹⁸ The European System of Central Banks (ESCB) consists of the ECB and the national central banks of the European Union.

¹⁹ The US paper was issued jointly by the Federal Reserve and other US regulators.

²⁰ See *Settlement risk in foreign exchange transactions* (BIS, 1996).

²¹ See Annex 3 for relevant extracts from the CPSIPS, the RSSS, the RCCP and the IMF's transparency code.

2.5 Concluding remarks

68. There is much common ground in central banks' oversight policies. All the central banks represented in this report have oversight responsibility and recognise the importance of both safety and efficiency. Because of their importance for financial stability, the safety of payment and settlement systems and the reduction of systemic risk are a core concern for all these central banks. Neither safety nor efficiency can be addressed entirely in isolation, and some differences in the emphasis put on efficiency primarily reflect the nature of the oversight responsibility that the central bank has been given.

69. CPSS and CPSS-IOSCO standards embody some key lessons from the collective experience of many central banks - including many beyond the G10. The common ground they represent makes it easier for central banks to work together to make oversight more effective.

70. Oversight responsibilities, including objectives and standards, are made transparent for reasons of consistency, effectiveness and accountability. Transparency can be achieved in different ways. Setting out responsibilities explicitly in a law or treaty is one way of contributing towards transparency. Another way is for the central bank to publish some type of formal policy document setting out its oversight role.

Section 3: Scope of oversight

71. The “scope” of oversight refers to those payment and settlement systems that central banks oversee by applying some form of safety and efficiency standards or policy. Section 3.1 looks at the general criteria for determining scope. Sections 3.2 to 3.4 then discuss the current scope of oversight in terms of the payment systems, securities settlement systems and instruments included - areas in which there is substantial common ground between central banks. Finally, Sections 3.5 and 3.6 look in more detail at two emerging aspects of the scope of oversight, namely large correspondent banks and custodians and third-party service providers.

3.1 Determining scope

72. The scope of oversight relates closely to the public policy objectives which the central bank aims to achieve. In many cases the law determines or influences scope. In the case of the central banks for which oversight responsibility is set out in detail in statute (C, HK and, in future, NL and SG), the law sets generic criteria to determine which systems should be “designated” and thus subject to oversight. In Switzerland, primary legislation sets out that the scope of oversight consists of those payment and settlement systems that are important for the stability of the financial system, while the secondary legislation issued by the Swiss National Bank specifies the factors it takes into account in deciding which systems fall within this category. The legal basis for the Bank of France’s and Bank of Italy’s oversight also gives them specific responsibilities for payment instruments. For all these central banks, the systems within scope include securities settlement systems and central counterparties as well as payment systems. For the Central Bank of Luxembourg, the legal basis specifies that the scope of oversight consists of the payment and securities settlement systems in which it participates.²²

73. Other central banks have set out their own criteria for determining scope. For retail systems, the Eurosystem central banks have a policy of categorising systems into SIPS, PIPS and others for the purposes of oversight.²³ The Bank of England has stated that the intensity of its oversight is proportionate to its assessment of the systemic risk posed by a system. The Bank of Japan adopts a similar policy, with the depth of oversight varying according to the impact of the system on safety and efficiency. The Federal Reserve concentrates its oversight on payment and settlement systems expected to handle over \$5 billion on any one day, which includes some retail systems. For the Riksbank, the small number of systems in Sweden means that all are important enough to come within scope.

74. Some central banks with broad safety and efficiency objectives regard all payment and settlement systems as being at least partly within scope not least because the interaction between the various systems can affect the safety and efficiency of the financial system as a whole. Nevertheless, in general, the scope and depth of oversight may be expected to vary according to the assessment of a particular system’s importance to financial stability and the functioning of the economy, as well as to the assessment of any untreated risks or the extent of any other market failures. The scope and depth of oversight may change over time as payment and settlement systems themselves change.

75. A key consideration for central banks in determining the scope of oversight is applying policy requirements and standards in a consistent way that does not create inappropriate competitive distortions between comparable systems. Comparability is typically determined based on the types of instruments settled (eg card schemes, cheques), the types of participants using the system (eg banks) or the risk attributes of a system (eg size of settlement flows, systemic importance). Irrespective of the comparability criteria used, central banks promote consistency by being clear and transparent about their criteria for determining the scope of oversight policy and its application to relevant systems. For example, the central bank may have policy criteria that determine the relevance of a system based on

²² The Central Bank of Luxembourg also has an overarching task to assist the ESCB, from which it derives oversight responsibility for other systems.

²³ PIPS are defined as payment systems of prominent importance - systems that “play a prominent role in the processing and settlement of retail payments and [whose] failure could have major economic effects and undermine the confidence of the public in payment systems and in the currency in general”. *Oversight standards for retail payments*, ECB, June 2003.

its size or risk rather than the types of transactions it settles, in which case comparable systems would be those systems of similar size or risk profile, rather than systems settling similar instruments.

3.2 Payment systems

76. One common element across the central banks represented in this report is that all have adopted the CPSIPS, and thus all oversee systemically important payment systems (SIPS) according to these principles (or in some cases a strengthened version of the principles). In practice, all existing large-value payment systems operated by these central banks or within their oversight scope are SIPS, and so all have the core principles applied to them.²⁴

77. Retail payment systems include the direct debit, credit transfer, card and cheque clearing schemes that are used for the bulk of payments to and from individuals and between individuals and companies. Retail payment systems are typically used to pay salaries, bills and taxes, as well as for non-cash purchases of goods and services. Several central banks (J, SE and some Eurosystem central banks) have at least one retail system that they regard as systemically important (or equivalent) and to which they thus apply the CPSIPS.²⁵ The Federal Reserve subjects all payment systems, including retail systems, that settle over \$5 billion to its Payment Systems Risk Policy but apply the CPSIPS only to those systems that present potential systemic risk.

78. Many central banks also apply some form of oversight standards or policy to at least one "non-SIPS" retail system.²⁶ However, this is not the case for two central banks (D, J) where, although retail arrangements are within the scope of oversight and it is possible that specific oversight action could be taken in future, the central bank's activity is so far mostly limited to monitoring. It is also not the case for two others (C, CH) where the central banks would only apply oversight standards or policy to retail systems if they came under their criteria for designation on systemic risk grounds (C), or were regarded as SIPS (CH), which is currently not the case.

3.3 Securities settlement systems and central counterparties

79. Oversight of securities settlement systems (SSSs) by central banks is typically conducted alongside regulation by securities regulators. As noted by the RSSS report, "The division of responsibilities for regulation and oversight of securities settlement systems among public authorities varies from country to country depending on the legal and institutional framework ... Securities regulators, central banks and, in some cases, banking supervisors will need to work together to determine the appropriate scope of application of the recommendations and to develop an action plan for implementation."

80. Central banks' oversight of SSSs reflects the fact that these arrangements are a key component of the financial system. Weaknesses in SSSs can be a source of systemic disturbance not just to securities markets but also to the financial system as a whole. A financial or operational problem at any of the institutions that perform critical functions in the settlement process or at a major user of an SSS could result in significant liquidity pressures or credit losses for other participants. Difficulties in SSSs could also disrupt the ability of the central bank to implement monetary policy effectively. And any disruption of securities settlements has the potential to spill over to any payment systems used by the SSS or any payment systems that use the SSS to transfer collateral. In the securities markets themselves, market liquidity is critically dependent on confidence in the safety and reliability of the settlement arrangements; traders will be reluctant to trade if they have significant doubts as to whether the trade will in fact settle.

²⁴ CPSIPS Responsibility B says that "The central bank should ensure that the systems it operates comply with the core principles" and CPSIPS Responsibility C says that "The central bank should oversee compliance with the core principles by systems it does not operate and it should have the ability to carry out this oversight".

²⁵ In the euro area six retail systems have been classified as SIPS.

²⁶ Central bank policy towards retail systems is discussed in Policy issues for central banks in retail payments (BIS, March 2003). This report does not set standards or policies for retail systems but does make general recommendations that apply to some extent to all central banks.

81. In countries where they exist, central counterparties and their payment arrangements are typically treated for oversight purposes in a similar way to SSSs, albeit with regard to the special features of such institutions and the potential risk issues which arise. CCPs occupy an important place in SSSs. A well designed CCP with appropriate risk management arrangements reduces the risks faced by SSS participants and contributes to the goal of financial stability, but a CCP also concentrates risks and responsibilities for risk management and therefore the effectiveness of a CCP's risk control and the adequacy of its financial resources are critical aspects of the infrastructure of the markets it serves. International standards for CCP risk management have recently been published by the CPSS and IOSCO.²⁷

3.4 Payment instruments

82. Non-cash payment instruments, such as payment cards, credit transfers, direct debits and cheques, are the means by which end users of payment systems transfer funds between their accounts at banks or other financial institutions. Payment instruments are an essential part of payment systems, and in particular of the "transaction process" whereby payments are created, validated and transmitted.²⁸ Because of this, some central banks see the oversight of instruments as an integral and implicit part of the oversight of systems. Other central banks, however, make an explicit reference to payment instruments as being within the scope of oversight, particularly where they are concerned about fraud and security issues related to the design of the instruments. In this sense, oversight of payment instruments typically refers to issues concerning instruments that may be relevant to several systems (eg where more than one system exists to clear a particular instrument) or that are not the responsibility of a system (eg where responsibility for the security of an instrument lies with the participants in a system). In other cases oversight may be concerned with efficiency issues arising from use of the instrument in the economy as a whole (eg a desire to reduce usage of paper-based instruments in favour of electronic ones). As with oversight of systems in general, oversight of payment instruments typically involves the central bank setting some safety and efficiency standards or policies which the issuers of the instruments must meet.²⁹

83. Nine central banks regard themselves as directly overseeing payment instruments in some way that is distinct from their oversight of systems per se (B, ECB, F, D, I, NL, SG, SE, US). Of these, the statutory responsibilities of two central banks (F, I) specifically include payment instruments with the objective of maintaining the confidence of the public in means of payment and thus ultimately in money.³⁰

3.5 Correspondent banks and custodians

84. Correspondent banks (which provide payment and other services to other banks) and custodians (which hold securities for their customers, including banks, and provide related services) are key components of an economy's payment and settlement arrangements. In some cases, payment and settlement flows are concentrated in a few large correspondents and custodians, giving rise to possible credit and liquidity concentration risks and operational risk.

85. The issue of large correspondent banks and custodians, sometimes called quasi-systems, was discussed in both the G10 report on consolidation in the financial sector and the central bank money report.³¹ There is no universally accepted definition of a quasi-system but the central bank money

²⁷ *Recommendations for central counterparties* (BIS, November 2004).

²⁸ See Section 2.2.1 of *Clearing and settlement arrangements for retail payments in selected countries*, BIS, September 2000.

²⁹ Thus, as noted in footnote 13, there is a distinction between the oversight standards that may be set by the central bank and the industry technical standards that issuers may adopt in part to meet the oversight standards.

³⁰ The Bank of Italy has the legal power to establish security requirements for e-money products.

³¹ See, respectively, the *Report on consolidation in the financial sector* (Group of Ten, January 2001) and *The role of central bank money in payment systems* (BIS, August 2003).

report suggested the following as far as payments are concerned (a parallel definition could apply for securities):

“A commercial institution responsible for clearing and settling payments on behalf of customers which represent, by value, a substantial percentage of payments in a particular currency, a significant proportion of which are internalised by being settled across the books of the institution rather than through an organised payment system.”

86. Such institutions may sometimes have certain features of systemically important systems and, in particular, may raise similar risk issues. For example, large correspondent banks and custodians provide payment and securities services to a wide range of other banks, with many transactions settling across the books of the correspondent or custodian. The values are, in some cases, extremely large. And customer banks may, in practice, have little choice in the short term over which correspondent or custodian to use. There is therefore a case for treating the oversight of some aspects of the operations of quasi-systems in a compatible (but not identical) way to systems.

87. A number of central banks have been working to understand such risk issues better. But large correspondents and custodians are also commercial banks that are subject to banking supervision and thus central bank overseers need to work with and through bank supervisors to monitor and assess the management of potential risks to the smooth functioning of the payment and settlement process.³² The task is therefore to work out the most effective form of cooperation between overseers and supervisors, recognising that this may vary from country to country.

88. In the first place the objective of such cooperation would be to monitor developments and to understand the scale of any risk. Sometimes the risks involved may be assessed to be minimal or already adequately addressed through banking supervision. In such cases it may be decided that no specific oversight action is needed apart from continued contact with banks or their supervisors to make sure that the situation remains satisfactory. In other cases however, it may be that large correspondents and custodians are considered to raise potential systemic risk issues and therefore that central banks, as overseers, have to work with bank supervisors to try to ensure risks, such as intraday risks, are properly recognised and controlled.³³ Through an appropriate form of cooperation with banking supervisors, it should be possible to be confident that any risks in large correspondents and custodians are well understood and managed in a way which enables central banks to be comfortable that they are carrying out their oversight responsibilities effectively.

3.6 Third-party service providers

89. Another emerging oversight issue is how to respond to the use of third-party service providers by payment and settlement system operators. The oversight practices of central banks vary widely with regard to these institutions and in many cases their policy views are still in the formative stages.

90. Systems sometimes contract out - or “outsource” - part of their operations, such as their IT infrastructure, to a third party (a service provider). As far as oversight is concerned, a key principle is that the system retains full responsibility for any outsourced activity that is material to the system’s operation, including responsibility for ensuring that the service provider complies with the oversight policy of the central bank. To fulfil this responsibility, the system is likely to have to demonstrate to the central bank that, for example, it has a contract with the service provider that meets certain conditions (including the ability of the system to make information about the service provider available to the overseer), that it adequately monitors the service provider’s performance, and that it has contingency arrangements to cope with any failure by the service provider to perform satisfactorily.

³² The report on consolidation noted that “because of consolidation, central bank oversight of payment systems is becoming more closely linked with traditional bank safety and soundness supervision at the individual firm level. Increasing cooperation and communication between banking supervisors and payment system overseers may be necessary both domestically and cross-border.”

³³ The report on consolidation also noted that “central banks and bank supervisors should carefully monitor the impact of consolidation on the payment and settlement business, and should define safety standards where appropriate. In particular, central banks, in conjunction with bank supervisors, may need to consider various approaches, possibly including standards, that could be used to limit potential liquidity, credit and operational risks stemming from concentrated payment flows through a few very large players participating in payment systems.”

91. Provided the central bank is content that such requirements are being met by a system, then it may not always be material from an oversight point of view whether a certain function is performed by the system itself or outsourced. Specific standards for outsourced activities may therefore not always be necessary, and the central bank may be able to rely on its existing relationship with the system in order to ensure that general oversight standards are being met rather than dealing directly with the service provider.

92. However, one case where the central bank is likely to be more actively involved and not just rely on its relationship with the system is where a service provider supplies important services to several key systems. This concentration in the outsourcing market may make it efficient and effective for the overseer to complement its relationship with the system operators with a direct relationship with the service provider. Where the service provider supports multiple markets, an international cooperative oversight arrangement may be desirable (see Section 5). Central banks have established such a cooperative arrangement in the case of SWIFT, which provides message services supporting payment and settlement systems in some 200 countries.

93. In other circumstances, central banks' approach to outsourcing is likely to reflect the balance they adopt generally between self-assessment and external assessment when carrying out oversight (see Section 4.2 below). To the extent that central banks lean towards external assessment, they may want information from the system about what activities are outsourced; in some cases ex post information may be enough, while in others the overseer may require prior notification or even the power to reject an outsourcing arrangement. Similarly, once an outsourcing arrangement is in place, the central bank needs to decide whether it should deal directly with the service provider in at least some circumstances. Provided the central bank makes it clear that it does not diminish the system's own responsibility, the possibility for the central bank to have direct contact with the service provider could increase the incentive for the system to do its own "oversight" of the service provider.³⁴ In cases where the service provider is a relatively large organisation, it could also usefully strengthen the negotiating power of the system to make the outsourcing work effectively.

94. To the extent that the central bank feels it may need direct contact with the service provider, the central bank has to consider whether it has the necessary powers to, for example, request information or require changes to the way the service is provided. This may be particularly problematic if the service provider is located abroad or is not a financial institution. If the central bank does not have the necessary powers, it may be possible for it to obtain them through cooperation with the central bank of the country where the service provider is located or through the contract between the system and the service provider.

3.7 Concluding remarks

95. The scope of oversight is set to achieve public policy objectives of safety and efficiency. It therefore reflects an assessment of the importance of particular payment and settlement systems to financial stability and to the functioning of the economy as a whole.

96. All central banks oversee large-value payment systems because of the potential for systemic risk. For other systems, for example retail payment systems, there is more variation in oversight approaches. By disclosing their policies on the scope of oversight, central banks give clarity with regard to which systems are within scope and which standards apply in each case.

97. In some areas, central banks are still assessing and considering the appropriate scope and depth of oversight, and how it should be organised. Large correspondent banks and custodians, as well as third-party service providers, are examples where scope issues are not yet fully resolved in all countries. Cooperative arrangements between overseers and banking supervisors are likely to be key to identifying, understanding and, if necessary, mitigating risks at both the institutional and system levels.

³⁴ The Bank of Italy monitors the day-to-day operation of the Italian ATM circuit in part in order to encourage participants themselves to identify and deal with any malfunctioning.

Section 4: Oversight activities

98. This section looks at how central banks currently carry out the three key activities of oversight discussed in Section 1.4 - namely, monitoring, assessment and inducing change (Sections 4.1 to 4.3 respectively). It also considers how central banks organise their oversight function (Section 4.4). The section covers both private sector and central bank systems although the activities of monitoring and, in particular, inducing change are necessarily modified in the case of the central bank's own systems because they are intra-institutional.

4.1 Monitoring

99. In order to carry out effective oversight, central banks need to have a good understanding of how key payment and settlement systems function and how they relate to each other as part of the overall financial system. To obtain this understanding they need first to have information on the design and operation of systems.

(a) Sources of information

100. Central banks often have a wide range of information sources available to them, which may include:

- *publicly available information* on system design and performance;
- *official system documentation* (eg system rules, member documentation, business continuity plans and other "static" information setting out how the system operates);
- regular or ad hoc *reporting on system activity* (including volume and value of transactions, and operating performance) or on its financial position (including balance sheet and profit and loss information);
- *internal reports* of board or committee meetings or from internal auditors;
- *self-assessments* of compliance with central bank oversight policy;
- *bilateral contacts* with the system and system participants;
- *multilateral meetings* including industry group meetings or participation in committees;
- *on-site inspections*;
- *expert opinion* from legal advisers and external auditors;
- information from *other regulators*; and
- *customer feedback*.

Of these sources, the most important in practice are usually system documentation, reporting on system activity and bilateral contacts. These three are widely used and judged important by all central banks for most systems under oversight.

(b) Powers to obtain information

101. Central banks' powers to obtain information and perform on-site inspections are closely related to their powers to induce change, which are discussed further in Section 4.3 below. In summary, however, of the 15 central banks represented in this report, six have the possibility under the law to require the systems they oversee to provide relevant information and submit to on-site inspections (C, F, HK,³⁵ I, CH, US) while two others are about to acquire such a possibility as part of the oversight legislation being introduced (NL, SG). Three more central banks (B, L, SE) also have this possibility in at least certain cases: for the National Bank of Belgium the possibility exists for SSSs; for the Central Bank of Luxembourg it applies to systems in which it participates (in practice, this is all major

³⁵ The law setting out the oversight powers of the Hong Kong Monetary Authority covers information collection but does not expressly empower the HKMA to conduct on-site inspections.

systems); and for the Riksbank it applies to systems which are supervised by the Financial Supervisory Authority. One central bank (ECB) relies on a general power to collect the statistical information that it needs to perform its tasks, a power which could be used to require systems to provide relevant information. In practice central banks sometimes also use other tools such as contracts or they often rely on the voluntary provision of information.

(c) Information on system participants

102. Prudential regulation of individual institutions is, of course, the responsibility of banking supervisors and securities regulators. However, central banks typically use some information about the individual participants in systems in order to carry out oversight. For example, in order to assess whether the system has taken appropriate steps to control systemic risk, the central bank may use information about the size of any credit exposures that arise in the system between participants. Or the central bank may be concerned about aspects of efficiency for which it needs data on how payment queues are in practice managed by the participants. The distinguishing feature of such information is that it is needed because participants' behaviour can affect the risk and efficiency of the system. Its purpose is to judge whether there needs to be a change in the design or procedures of the system, not to judge the soundness of an individual participant. Nevertheless, cooperation between overseers, banking supervisors and securities regulators may be useful to avoid duplication of information gathering. Or, where information is obtained independently, there may be occasions when it should be shared between authorities.

4.2 Assessment

103. The information obtained by the central bank through its monitoring is used for two main types of oversight assessment.

- First, at a general level it is used to understand the whole set of payment and settlement arrangements in an economy, formulate appropriate oversight policies, including standards, and, based on an assessment of the risk and efficiency issues that arise, determine which systems come within the scope of such policies. This general research and analysis of payment and settlement systems typically contributes not just to oversight per se but also to other aspects of the central bank's monetary and financial stability objectives.
- Second, for those individual systems which come within scope, the information obtained through monitoring is used to assess whether they meet the relevant policy requirements and standards. In reaching this decision, central banks typically strike a balance between self-assessment by the system, which can help to emphasise that it is the system that has the responsibility of meeting the standards, and external assessment by the central bank, which enables the central bank to form its own assessment based on all the information available to it.

4.3 Inducing change

104. Having collected information about the design and operation of a particular system (monitoring) and used this information to analyse the system in the light of the policy requirements and standards that have been set (assessment), central banks will in some cases conclude that the system has a sufficient degree of safety and efficiency and that no further action is required. However, in other cases they may conclude that policy requirements or standards are not being met, in which event they may decide it is necessary to induce change. The tools available to central banks to induce change vary significantly, ranging from moral suasion, possibly supported by voluntary agreements and public statements, through to statutory powers to enforce oversight decisions.

(a) Moral suasion

105. Discussions with the system operator and participants play an important part in achieving oversight objectives. Indeed, this is the means normally used by all the central banks represented in this report to induce change. A central bank's persuasiveness in such discussions (often referred to as "moral suasion") depends in the first instance on the quality and thus the strength of its monitoring and assessment. One of the advantages of moral suasion as a tool is that it encourages central banks to present a clear and convincing case for change. Moral suasion is derived from the influence on the

payment and settlement system that all central banks already have as issuer of the currency and as “banker to banks” and is strengthened by the possibility that, if needed, the central bank could use various other tools to induce any necessary changes in systems.

(b) Public statements

106. One of the other tools available to central banks is a public statement of their oversight policy. As noted earlier (see Section 2.4) all central banks publish their oversight policy, primarily in the interests of transparency and accountability but also because such public statements can be a useful influence on a system. In particular, a statement of the central bank’s oversight objectives and any specific policy requirements or standards set for certain types of systems can usefully reinforce the market’s self-discipline, for example by encouraging systems, their participants or other interested parties to make their own judgments about the system’s design and operation and thus creating pressure for change if possible weaknesses are found.

107. A number of central banks also regularly publish their oversight assessments of individual systems. While the motivation for this is also in part a desire for transparency and accountability, some central banks see this as giving the system a strong incentive to change. Other central banks regard their assessments as confidential or consider such public statements as a potential power that in practice is not used.

(c) Voluntary agreements and contracts

108. The ability to induce change may also be enhanced through the use of voluntary agreements or contracts between the central bank and the system. In some cases agreements and contracts with system participants are also used. Such agreements and contracts may take many forms, including customised memoranda of understanding, settlement account agreements or service contracts for central bank settlement services, and can be used to lay out the requirements and standards to which the system will be subjected and the role of the central bank in assessing compliance. In France, for example, the Bank of France has a right to veto in the relevant interbank body any decision that might jeopardise the security or smooth functioning of the large-value funds transfer systems. In Japan, according to the rules of payment systems that settle net positions over the Bank of Japan’s own system, the operators are required to obtain the approval of the Bank for certain changes such as those concerning risk management. The rule was established by mutual agreement in each case but, having been established, now gives the Bank a tool to induce those systems to make any necessary changes. In Belgium, the National Bank has concluded a bilateral protocol with each of the systems subject to its oversight. And in Switzerland the Swiss National Bank has contracts with the operator of the large-value system SIC and its participants which guarantee the SNB a wide range of rights such as determining participant access, approving system changes, reviewing governance structures and internal audit reports, and removing incompetent personnel.³⁶

(d) Participation in systems

109. Another means of influence exists where the central bank participates formally in a system’s governance either as a part-owner of the system or by agreement under the rules governing the system (including as an official observer). This channel of influence may take the form of shareholding votes under the same terms as other owners, a veto over key decisions, or merely a “seat at the directors’ table” with access to proprietary information and the opportunity to argue a point of view. More generally, central banks are often participants in the systems they oversee, giving them some say in how the system is operated. However, when they use such channels of influence, central banks need to be transparent about the role they are playing and about the fact that their public policy objectives may be different from the objectives of other shareholders or participants (see Section 4.4).

(e) Cooperation with other authorities

110. Central banks may cooperate with supervisors or regulators of banks or other financial institutions which are system owners, participants or users in order to bring about changes to a system. In some cases, where the system is under supervision and the central bank is both overseer and supervisor, this is equivalent to the statutory power to require change discussed below.

³⁶ However, in the light of the recently granted statutory oversight powers these contracts will be revised.

(f) *Statutory power to require change*

111. It is important that central banks have a sufficient range and depth of tools to fulfil their oversight responsibilities under a variety of circumstances. The tools described above are an important component of a central bank's toolbox and are sufficient in many circumstances. However, a growing number of central banks now also have direct statutory power to require systems to comply with their oversight requirements. As well as the powers to obtain information and carry out on-site inspections (see Section 4.1 above), these statutory powers can include the ability to grant initial approvals to operate a system, to approve changes to system rules and procedures, to issue "cease and desist" orders and to suspend or revoke membership.

112. Of the 15 central banks represented in this report, seven have, or are about to acquire, direct statutory powers to require change, with such powers corresponding directly to the scope of their oversight (C, ECB, HK, I, CH and, in future, NL and SG): in these cases the legislation that sets out the central banks' oversight responsibilities also gives them either general powers to carry out their responsibilities by issuing some form of regulation that is binding on the systems concerned (ECB) or more specific powers over the systems, including the power to require relevant rule changes to achieve oversight objectives (C, HK, NL, SG)³⁷ or both of these (I, CH). However, these central banks have not yet needed to use their powers to induce change in systems. Three other central banks (B, L and US) also have statutory powers over certain systems to require change: for the National Bank of Belgium, this applies to SSSs; for the Central Bank of Luxembourg it applies to systems in which it participates (in practice, this is all major systems); and for the Federal Reserve it applies to system operators, participants or service providers which it supervises or has other authority over. Five more central banks (F, D, J, SE and UK) have no such direct statutory powers to require oversight-related changes.

(g) *Enforcement and sanctions*

113. Related to the use of any tool to induce change is the issue of the action the central bank could take in the event the system fails to comply with its requirements. Since they typically have various tools available to them, one possibility is for central banks to make use (or threaten to make use) of a tool that can have greater impact than the one normally used (eg to switch from moral suasion to publication of its assessment of a system). However, in the case of central banks with direct powers to require change, an additional possibility is that the system can be taken to court if it fails to comply with the central bank's orders. In most cases the decision to do this rests not with the central bank but with, for example, the public prosecutor, but the central bank is likely to have a significant influence in deciding whether to prosecute. The courts in turn may have greater or lesser sanction powers. The oversight legislation for four central banks (C, HK, I, CH) and proposed for two others (NL, SG) sets out the penalties which can apply, which include fines and/or imprisonment.

4.4 The organisation of the oversight function

(a) *Need for adequate resources*

114. As well as having adequate tools, central banks need to have the ability to carry out oversight effectively. This means having sufficient resources, including suitably qualified personnel and an organisational structure that allows those resources to be used effectively. In practice, different organisational models have proved effective, but in all cases an important element is that those involved in carrying out oversight are able to draw on the skills and expertise of other central bank functions (for example, legal, markets, credit, audit and IT).

(b) *Managing the relationship between oversight and operations*

115. All central banks represented in this report provide services to payment and settlement systems - in particular, they provide settlement accounts. Most central banks also operate at least one payment or settlement system themselves.³⁸ As discussed earlier, such operational involvement in systems

³⁷ In some of these cases a system requires prior approval to operate. In others a system can operate without prior approval but if it meets the criteria set out in the legislation it falls under the central bank's statutory powers.

³⁸ This is not the case for the Bank of Canada and the Swiss National Bank.

typically occurs for the same reasons that oversight is now carried out - ie the promotion of safe and efficient payment and settlement systems. In general, therefore, the objectives of operations and oversight coincide. The central bank will want to apply at least the same policy requirements and standards to its own systems as it does to private sector systems in order to achieve the necessary safety and efficiency.³⁹ And it will also want to provide services to systems in a way that helps achieve these objectives. Indeed, one of the tasks of the central bank is to coordinate the oversight and operations functions to form a coherent approach to payment and settlement systems.

116. Nevertheless, achieving oversight objectives may impose additional costs on the system that operators or users of the system may be reluctant to bear. And a system operated by the central bank, or the services it provides to systems, may to at least some extent be in competition with private sector systems or services. Even where it does not operate a system the central bank will often be a user of the system to provide banking services to its customers. Or where the central bank is part-owner of an otherwise private sector system it may, as a shareholder, sometimes face a choice between acting with the interests of the owners of the system in mind and acting in order to further its oversight objectives.

117. Recognising this, there are several ways in which central banks manage the relationship between the oversight and operations functions. A key element of this, discussed in Section 2.4, is for the central bank to be transparent about its oversight of systems, including its own, and apply the same requirements and standards to all of them. Central banks also do not use for the purposes of operating their own systems the information provided by private sector systems as part of the oversight process. In addition, all the central banks represented in this report have organisational separation between the oversight function and the operations function, or are about to implement such a separation. (The "operations function" refers to the part of the central bank that is responsible for the day-to-day running of its systems or the provision of payment-related services; however, the central bank's overall *policy* towards how its systems should operate, including the design and rules of the system, is sometimes in the oversight function.) This separation means that the assessment of the central bank's own system is carried out by the oversight function rather than by the operations function itself. The separation also helps to protect the confidentiality of information. As the Core Principles report noted:

"... A central bank needs to be clear when it is acting as regulator and when as owner and/or operator. This can be facilitated by separating the functions into different organisational units, managed by different personnel."

118. The degree of separation between the functions varies. In the case of the Federal Reserve, there is an institutional separation, in that operations are carried out by the Federal Reserve Banks while oversight of these operations is carried out by the Federal Reserve Board. In most of the other central banks represented in this report (B, C, HK, J, L, SG, SE, CH, UK)⁴⁰ the two areas report to different board members - ie the functions are represented on the central banks' governing body by different directors and it is therefore up to this body to take the final decision if the interests of the functions may not coincide. In the other central banks the separation exists at one level down - ie the two functions are represented by the same director but separated at a level down from this (eg separate divisions in the same department) (ECB, F, D, I, NL).

(c) *Assessment of the oversight function*

119. As well as being subject, like all the central bank's functions, to internal audit, oversight procedures at some central banks are vetted by a "third party" of some kind. The third party could be the external auditors or a body specially set up for this purpose. For example, in Hong Kong a special committee - the Process Review Committee, consisting of independent external members - has been set up to review and advise the HKMA on its procedures for applying standards to designated systems in which the HKMA has a legal or beneficial interest.

³⁹ See CPSIPS Responsibility B and RSSS Recommendation 18 (paragraph 3.85).

⁴⁰ In the case of the Bank of Japan, board members are not assigned responsibility for particular areas of the Bank but the separation exists at the highest level where such an assignment exists, namely executive director level.

4.5 Concluding remarks

120. Central banks need to have both the ability and the tools to carry out oversight effectively. "Ability" means having sufficient resources, including suitably qualified personnel; it also means having an organisational structure that allows those resources to be used effectively and with an appropriate degree of separation from the operational unit. Oversight "tools" means powers or other means of influencing systems that are sufficiently strong to enable the central bank to induce change.

121. Central banks typically have a range of oversight tools at their disposal, enabling them to induce change in payment and settlement systems in line with their oversight responsibilities for these systems. In some cases central banks have direct statutory powers over payment and settlement system operators. In other cases, central banks in their role as overseers rely on moral suasion, backed by various tools such as, for example, powers deriving from the provision of settlement accounts or the involvement of supervisors.

122. Central banks organise their oversight function in a way that is compatible with their other tasks relating to payment systems. In particular, central banks set the same standards for systems they operate as for comparable private sector systems, and apply those standards at least as rigorously.

Section 5: Cooperative oversight

123. Payment and settlement services in the domestic currency are in some cases provided by systems across national borders. The level of exposure to systemic risk and the liquidity of national financial markets can therefore depend on the robust design and smooth functioning of systems located abroad. This creates a need for efficient and effective cooperation between central banks responsible for oversight of such systems.

124. Cooperation may also be needed between central banks as overseers and other types of authorities, particularly securities regulators and banking supervisors. Such cooperation may be with domestic authorities or authorities in different countries. Earlier sections of this report have discussed several cases, such as securities settlement systems, where the interests of central banks as overseers and those of other authorities could overlap.

125. This section focuses first on cooperation between central banks issuing different currencies. It considers the benefits of such cooperative oversight (Section 5.1), describes several examples (Section 5.2), and analyses factors which make it effective (Section 5.3). However, the CPSS believes that many of the ideas that should guide international cooperative oversight between central banks are also helpful when considering cooperation with other authorities, albeit with modifications necessary to take account of the responsibilities and powers of such authorities; this is discussed in Section 5.4.

5.1 The benefits of cooperative oversight between central banks

126. Individual central banks each have their own oversight responsibilities, sometimes set out explicitly in a law or treaty, and in all cases integral to fulfilment of their broader financial stability and monetary policy objectives. Central banks may not be able to satisfy these responsibilities if their oversight is limited to domestically located payment and settlement systems and does not extend effectively to systems of relevance to the domestic economy but located abroad.

127. Cooperation in the oversight of such cross-border or multicurrency systems helps to avoid unnecessary duplication of activity and thus reduces costs both for the overseen system and for the central banks. It also promotes consistent oversight approaches, minimising the risk that different central banks impose conflicting requirements on a system. And, perhaps most importantly, it helps avoid the possibility of oversight “gaps” that might arise if another authority is wrongly assumed or relied upon to address safety and efficiency issues adequately or if there is a mismatch between responsibilities and powers.⁴¹

128. Mutual adoption of the same internationally recognised oversight standards plays an important role in reducing the risk of inconsistent oversight policies. But it remains only an incomplete response to this risk, and does nothing to reduce the risk of duplication or gaps. Clearly articulated cooperative arrangements have therefore been put in place in a number of cases to reduce these risks.

129. Within these cooperative arrangements, each central bank remains accountable for fulfilling its own oversight responsibilities. System operators remain similarly responsible for meeting any applicable oversight requirements. But cooperative oversight enables this to happen more efficiently and effectively.

5.2 Examples of cooperative oversight between central banks

130. Since the Lamfalussy Principles were published in 1990, the central banks represented in this report have used them as the basis for international cooperative oversight (see Box 2). A core element of the principles is to create a cooperative arrangement in which one central bank accepts primary responsibility for oversight and which takes full account of the interests of all relevant central banks.

⁴¹ Some central banks with oversight powers over a particular system may have insufficient incentives to prioritise the systemic risk concerns in foreign countries, while central banks with stronger incentives may not have the necessary powers or influence over a system located abroad.

Box 2

The 1990 Lamfalussy Principles

(See *Report of the Committee on Interbank Netting Schemes of the central banks of the Group of Ten countries*, BIS, November 1990).

The Lamfalussy Principles were developed as a framework that G10 central banks recommended for use "in cooperating with one another and with other authorities". The report noted that the principles "are neither a statement nor an allocation of central banks' roles as lenders of last resort and in no way prejudice the statutory responsibilities of central banks and bank supervisory authorities. Rather, they are intended to provide a mechanism for mutual assistance among central banks in carrying out their individual responsibilities in pursuit of their shared objectives for the efficiency and safety of interbank payment and settlement arrangements. These principles may also be of use to other central banks and supervisory authorities when considering cross-border and multicurrency settlement structures."

The report also noted that the principles were intended to apply to any "netting or clearing system for payments or currency obligations that is located outside the area of issue of the relevant currency or currencies and are designed to serve at least three objectives. Firstly, their application should ensure that cross-border systems are subject to review "as systems" by a single authority with responsibility to consider the system's impact in different countries ["the central bank which accepts primary responsibility for oversight"]. Secondly, they should provide a cooperative approach to ensure that the interests of different central banks and supervisory authorities are reflected in the oversight of any one system. Thirdly, cooperation between central banks should, in particular, help to preserve the discretion of individual central banks with respect to interbank settlements in their domestic currency."

The principles themselves are as follows (the full text is in Annex 4):

Principles for the cooperative central bank oversight of cross-border and multicurrency netting and settlement schemes

Each central bank that has identified the actual or proposed operation of a cross-border or multicurrency netting or settlement system, outside of the country of issue of the relevant currency or currencies, should inform other central banks that may have an interest in the prudent design and management of the system.

Cross-border and multicurrency netting and settlement systems should be subject to oversight by a central bank which accepts primary responsibility for such oversight and there should be a presumption that the host-country central bank will have this primary responsibility.

In its oversight of a system, the authority with primary responsibility should review the design and operation of the system as a whole and consult with other relevant authorities on its conclusions both in the first instance and, from time to time, with respect to developments in the system's status.

The determination of the adequacy of a system's settlement and failure-to-settle procedures should be the joint responsibility of the central bank of issue and the authority with primary responsibility for the system.

In the absence of confidence in the soundness of the design or management of any cross-border or multicurrency netting or settlement system, a central bank should discourage use of the system by institutions subject to its authority and, if necessary, identify the use of, or the provision of services to, such a system as constituting an unsafe and unsound banking practice

131. The Lamfalussy Principles have proved useful in a range of cases. In the past they formed the basis for the cooperative oversight of the now-defunct ECHO and Multinet schemes for the multilateral netting of foreign exchange transactions. Currently, they provide a guide for the bilateral information sharing on systems such as the US dollar and euro RTGS systems in Hong Kong.⁴² The principles have also informed the cooperative oversight and supervisory arrangements for LCH.Clearnet and Euroclear, although in these cases adaptation was required (this is discussed further in Section 5.4). They also form the basis for the current cooperative oversight of CLS and SWIFT.

132. In the case of CLS, a mechanism for settling foreign exchange deals, the Federal Reserve has supervisory responsibility for CLS Bank, which is incorporated in New York, while the CLS holding

⁴² USD CHATS is a US dollar RTGS system in Hong Kong providing US dollar clearing and settlement services within the Hong Kong time zone. HSBC was appointed by the HKMA as the settlement institution for the system for a period of five years from August 2000. Euro CHATS is a euro RTGS system providing euro clearing and settlement services. Standard Chartered Bank was appointed as the settlement institution for a period of five years from March 2003.

company is incorporated in Switzerland and CLS's primary operational facilities are located in the United Kingdom. CLS settles foreign exchange transactions in 15 currencies, with the largest volumes and values of transactions being those in US dollars. The Federal Reserve is the central bank with primary responsibility in an oversight arrangement involving the central banks that issue these currencies.

133. SWIFT, a global messaging provider, is incorporated in Belgium. It has operational facilities in more than one continent, but a substantial proportion of its senior management is based in Belgium. SWIFT provides services in over 200 countries. The National Bank of Belgium is the central bank with primary responsibility for oversight in a cooperative oversight arrangement involving the G10 central banks.

5.3 An analysis of cooperative oversight between central banks

134. Central banks' oversight functions have evolved significantly in the almost 15 years since the Lamfalussy Principles were adopted. Most of the central banks represented in this report now have their oversight responsibilities set out explicitly in the law or treaty establishing the central bank or in a separate law. A growing number of central banks now also have direct statutory powers to require systems to comply with their oversight decisions. Growth in cross-border and multicurrency systems has meanwhile increased in line with consolidation in the financial industry and the increased integration of global financial markets.

135. While the Lamfalussy Principles were specifically designed to complement the Lamfalussy Minimum Standards for cross-border and multicurrency netting schemes, central banks have applied them in the cooperative oversight of a wider range of payment and settlement service providers, including SWIFT, as well as securities settlement systems and central counterparties. At the same time, more comprehensive standards covering payment and settlement systems have been agreed by CPSS central banks since the original Lamfalussy Standards. These include the Core Principles for Systemically Important Payment Systems, and - in cooperation with securities regulators - the Recommendations for Securities Settlements Systems and the Recommendations for Central Counterparties.

136. Given these developments, the CPSS has reviewed the practical experience of cooperative oversight arrangements and the application of the Lamfalussy Principles.

(a) The role of the central bank with primary responsibility

137. The introduction to the Lamfalussy Principles states that the principles are without prejudice to central banks' existing oversight responsibilities. The terms "primary responsibility" and "joint responsibility" used in the principles are intended to refer to additional roles that central banks voluntarily accept vis-à-vis each other by agreeing to take part in the cooperative arrangement rather than to any change in their existing responsibilities.

138. The CPSS considers that having a central bank that accepts primary responsibility for oversight of a system (hereafter the "central bank with primary responsibility") is central to efficient and effective cooperative oversight arrangements. Efficiencies can be achieved, and regulatory burden reduced, by having a single central bank with clear responsibility for leading the cooperative arrangement and carrying out oversight activities on behalf of and in cooperation with other central banks.

139. The third Lamfalussy Principle emphasises that a key role of the central bank with primary responsibility is to carry out periodic comprehensive assessments of the design and operation of the system as a whole on the basis of agreed policies and standards. The central bank with primary responsibility produces this consolidated assessment of the system in cooperation with the other central banks in the cooperative process in a way that takes full account of the responsibilities and assessments of all the central banks. This process is helped by the use of mutually adopted standards and by the central bank with primary responsibility drawing on the expertise of other central banks. The aim is to reach consensus conclusions. The central bank with primary responsibility then communicates these consensus conclusions to the overseen system and uses its oversight tools, in conjunction with other central banks as appropriate, to induce any necessary changes in the overseen system.

140. Central banks involved in cooperative oversight make every effort to reach consensus. However, although in practice the situation has not yet arisen, it cannot be ruled out that, in extreme

circumstances, it is impossible to reach common agreement on the assessment of the soundness of a system's design and operation. In these circumstances, to avoid gaps in the process, it would still be important for the central bank with primary responsibility to draw its own conclusions and use its powers to induce any necessary change. Other central banks, in line with their domestic responsibilities, might do likewise. In doing so, all central banks would continue to aim to avoid inconsistent policies as far as possible. Each central bank would also retain its right, if necessary, to discourage use of the system or the provision of services to the system, which it might be able to do using its oversight powers or in cooperation with prudential regulators.

141. While the core role of the central bank with primary responsibility is to assess the system as a whole and induce any necessary change, experience has shown that there are other roles that this central bank can also usefully play, including seeking consensus on other oversight issues of common interest, acting as the main channel for normal communication between the overseers and the overseen entity on matters of common interest to overseers, and facilitating information exchange between overseers.

(b) Determining which central bank should have primary responsibility

142. In general the central bank best placed to have primary responsibility is the central bank of the country where the system is located (in terms of incorporation, management and operations) and thus there is a presumption in the Lamfalussy Principles that this central bank will take on the role. However, this may not always be the case. Flexibility enables an effective oversight arrangement to be created in many circumstances, for example if the system has little importance in the country where it is located or if it is located in more than one country.⁴³

143. There are various factors that are relevant when determining which central bank should have primary responsibility.

- *Powers.* The possession of effective powers to require information and to induce change in the overseen system will be an important factor. In many cases the central bank in the country where the system is located will have the greatest powers.
- *Relevance.* Some countries' financial markets and firms may depend more heavily on a particular payment and settlement system than others. As well as being the key criterion for participation in a cooperative arrangement (see below), the relevance of the particular system for domestic oversight objectives is also an important factor in determining which central bank should have primary responsibility.
- *Capacity.* Factors such as the central bank's expertise and ability are relevant. Expertise may depend on matters such as knowledge of the law that governs key contractual relationships in the system as well as the law that determines the finality of settlement (both of which may be different from that of the country of incorporation or of the country in which the system operates). Location has relevance in terms of the central bank with primary responsibility's proximity and access to the system's management, as well as to core processing operations that the central bank might wish to inspect. Ability depends crucially on the availability of suitably qualified staff. Willingness to take on the additional responsibilities with respect to other central banks, to consult and to share information as appropriate is a further key consideration.

It is possible that in some circumstances the authority best placed to take on primary responsibility is not a central bank but another authority such as a securities regulator or banking supervisor. Cooperation involving other authorities is considered further in Section 5.4. For simplicity, the rest of this section refers to "central bank" without excluding this possibility.

(c) The role of other central banks in the cooperative arrangement

144. Each central bank has a domestic oversight responsibility that can only be met by assessing the impact of the cross-border or multicurrency system on its domestic economy in terms of its safety and efficiency objectives and by inducing change where necessary. As discussed above, this can often be

⁴³ For example, because location is defined in terms of incorporation, management or operations, a system that has operations in only one country has multiple locations if it is incorporated in or managed from another country.

done most effectively through a cooperative arrangement organised by the central bank with primary responsibility and which takes account of each central bank's responsibilities and views. In this process, just as the central bank with primary responsibility has a duty to consult with other central banks, they in return have a duty to help the central bank with primary responsibility carry out its cooperative oversight role.

145. While each central bank needs to understand the system as a whole and assess its overall safety and soundness in order to understand its possible impact on its domestic economy, it is likely to have particular expertise in, and a particular interest in, aspects that specifically concern its domestic currency. Particularly important is the adequacy of the settlement and failure-to-settle procedures in the currency, including the soundness of the legal basis and the appropriateness of the procedures given the way domestic financial markets function. This point is covered by the fourth Lamfalussy Principle.

146. However, while various activities such as communication with the overseen system and inducing change may in practice be substantially carried out by the central bank with primary responsibility, this is done in the interests of the efficiency and effectiveness of the cooperative arrangement and does not imply that the central bank with primary responsibility is necessarily the only one to carry out such activities. Each central bank retains its right to fulfil its domestic responsibilities in the way it considers best. Bilateral contact with the overseen system will often be the most effective and efficient way when the issue concerned is a bilateral one rather than of common interest. However, from the point of view of the efficiency and effectiveness of the cooperative arrangement, each participating central bank needs to be willing to share information, to protect the information it receives and to consult with others in the search for a consistent approach to the overseen entity. In particular, consultation between central banks before implementing policies or taking action that may affect the system or its oversight, including publishing assessments of that system, helps to avoid inconsistencies in the oversight relationship with the system.

147. For those central banks that have a detailed statutory basis for oversight, it can also be useful if there are provisions to exempt a system from local oversight requirements when effective oversight is carried out by another central bank to at least equivalent requirements - ie in this case, when it is carried out partly by the central bank with primary responsibility on behalf of central banks collectively. The four central banks represented in this report which have, or are about to acquire, a detailed statutory basis for oversight (see Section 2.1) have, or are likely to have, such an exemption clause.

(d) Determining which other central banks should participate in the cooperative arrangement

148. Before a cooperative arrangement can be set up, interested central banks need to be informed of the existence of the cross-border or multicurrency system or the proposal to create the system. The "interested" central banks include all the central banks whose currencies are processed by the system and those where the system is located. These central banks should, in turn, seek to inform any other domestic authorities that may have an interest in the prudent design and management of the system.⁴⁴ In the case of a major system that is already in existence and which handles multiple currencies, this notification requirement could also be met by requiring the system itself to inform the relevant central banks or to publicly disclose its cross-border and multicurrency activities in a way that meant they were transparent to the relevant central banks. To help identify systems, central banks which have the relevant powers may also find it useful to require financial institutions to report their provision of or participation in any cross-border or multicurrency payment or settlement system.

149. A prime determinant of which central banks *participate* in any resulting cooperative oversight arrangement should be the relevance of the cross-border or multicurrency system to their domestic oversight responsibilities. This will depend among other things on whether or not the system is supplying critical services to domestic markets, the value or volume of the transactions that it processes in the domestic currency, the financial or operational interdependence between operations abroad and domestic operations and any national licensing requirements which may apply. However,

⁴⁴ As already noted in the context of determining which authority has primary responsibility, for simplicity the rest of this section refers to "central banks" without excluding the possibility that other relevant authorities may also participate in the cooperative arrangement.

the participation of a domestically owned bank's foreign subsidiaries or branches in a cross-border or multicurrency system would not in itself make that system of domestic oversight relevance.⁴⁵

150. If a system does not settle the currency of the country in which it is located but has significant operations in such a country, or operates under the law of such a country, then even if the system is not of particular relevance to the central bank in that country, the capacity and effective powers of the central bank will be factors to consider in the decision whether it should participate in the cooperative oversight arrangement.

151. In the case of systems that process a large number of currencies, or in the case of service providers such as SWIFT, it may be difficult to establish a cooperative arrangement that, without compromising the efficiency and effectiveness of the arrangement, involves to the same degree the central banks of every country the system serves. In such circumstances it may be necessary to limit direct involvement in day-to-day cooperative oversight activity to certain central banks while establishing alternative means to support the oversight responsibilities of other central banks.

152. Finally, in some cases, the system may not currently be of sufficient oversight importance in any country (or only of importance in the country where it is located) to warrant a cooperative oversight arrangement as set out in the Lamfalussy Principles. In such cases the interested central banks may find it useful to agree on arrangements for continued monitoring of the system so that its importance can be periodically re-evaluated.

(e) Clarity of the cooperative arrangement

153. While the Lamfalussy Principles provide a common basis for international cooperative oversight, individual arrangements will need to be tailored according to the type and importance of the system being overseen. Moreover, practical experience with cooperative oversight arrangements has revealed that it is useful to have clarity about the roles of participants in a cooperative arrangement and about practical matters such as the extent and frequency of information sharing. Central banks have therefore often found it useful to document how the cooperative arrangement will work in each case. In some circumstances, multilateral or bilateral memoranda of understanding (MoUs) between central banks have proved an effective means of providing the desired clarity. Box 3 sets out the possible content of such an MoU.

154. However, central banks will need to be comfortable that an MoU does not adversely affect their domestic responsibilities, which may be the case in some jurisdictions. Moreover, although an MoU or similar document can provide a useful basis for cooperative oversight, it is not a substitute for the development of a close working relationship between the central banks involved so that the interests and concerns of all of them are understood and accommodated as far as possible.

155. Achieving the benefits of a cooperative oversight arrangement is likely to be significantly easier where all participating central banks agree on the broad objectives of oversight and on the particular policy requirements and standards against which an overseen entity is to be assessed. In practice, the common objectives of safety and efficiency and the widespread use of international standards such as the CPSIPS and RSSS (and, in future, the RCCP) provide a good foundation for cooperation. Nevertheless, to the extent that there are differences in oversight objectives, it can be helpful to make these transparent in order to avoid possible misunderstandings.

⁴⁵ Nevertheless, the system could be of interest to domestic prudential authorities such as banking supervisors or securities regulators for purposes of prudential regulation, rather than of cooperative oversight, for example if the credit or liquidity exposures or other risks incurred as a result of participation in the system were potentially significant. When informing central banks of the existence of a cross-border or multicurrency system, it may therefore sometimes be desirable to also inform the central banks of the countries where the participants in the system are incorporated so that these central banks can inform any supervisory or regulatory authorities that have responsibilities for those participants.

Box 3

Possible content of a memorandum of understanding

The objectives of the cooperative oversight arrangement and the policy requirements and standards against which the system will be assessed.

The role of each central bank in the cooperative oversight arrangement.

The source of authority for the oversight role of the central bank with primary responsibility.

Channels for communication with the overseen system, including the balance between the role of the central bank with primary responsibility as the main channel of communication on matters of mutual interest and provision for bilateral communications where this is a more efficient means of satisfying local responsibilities.

The range of information to be exchanged, the processes to be followed in exchanging information, and the arrangements to protect confidential information.

Arrangements for the production of assessments of the system as a whole.

Arrangements for the implementation and monitoring of jointly agreed policies.

The range of decisions where ex ante consensus will be sought.

Crisis-communication procedures.

Practical matters eg meeting frequencies.

Process for regular and/or ad hoc reviews of the cooperative oversight arrangement.

5.4 Cooperation with other authorities

156. In addition to cooperation between central banks, cooperation with other authorities is likely to be desirable or even necessary in a number of circumstances. The discussion of scope in Section 3 included several instances where the oversight responsibilities of central banks are closely related to the responsibilities of other prudential regulators. In some countries some payment systems are subject not just to oversight but also to banking supervision, and in all CPSS member countries securities settlement systems are subject to regulation by a securities regulator.^{46, 47}

157. Where systems must deal with multiple public authorities, cooperation between the authorities is likely to be beneficial.⁴⁸ The aims of avoiding gaps, inefficiency, duplication and inconsistency and of reducing unnecessary regulatory burden will be of similar or perhaps greater importance where a wider range of authorities is involved. The CPSS considers that, with appropriate adaptation to allow for the particular circumstances, the principles for cooperative oversight between central banks may also provide a useful framework for cooperation between central banks and other authorities such as securities regulators and banking supervisors, both internationally and domestically. In particular, the principles recognise that each regulator will need to fulfil its own regulatory responsibilities, that cooperation will be without prejudice to these responsibilities, and that there will be no delegation of these responsibilities. But in the interests of minimising regulatory burden and of efficiency there may be scope to coordinate or share some activities where this is permissible under national law. There will be benefits to gain from an authority accepting primary responsibility on the basis of the powers and instruments available to it, the importance of the system to its local financial system, and its capacity and willingness to perform this role.

158. There are a number of examples where central banks and other authorities have domestic or international cooperative arrangements. An example of a generally applicable agreement is the MoU between payment system overseers and banking supervisors in the European Union that was signed

⁴⁶ Other authorities, such as competition authorities, may also have an interest in payment and settlement systems although in many cases this will be to investigate a particular issue and may not require a continuing cooperative process.

⁴⁷ In Italy the question of coordination is partly an intra-institutional one since the Bank of Italy has the functions of oversight, banking supervision, financial supervision and promotion of competition among credit institutions.

⁴⁸ These benefits were recognised in both the 1990 Lamfalussy Principles and the 2001 CPSIPS.

in preparation for the introduction of the euro. The Swiss Federal Banking Commission, the Swiss National Bank and the UK Financial Services Authority have an MoU concerning the oversight and supervision of SIS x-clear (a central counterparty). In the Netherlands, there is an MoU between the Netherlands Bank and the securities regulator concerning the oversight and regulation of SSSs. The Italian and French central banks and securities regulators have an MoU concerning the clearing houses that jointly serve the Italian MTS market for government securities. The Belgian, Dutch, French, Portuguese and UK overseers and supervisors of LCH.Clearnet have agreed a multilateral MoU supporting the efficient sharing of information. The relevant subsets of these authorities have also drawn up bilateral and multilateral MoUs to coordinate oversight and supervision of Euroclear. Identification and communication of the common policy requirements and standards with which all authorities expect the system to comply can be an important foundation for such multilateral arrangements. The joint work of the CPSS and IOSCO to promulgate the RSSS and RCCP provide a set of internationally recognised standards which can be used for this purpose.

5.5 Concluding remarks

159. Effective cooperation can help to avoid the possibility of gaps, duplication or inconsistencies in the oversight of international systems. Such cooperative oversight should normally involve the central banks of those countries for which the system has particular oversight relevance. A central bank should accept primary responsibility for a system's oversight on the basis of its powers and capacity and the relevance of the system to its oversight responsibilities, with a presumption that this central bank will be the one where the system is located. A key role of this central bank should be to carry out periodic assessments of the design and operation of the system as a whole, consulting with the other central banks in the arrangement. Other roles of the central bank with primary responsibility are likely to include acting as a main channel for communication between the overseers and the overseen system, sharing information as appropriate with other overseers, seeking consensus on issues of common interest, and using its oversight powers to implement mutually agreed policies, all without prejudice to the national responsibilities of each central bank. The responsibilities and expectations of each party in the cooperative oversight arrangement should be clearly agreed. The CPSS also considers that, with appropriate adaptation to allow for the particular circumstances, the principles may also provide a useful framework for to cooperation between central banks and other authorities such as securities regulators and banking supervisors, both internationally and domestically.

Annex 1: Sources of central banks' oversight responsibilities and powers

This annex provides information about the treaties, statutes or other documents external to the central bank that are relevant to its oversight responsibilities and powers.

Institution	Source of responsibilities	Source of powers
National Bank of Belgium	<p><i>National Bank of Belgium Organic Law (1998)</i></p> <p>"... shall supervise the smooth operation of the clearing and payment systems and shall satisfy itself that they are efficient and sound."</p> <p>"It shall provide for the enforcement of the regulations adopted by the ECB in order to ensure the efficiency and soundness of the clearing and payment systems within the European Community and with other countries."</p>	<p><i>National Bank of Belgium Organic Law (1998)</i></p> <p>"It may carry out all transactions or provide facilities for these purposes."</p> <p><i>Law on the supervision of financial sector and services (2002)</i></p> <p>For SSSs, "it recommends to the legislator:</p> <ul style="list-style-type: none"> – the rules for clearing as well as the conditions and procedures for the granting of approval to the clearing institutions, the rules for their supervision as well as the minimum requirements in terms of organisation, operation, financial position, internal audit and risk management applicable to clearing institutions that are not credit institutions. – the rules for the supervision of the settlement institutions, the minimum requirements in terms of organisation, operation, financial position, internal audit and risk management applicable to settlement institutions that are not credit institutions, the standards for the oversight by the NBB of the settlement systems, the information provision requirements of the NBB as well as the coercive measures the NBB can take when the settlement institutions no longer satisfy the requirements that apply to them."
Bank of Canada	<p><i>Payment Clearing and Settlement Act (1996)</i></p> <p>"Whereas the Bank of Canada ... takes actions to promote the efficiency and stability of the Canadian financial system, including providing the means of settlement of Canadian dollar payments, acting as lender of last resort and, in consultation with other central banks, developing and implementing standards and practices to recognise and manage risk associated with systems for clearing and settling payment obligations; And whereas Parliament recognises that it is desirable and in the national interest to provide for the supervision and regulation of such clearing and settlement systems in order to control risk to the financial system in Canada and promote its efficiency and stability; ..."</p>	<p><i>Payment Clearing and Settlement Act (1996)</i></p> <p>"4 (1) Where the Governor of the Bank is of the opinion that a clearing and settlement system may ... pose a systemic risk, the Governor may, if the Minister is of the opinion that it is in the public interest to do so, designate the clearing and settlement system</p> <p>9 (1) Every clearing house shall, in respect of its designated clearing and settlement system, provide the Bank with reasonable notice in advance of any change ... that is of a significant nature ... [including] ... (a) the constating documents and by-laws of the clearing house; (b) the operation of the ... system; or (c) the by-laws, agreements, rules, procedures, guides or other documentation governing the ... system.</p>

Institution	Source of responsibilities	Source of powers
Bank of Canada (cont)		<p>6 (1) Where the Governor ... is of the opinion that (a) a clearing house ... (b) a participant ... or (c) the designated clearing and settlement system is operating or is about to operate in a way that ... is likely to result in systemic risk being inadequately controlled, the Governor may issue a directive ... to the clearing house requiring it ... to (d) ... refrain from engaging in the act, omission or course of conduct or have the participants ... refrain from engaging in the act, omission or course of conduct, and (e) perform such acts or have the participants perform such acts as ... are necessary to remedy the situation.</p> <p>6 (2) Where the Governor ... has formed an opinion under subsection (1) that systemic risk is being inadequately controlled and (a) the clearing house fails to comply with a directive ... (b) the designated clearing and settlement system does not have a clearing house located in Canada, or (c) ... (i) systemic risk is being inadequately controlled due to an act, omission or course of conduct by a participant with respect to its participation in the designated clearing and settlement system, and (ii) the act, omission or course of conduct is not subject to the ... rules [etc] governing the designated clearing and settlement system, the Governor may issue a directive to the participants requiring them ... to (d) cease or refrain from engaging in certain acts, omissions or courses of conduct with respect to their participation in the designated clearing and settlement system, and (e) perform such acts with respect to their participation as the Governor considers necessary to remedy the situation."</p>
European Central Bank	<p><i>Statutes of the ESCB and ECB (1992)</i></p> <p>"The basic tasks to be carried out through the ESCB shall be:</p> <p>... to promote the smooth operation of payment systems."</p>	<p><i>Statutes of the ESCB and ECB (1992)</i></p> <p>"In order to undertake the tasks of the ESCB, the ECB, assisted by the national central banks, shall collect the necessary statistical information either from the competent national authorities or directly from economic agents. ...</p> <p>The ECB and national central banks may provide facilities, and the ECB may make regulations, to ensure efficient and sound clearing and payment systems within the Community and with third countries."</p>
Bank of France	<p><i>Monetary and Financial Code</i></p> <p>"... the Bank of France shall ensure the smooth operation and the security of payment systems within the framework of the task of the ESCB relating to the promotion of the smooth operation of payment systems ..."</p>	

Institution	Source of responsibilities	Source of powers
Bank of France (cont)	<p><i>15 November 2001 Act</i></p> <p>“The Bank of France shall ensure the security of means of payment, other than banknotes and coins ..., and the relevance of the standards applicable thereto. If it deems that such means of payment are insufficiently secure, it may invite the issuer to take steps to remedy the situation.”</p> <p>“[A] Payment Card Security Observatory is created In particular, the Observatory shall monitor security measures taken by issuers and merchants, draw up statistics on fraud and carry out a technology watch on payment cards with the aim of proposing ways of combating technology-based breaches of payment card security. ... Each year the Observatory shall draw up a report for the Minister in charge of the Economy, Finance and Industry, which shall also be transmitted to Parliament.”</p> <p><i>11 December 2001 Act</i></p> <p>“... as part of the duties of the [ESCB] and without prejudice to the powers of the Financial Markets Council and the Commission Bancaire, the Bank of France shall ensure the security of securities clearing, payment and delivery systems.”</p>	<p><i>15 November 2001 Act</i></p> <p>“If it deems that any such payment instrument is insufficiently secure, it may recommend that the issuer take all necessary measures to remedy such insufficiency. If its recommendations are to no avail, it may, after having solicited the observations of the issuer, hand down a negative opinion published in the Official Journal. For the performance of its duties, the Bank of France shall conduct expert analyses and shall ask the issuer or any interested party for all relevant information concerning payment instruments and the terminals or technical facilities associated therewith.”</p>
Deutsche Bundesbank	<p><i>Bundesbank Act (2002)</i></p> <p>“... shall arrange for the execution of domestic and cross-border payments and shall contribute to the stability of payment and clearing systems.”</p>	–
Hong Kong Monetary Authority	<p><i>Clearing and Settlement Systems Ordinance (2004)</i></p> <p>“(1) ... to monitor compliance with the obligations imposed under this Ordinance in relation to designated systems, and to promote the general safety and efficiency of designated systems.</p> <p>(2) Without limiting the generality of subsection (1), it shall be the function of the Monetary Authority (a) to take reasonable steps to satisfy himself that every designated system is operated in a safe and efficient manner; (b) to promote and encourage proper standards of operation and sound and prudent practices amongst designated systems; (c) whenever appropriate, to cooperate with and assist recognized financial services supervisory authorities of Hong Kong or of any place outside Hong Kong in maintaining and promoting safety and efficiency in the operations of designated systems; and (d) to consider and propose reforms of the law relating to clearing and settlement systems and the operations of designated systems.”</p>	<p><i>Clearing and Settlement Systems Ordinance (2004)</i></p> <p>“... request information ... relating to the system.</p> <p>... give directions ... to a system operator or settlement institution of a designated system ... to take such action or do such act or thing as the Monetary Authority considers necessary for bringing the designated system into compliance with the requirements set out in [this ordinance].</p> <p>... direct that the operating rules of the system be amended ... to bring [them] into compliance with [this ordinance].</p> <p>... to make regulations ... for the better safety and efficiency of operation and financial soundness of designated systems ...”</p>

Institution	Source of responsibilities	Source of powers
Bank of Italy	<p>For payment systems: <i>Banking Law (1993)</i> "... shall promote the regular operation of payment systems."</p>	<p>For payment systems: <i>Banking Law (1993)</i> "... for this purpose it may issue regulations to ensure the efficiency and reliability of clearing and payment systems."</p> <p>The Bank of Italy has issued detailed provisions under this power. See Provisions on oversight of payment systems (2004). According to this legal framework, the Bank of Italy may issue general and specific rules implementing that:</p> <ul style="list-style-type: none"> • operators of payment systems and infrastructure services, as well as persons who issue and/or manage payment instruments, must for the purpose of ensuring the efficiency and reliability of the system take account of the entire cycle of money transfer; • operating rules of payments systems, particularly those regarding access criteria and pricing, must be clear and transparent; • adequate risk-control and risk-limitation mechanisms must be adopted by operators of payment systems and infrastructure services; the latter must guarantee a level of operational continuity to ensure the smooth functioning of the system concerned; • persons who issue and/or manage payment instruments must adopt, with reference to the entire money transfer cycle, operating procedures that are capable of effecting the secure transfer or withdrawal of money and according to certain and prompt execution times; • persons intending to perform activities falling within the scope of these provisions must transmit information and data on such activities in advance to the Bank of Italy. <p>The Bank of Italy can publish information or assessments that it believes are significant. The Bank has enforcement powers in its capacity as bank supervisor, included on-site inspections, for monitoring issues that are also of interest for the oversight function (eg to verify possible violations of EU Regulation 2560/2001). Administrative sanctions are envisaged for violations of the provisions of Law 39/2002 on e-money. According to the civil code, it is a criminal offence to behave in a way to hamper the exercise of the oversight.</p>

Institution	Source of responsibilities	Source of powers
Bank of Italy (cont)	<p>For securities settlement and guarantee systems:</p> <p><i>Consolidated Law on Financial Intermediation</i> (1998)</p> <p>“The oversight of the securities settlement and guarantee systems and the related management companies shall be carried out by the Bank of Italy and Consob.”</p> <p>The authorities pursue the objectives of stability of the systems, transparent and orderly provision of services and the protection of investors.</p> <p>“In cases of necessity and as a matter of urgency, the Bank of Italy shall adopt appropriate measures to ensure the timely closure of settlement, including its acting in the place of the administrators and managers of the systems referred to above.”</p>	<p>For securities settlement and guarantee systems:</p> <p><i>Consolidated Law on Financial Intermediation</i> (1998)</p> <p>“The Bank of Italy, in agreement with Consob, shall regulate the operation of the securities settlement and guarantee service.”</p> <p>Such regulations lay down the general framework and the conditions under which SSS and CCP activities can be managed: ie minimum level of capital, consistency of the operating rules - to be approved by the authorities - with the aim of soundness and efficiency of the systems, prudent membership requirements, adoption of appropriate risk management features.</p> <p>“The Bank of Italy and Consob may carry out inspections and require the securities settlement and guarantee companies and market participants to provide any information deemed necessary for the exercise of the oversight functions.”</p> <p>According to the Bank of Italy and Consob regulation issued in 2002, the collection of information is related to the functioning of the system (such as data on clearing and settlement activities, any technical problem on the proper and orderly functioning of the system) and to the SSS/CCP management company (such as company by-laws, financial reporting, internal auditors communications, board of directors’ report on organisational, IT structure and risk management). Moreover, information is collected on the participants in the overseen systems.</p> <p>Any person performing administrative or managerial functions, in the securities settlement and guarantee companies, is liable to a pecuniary administrative sanction for non-compliance with the articles of the Consolidated Law on Financial Intermediation and the related implementing provisions. The sanctions shall be imposed by the Ministry of Economy, acting on a proposal from the Bank of Italy or Consob, within the scope of their respective authority.</p>
Bank of Japan	<p><i>Bank of Japan law</i> (1997)</p> <p>“... to ensure smooth settlement of funds among banks and other financial institutions, thereby contributing to the maintenance of an orderly financial system”</p>	-

Institution	Source of responsibilities	Source of powers
Central Bank of Luxembourg	<p><i>Transposition of EU directive on settlement finality into Luxembourg law (2001)</i></p> <p>"[...] This supervision, which covers the operational and financial stability of each system, [...] has the objective of stability of the financial system as a whole. In this respect, the [Commission] watches over the application of functioning rules and the implementation of settlement procedures and risk management procedures that are encompassed within the systems it supervises."</p> <p>However, although this article of the legislation refers to the Commission [de surveillance du secteur financier], under another article systems in which the Central Bank of Luxembourg (BCL) participates are under the sole competence of the BCL.</p>	–
Netherlands Bank	<p><i>From Bank Act (1995):</i></p> <p>"... shall have the task of promoting the smooth operation of the payment system."</p> <p><i>From Act of Securities Trade (1995)</i></p> <p>"... shall ensure that the clearing and settlement systems which are used by the Dutch exchanges are sufficient to avoid ... systemic risk."</p>	<p><i>From Act of Securities Trade (1995)</i></p> <p>Provides for prior approval for clearing and settlement systems used by Dutch exchanges.</p>
Monetary Authority of Singapore	<p><i>MAS Act</i></p> <p>"The principle objects of the Authority shall be: ... to foster a sound and progressive financial services sector."</p> <p><i>Payment Systems (Oversight) Bill (2004)*</i></p> <p>"The Authority shall be responsible for the oversight of payment systems and stored value facilities under this Act ..."</p> <p><i>Securities and Futures (Amendment) Act (2005)</i></p> <p>"... to promote the safety and efficiency of clearing facilities that support systemically-important markets or form an integral part of the financial infrastructure, and to reduce systemic risk."</p> <p>[* This bill is expected to come into force around mid-2005.]</p>	<p><i>Payment Systems (Oversight) Bill (2004)* and Securities and Futures (Amendment) Act (2005)</i></p> <p>Information-gathering powers: over all payment systems, stored value facilities and clearing facilities in Singapore.</p> <p>Designation powers: powers to regulate payment systems and persons operating a clearing facility that could affect financial stability or public confidence in payment and securities settlement systems in general or the financial system of Singapore.</p> <p>Other powers: power to impose access regimes, impose restrictions and conditions, establish standards, make regulations, approve and remove chief executive officers and directors, approve the control of substantial shareholding in an operator, issue directions, inspect operations, and assume control of the operations of a designated payment system (DPS) or a designated clearing house (DCH) under emergency situations, mandates the arrangement for external audits of a DPS/DCH and imposes the obligation on a DPS/DCH to notify MAS of significant changes in its operations.</p>

Institution	Source of responsibilities	Source of powers
Sveriges Riksbank	<p><i>The Sveriges Riksbank Act (1988, as from 2004)</i></p> <p>"... The Riksbank shall also promote a safe and efficient payment mechanism."</p>	<p><i>The Sveriges Riksbank Act (1988, as from 2004)</i></p> <p>"Upon the request of the Riksbank, a credit institution or other company supervised by the Financial Supervisory Authority shall provide the Riksbank with such information as the Riksbank considers necessary to ... oversee the stability of the payment system."</p> <p>"Regulations concerning the reporting obligation ... may be issued by the Riksbank. ... The Riksbank may issue orders or prohibitions that are necessary to ensure that regulations issued ... are observed. In decisions regarding orders or prohibitions, the Riksbank may set a penalty."</p> <p>"Any person failing to fulfil an obligation ... to provide information or present documents or who provides incorrect information ... shall be sentenced to a fine."</p>
Swiss National Bank	<p><i>National Bank Act (2004)</i></p> <p>(A) "The National Bank shall pursue a monetary policy serving the interest of the country as a whole.</p> <p>Within this framework, it shall have the following tasks: ...</p> <p>It shall contribute to the stability of the financial system. ...</p> <p>In order to protect the stability of the financial system, the National Bank shall oversee systems for the clearing and settlement of payments and of transactions with financial instruments, in particular securities (payment systems; securities settlement systems)."</p> <p>[In summary, oversight is conducted in order to contribute to the stability of the financial system. In so doing, the ultimate goal is to ensure an effective conduct of monetary policy.]</p> <p>(B) "It shall facilitate and secure the operation of cashless payment systems. ..."</p> <p>Besides financial and monetary stability, other public policy objectives such as safe and efficient payment systems are also referred to in the NBA and provide the basis for the SNB's role as catalyst and mediator in the market for payment services.</p>	<p><i>National Bank Act (2004)</i></p> <p>The NBA formally empowers the SNB to set requirements for payment and securities settlement systems which could potentially destabilise the financial system. In an Implementing Ordinance on the NBA (2004) the SNB has established minimum requirements and oversight procedures.</p>

Institution	Source of responsibilities	Source of powers
Bank of England	<p><i>Memorandum of understanding between HM Treasury (the finance ministry), the Bank of England and the Financial Services Authority (the banking supervisor and securities regulator) (1997)</i></p> <p>“The Bank will be responsible for the overall stability of the financial system as a whole which will involve: (ii) financial system infrastructure, in particular payments systems at home and abroad. As the bankers’ bank, the Bank will stand at the heart of the system. It will fall to the Bank to advise the Chancellor, and answer for its advice, on any major problem inherent in the payments systems. The Bank will also be closely involved in developing and improving the infrastructure, and strengthening the system to help reduce systemic risk.”</p>	–
Federal Reserve	<p><i>The Federal Reserve Act establishes the basis for the Federal Reserve’s responsibilities regarding the safety and efficiency of payments and securities settlement systems. These responsibilities are summarised in the Federal Reserve Policy on Payments System Risk, as amended effective January 2005:</i></p> <p>“... the Board’s objectives are to foster the safety and efficiency of payments and securities settlement systems. These policy objectives are consistent with (1) the Board’s long-standing objectives to promote the integrity, efficiency, and accessibility of the payments mechanism; (2) industry and supervisory methods for risk management; and (3) internationally accepted risk-management standards and practices for systemically important payments and securities settlement systems.”</p>	<p>The Federal Reserve’s authority to promote its oversight objectives is derived from the legal authority it may exercise over the various types of financial institutions that operate or participate in payment and securities settlement systems. Accordingly, the nature and extent of its authority varies from system to system depending on (a) the charter type of a particular payment or securities settlement system operator or service provider, (b) the types of institutions that use a particular system or service, and (c) the types of services the system operator, service provider, and/or its users obtain from the Federal Reserve. These powers may include one or more of the authorities to charter, to examine, to regulate, to enforce (eg through cease and desist orders, suspension, removal, membership revocation, monetary penalties etc), to compel disclosure of information, to provide access to payment services, and/or to provide access to intra-day credit. The Federal Reserve also promotes its objectives by working cooperatively with other domestic and foreign financial authorities (eg bank supervisors, securities regulators, other central banks) that have their own formal powers vis-a-vis a particular system operator, service provider, and/or its users.</p>

Annex 2: Designating systems for oversight

This annex provides extracts from documents that set out the formal criteria that central banks use to determine whether a particular system is “designated” as being within the scope of oversight.

Bank of Canada

“To determine if an eligible system may be designated under ... the Act, the Bank will gather information that will permit a judgement to be made as to whether it may be operated in such a manner as to pose systemic risk. In making this judgement, clearing and settlement systems which display any of the following characteristics will receive close attention when considering whether to designate a system under the Act: (a) individual transactions on any given day in excess of \$200,000 and an aggregate value of all transactions on any given day in excess of \$500 million, determined on a gross basis; or (b) the size of the payment obligations owed to and by the participants is significant relative to the participants’ capital. This would include systems in which participants are owed funds in excess of 25 per cent of capital or in which they can owe funds to a clearing and settlement system in excess of their capital; or (c) the system plays a central role in supporting transactions in the financial markets or the economy.”

Guideline Related to Bank of Canada Oversight Activities under the Payment Clearing and Settlement Act, November 2002

Hong Kong Monetary Authority

“The Monetary Authority may ... designate ... [a] clearing and settlement system ... if, in the opinion of the Monetary Authority, the system is or is likely to become a clearing and settlement system whose proper functioning is material to the monetary or financial stability of Hong Kong or to the functioning of Hong Kong as an international financial centre.

... a clearing and settlement system shall be regarded as a clearing and settlement system whose proper functioning is material to the monetary or financial stability of Hong Kong, or to the functioning of Hong Kong as an international financial centre, if the occurrence of any significant disruption to, or the presence of any significant inefficiency in, the functioning of the system is likely to result in the monetary or financial stability of Hong Kong, or the functioning of Hong Kong as an international financial centre, being adversely affected; ...

... the Monetary Authority may, for the purpose of determining whether a clearing and settlement system is or is likely to become a clearing and settlement system whose proper functioning is material to the monetary or financial stability of Hong Kong, or to the functioning of Hong Kong as an international financial centre, have regard to any one or more of the following factors as they then apply or appear likely to apply: (a) the estimated aggregate value of transfer orders cleared or settled through the system in a normal business day; (b) the estimated average value of transfer orders cleared or settled by the system in a normal business day; (c) the estimated number of transfer orders cleared or settled by the system in a normal business day; (d) the estimated number of participants of the system; and (e) whether such system is linked to any designated system or any clearing and settlement system that is or is operated by a company recognized as a clearing house for the purposes of ... the Securities and Futures Ordinance.”

Clearing and Settlement Systems Ordinance, 2004

Bank of Italy

[The Bank of Italy carries out an evaluation of the importance of individual payment systems, based on their size and operational characteristics, the type of participants involved and the form of the reference market in order to define the applicative scope of the provisions. Among payment infrastructures, some shall be considered “significant infrastructure services” given the volume and characteristics of the data handled or the role played in the system (routing of data) and shall be subject to more stringent rules than those established for other infrastructure services. Moreover the

Bank may issue general and specific rules implementing what is provided for in these provisions taking into account inter alia the degree of importance of the systems as evaluated ...

The Bank pursues such purposes within the guidelines established by the Eurosystem and the positions emerging in the fora of international cooperation.]

Provision on oversight payment systems issued by Bank of Italy, 2004

[The Italian legal framework provides that the national SSS and those CCPs that are subject to Italian jurisdiction must be regulated and supervised by the Bank of Italy and Consob.]

Consolidated Law on Financial Intermediation, 1998

Monetary Authority of Singapore

Designation of payment systems and securities settlement systems (clearing facilities): "The Authority may designate a payment system and/or a person operating a clearing facility as a designated payment system and designated clearing house respectively, if it is satisfied that:

- (a) a disruption in the operations of the payment system or clearing facility could trigger, cause or transmit further disruption to participants or systemic disruption to the financial system or capital markets of Singapore;
- (b) a disruption in the operations of the payment system or clearing facility could affect public confidence in payment systems, the financial system or capital markets of Singapore; or
- (c) it is otherwise in the interests of the public to do so."

Payment Systems (Oversight) Bill, 2004 (expected to come into force in mid-2005)

Swiss National Bank

"The National Bank shall determine whether a system is important for the stability of the Swiss financial system under the terms [set out below].

A payment or securities settlement system is important for the stability of the Swiss financial system if:

- (a) operational or technical problems of the system might lead to serious credit or liquidity problems for financial intermediaries; or
- (b) payment or delivery problems of individual participants might be transferred to other participants via the system, which then might trigger serious credit or liquidity problems for financial intermediaries.

In determining whether a system is important for the stability of the Swiss financial system, the National Bank shall, in particular, take the following factors into account:

- (a) the types of transactions that are cleared or settled through the system, in particular whether foreign exchange, money market or capital market transactions are involved or transactions that serve to implement monetary policy;
- (b) the value and the number of transactions that are cleared or settled through the system, both as an average and on peak days;
- (c) the group of participants in the system;
- (d) the currencies in which transactions are cleared or settled through the system;
- (e) the type and number of links existing between this system and other payment or securities settlement systems;
- (f) the possibility of participants switching at short notice to the system of another operator in order to settle transactions."

Implementing Ordinance on the National Bank Act, 2004

Annex 3: Extracts from the CPSIPS, RSSS, RCCP and IMF transparency code

1. CPSIPS

Responsibility A: The central bank should define clearly its payment system objectives and should disclose publicly its role and major policies with respect to systemically important payment systems.

... If a central bank's payment system objectives are defined in a clear way, they provide a basis for consistent policymaking and provide a benchmark by which the central bank and others can judge its success in achieving them. ... The central bank's objectives also need to be understood by payment system participants and by any private sector operators of payment systems. The information should also be available to users and other interested parties.

The central bank should also disclose publicly its payment system roles and the major policies it will follow in order to achieve its objectives for systemically important payment systems. These are likely to involve more detail than the high-level aims. ...

The disclosure of major policies should include identifying systems which are systemically important, together with reasons for the judgment. Participants in such systems and any private sector operators need to be made aware whether their system is judged to be systemically important and, if it is, that the system will be expected to comply with the Core Principles. Other major policies which could appropriately be disclosed include the policy the central bank will follow if it judges that some systems do not comply with the Core Principles or policies relating to a particular programme of payment system reform or development.

It is important that the central bank's major policies be set out in writing and be equally available to all interested parties. It is unlikely to be sufficient to communicate them only through informal discussions with participants and operators or through bilateral correspondence. Active consultative procedures can also be a useful tool to support disclosure.

2. RSSS

Recommendation 18: Securities settlement systems should be subject to transparent and effective regulation and oversight. ...

... The objectives and responsibilities as well as roles and major policies of the securities regulator and the central bank should be clearly defined and publicly disclosed, so that designers, owners, operators and participants of securities settlement systems are able to operate in a predictable environment and to act in a manner that is consistent with those policies. ...

3. RCCP

Recommendation 15: A CCP should be subject to transparent and effective regulation and oversight. ...

... The objectives, responsibilities, roles and major policies of securities regulators and central banks should be clearly defined and publicly disclosed, so that designers, owners, operators and participants of a CCP are able to operate in a predictable environment and to act in a manner that is consistent with those policies. ...

4. IMF transparency code

Supporting documents to the IMF's Code of good practices on transparency in monetary and financial policies (July 2000).

Principle 5.3: The role of oversight agencies with regard to payment systems should be publicly disclosed.

The role of oversight agencies refers to the activities that a financial agency performs and the responsibilities that it holds in overseeing payment systems as a whole. The Committee on Payment and Settlement Systems' draft Core Principles for Systemically Important Payment Systems explicitly addresses the role of central banks with regard to the oversight of systemically important payment systems.

A stable and efficient payment system is a key element of any well-functioning financial system. Public disclosure of the oversight role of a central bank or of the role of any other agency with an interest in the safety and efficiency of payment systems enables designers and operators of private sector payment systems, along with participants and users of all systems and other interested parties, to have a clear understanding of the role, responsibilities, and objectives of the oversight agency. Disclosure also helps the public to understand the adequacy of oversight and form a more accurate assessment of the systemic risks facing the payment system. Where the central bank provides major parts of the payment system as well as performs oversight of the payment system, such disclosure may bring to light any conflict of interest issues.

Annex 4: Lamfalussy principles

Extract from the 1990 *Report of the Committee on Interbank Netting Schemes of the central banks of the Group of Ten countries* (<http://www.bis.org/publ/cpss04.pdf>)

Part D: Principles for cooperative central bank oversight of cross-border and multi-currency netting and settlement schemes

The following principles for the oversight of cross-border and multi-currency netting and settlement systems specify procedures which the Committee recommends for use by G-10 central banks in cooperating with one another and with other authorities. They are neither a statement nor an allocation of central banks' roles as lenders of last resort and in no way prejudice the statutory responsibilities of central banks and bank supervisory authorities. Rather, they are intended to provide a mechanism for mutual assistance among central banks in carrying out their individual responsibilities in pursuit of their shared objectives for the efficiency and stability of interbank payment and settlement arrangements. These principles may also be of use to other central banks and supervisory authorities when considering cross-border and multi-currency settlement structures.

1.1 Each central bank that has identified the actual or proposed operation of a cross-border or multi-currency netting or settlement system, outside of the country of issue of the relevant currency or currencies, should inform other central banks that may have an interest in the prudent design and management of the system. These will normally include the central bank or central banks of issue of the currencies accepted in the system, the "host-country" central bank in whose domestic market the system is located or operating, and the "home-country" central bank or central banks of the charter or incorporation of both the participants and the netting provider. These central banks should, in turn, seek to inform supervisory authorities that have responsibilities for the participants, the netting provider, or the settlement agent or agents. In carrying out this responsibility, central banks may find it useful to impose a duty or responsibility on financial institutions to report their provision of, or participation in, any netting service or system.

1.2 Central banks are most concerned with the operation of large-scale or wholesale systems which are, or have the potential to become, significant mechanisms for interbank settlements. But central banks should inform one another of all netting arrangements. What may appear to be a small operation in relation to the market of the host country, for example, could be large in relation to the interbank market in the country of issue and vice versa. Relatively small operations can also grow over time and become more significant. Thus, there should be a presumption in favour of informing other central banks and supervisory authorities about the existence of a netting system without regard, in the first instance, to its apparent importance.

2.1 Cross-border and multi-currency netting and settlement systems should be subject to oversight by a central bank which accepts primary responsibility for such oversight and there should be a presumption that the host-country central bank will have this primary responsibility. However, in consultation with other relevant central banks and supervisory authorities it could be agreed that another authority would undertake the primary responsibility.

2.2 Although several national authorities may have interests in the operation of any one cross-border or multi-currency netting system, the host central bank will usually have the broadest interest in the systemic implications of the system's operation and in the risks experienced by the participants within its domestic market. The central bank or central banks of issue will have an interest in the prudence of the settlement procedures and the implications for its domestic money market of any failure to complete settlement. The home central banks and supervisory authorities of the netting provider and of the participants will be concerned for their liquidity and solvency. The host central bank, however, is likely to be the home central bank of many of the system's participants and of the netting provider and will, of course, be the host of any resident non-domestic participants. Thus, the host central bank will normally be in the best position to oversee the activities of the netting provider and to ensure that appropriate risk controls are in place. Where a single system is simultaneously provided directly to institutions located in different financial centres, consultations between the different "host" central banks may be needed to determine which among them should have primary responsibility to oversee the system's activities.

2.3 There may be occasions where the host central bank does not wish to assume primary responsibility and where another authority would be better placed to do so. For example, where a netting system is provided by a branch of a bank chartered in another country, the home supervisory authority or home central bank may be better able to oversee the netting provider's activities and, thus, to oversee the system as a whole. This may be particularly true where the home central bank is also the central bank of issue of the relevant currency. But there should be a presumption that the host central bank will be responsible in the absence of agreement to the contrary among the relevant authorities.

3.1 ***In its oversight of a system, the authority with primary responsibility should review the design and operation of the system as a whole and consult with other relevant authorities on its conclusions both in the first instance and, from time to time, with respect to developments in the system's status.*** The statement of minimum standards for the design and operation of cross-border and multi-currency systems should provide a starting point for this review. Thus, consideration should be given to the operational and financial soundness of the message carrier, the netting provider, and the settlement agent or agents and to the legal soundness of the netting process. Special attention should be applied to the system's risk-management procedures to ensure that the provider and the participants have a clear understanding of the credit and liquidity risks they bear and that they have both the incentives and the capabilities to manage and contain these risks.

3.2 The extent of consultations among the authorities may depend upon the size and importance of the system. With respect to the largest systems central banks may wish to communicate on a regular basis. However, in reaching its initial conclusions and in its continuing oversight of any system, the authority with primary responsibility should recognise the interests and concerns of other relevant central banks and supervisory authorities through a process of consultation. At the same time, central banks and supervisory authorities responsible for the participants or the currencies in a system should keep the authority with primary responsibility informed of relevant developments. Such continuing communication and co-ordination should provide a means of anticipating and containing the systemic risks which could be transmitted in the event of the failure of a participant, or of a system, or of other disturbances.

4.1 ***The determination of the adequacy of a system's settlement and failure-to-settle procedures should be the joint responsibility of the central bank of issue and the authority with primary responsibility for the system.*** A review of the soundness of the design and operation of any netting or settlement system will necessarily entail consideration of the adequacy of both its routine settlement procedures as well as those to be invoked in the event of a participant's inability to satisfy its settlement obligations. These procedures will need to be considered in relation not only to the system's overall risk-management arrangements but also in relation to the domestic money market in which settlement ultimately occurs. Because of its knowledge of its domestic money market, and its concern for this market's stability, the views of the central bank of issue will be particularly important in the assessment of a netting system's settlement arrangements. Thus, the authority with primary responsibility will need to consult with the central bank or central banks of issue in order to reach a joint determination of the adequacy of the system's settlement and failure-to-settle procedures.

5.1 ***In the absence of confidence in the soundness of the design or management of any cross-border or multi-currency netting or settlement system, a central bank should discourage use of the system by institutions subject to its authority and if necessary, identify the use of, or the provision of services to, such a system as constituting an unsafe and unsound banking practice.*** In the course of their consultations, central banks should endeavour to ensure the prudent operation of cross-border and multi-currency systems on terms acceptable to all relevant central banks and supervisory authorities. However, if this is not possible in some cases, it is clear that each national authority must maintain its discretion to discourage the use of a system if, in its judgement, the system is not prudently designed or managed.

Annex 5: Bibliography

This annex gives references to selected documents concerning oversight. Website links are given to either the document itself or a nearby webpage (the links were current at the time of publication but may subsequently change).

Committee on Payment and Settlement Systems

Report of the Committee on Interbank Netting Schemes of the central banks of the Group of Ten countries	Nov 1990	http://www.bis.org/publ/cpss04.pdf
Core principles for systemically important payment systems	Jan 2001	http://www.bis.org/publ/cpss43.pdf
Recommendations for securities settlement systems	Nov 2001	http://www.bis.org/publ/cpss46.pdf
Assessment methodology for "Recommendations for securities settlement systems"	Nov 2002	http://www.bis.org/publ/cpss51.pdf
A glossary of terms used in payments and settlement systems	Mar 2003	http://www.bis.org/publ/cpss00b.pdf
Policy issues for central banks in retail payments	Mar 2003	http://www.bis.org/publ/cpss52.pdf
The role of central bank money in payment systems	Aug 2003	http://www.bis.org/publ/cpss55.pdf
Recommendations for central counterparties	Nov 2004	http://www.bis.org/publ/cpss64.pdf

National Bank of Belgium

Oversight responsibilities of central banks according to the core principles for systemically important payment systems	2002	http://www.nbb.be/sg/En/Missions/pdf/FSR_overs.pdf
---	------	---

Bank of Canada

Guideline Related to Bank of Canada Oversight Activities under the <i>Payment Clearing and Settlement Act</i>	Nov 2002	http://www.bankofcanada.ca/en/guide2002.htm - two
Website introduction to oversight	Sep 2003	http://www.bankofcanada.ca/en/payments/oversight.html

European Central Bank

Role of the Eurosystem in the field of payment system oversight	Jun 2000	http://www.ecb.int/pub/pdf/other/paysysoveren.pdf
Oversight standards for euro retail payment systems	Jun 2003	http://www.ecb.int/pub/pdf/other/retailpsoversightstandardsen.pdf

Bank of France

Overseeing instruments and systems	Jan 2001	http://www.banque-france.fr/gb/publications/telechar/bulletin/85etud1.pdf
------------------------------------	----------	---

Deutsche Bundesbank

Payment system oversight - a contribution to the stability of the financial system and the efficiency of payment operations	Jan 2004	http://www.bundesbank.de/download/volkswirtschaft/monatsberichte/2004/200401mb_e.pdf
---	----------	---

Hong Kong Monetary Authority

The Clearing and Settlement Systems Ordinance	Nov 2004	http://www.info.gov.hk/hkma/eng/oversight/index.htm
Guideline on the Oversight Framework for Designated Systems under the Clearing and Settlement Systems Ordinance	Nov 2004	http://www.info.gov.hk/hkma/eng/oversight/index.htm
Memorandum of Understanding between the SFC and HKMA	Nov 2004	http://www.info.gov.hk/hkma/eng/oversight/index.htm

Bank of Italy

White paper on payment system oversight	Nov 1999	http://www.bancaditalia.it/pubblicazioni/altrepub/wp/wp_pso.pdf
Provisions on oversight of payment systems	Feb 2004	http://www.bancaditalia.it/sistema_pagamenti/sorveglianza/Norm/BI/146/Regulation146.inglese.pdf
Bank of Italy Annual Report: chapters on Payment Systems Oversight and Services and on Market Supervision	Various years	http://www.bancaditalia.it/pubblicazioni/ricerc/relann/rel03/rel03en/rel03_abr_anrep.pdf (for 2003)
Innovation in electronic payments	2004	http://www.bancaditalia.it/sistema_pagamenti/sorveglianza/altrepub/Innovation.pdf
Website introduction to oversight of payment systems	–	http://www.bancaditalia.it/sistema_pagamenti
Website introduction to market supervision	–	http://www.bancaditalia.it/pol_mon_merc/sup_merc

Bank of Japan

Role of the Bank of Japan in payment and settlement systems	Nov 2002	http://www.boj.or.jp/en/set/03/set_f.htm
---	----------	---

Central Bank of Luxembourg

The oversight of the central bank of payment and securities settlement systems in Luxembourg (<i>French only</i>)	Feb 2001	http://www.bcl.lu/fr/publications/circulaires/2001/2001-163/index.html
Policy and procedures of the oversight of payment and securities settlement systems in Luxembourg (<i>A summary paper is available in English</i>)	Dec 2001	http://www.bcl.lu/fr/publications/circulaires/2001/2001-168/index.html

Central Bank of Luxembourg (cont)

Protection of the payment and securities settlement systems against crime and terrorism (<i>French only</i>)	Jun 2002	http://www.bcl.lu/fr/publications/circulaires/2002/2002-172/index.html
The analysis of risk and risk mitigation techniques in payment and securities settlement systems and the impact on central bank's oversight	Feb 2003	http://www.bcl.lu/fr/publications/cahiers_etudes/7/working_paper_7.pdf

Netherlands Bank

Oversight on payments and securities systems	Nov 2002	http://www.dnb.nl/dnb/bin/doc/OversightENG_tcm13-50667.pdf
--	----------	---

Monetary Authority of Singapore

Payment Systems Oversight Act: consultation document	Apr 2003	http://www.mas.gov.sg/resource/download/MASConsultationPaperonPaymentSystemsOversightAct.pdf
Payment Systems Oversight Act: response to feedback received on consultation document	Sep 2003	http://www.mas.gov.sg/masmcm/bin/pt1Response2Feedback_on_Payment_Systems_Oversight_Act.htm
Monograph on MAS' Roles and Responsibilities in Relation to Securities Clearing and Settlement Systems in Singapore	Aug 2004	http://www.mas.gov.sg/masmcm/upload/mm/MM_6A8653EE_6295_5312_49E8C08D02E7C9E3__6A8653FE_6295_5312_4DA0841CB79A9CF2/SCSS%20Monograph_Aug%2004.pdf
Draft Payment Systems (Oversight) Bill	Dec 2004	http://www.mas.gov.sg/masmcm/upload/mm/MM_FECA8E67_6295_5312_46D633B560AEF424__FECA8E76_6295_5312_469312B596DAB466/Draft%20Payment%20Systems%20(Oversight)%20Bill.pdf
Draft Payment Systems (Oversight) Bill: consultation document	Dec 2004	http://www.mas.gov.sg/masmcm/upload/mm/MM_FECD1D20_6295_5312_4E08C3EAD82FEA59__FECD1D30_6295_5312_40256068939CBE3D/Consultation%20Paper%20on%20Draft%20Payment%20Systems%20(Oversight)%20Bill.pdf

Sveriges Riksbank

Riksbank's oversight of financial infrastructure	May 2001	http://www.riksbank.com/upload/Dokument_riksbank/Kat_publicerat/Rapporter/economic_review_2001_3.pdf
--	----------	---

Swiss National Bank

The role of the SNB in the electronic payment system	Mar 2003	http://www.snb.ch/d/download/publikationen/q0301/QH1_RolleSNB_e.pdf
National Bank Act and Implementing Ordinance on the National Bank Act	May 2004	http://www.snb.ch/e/snb/index.html?file=recht/content_recht.html
Financial Stability Report	Jun 2004	http://www.snb.ch/e/publikationen/publi.html

Bank of England

Oversight of payment systems	Nov 2000	http://www.bankofengland.co.uk/fsr/ops.pdf
Strengthening financial infrastructure (oversight annex)	Jun 2003	http://www.bankofengland.co.uk/fsr/fsr14art2.pdf
Payment systems oversight report 2004	Jan 2005	http://www.bankofengland.co.uk/financialstability/paymentssystems/oversight/psor2004.pdf

Federal Reserve

Federal Reserve Policy on Payments System Risk	Jan 2005	http://www.federalreserve.gov/PaymentSystems/PSR/policy.pdf
--	----------	---

World Bank/CEMLA

The Oversight of the Payments Systems: A Framework for the Development and Governance of Payment Systems in Emerging Economies	Jul 2001	http://www.ipho-whpi.org/pdf/2001/Oversight.pdf
--	----------	---

Annex 6: Members of the CPSS

This report was produced by the Committee on Payment and Settlement Systems, whose members are listed below.

Chairman (European Central Bank)	Tommaso Padoa-Schioppa
National Bank of Belgium	Johan Pissens Simone Maskens
Bank of Canada	Clyde Goodlet Sean O'Connor
European Central Bank	Jean-Michel Godeffroy Ignacio Terol
Bank of France	Yvon Lucas Denis Beau
Deutsche Bundesbank	Hans-Jürgen Friederich Wolfgang Michalik
Hong Kong Monetary Authority	Norman Tak Lam Chan (until June 2004) James H Lau Jr (until June 2004) Peter Pang (from July 2004) Eddie Yue (from July 2004) Esmond K Y Lee
Bank of Italy	Carlo Tresoldi Stefano Carcascio
Bank of Japan	Tadashi Nunami Shuhei Aoki (until October 2003) Tatsuya Yonetani (from October 2003) Masayuki Mizuno
Netherlands Bank	Jaap Koning (until February 2004) Henny van der Wielen (from February 2004) Hans Brits
The Monetary Authority of Singapore	Enoch Ch'ng Terry Goh
Sveriges Riksbank	Martin Andersson Jan Schüllerqvist
Swiss National Bank	Daniel Heller Andy Sturm
Bank of England	John Trundle (until November 2003) Andrew Haldane (from November 2003) Edwin Latta
Board of Governors of the Federal Reserve System	Louise Roseman Jeffrey Marquardt Jeff Stehm
Federal Reserve Bank of New York	Lawrence M Sweet Lawrence J Radecki
Secretariat (Bank for International Settlements)	Marc Hollanders

Annex 7: Members of the working group

In producing this report, the Committee on Payment and Settlement Systems was greatly assisted by the working group it set up, whose members are listed below.

Chairman (Sveriges Riksbank)	Martin Andersson
National Bank of Belgium	Benoît Bourtembourg
Bank of Canada	Clyde Goodlet
European Central Bank	Koenraad De Geest (until August 2004) Ignacio Terol (from August 2004) Elke Wunstorf
Bank of France	Denis Beau Dorothee Delort
Deutsche Bundesbank	Matthias Göbel Birgit Zeitschel
Hong Kong Monetary Authority	Grace Lau (from July 2004) Esmond Lee (until July 2004)
Bank of Italy	Corrado Baldinelli Gerardo Coppola
Bank of Japan	Masayuki Mizuno Megumi Takei
Central Bank of Luxembourg	Norbert Goffinet
Netherlands Bank	Ron Berndsen
Monetary Authority of Singapore	Terry Goh Peng Hwee
Sveriges Riksbank	Johanna Lybeck (until November 2004) Bjorn Segendorff
Swiss National Bank	Thomas Nellen
Bank of England	Edwin Latter (from January 2004) Hilary Mott (until January 2004)
Federal Reserve Bank of New York	Lawrence M Sweet
Board of Governors of the Federal Reserve System	David Mills Jeff Stehm
Secretariat (Bank for International Settlements)	Robert Lindley

Significant contributions were also made by Pierangela Soda and Nives Coppari (Bank of Italy).