



Ref.: CESR/09-622

ESCB-CESR RECOMMENDATIONS FOR SECURITIES SETTLEMENT SYSTEMS AND RECOMMENDATIONS FOR CENTRAL COUNTERPARTIES IN THE EUROPEAN UNION

Revision marks compare the CPSS-IOSCO Recommendations
for securities settlement systems (November 2001) and
Recommendations for Central Counterparties (November
2004) with the ESCB-CESR Recommendations¹

May 2009

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¹ Note: In order to enable a better comparison of the two sets of recommendations the report structure of the ESCB-CESR recommendations was adapted to the format of the CPSS-IOSCO Recommendations for CCPs (e.g. the key issues in the ESCB-CESR recommendations follow directly the recommendation, whereas in CPSS-IOSCO RCCPs the key issues follow the explanatory paragraphs, etc.).

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PART 1:
RECOMMENDATIONS FOR
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Recommendation 1: Legal framework

The recommendation

Securities settlement systems, links between them or interoperable systems should have a well-founded, clear and transparent legal basis for their operations in the relevant jurisdictions.

Explanatory memorandum

1. The reliable and predictable operation of a securities settlement system depends on two factors: (1) the laws, rules and procedures that support the holding, transfer, pledging and lending of securities and related payments; and (2) how these laws, rules and procedures work in practice, – that is, whether system operators, participants and their customers can enforce their rights. If the legal framework is inadequate or its application uncertain, it can give rise to credit or liquidity risks for system participants and their customers or to systemic risks for financial markets as a whole.

2. The legal framework applicable to securities settlement systems and to the holding of securities varies from jurisdiction to jurisdiction and reflects the organisation of a jurisdiction's entire legal system. The legal framework for securities settlement systems includes general laws such as property and insolvency laws, and may also include laws specifically related to the operation of the system. In some jurisdictions, the general laws governing property rights and insolvency may not apply to, or may contain special provisions related to, the settlement of securities transactions. Particular attention must therefore be paid to the legal soundness of the applicable legal framework. Laws applicable to securities settlement may also be augmented by regulations or other administrative acts. Other important aspects of the legal framework are the rules and procedures of the various parts of the system, many of which represent contractual arrangements between the operators and the participants. These define the relationships, rights and interests of the operators, the participants and their customers and the manner in which and time at which rights and obligations, both in respect of contractual obligations and regarding proprietary aspects of the holding of securities, arise through the operation of the system.

3. As a general rule, the laws, regulations, rules and procedures, and generally applicable, non-negotiable contractual provisions governing the operation of securities settlement systems should be clearly stated, understandable, internally coherent and unambiguous. They should also be public and accessible.

4. In addition to the requirements of Recommendation 17, CSDs should, where relevant and as a minimum, provide participants with information (supported where appropriate by an analysis or opinion) on the following subjects: (1) the legal status of the securities settlement system operator; (2) the legal regime governing the system; (3) the rules governing access to the system; (4) the legal nature of the securities held through the system, e.g. bearer, dematerialised, etc.; (5) the applicable law governing the contractual relationship between the operator (or relevant office, where applicable) and participants; (6) the office(s) where activities related to the maintenance of securities accounts are being conducted; (7) the relevant law that applies to proprietary aspects of securities held in the systems; (8) the nature of the property rights with respect to securities held in the system; (9) rules on the transfer of securities (or interest in securities), especially concerning the moment of transfer, irrevocability and finality of transfers, also in links and interoperable systems; (10) how DVP is achieved; (11) rules under the applicable proprietary law in the system on securities lending, as well as rules governing the use of collateral; (12) rules on settlement failures, including rules relating to the possible unwinding of failed transactions; (13) financial guarantees (safeguards) protecting investors in case of insolvency of intermediaries; (14) rules under the applicable law in the system for the liquidation of positions, including the liquidation of assets pledged or transferred as collateral; (15) a general description of the above matters in case of default or the insolvency of the system operator; (16) the applicable law governing the contractual relationship underpinning links and interoperable systems.

5. As the Settlement Finality Directive provides legislation that supports most of the legal issues listed above, all CSDs that operate a settlement system governed by the law of an EEA Member State should apply for designation under this Directive.

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Deleted: <#>Key aspects of the settlement process that the legal framework should support include: enforceability of transactions, protection of customer assets (particularly against loss upon the insolvency of a custodian), immobilisation or dematerialisation of securities, netting arrangements, securities lending (including repurchase agreements and other economically equivalent transactions), finality of settlement, arrangements for achieving delivery versus payment, default rules, and liquidation of assets pledged or transferred as collateral.¶ The effective operation of an SSS requires that

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6. The effective operation of a securities settlement system requires its internal rules and procedures, and those for links and interoperable systems, to be enforceable with a high degree of certainty. The rules and contracts related to the operation of the securities settlement system should be enforceable even in the event of the insolvency of a system participant, the participant in a linked or interoperable system or of the operators of linked or interoperable systems, whether the participant is located in the jurisdiction whose laws govern the system, or that of the operator of the system, or in another jurisdiction, altogether. The effective operation of a securities settlement system also requires the system and involved intermediaries to have a high degree of certainty regarding rights and interests in the securities and other assets held in the system, including which law is applicable in respect of contractual and proprietary aspects; and rights to use collateral, transfer property interests, and to make and receive payments, notwithstanding the bankruptcy or insolvency of an individual system participant, one of its customers or an intervening intermediary in another jurisdiction. The claims of the operator of a securities settlement system, or the system participants against collateral posted by a participant in a system should in all events have priority over all other claims of non-system creditors. For example, non-system creditors should be able to enforce their claims against collateral provided in connection with the system only after all claims arising within the system have been satisfied out of the collateral. In some jurisdictions, this may require collateral to be held with a securities settlement system, in the form of securities (e.g. government bonds) instead of in cash. Lastly, direct system participants, intervening intermediaries, and their respective customers should have a high degree of certainty regarding their rights and interests in securities they hold through the system (in particular with regard to the nature of their proprietary interest in the securities, plus whether there are additional contractual rights against the issuer or intermediary), notwithstanding the insolvency of a user, a participant or a component of a securities settlement system (such as a CSD, or settlement agent bank).

7. The legal framework for a securities settlement system must be analysed in the relevant jurisdictions, which include: (i) jurisdiction(s) in which the system operator is established (inclusive of offices engaged in activities related to the maintenance of securities accounts, where applicable); (ii) jurisdiction(s) in which the system's direct participants are established, domiciled or have their principal office; and (iii) whose laws affect the operation of the system as a result of (a) the law governing the system; (b) the law applicable to the relationship with the participants (which may be based on legal or contractual arrangements); and (c), if different from (b), the law applicable to proprietary aspects of securities held on participants' accounts with the system. Relevant jurisdictions may also include a jurisdiction in which a security handled by the system is issued, jurisdictions in which the system performs activities related to the maintaining of its securities accounts; jurisdictions in which an intermediary, its customer or the customer's bank is established, domiciled or has its principal office; or a jurisdiction whose laws govern a contract between these parties.

8. Where a system has a cross-border dimension through linkages or interoperable arrangements or remote participants, or by operating through foreign offices, the rules governing the system should clearly indicate the law that should apply to each aspect of the settlement process. The operators of cross-border systems must address conflict of law issues when there is a difference in the substantive laws of the jurisdictions that have a potential interest in the system. In such circumstances, each jurisdiction's conflict of law rules specify the criteria that determine the law applicable to the system, to the contractual aspects of the relationship with participants, and to the proprietary aspects of securities held on the participants' accounts with the system. System operators and participants should be aware of conflict of law issues when structuring the rules of a system, when setting the law that governs the system, as well as when considering the law that will be applicable to the proprietary aspects of securities held on a participant's account with the system. System operators and participants should also be aware of constraints on their ability to set such laws by the EU legal framework. Other relevant jurisdictions ordinarily do not permit system operators and participants to circumvent the fundamental public policy of that jurisdiction by contract. Subject to such constraints, the legal framework should support appropriate contractual choices of law in the context of both domestic and cross-border operations, with regard to: (a) the law governing a system; (b) the law applicable to contractual aspects of the relationship with each participant, as well as between linked or interoperable systems; and (c) the law applicable to proprietary aspects of securities held on a participant's account with a system. In many cases, the law chosen to govern the operation of a securities settlement system will be that of the location of a CSD. The application of a multitude of jurisdictions within a system

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increases the legal complexity and could possibly affect systemic stability. The Settlement Finality Directive has reduced these risks by providing clear rules on the law used to govern the system and the law used to govern the rights and obligations of a participant in an insolvency situation. In the same vein, the range of jurisdictions applicable in connection with a system should be kept to a minimum. Subject to a legal risk analysis, it may prove advisable that only one legal system is applicable to govern the proprietary aspects of all securities held on the participants' accounts with the system, and similarly only one to govern the contractual aspects of the relationship between the system and each of its participants. Ideally, the applicable law should be identical to the law governing the system (Article 2(a) and Article 8 of the Settlement Finality Directive, as revised), in order to safeguard systemic finality, certainty and transparency. Linked or interoperable systems should identify, disclose and address any additional legal risks.

9. For systemic risk purposes, the harmonisation of rules should be promoted to minimise discrepancies stemming from different national rules and legal frameworks. This will minimise the effects of potential conflict of laws thereby increasing the level of legal certainty. The legal and regulatory framework comprises different kind of "rules". In case the rule is set out in the law, the relevant competent authorities should address the relevant issues. In this respect, some harmonisation has been achieved by the implementation of the Settlement Finality Directive, of the financial collateral directive and of MiFID. Further harmonisation may be considered at the EU level in the future. In case the rule is not set by an international or national law but depends on self-regulatory bodies or by the CSD itself (e.g. participation requirements), these institutions should endeavour to harmonise rules at European Level.

Key issues

1. As a general rule, laws, regulations, rules and procedures, and generally applicable, non-negotiable contractual provisions governing the operation of securities settlement systems, links (see Recommendation 19) and interoperable systems², should be clearly stated, understandable and readily accessible to participants and the public.
2. The legal framework should demonstrate a high degree of legal assurance for each aspect of the clearing and settlement process, including legally valid and enforceable arrangements for netting and collateral.
3. The rules and contractual arrangements related to the operation of the securities settlement systems and the entitlement to securities should be valid and enforceable, even in the event of the insolvency of a system participant, a participant in a linked or interoperable system, or the operator of the system or operators of linked or interoperable systems.
4. The operators should identify the relevant jurisdictions for each aspect of the clearing and settlement process, and should address any conflict of law issues for cross-border systems.
5. All eligible CSDs governed by the law of an EEA Member State should apply to have their securities settlement systems designated under the European Directive 98/26/EC on settlement finality in payment and securities settlement systems, as amended (hereinafter referred to as the Settlement Finality Directive). The relevant authorities should actually designate the systems that meet the criteria of the Settlement Finality Directive.
6. For systemic risk purposes, the relevant public authorities should support the harmonisation of rules so as to minimise any discrepancies stemming from different national rules and legal frameworks.

Recommendation 2: Trade confirmation and settlement matching

The recommendation

Confirmation of trades between direct market participants should occur as soon as possible after trade execution, but no later than trade date (T+0). Where confirmation of trades by indirect market participants (such as institutional investors) is required, it

² Two or more systems whose system operators have entered into an arrangement (including links) between themselves that involves cross-system execution of transfer orders. Such arrangement between two or more systems cannot be considered as a system itself

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<#>The legal framework, including requirements relating to contractual choices of law, should give great weight to the public interest in the effective operation of SSSs and to the public necessity for legal certainty in the irreversibility of securities settlements. Each jurisdiction should seek to promote national laws and public policies that support the CPSS-IOSCO Technical Committee recommendations for SSSs and related arrangements. If the legal framework in a particular jurisdiction does not support the existing SSSs or the implementation of these recommendations, the appropriate regulatory and supervisory authorities should seek legislative reform.¶

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should occur as soon as possible after trade execution, preferably on T+0, but no later than T+1.

Settlement instructions should be matched as soon as possible and, for settlement cycles that extend beyond T+0, this should occur no later than the day before the specified settlement date.

Explanatory memorandum

1. The first step in settling a securities trade is to ensure that the buyer and the seller agree on the terms of the transaction, a process referred to as trade confirmation. Often a broker-dealer or member of an exchange (a direct market participant) acts as an intermediary in executing trades on behalf of others (indirect market participants). In such circumstances, trade confirmation often occurs in two separate parts: confirmation of the terms of the trade between direct participants, and confirmation (sometimes termed "affirmation") of the intended terms between each direct participant and the indirect participant for whom the direct participant is acting. (generally, indirect market participants for whom confirmations are required include institutional investors and cross-border clients). For trades involving institutional investors or cross-border clients, affirmation might be a precondition for releasing the cash and/or securities in time for settlement. Therefore, trade confirmation/affirmation, when required, should preferably occur without delay after trade execution, but no later than T+1. For both parts of the confirmation process, agreement of trade details should occur as soon as possible so that errors and discrepancies can be discovered early in the settlement process. Early detection will help to avoid errors in recording trades, which if undetected could result in inaccurate books and records, increased and mismanaged market risk and credit risk, and increased costs.

2. While this process of trade confirmation is underway, the back offices of the direct market participants, indirect market participants and custodians that act as agents for market participants need to prepare settlement instructions, which should be matched prior to the settlement date. This of course only applies to settlement cycles that extend beyond T+0, and only for transactions where matching is required. In some systems, instructions for free-of-payment transfers do not need to be matched and, therefore, this requirement is not applicable. The requirement is also not applicable to systems where trading instructions are subject to netting as part of the clearing process. Speedy, accurate verification of trades and matching settlement instructions is an essential precondition for avoiding settlement failures, especially when the settlement cycle is relatively short. (see Recommendation 3 regarding the length of settlement cycles).

3. Trade confirmation systems are increasingly becoming automated. The automation of trade confirmation and settlement matching systems is encouraged, and such systems should be interoperable. Many markets already have in place systems for the automatic comparison of trades between direct market participants. In many markets, the use of electronic trading systems obviates the need for direct market participants to match the terms of the trade. Automated matching systems (or matching utilities) have also been proposed and implemented for trade confirmation between direct market participants and indirect market participants and for the matching of settlement instructions. However, if the number of organisations providing automated trade confirmation and settlement matching systems is to grow, their systems need to be interoperable to avoid inefficiency and market fragmentation.³ Operators of systems for trade confirmation, affirmation and matching of settlement instructions should be urged to adhere to the present recommendation.

4. Automation improves processing times by eliminating the requirement to send information back and forth manually between parties and by avoiding the errors inherent in manual processing. At its most sophisticated, automation allows manual intervention to be eliminated from post-trade processing through the implementation of STP. STP allows trade data to be entered only once, and then those same data are used for all post-trade requirements related to settlement. Many practitioners believe that STP needs to be used market-wide, both to maintain high settlement rates as volumes increase and to ensure timely settlement of cross-border trades, particularly if reductions in settlement cycles are to be achieved. STP systems may use a common message format or use a translation facility that either converts different message formats into a

³ ISO 15022 and new message standard ISO 20022 should be used whenever feasible

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common format or translates between different formats. Several initiatives aim to achieve STP. These initiatives, including those aimed at introducing and expanding the use of matching utilities, should be encouraged, and direct and indirect market participants should achieve the degree of internal automation necessary to take full advantage of whatever solutions emerge. The implementation of STP requires a set of actions to be taken by all parties involved in securities transactions such as trade confirmation providers, CSDs, market operators, custodians, broker-dealers and investment firms. For example, they are expected to adopt universal messaging standards and communication protocols in order to have timely access to accurate data for trade information enrichment, mainly with regard to clearing and settlement details (see Recommendation 16).

5. It is expected that in their contractual relationship with the operators of a trade confirmation, affirmation and matching system, market participants will adhere to the requirements specified by the recommendation.

Key issues

1. Confirmation of trades between direct market participants should occur as soon as possible after trade execution, but no later than T+0.

2. When confirmation/affirmation of trades by indirect market participants is required by regulators, clearing systems or market participants, it should occur as soon as possible after trade execution, preferably on T+0, but no later than T+1.

3. Settlement instructions should be matched prior to settlement and no later than the day before the specified settlement date for settlement cycles longer than T+0. This does not apply to free-of-payment transfers in those systems where matching is not required.

Recommendation 3: Settlement cycles and operating times

The recommendation

Rolling settlement should be adopted in all securities markets. Final settlement should occur no later than T+3. The benefits and costs of EU-wide settlement cycles shorter than T+3 should be evaluated.

The operating hours and days of CSDs should be open at least during the operating time of the relevant payment system (at least during TARGET2 operating times for transactions denominated in euro).

Explanatory memorandum

1. Under a rolling settlement cycle, trades settle a given number of days after the trade date rather than at the end of an account period, thereby limiting the number of outstanding trades and reducing aggregate market exposure. The longer the period from trade execution to settlement, the greater the risk that one of the parties may become insolvent or default on the trade; the larger the number of open trades prior to settlement; and the greater the opportunity for the prices of the securities to move away from the contract prices, thereby increasing the risk that non-defaulting parties will incur a loss when replacing the unsettled contracts. In 1989, the G30 recommended that final settlement of cash transactions should occur on T+3, i.e. three business days after the trade date. However, the G30 recognised that “to minimise counterparty risk and market exposure associated with securities transactions, same-day settlement is the final goal”.

2. This recommendation retains T+3 settlement as a minimum standard. Rolling settlement at T+3 is the current European minimum standard, with the exception of OTC transactions, where the terms of settlement are bilaterally negotiated. Many markets are already settling at a shorter interval than T+3. For example, many government securities markets already settle on T+1. Likewise, where demand exists, securities settlement systems should support T+0 for OTC transactions. The standard judged appropriate for a type of security or market will depend upon factors such as the transaction volume, price volatility and the extent of cross-border trading in the instrument. In the EU, markets should evaluate whether a cycle shorter than T+3 is appropriate, on the basis of the risk reduction benefits that could be achieved, the costs that

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would be incurred and the availability of alternative means of limiting pre-settlement risk, such as the use of a CCP (see Recommendation 4 below).

3. The fragmentation of the EU securities markets could be reduced if settlement cycles were further harmonised across markets. However, harmonisation encompassing all types of securities in all markets could prove too burdensome in the short term. A more limited solution could be to have different, but still harmonised, settlement cycles for different types of securities. The latter solution would be more in line with the fact that the standard judged appropriate for a type of security depends upon several factors (see above). Therefore, the cost-benefit analysis referred to in the previous paragraph should also take account of the requirements of markets for different types of securities, and should take into consideration the difficulties that cross-border harmonisation according to asset class entails. In addition, attention should be paid to creating incentives for early settlement during the trading day.

4. Reducing the settlement cycle is neither cost-free nor without certain risks. This is especially true for markets with significant cross-border activity, as differences in time zones and national holidays, and the frequent involvement of multiple intermediaries, make timely trade confirmation more difficult. In most markets, a move to T+1 (perhaps even to T+2) would require a substantial reconfiguration of the trade settlement process and the upgrading of existing systems. For markets with a significant share of cross-border trades, substantial system improvements may be essential for shortening settlement cycles. Without such investments, a move to a shorter cycle could generate increased settlement failures, with a higher proportion of participants unable to agree and exchange settlement data or to acquire the necessary resources for settlement in the time available. Consequently, replacement cost risk would not be reduced as much as anticipated, and operational risk and liquidity risk could increase.

5. In the European context, any harmonisation of settlement cycles may also require a greater harmonisation of operating days and hours. Currently, cross-border transactions cannot be settled in time when the infrastructure necessary for the completion of settlement is not available, for example on account of different national holidays. The availability of the settlement infrastructure during a harmonised calendar of working days would be the ideal solution. Therefore, the CSDs should be open at least during the operating times of the relevant payment system (e.g. during TARGET 2 operating times for transactions denominated in euro). In particular, settlement deadlines of CSDs should be harmonised to accept instructions for the same settlement day.

6. Undertaking a cost-benefit analysis on the harmonisation of settlement cycles, operating days and hours as well as the shortening of settlement cycles is primarily a task for market participants, and for system operators and users in particular. These efforts should be encouraged by the authorities. However, the public authorities should consider stepping in and conducting a cost-benefit analysis if there is no market initiative within an appropriate time frame. In any event, market participants should be invited to participate in any initiative taken. Any cost-benefit analysis must include two steps: first, an exercise setting the parameters for the evaluation of costs and benefits; and second, an assessment of different harmonisation scenarios against these parameters.

7. Regardless of the settlement cycle, the frequency and duration of settlement failures should be monitored closely. Some markets are not fully realising the benefits of T+3 settlement because the rate of settlement on the agreed date falls significantly short of 100%. In such circumstances, the risk implications of the failure rates should be analysed and actions identified that could reduce the rates or mitigate the associated risks. For example, monetary penalties for failing to settle could be imposed contractually or by market authorities; alternatively, failed trades could be marked to market and, if not resolved within a specified time frame, closed out at market prices. Other tools to reduce settlement failures are, for example, securities lending and buy in procedures. As another method of reducing the failure rate, the system operator could set maximum periods for recycling failed transactions and determine that unsettled transactions will be dropped at the end of the recycling period. For the same purpose, after consultation with the users, the system operator might set a maximum size for settlement instructions.

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Key issues

1. Rolling settlement should occur no later than T+3. Further harmonisation and/or shortening of settlement cycles need to be considered in the interest of ensuring more efficient EU markets. Any such harmonisation and/or shortening should take account of the instruments and markets in question and should be based on a cost-benefit analysis.
2. The frequency, duration and value of settlement failures should be monitored and evaluated by the operator of the securities settlement system.
3. The opening hours and days of CSDs should be open at least during the operating times of the relevant payment system (at least during TARGET 2 operating times for transactions denominated in euro). The emergency plans of CSDs should allow them to extend operating hours to ensure safe and complete settlement in case of emergency.
4. The risk implications of fail rates should be analysed and actions taken that reduce these rates or mitigate the associated risks.

Recommendation 4: Central counterparties (CCPs)

The recommendation

The benefits and costs of establishing a CCP should be evaluated. Where a CCP mechanism or guarantee arrangement has been introduced, it should be assessed against the ESCB-CESR Recommendations for CCPs or against the checklist for guarantee arrangements⁴ respectively.

Explanatory memorandum

1. A central counterparty (CCP) interposes itself between the counterparties to a trade, becoming the buyer to every seller and the seller to every buyer. Thus, from the point of view of market participants, the credit risk of the CCP is substituted for the credit risk of the other participants. This has both cost and efficiency benefits for market participants. It reduces costs by streamlining risk management. Entities conducting transactions in financial instruments, including derivatives transactions, are exposed to counterparty risk and therefore implement risk mitigation processes and controls. Such measures entail both operational and opportunity costs, and the higher the risk and the more counterparties that an organisation has exposure to, the greater these costs. A CCP can lower these costs by greatly reducing the number of counterparty business relationships. Moreover, when a participant uses a CCP, it can deal with any counterparty that it knows is eligible to use the CCP without extensive due diligence, as it knows its contractual relationship and risk exposure will only concern the CCP. Furthermore, this exposure concentration also frees up for other purposes the credit lines that market participants would otherwise have to maintain with each other. Efficiency is also improved because each market participant communicates only with the CCP about risk mitigation measures, instead of managing a series of bilateral relationships with separate participants. If a CCP manages its risks effectively, its probability of default may be less than that of all or most market participants.
2. Moreover, a CCP typically bilaterally nets its obligations vis-à-vis its participants, which achieves multilateral netting of each participant's obligations vis-à-vis all of the other participants. This can reduce costs and risks. Netting substantially reduces potential losses in the event of a default of a participant. In addition, netting reduces the number and value of deliveries and payments needed to settle a given set of trades, thereby lowering liquidity risks and transaction costs.
3. In addition to these benefits, the growing demand for CCP arrangements in part reflects the increasing use of anonymous electronic trading systems, where orders are matched according to the rules of the system and participants cannot always manage their credit risks bilaterally

⁴ References to the checklist for guarantee arrangements refer to the CPSS-IOSCO checklist for guarantee funds (CPSS-IOSCO Recommendations for Central Counterparties, November 2004, Section 5).

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through their choice of counterparty. Furthermore, CCPs may also help enable connectivity between market participants by requiring members to use common practices and processes.

4. Establishing a CCP, particularly given the comprehensive risk management arrangements required in such an entity, will necessitate substantial setting-up and day-to-day running costs that will need to be considered when determining the overall net benefits that may accrue from a CCP. The possibility of employing the services of an existing CCP or establishing a new CCP could be considered. However, the fact that risk is concentrated in a single entity should also be taken into account.

5. Individual markets that have not previously had or used a CCP should comprehensively assess the balance of the benefits, costs and risks of a CCP against existing arrangements. This balance will depend on factors such as the volume and value of transactions, trading patterns among counterparties, and the opportunity costs associated with settlement liquidity. A growing number of markets have determined that the benefits of implementing/using a CCP outweigh the costs.

6. Some European markets have arrangements in place which indemnify market participants against losses from counterparty defaults without actually acting as CCPs. Such guarantee arrangements vary significantly in terms of markets covered, size and frequency of contributions, degree of protection, etc. However, certain generic characteristics can be identified from a review of the arrangements which exist in Europe. It is often an exchange or CSD that organises and administers the arrangement. The exchange or CSD does not actually act as a counterparty to trades and therefore is not obligated to fulfil the settlement obligations of a defaulting member. Rather, it undertakes to indemnify its members against losses incurred when they close out and replace contracts with a defaulting member. To ensure that adequate resources are available to indemnify its members, the administrator of the guarantee arrangement may impose margin requirements and may also maintain financial resources, including contributions from members and the right to call on members for additional contributions. In other words, these arrangements vary from very simple insurance arrangements to services which closely resemble those of a CCP.

7. Individual markets that have such a guarantee arrangement should be encouraged to assess the balance of the benefits and costs of transforming that arrangement into a CCP. This balance will depend on factors such as the characteristics of the guarantee scheme, the volume and value of transactions, trading patterns among counterparties, and the opportunity costs associated with settlement liquidity.

8. From the perspective of the members, the assets backing the guarantee are substituted for the credit risk of the other members, so the guarantee performs to varying extents a similar function to a CCP. It is important that the guarantee arrangement is also assessed according to the guidelines presented in the ESCB-CESR Recommendations pertaining to CCPs, as set out in Part 2 of this document.

Key issues

1. If there is no CCP, the balance of the benefits and costs of establishing a CCP should be carefully assessed. If a guarantee arrangement has been introduced, the benefits and costs of transforming this arrangement into a CCP should be analysed.

2. A CCP should be assessed against the ESCB-CESR Recommendations pertaining to CCPs that are included in Part 2 of this report. A guarantee arrangement that in terms of significance, function and risk management tools is comparable to a CCP should be assessed against the relevant ESCB-CESR Recommendations for CCPs and other guarantee arrangements should be evaluated on the basis of the checklist for guarantee arrangements.

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Deleted: <#>If a CCP is established, it is important that it have sound risk management because the CCP assumes responsibility for risk management and reallocates risk among its participants through its policies and procedures. As a result, if a CCP does not perform risk management well, the CCP could increase risk to market participants. The ability of the system as a whole to withstand the default of individual participants depends crucially on the risk management procedures of the CCP and its access to resources to absorb financial losses. The failure of a CCP would almost certainly have serious systemic consequences, especially where multiple markets are served by one CCP. Consequently, a CCP's ability to monitor and control the credit, liquidity, legal and operational risks it incurs and to absorb losses is essential to the sound functioning of the markets it serves. A CCP must be able to withstand severe shocks, including defaults by one or more of its participants, and its financial support arrangements should be evaluated in this context. Furthermore, there must be a sound and transparent legal basis for the netting arrangements, whether by novation or otherwise. For example, netting must be enforceable against the participants in bankrupt [... [42]

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Recommendation 5: Securities lending

The recommendation

Securities lending and borrowing (or repurchase agreements and other economically equivalent transactions) should be encouraged as a method for avoiding settlement failures and expediting the settlement of securities. Barriers that inhibit the practice of lending securities for this purpose should be removed. The arrangements for securities lending should be sound, safe and efficient.

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Explanatory memorandum

1. Mature and liquid securities lending markets (including markets for repurchase agreements and other economically equivalent transactions) generally improve the functioning of securities markets by allowing sellers ready access to securities needed to settle transactions where those securities are not held in inventory; by offering an efficient means of financing securities portfolios; and by supporting participants' trading strategies. The existence of liquid securities lending markets reduces the risks of failed settlements because market participants with an obligation to deliver securities that they have failed to receive and do not hold in inventory can borrow these securities and complete delivery. Securities lending markets also enable market participants to cover transactions that have already failed, thereby avoiding any negative repercussions from the failure. In cross-border transactions, particularly back-to-back transactions, it is often more efficient and cost-effective for a market participant to borrow a security for the delivery than to deal with the risk and costs associated with a settlement failure.

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2. Liquid securities lending markets are therefore to be encouraged, subject to appropriate restrictions on their use for purposes prohibited by regulation or law. For example, borrowing to support short sales is illegal in some circumstances in some markets. Even in jurisdictions that restrict securities lending because of other public policy concerns, authorities should consider permitting lending to reduce settlement failures. Impediments to the development and functioning of securities lending markets should be removed. In many markets, the processing of securities lending transactions involves manually intensive procedures. In the absence of robust and automated procedures, there is greater likelihood of errors and operational risks, and it may be difficult to achieve timely settlement of securities lending transactions, which often need to settle on a shorter cycle than regular trades. Securities lending transactions can be arranged in several ways. The scope for improvement in the processing of cross-border borrowing and lending transactions is particularly large. Some settlement systems seek to overcome these impediments by providing centralised lending facilities; others offer services intended to support the functioning of bilateral lending markets. The needs of individual markets differ, so the usefulness of the different types of facilities should be evaluated. For example, in some markets bilateral securities lending transactions (including OTC market transactions) between participants play a crucial role in reducing settlement failures, and it may not be necessary to introduce a centralised securities lending facility.

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3. Other impediments to securities lending could arise from tax or accounting policies, from legal restrictions on lending, from an inadequate legal underpinning for securities lending, or from ambiguities about the treatment of such transactions in the event of bankruptcy. One of the most significant barriers to development may be related to taxation that specifically addresses securities lending transactions. A tax authority's granting of tax neutrality to the underlying transaction and the elimination of certain transaction taxes have served to increase lending activity in several jurisdictions. In the European context, barriers related to taxation should be removed in order to facilitate securities lending. Accounting standards also have an influence on the securities lending market, particularly with respect to whether, and under what conditions, collateral must be reflected on the balance sheet. Authorities in some jurisdictions restrict the types or amounts of securities that may be loaned, the types of counterparties that may lend securities, or the permissible types of collateral. Uncertainty about the legal status of transactions, for example their treatment in insolvency situations, also inhibits the development of a securities lending market. The legal and regulatory structure must be clear so that all parties involved understand their rights and obligations. The Settlement Finality Directive and Directive

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2002/47/EC on financial collateral arrangements, as amended, provide greater certainty in this regard across the EU. As markets continue to develop, and experience with these two Directives grows, it will be important to ensure that certainty is maintained, if necessary via further legal provisions.

4. For some markets the establishment of centralised securities lending facilities would permit the matching of potential borrowers and lenders, making the process of securities lending faster and more efficient. These lending facilities often apply automated procedures to reduce errors and operational risks and to achieve timely settlement of transactions, which often need to settle on a shorter cycle than regular trades.

5. The choice of whether to introduce a centralised lending facility or to rely on bilateral lending should be left to each market (the decision to create centralised lending facilities belongs to the provider of these services), depending on the specific needs of its participants, and not as a result of the design of a settlement system. However, where a centralised lending facility exists, all participants in the settlement system should be granted equal access, and the conditions for access should be transparent to the user. Generally, refusal of access would need to be clearly justified on the basis of transparent and fair access criteria. For example, such a refusal could be warranted by risk management concerns (see Recommendation 14). Similarly, access to securities lending facilities should not be compulsory, unless it is used as a last resort for fails management. The choice between centralised securities lending facilities and bilateral arrangements should be left to the sole discretion of participants and based on transparent pricing, so that participants are not de facto forced to use the facility. This would not prevent the possibility of having facilities that can be automatically activated in some circumstances, notably to facilitate the management of fails on regulated markets and/or when a CCP is used, which should be clarified ex ante in the relevant documentation.

6. Normally the provider assists with the technical aspects of the securities lending process, allowing for a concentration of all the relevant information and, in the case of CSDs, the ability to register lending/borrowing interests. When the provider acts as principal, it legally interposes itself between the lender and the borrower.

7. In most European countries, the legal framework, capital structure and risk profile of CSDs do not allow them to act as principals to securities lending transactions. However, this should not prevent them from providing the technical functionality that can be used by their participants and other users. Such a functionality could be developed either to lend securities automatically when a settlement failure would otherwise occur owing to a lack of securities, or to lend securities only when participants actively decide it is necessary. Although market participants should not be compelled to participate in an automated securities lending facility, it is important that the right economic incentives are in place, together with robust risk management and mitigation procedures, in order to encourage broad participation both by market participants and, in particular, by institutional investors that would like to increase the return on their securities.

8. While securities lending may be a useful tool, it poses a risk to both the borrower and the lender. The securities lent or the collateral may not be returned when needed, because of counterparty default, operational failure or a legal challenge, for example. Those securities would then need to be acquired in the market, perhaps at a cost. Counterparties to securities loans should implement appropriate risk management and mitigation policies, including conducting credit evaluations, setting credit exposure caps, collateralising exposures, marking exposures and collateral to market daily, and employing master legal agreements.

9. In order to preserve the financial integrity of the provider of a centralised securities lending arrangement when it takes credit risk, it is important that adequate risk management and mitigation measures which substantially reduce the associated risks are in place.

Key issues

1 The relevant public authorities should remove any impediments (e.g. legal, tax and accounting framework) to the development and functioning of securities lending.

2 Securities lending and borrowing should be encouraged as a method for expediting securities settlement and reducing settlement failures. Where they exist, securities lending arrangements should meet the requirements of the particular market in order to minimise settlement failures.

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Securities lending services, in connection with securities settlement processes, can be arranged bilaterally or as an automated and centralised facility.

3 A centralised securities lending facility can be an efficient mechanism for reducing settlement failures. However, in markets where the number of settlement failures remains low, centralised securities lending arrangements may not be justified from a cost-benefit perspective.

4 Supervisors and overseers should have policies and procedures to ensure that risks stemming from securities lending activities are appropriately managed by entities subject to their supervision and oversight.

5 In order to preserve its financial integrity, the principal to centralised securities lending arrangements should apply adequate risk management and mitigation measures in line with the requirements set out in Recommendation 9.

6 Entities providing securities lending for securities settlement should in no case be allowed to run debit balances or to create securities. Clients' assets should only be used with their explicit consent. See also key issues 5 and 6 of Recommendation 12.

Recommendation 6: Central securities depositories (CSDs)

The recommendation

Securities should be immobilised or dematerialised and transferred by book entry in CSDs to the greatest possible extent. To safeguard the integrity of securities issues and the interests of investors, the CSD should ensure that the issue, holding and transfer of securities are conducted in an adequate and proper manner.

Explanatory memorandum

1. There are several different ways for ultimate owners to hold securities. In some jurisdictions, physical securities circulate and the ultimate owners may keep securities in their possession, although to reduce risks and safekeeping costs they typically employ a custodian to hold them on their behalf. The costs and risks associated with owning and trading securities may be reduced considerably through immobilisation of physical securities, which involves concentrating the location of physical securities in a CSD or other depository system. To promote the immobilisation of all certificates of a particular issue, a jurisdiction could encourage the issuance of a global note, which represents the whole issue. A further step away from circulating physical securities is full dematerialisation of a securities issue. In this approach, no global note is issued, as the rights and obligations stem from book entries in an electronic register.

1. Securities holding systems belong to three general categories: direct, indirect or a combination of both, depending on the relationship between the ultimate owner of the securities and the depository system in which they are held. In some markets, securities may be held on an account in the name of a financial institution/intermediary rather than that of the ultimate owner. These types of arrangement are sometimes referred to as indirect holding systems. In other markets the ultimate owner is listed in the records of the depository system. This is sometimes known as a direct holding system. Some systems may offer both facilities. Each type of system offers both advantages and disadvantages and both types of systems can be designed in a manner that complies with these Recommendations.

2. The immobilisation or dematerialisation of securities and their transfer by book entry within a CSD significantly reduces the total costs associated with securities settlement and custody. By centralising the operations associated with custody and transfer within a single entity, costs can be reduced through economies of scale. In addition, efficiency gains can be achieved through increased automation, which reduces the errors and delays inherent in manual processing. By reducing costs and improving the speed and efficiency of settlement, book entry settlement also supports the development of securities lending markets, including markets for repurchase agreements and other economically equivalent transactions. These activities, in turn, enhance the liquidity of securities markets and facilitate the use of securities collateral to manage counterparty risks, thereby increasing the efficiency of trading and settlement. Effective

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governance (see [Recommendation 13](#)) is necessary, however, to ensure that these benefits are passed on to the customers of the CSD.

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3. The immobilisation or dematerialisation of securities also reduces or eliminates certain risks, for example the risk of destruction, falsification or theft of certificates. The transfer of securities by book entry is a precondition for the shortening of the settlement cycle for securities trades, which reduces the replacement cost risks. Book-entry transfer also facilitates delivery versus payment, thereby eliminating principal risks.

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4. Thus, for reasons of both safety and efficiency, securities should be immobilised or dematerialised in CSDs to the greatest possible extent. Some investors (both retail and institutional) may not be prepared to give up their certificates, because they like the apparent assurance and tangible evidence of ownership that securities certificates and other physical documents provide. However, secure electronic documentation can provide higher levels of assurance. On this basis, the operators and users of depository systems as well as the relevant public authorities should explain clearly to the public the benefits of dematerialisation or immobilisation, including lower transaction and custody charges.

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5. Regardless of whether it is based on immobilisation or dematerialisation, a CSD carries out a number of core activities associated with the issue and transfer of securities via book entry. In the European context, these core activities typically comprise: a) recording the amount of each issue held in the system in a specific account in the name of the issuer⁷; b) maintaining securities accounts; c) facilitating the transfer of securities via book entry; d) facilitating reconciliation (i.e. of the dematerialised or immobilised holdings within the system) with any official register; and e) facilitating the exercise of securities holders' rights and corporate actions. While some of these activities, such as the maintenance of securities accounts and the book-entry transfer of securities, are also carried out by other entities (e.g. common depositories), the role of providing, according to most legal system, the definitive record of legal title is unique to CSDs (in some cases shared with registrars). In particular, in order to avoid any artificial creation of securities, the CSD ensures, at any time through a process called reconciliation that the amount settled by the investor in the CSD equals the amount issued in the CSD⁸.

6. For any given security, the preservation of the rights of the issuers and investors is essential. Indeed, the securities activities of market participants are entirely dependent on the effective functioning of CSDs, and the malfunctioning or failure of such a system would therefore have a severe impact on the financial markets, particularly those markets characterised by a high degree of dematerialisation or immobilisation. Consequently, CSDs should seek to mitigate the risks associated with their operations to the greatest possible extent. This risk mitigation should include the application of best accounting practices and end-to-end audit trails to safeguard the integrity of the securities issue and protect the interests of the holders. Moreover, insofar as the core activities are carried out by or in conjunction with other operators, greater cooperation is called for. For example, if the issuer (or any other entity acting on its behalf) is the only entity that can verify the total amount of an individual issue, it is important that the CSD and issuer cooperate closely to ensure that the securities in circulation via the system correspond to the volume issued via that system. If several entities are involved in a given issue, adequate procedures among those entities should be put in place to preserve the integrity of the issue. The rules applicable to a CSD only apply to those securities, whether immobilised or dematerialised, that are deposited in that particular CSD.

7. Because CSDs have a central function in the overall settlement process for immobilised/dematerialised securities, safeguards should be defined so as to ensure business continuity even under stressful circumstances. This means that CSDs should be well-protected against operational risks (see Recommendation 11). In any case, there should be a plan in place that will make possible to ensure post-bankruptcy services.

⁷ For securities which are immobilized, for which the indebtedness of the issuer is embodied in a global note, this implies the safekeeping of the global note and the openness and maintenance of an account in the name of the issuer, for an amount that equals the value of the global note. For dematerialized securities, this only implies the openness and maintenance of an account in the name of the issuer which embodies the indebtedness of the latter.

⁸ This critical CSD function is sometimes called "notary" function. In some cases, parts of the notary function are performed by other institutions than CSDs.

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8. In any event, CSDs should avoid credit and liquidity risks to the greatest possible extent.⁹ Indeed, most CSDs in Europe are prevented by their statutes from doing so. When a CSD does carry out related but non-core activities (such as credit extension, securities lending, etc.), then the associated risks should be mitigated in accordance with these recommendations. The risks involved in offering CCP services are of a different nature to those raised by performing core CSD activities and necessitate separating the CCP services that entail credit risk into a distinct legal entity.

Key issues

1. Immobilisation or dematerialisation and transfer by book entry in CSDs should be implemented to the greatest possible extent.

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2. The recording and transfer of securities issued in a CSD or an entity which performs CSD functions should be based on best accounting practices and end-to-end audit trails, which will help to ensure the integrity of the issue and safeguard the interests of the investors.

3. As CSDs uniquely combine the provision of final settlement with the recording of changes in legal title resulting from securities transactions they should avoid credit and liquidity risk to the greatest possible extent. CSDs have to mitigate their associated risks in accordance with the requirements set out in these recommendations. Besides, the risks involved in offering CCP services are of a different nature to those raised by performing CSD activities and therefore require exceptionally high levels of risk management that necessitate separating the CCP services into a distinct legal entity.

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Recommendation 7: Delivery versus payment (DVP)

The recommendation

Principal risk should be eliminated by linking securities transfers to fund transfers in a way that achieves delivery versus payment.

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Explanatory memorandum

1. Principal risk is the risk for an investor that securities are delivered but no cash received, or vice versa, for example because of a default of a counterparty or intermediary. The settlement of securities transactions on a DVP basis ensures that principal risk is eliminated, by making settlement of securities conditional on provision of cash, or vice versa. DVP procedures reduce, but do not eliminate, the risk that the failure of a CSD participant could result in systemic disruptions. Systemic disruptions are however still possible because the failure of a participant could result in substantial liquidity pressures or high replacement costs. Achievement of DVP by the CSD also enables the CSD's participants to offer their customers DVP.

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2. DVP can be achieved in several ways.¹⁰ Three main models can be differentiated, which vary according to whether the securities and/or fund transfers are settled on a gross (trade-by-trade) basis or on a net basis, and in terms of the timing of the finality of transfers. In net settlement, either only the funds are netted or both the funds and the securities are netted. The preferred model in any given market will depend on market practices. The use of netting procedures reduces the amount of the securities and/or cash that needs to be delivered, leading to further improvements in settlement liquidity and efficiency, especially in markets where a central counterparty does not exist. Similar gains may be achieved by optimising gross settlement. Finality may be in real time (i.e. throughout the day), intraday (i.e. at multiple times during the day), or only at the end of the day (see Recommendation 8). Whichever approach is taken, it is essential that the technical, legal and contractual framework of a DVP transfer ensures that each transfer of securities is final if and only if the corresponding transfer of funds is final. DVP should be achieved for transactions in secondary markets as well as for issuance and redemption of securities.

⁹ This does not prevent CSDs from carrying out additional credit risk-free activities.

¹⁰ See CPSS, Delivery versus Payment in Securities Settlement Systems (BIS, 1992).

3. Strictly speaking, DVP does not require simultaneous final transfers of funds and securities. Often when a CSD does not itself provide cash accounts for settlements, the underlying securities are first blocked in the account of the seller or at the seller's custodian. The CSD then requests the transfer of funds from the buyer to the seller in the cash settlement agent. The securities are delivered to the buyer or the buyer's custodian if and only if the CSD receives confirmation of settlement of the cash leg from the settlement agent. Alternatively, the CSD may transfer the funds between the buyer and the seller within its own books. In such arrangements, blocked securities must not be subject to a claim by a third party (i.e. by other creditors, tax authorities or even the CSD itself), because this would give rise to principal risk. In any case, DVP procedures require a sound and effective electronic connection between the cash settlement agent/payment system and the securities settlement system in which the two legs of the transaction are settled.

4. Furthermore, for reasons of safety and efficiency (e.g. to avoid gridlock and to enable early reuse of the delivered assets), settlement systems should minimise the time between completion of the blocking of the securities, the settling of cash and the subsequent release and delivery of the blocked securities. This can be achieved, inter alia, by streamlining the flow of instructions and messages. However, this requirement does not apply to night time batches, where the securities are blocked for a longer period pending the transfer of cash.

Key issues

1. The technical, legal and contractual framework should ensure DVP.
2. All securities transactions against cash between direct participants of the CSD should be settled on a DVP basis.
3. The length of time between the blocking of the securities and/or cash payment and the moment when deliveries become final should be minimised.

Recommendation 8: Timing of settlement finality

The recommendation

Intraday settlement finality should be provided through real-time and/or multiple-batch processing in order to reduce risks and allow effective settlement across systems.

Explanatory memorandum

1. The timing of settlement finality¹¹ – i.e. the time at which the deliveries of securities and/or cash become both irrevocable and enforceable – should be clearly defined by the rules of the system, as provided for by national legislation, and should apply to all participants regarding free-of-payment transfers, DVP transfers and delivery versus delivery transfers. The completion of final transfers during the day is essential and must be legally protected in each jurisdiction in the EU, including the protection given to transfer orders and netting as laid down in the Settlement Finality Directive. Deferral of settlement to the next business day can substantially increase the potential for participant settlement failures to create systemic disturbances, in part because the authorities tend to close insolvent institutions between business days. However, end-of-day net settlement entails significant liquidity risks, unless highly robust risk controls are in place to address participant defaults (see Recommendation 9).

2. Even if the various risks that a participant will fail to settle are controlled effectively, end-of-day net settlement entails risks to participants that can and should be reduced by providing intraday finality. Intraday finality can be provided through real-time settlement procedures and/or multiple-batch processing during the settlement day. Real-time gross settlement (RTGS) is the continuous settlement of fund/securities transfers individually on an order-by-order basis. Batch settlement is the settlement of groups of transfer instructions together, at one or more discrete, pre-specified times during the processing day. The frequency of the batches depends on the needs of the markets and the users, taking into consideration the specific risks. In this

¹¹ It is important to distinguish between the concept of "settlement finality" and that of "transfer order finality" in the Settlement Finality Directive (98/26/EC). While the former refers to finality of the actual settlement, the latter refers to the moment when a transfer order is entered into a (settlement) system.

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Deleted: <#>If a CSD achieves DVP, it enables local agents to offer DVP to their customers in other jurisdictions. Cross-border links between CSDs (see Recommendation 19) can be designed to permit DVP settlement of cross-border trades between participants in the linked CSDs.¶

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context, if real-time finality is not made available, intraday finality should be offered through a significant number of batches distributed throughout the settlement day.

3. Central banks' monetary policy operations must often be settled at a designated time within the day. In addition, when a payment system requires credit extensions to be collateralised, it is crucial for the smooth functioning of the payment system that this collateral be transferable in real time or by way of multiple batches during the day. Given the strong interdependency between payment systems and securities settlement systems, the timing of the settlement batches during the afternoon should be arranged in such a way that there is sufficient time for participants to react, if necessary, to reduce the settlement risk. Therefore, it is important to consider the closing time of the relevant payment system (see Recommendation 3).

4. Intraday (real-time or multiple-batch) finality may also be essential to active trading parties, for example those conducting back-to-back transactions in securities, including the financing of securities through repurchase agreements and similar transactions. For such active counterparties, end-of-day notification of failures would create significant liquidity risk. Intraday finality is also essential for CCPs that rely on intraday margin calls to mitigate risks vis-à-vis their members.

5. However, some participants may prefer to settle some transactions later in the settlement day. A delay in settling some heavily traded instruments may result in gridlock for RTGS (and in some cases multiple-batch) systems. Therefore, settlement systems should promote early settlement during the settlement day through appropriate measures.

6. Furthermore, settlement systems should prohibit the unilateral revocation of unsettled transfer instructions after a certain point in time on the settlement day, so as to avoid the liquidity risks that such actions can create.

7. Finally, in the absence of intraday settlement, a settlement system's links to other settlement systems (for example, links to foreign settlement systems to facilitate the settlement of cross-border trades) may pose systemic risks, in particular, if one settlement system were to allow provisional transfers of securities to the other settlement systems. In such circumstances, an unwinding of those provisional transfers could transmit any disturbances from a failure to settle at the settlement system making the provisional transfer to the linked settlement systems. To guard against this, either the settlement system should prohibit such provisional transfers, or the linked settlement systems should prohibit their retransfer prior to their becoming final (see Recommendation 19). Finality of delivery/settlement in the received settlement system must only take place once it has been achieved in the system of origin. This prohibition on the retransfer of provisional transactions should also be applied to the settlement arrangements operated by cash settlement agents.

For these reasons, intraday finality should be provided for securities transfers across links between settlement systems. In the absence of real-time procedures, a significant number of batches during the day should provide an acceptable degree of intraday finality for the cross-border transfer of securities via links. This would also facilitate interoperability among settlement systems in the EU by ensuring that securities transactions do not remain pending in one system as a result of finality not being achieved in good time in another system. Whatever approach is adopted, it is critical that the rules of the system make clear to its participants the timing of finality **Key issues**

1. The timing of settlement finality has to be clearly defined in the rules of the systems, which require transfer orders and deliveries of securities and payment to be irrevocable, enforceable and supported by the legal framework.

2. Settlement finality should be provided in real time and/or by multiple-batch processing during the settlement day. Where multiple-batch processing is used, there should be a sufficient number of batches distributed across the settlement day so as to allow interoperability across systems in the EU and to allow securities transferred through links to be used during the same settlement day by the receiver.

3. The settlement system and its participants should execute the transactions without undue delay as soon as securities and cash are available.

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4. The rules of the system should prohibit the unilateral revocation of unsettled transfer instructions late in the settlement day.

Recommendation 9: CSD risk controls to address participants' failures to settle

The recommendation

CSDs that extend intraday credit to participants, including CSDs that operate net settlement systems, should institute risk controls that, as a minimum, ensure timely settlement in the event that the participant with the largest payment obligation is unable to settle. The most reliable set of controls is a combination of collateral requirements and limits.

Explanatory memorandum

1. Where they are permitted to do so, CSDs often extend intraday credit to participants (either as principal or as agent for other participants) to facilitate timely settlements and, in particular, to avoid gridlock. In a gross settlement system, where credit extensions occur, they are usually extended by the CSD as principal and take the form of intraday loans or repurchase agreements. In net settlement systems these credit extensions are usually in effect extended by the CSD as agent for other participants and take the form of net debit positions in funds, which are settled only at one or more discrete, prespecified times during the processing day. (See the discussion in paragraph 3, below of the implication of unwinds of provisional transfers in net settlement systems.)

2. Whenever a CSD extends credit to participants, it creates the risk that participants will be unable to settle their obligations. Such failures to settle can impose credit losses and liquidity pressures on the CSD or on its other participants. If those losses and liquidity pressures exceed the financial resources of those expected to bear them, further failures to settle would result and the system as a whole may fail to achieve timely settlement. If so, both the securities markets the CSD serves and payment systems may be disrupted.

3. While the failure of a large participant to settle may create such disruptions in any settlement system, the potential is especially large in net settlement systems that attempt to address such settlement failures by unwinding transfers involving that participant, that is, by deleting some or all of the provisional securities and funds transfers involving that participant and then recalculating the settlement obligations of the other participants. An unwind has the effect of imposing liquidity pressures (and any replacement costs) on the participants that had delivered securities to, or received securities from, the participant that failed to settle. If all such transfers must be deleted and if the unwinding occurs at a time when money markets and securities lending markets are illiquid (for example, at or near the end of the day), the remaining participants could be confronted with shortfalls of funds or securities that would be extremely difficult to cover.

4. Consequently, CSDs that extend credit to participants must impose risk controls to limit the potential for failures to settle to generate systemic disruption. At a minimum, the controls should enable the system to complete settlement following a failure to settle by the participant with the single largest payment obligation. Such failures may not occur in isolation, however, and systems should, wherever possible, be able to survive additional failures. In determining the precise level of comfort to target, each system will need to balance carefully the additional costs to participants of greater certainty of settlement against the probability and potential impact of multiple settlement failures. To achieve the chosen comfort level the CSD can use a variety of risk controls. The appropriate choice of controls depends on several factors, including the systemic importance of the settlement system, the volume and value of settlements, and the effect of the controls on the efficiency of the system.

5. The most reliable approach to controlling potential losses and liquidity pressures from participants' failures to settle is a combination of collateral requirements and limits. To control potential credit exposures in this approach, any credit extensions on the funds or securities sides are fully collateralised. To ensure that credit exposures are, in fact, fully collateralised, the CSD applies haircuts to collateral values that reflect the price volatility of the collateral. Also as part

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of this approach, legally binding arrangements are in place to allow collateral to be sold or pledged promptly. In addition, to control potential liquidity pressures, limits are imposed on credit extensions. On the securities side, a CSD sometimes arranges securities loans to participants to facilitate timely settlement, but debit balances are prohibited. (No CSD should permit overdrafts or debit balances in securities.) On the funds side, the size of its credit extension to each participant (the participant's debit position in a net settlement system or the size of its intraday borrowing in a gross settlement system) is limited. The limits are then set at amounts that could be covered by the CSD or by other participants, taking into account their respective responsibilities under the system's default rules and their liquidity resources. If a central bank grants credit in its own currency to CSD participants, such credit extension need not be limited because its liquidity resources are unlimited. The central bank may nonetheless choose to contain its risks vis-à-vis participants by setting limits.

Key issues

1. A CSD that extends intraday credit to participants should, at a minimum, ensure timely settlement in the event that the participant with the largest payment obligation is unable to settle. Risk controls should be imposed to control potential losses and liquidity pressures from participants' failures to settle.
2. Overdrafts or debit balances in securities should not be permitted and there should be no artificial creation of securities.
3. The probability and potential impact of multiple settlement failures should be evaluated relative to the costs to ensure settlement in such an event.

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Recommendation 10: Cash settlement assets

The recommendation

Assets used to settle payment obligations arising from securities transactions should carry little or no credit or liquidity risk. If central bank money is not used, steps must be taken to protect the participants in the system from potential losses and liquidity pressures arising from the failure of the cash settlement agent whose assets are used for that purpose.

Explanatory memorandum

1. Arrangements for the settlement of payment obligations associated with securities transactions vary across market participants and CSDs. In some cases a market participant has a direct relationship with the CSD as well as with the cash settlement agent where the ultimate cash settlement occurs. In other cases, the market participant uses one of several settlement banks to settle its payment obligations. The settlement bank ultimately settles the cash leg by transferring balances held with the cash settlement agent¹³. These transfers are made through an interbank payment system, typically a central bank payment system. The use of a payment system for this purpose would generally make it systemically important, and it should therefore comply with the Core Principles for Systemically Important Payment Systems.

2. Whatever the payment arrangement, failure of the settlement agent whose assets are used to settle payment obligations could disrupt settlement and result in significant losses and liquidity pressures for CSD members. Furthermore, these risks are involuntary and difficult for CSD members to control. Consequently, there is strong public interest in containing potential systemic risks by using a cash settlement asset that carries no credit or liquidity risk.

3. At least for transactions denominated in the currency of the country where the settlement takes place, CSDs should settle cash payments in central bank money whenever practicable and feasible. Within the EU, in cases where the domestic CSD is not located in the country where the currency is issued, the CSD should liaise with the relevant central bank to offer the facility in that currency. However, it may not always be practicable to use the central bank of issue as the single settlement agent. Even for transactions denominated in the currency of the country where the settlement takes place, some (in some cases many) CSD members and linked CSDs may not have access to accounts with the central bank of issue.¹⁵ In this context, central banks may need to enhance the mechanisms for the provision of central bank money by, for example, extending the operating hours of cash transfer systems and facilitating access to central bank cash accounts. In TARGET 2, CSDs' participants can transfer or use central bank liquidity for night-time settlement.

4. In a multi-currency system, the use of central banks of issue can be especially difficult. Even if remote access to central bank accounts by CSD members is possible, the hours of operation of the relevant central banks' payment systems may not overlap with those of the CSDs settling in their currencies. CSDs may therefore offer their participants the possibility of settling cash payments in their own funds.

5. When a CSD is used as the cash settlement agent, steps must be taken to protect CSD members from potential losses and liquidity pressures that would arise from its failure, in accordance with the credit and liquidity risk mitigation approaches set out in Recommendation 9.

6. When a CSD provides settlement facilities in both central bank money and commercial bank money, all participants in the system should be granted equal access to both facilities¹⁶, and the

¹³ Some market participants may have no direct relationship with the CSD or with the central bank.

¹⁵ This recommendation is not intended to imply that all such CSD members should have access to accounts at the central bank. The criteria governing access to settlement accounts vary between central banks, but access is generally limited to institutions whose role or size justifies access to a risk-free settlement asset. Not all CSD members need access to central bank money; tiered banking arrangements, whereby some CSD members settle their payment obligations through other members that have access to central bank accounts, may achieve an appropriate balance between safety and efficiency.

¹⁶ As indicated in the previous footnote, this does not imply that all CSD members should have access to central bank accounts and credit.

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conditions for access should be transparent to the user. In particular, the use of commercial bank money should not be de facto compulsory, so that the participants are not in practice forced to use commercial bank money. The choice between commercial bank money and central bank money should be left to the sole discretion of participants and should be based on transparent pricing.

7. Even if the risk of failure of the cash settlement agent is eliminated or limited effectively, there may be circumstances where some (perhaps many) CSD members do not have a direct relationship with the cash settlement agent and instead use one of several regulated financial institutions for cash settlement purposes. The failure of one of these settlement banks could also give rise to systemic disturbances. Where such tiered arrangements exist, the smaller the number of the settlement financial institutions, the greater the proportion of members' payments that will be effected through transfers of balances in the books of these financial institutions rather than through transfers of balances between these institutions' accounts at the cash settlement agent. Thus, it is important that such settlement banks are properly regulated and have the legal and technical capacity to provide an effective service. If the use of only a few financial institutions for settlement produces a significant concentration of exposures, those exposures should be monitored and the financial condition of settlement financial institutions evaluated, either by the operator of the CSD or by its regulators and overseers.

8. Finally, whatever the payment arrangements, market participants should be able to retransfer the proceeds of securities settlements as soon as possible, at least on the same day, and ideally intraday, so as to limit their liquidity risk and any credit risks associated with the assets used (see Recommendation 8). Likewise, participants that have their cash account relationship with a settlement bank, and not with the cash settlement agent, should be given timely access to the proceeds of the securities settlement by their settlement bank.

Key issues

1. For transactions denominated in the currency of the country where the settlement takes place, CSDs should settle cash payments in central bank money whenever practicable and feasible. For this reason, central banks may need to enhance the operational mechanisms used for the provision of central bank money.

2. If central bank money is not used as asset to settle obligations in a currency, steps must be taken to protect participants from potential losses and liquidity pressures arising from the failure of the cash settlement agent in which the cash balances are held for that purpose. Where both central and commercial bank money facilities are offered, the choice to use commercial bank money should be at the sole discretion of the participant.

3. Only regulated financial institutions with robust legal, financial and technical capacity, in accordance with EU prudential (or equivalent) regulation, should be allowed to act as cash settlement agents. When central bank money is not used, the CSD acting as cash settlement agent should put in place adequate risk measures as described in Recommendation 9 in order to protect participants from potential losses and liquidity pressures. There should be sufficient information for market participants to identify and evaluate the risks and costs associated with these services.

4. The proceeds of securities settlements should be available for recipients to use as soon as possible on an intraday basis, or at least on a same-day basis.

5. The payment systems used for interbank transfers among settlement banks should observe the Core Principles for Systemically Important Payment Systems (CPSIPS).¹⁷

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¹⁷ See CPSS, Core Principles for Systemically Important Payment Systems (BIS, 2001).

Recommendation 11: Operational Risk

The recommendation

Sources of operational risk arising in the clearing and settlement process should be identified, monitored and regularly assessed. This risk should be minimised through the development of appropriate systems and effective controls and procedures. Systems and related functions should (i) be reliable and secure, (ii) be based on sound technical solutions, (iii) be developed and maintained in accordance with proven procedures, (iv) have adequate, scalable capacity, (v) have appropriate business continuity and disaster recovery plans that allow for the timely recovery of operations, and (vi) be subject to frequent and independent audits.

Explanatory memorandum

1. Operational risk is the risk that unexpected losses could arise from deficiencies in information systems or internal controls, human error, management failures or external events. As clearing and settlement are increasingly dependent on information systems and communication networks, the reliability of these systems and networks is a key element in operational risk. The importance of addressing operational risk arises from its capacity to impede the effectiveness of measures adopted to address other risks in the settlement process and to cause participants to incur losses, which, if sizeable, could have systemic risk implications.
2. Operational risk can arise from inadequate control of systems and processes; from inadequate management more generally (lack of expertise, poor supervision or training, inadequate resources); from inadequate identification or understanding of risks and the controls and procedures needed to limit and manage them; and from inadequate attention being paid to ensuring that procedures are understood and complied with.
3. Operational risk can also arise from events and situations that lie outside the control of the system operators, such as sabotage, criminal attack, natural disasters, etc. This may lead to the malfunctioning, paralysis or widespread destruction of the system in question and its related communication networks. Insofar as clearing and settlement systems are an important element of the financial market infrastructure and act as a central point for other financial intermediaries, any malfunction of these would affect the financial system as a whole.
4. Potential operational failures include errors or delays in message handling and transaction processing, system deficiencies or interruption, fraudulent activities by staff and disclosure of confidential information. Errors or delays in transaction processing may result from miscommunication, incomplete or inaccurate information or documentation, failure to follow instructions or errors in transmitting information. The potential for such problems to occur is higher in manual processes. The existence of physical securities, which may be defective, lost or stolen, also increases the chance of error and delay. While automation has allowed improvements in the speed and efficiency of the clearing and settlement process, it brings its own risks of system deficiencies, interruptions and computer crime. These may arise from factors such as inadequate security, or the inadequate capacity or resilience of backup systems.
5. Operational failures may lead to a variety of problems: late or failed settlements that impair the financial condition of participants; customer claims; legal liability and related costs; reputational and business loss; and compromises in other risk control systems leading to an increase in credit or market risks. A severe operational failure at a CSD, cash settlement agent or major participant could have significant adverse effects throughout the securities market as well as other markets.
6. To minimise operational risk, system operators should identify sources of operational risk, whether arising from the arrangements of the operator itself or from those of its participants, and establish clear policies and procedures to address those risks. There should be adequate management controls and sufficient (and suitably well-qualified) personnel to ensure that procedures are implemented accordingly. The operational risk policies and procedures should be frequently updated and tested to ensure that they remain current. These policies and procedures should be reassessed periodically (at least annually or whenever significant changes occur to the

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system or related functions). The relevant governance body should be informed of the results of the review and approve any follow-up work. Senior management should have the responsibility for implementing changes to the risk strategy approved by the relevant governance body. The relevant governance body generally refers to the Board of Directors, although this may differ in some countries. Operational risk policies and procedures should be made available to the relevant public authorities.

7. The institution should also have in place accurate and clear information flows within its organisation in order to establish and maintain an effective operational risk management framework and to foster a consistent operational risk management culture across the institution. Furthermore, adequate crisis management structures, including formal procedures to manage crises, alternative means of communication and contact lists (both at local and cross-border level) should be defined in advance and be available in order to deal efficiently and promptly with any operational failure that may have local or cross-border systemic consequences.

8. Information systems and other related functions should be subject to internal audit by qualified information systems auditors, and external audits should be seriously considered. Audit results should be reported to the relevant governance body. The audit reports (both internal and external) should also be made available to regulators and overseers upon request. The supervisor and overseers should also conduct regular independent evaluations of the institution's strategies, policies, procedures and processes related to operational risk.

9. All key systems should be secure (that is, have access controls, be equipped with adequate safeguards to prevent external and/or internal intrusions, and misuse, preserve data integrity and provide audit trails). They should also be reliable, scalable and able to handle stress volume, and have appropriate contingency plans to account for system interruption.

10. All CSDs should have business continuity and disaster recovery plans, including an evaluation of any reliance on third parties, to ensure the system is able to resume business activities with a reasonable degree of certainty, a high level of integrity and sufficient capacity as soon as possible after the disruption. All reasonable measures should be undertaken to resume business under plausible scenario conditions no later than two hours after the occurrence of a disruption for CSDs. In particular, service providers should define clear targets in terms of operational robustness and business continuity, for example through the implementation of Service Level Agreements (SLAs). Critical functions should be identified and processes within those functions categorised according to their criticality. Any assumption behind the categorisation should be fully documented and reviewed regularly. Ideally, backup systems should be immediately available. While it may be possible to recommence operations following a system disruption with some data loss, contingency plans should at least provide for the recovery of all transactions at the time of the disruption to allow systems to continue to operate with certainty, in a timely manner. The system should be able to recover operations and data in a manner that does not disrupt the continuation of settlement. Two hours should be regarded as the point at which CSD's critical systems should recommence operations. However, depending upon the nature of the problems, recovery may take longer. As a minimum, the recovery of operations and data should occur in a manner and time period that enables a CSD to meet its obligations in time. If any critical functions are dependent on outsourcing arrangements, there should be adequate provisions to ensure service provision by third parties. The review, updating and testing of the plans should build upon thorough analysis and established best practices. Tests should especially take into account the experience of previous operational failures; to this end, each operational failure should be documented and analysed in detail. Appropriate adjustments should be made to the plans, based on the results of this exercise.

11. In order to meet their obligations on time, CSDs must set up a second processing site that actively backs up the primary site and has the requisite level of key resources, capabilities and functionalities, including appropriately skilled and experienced staff. When a second processing site has been established, data processing should be switched to it, ideally instantly, in the event of disruption. The backup site should therefore provide a level of efficiency comparable to the level provided by the primary site.

12. The second site should be located at an appropriate geographical distance and be protected from any events potentially affecting the primary site. The operator of the systems should minimise the reliance on relocating key staff and, where some reliance is unavoidable, the

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Deleted: <#>Some clearing and settlement operations may be outsourced to third parties. In these circumstances, operational risk will reside with the outside service provider. System operators who outsource operations should ensure that those operations meet the same standards as if they were provided directly by the system operator.¶

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operator should anticipate how such a relocation would be achieved. If processing is to continue at the second site within a short period of time, in principle less than two hours following disruption of the primary site, then data will need to be transmitted to and updated at the second site continuously, preferably in real time. Contingency plans should ensure that, as a minimum, the status of all securities transactions at the time of the disruption can be identified with certainty and in a timely manner during the day. The second site should ensure business continuity for both local and cross-border participants in the event that the primary site is rendered unusable for a longer period of time (e.g. days and weeks).

13. Business continuity and disaster recovery plans should be rehearsed with the users and capacity stress tested on a regular basis, in a real environment if possible. Ideally, backup systems should be immediately available. Clearing and settlement service providers are increasingly dependent on electronic communications and need to ensure the integrity of messages by using reliable networks and procedures (such as cryptographic techniques) to transmit data accurately, promptly and without material interruption. Markets should strive to keep up with improvements in technologies and procedures, even though the ability to contain operational risks may be limited by the infrastructure in the relevant market (for example, telecommunications). Core Principle VII of the CPSIPS provides more details on operational issues.¹⁸

14. Without increasing the risk of unwanted events or attacks, the disclosure of the business continuity and disaster recovery plans should be sufficiently transparent and efficiently communicated to other market participants to enable them to assess the operational risks to which they are in turn exposed. This is also crucial for systems that interact with other systems. The operational failure of a system in one market may directly affect another market if the size of cross-border clearing and settlement activities is substantial. The regulators and overseers of significant providers of clearing and settlement services should encourage these providers to set up a plan for industry-wide contingency planning, ensuring co-ordination between such institutions.

15. In principle, CSDs should carry out their functions on their own behalf. However, outsourcing is permitted within the limits outlined hereafter. CSDs should only outsource their actual settlement operations or functions to third parties after having obtained prior approval from the relevant competent authorities, if required under the applicable regulatory regime. If not so required, CSDs should at least inform the relevant competent authorities when outsourcing such operations or functions.

16. The outsourcing entity should remain fully answerable to the relevant competent authorities, as required according to national law. Furthermore, it should ensure that the external providers meet these recommendations to the required extent. A contractual relationship should be in place between the outsourcing entity and the external provider allowing the relevant competent authorities to have full access to the necessary information. Clear lines of communication should be established between the outsourcing entity and the external provider to facilitate the flow of functions and information between parties in both ordinary and exceptional circumstances. Appropriate reporting, monitoring and other relevant measures should be agreed in order to allow the outsourcing entity to control the outsourced activity. The outsourcing should be made known to the participants in the outsourcing entity. Finally, additional outsourcing must be duly authorised by the primary outsourcing entity and notified or approved by the relevant competent authorities, according to the national requirements. The term “relevant competent authorities” refers here to the authorities of the jurisdictions where both the outsourcing and insourcing entities are located. A CSD should evaluate its vulnerability arising from reliance on one or a small number of outside providers for utility and similar services. If such a service provider stops operating, a CSD’s ability to operate could be compromised, possibly causing uncertainty in financial markets if it occurred with little or no warning. A CSD should seek to achieve diversity in key systems such as electricity and telecommunications to the extent possible or make back up arrangements.

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¹⁸ See CPSS, Core Principles for Systemically Important Payment Systems (BIS 2001).

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Key issues

1. Sources of operational risk in clearing and settlement activities (including systems operators) and related functions/services should be regularly identified, monitored, assessed and minimised. Clear policies and procedures should be established to address those risks, including risks from those operations that are outsourced to third parties.

2. Operational risk policies and procedures should be clearly defined, frequently reviewed and updated and tested to remain current. The responsibilities of the relevant governance bodies and senior management should be clearly established. There should be adequate management controls and sufficient (and suitably well-qualified) personnel to ensure that procedures are implemented accordingly. Information systems should be subject to periodic independent audit.

3. There should be business continuity and disaster recovery plans to ensure that the system is able to resume business activities, with a reasonable degree of certainty, a high level of integrity and sufficient capacity as soon as possible after the disruption. Contingency plans should, as a minimum, provide for the recovery of all transactions at the time of the disruption to allow systems to continue to operate with certainty. A second site should be set-up in order to meet these obligations. Business continuity and disaster recovery plans should be tested on a regular basis and after any major modifications to the system. Adequate crisis management structures, including formal procedures, alternative means of communication and contact lists (both at local and cross-border level) should be available.

4. All key systems should be reliable, secure and able to handle stress volume.

5. CSDs should only outsource settlement operations or functions to third parties after the approval of the relevant competent authorities, if it is required by regulation. If it is not required, they should at least notify in advance the relevant competent authorities, and should ensure that the external providers meet the relevant recommendations. Appropriate change management procedures which give the relevant outsourcing entities the power to require, control and approve changes to the outsourced services should be in place.

Recommendation 12: Protection of customers' securities

The recommendation

Entities holding securities in custody should employ accounting practices and safekeeping procedures that fully protect customers' securities. It is essential that customers' securities be protected against the claims of the creditors of all entities involved in the custody chain.

Explanatory memorandum

1. Custody risk is the risk of a loss on securities held in custody by the insolvency of the entity holding the securities. The risk of loss on securities might be brought about by the insolvency, negligence, misuse of assets, fraud, poor administration, inadequate record-keeping, or failure to protect a customer's interests in the securities (including rights of collateral, income, voting rights and entitlements) by or on the part of these entities.¹⁹ This recommendation applies to CSDs, ICSDs, and registrars, as well as any other entities which hold securities and are not subject to the requirements of the CRD and MiFID. In case of providers of investment services, no additional requirements will apply apart from those stated in the Directive on Markets in Financial Instruments (see Sections 7 and 8 of Article 13) and Articles 16 and 19 of the Directive 2006/73/EC implementing Directive 2004/39/EC as regards organisational requirements and operating conditions for investment firms and defined terms for the purposes of that Directive.

2. There are various different ways of holding a customer's securities, which are determined by the local jurisdiction and/or the governing law of the respective intermediary. In countries where securities are directly held, the intermediary operates individual investor accounts in the depository (typically a CSD) and, as a consequence, investors' securities are held individually and kept separate from the securities of the intermediary in the books of the CSD. In an indirect

¹⁹ For a thorough discussion of custody issues, see the Technical Committee of IOSCO, Client Asset Protection (IOSCO, 1996).

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holding system, protection might be achieved through segregation – i.e. by requiring (or equivalent legally binding protection arrangements) custodians to open at least two accounts – one for their own securities holdings and another omnibus account for their customers' securities. In some countries, protection is achieved in an indirect holding system by the legal definition that securities credited in the omnibus accounts of the intermediaries belong to their customers unless they are explicitly designated as belonging to the intermediaries; or by giving the customers the statutory right to recover, in preference to other creditors of the intermediary, the own account securities holdings of such an intermediary, in case of a shortfall in securities. In such a scenario, intermediaries tend to have just one omnibus account, even though they are allowed to have more than one. Irrespective of whether a direct and/or an indirect holding system is used, or of whether segregation is required or used at local level, intermediaries are obliged to maintain records that will identify the customers' securities at any time and without delay.

3. An entity holding securities in custody (or maintaining records of balances of securities) should employ procedures which ensure that all customer assets (e.g. of an end-investor or collateral taker) are appropriately accounted for and kept safe, whether it holds them directly or through another custodian. One important way of protecting the ultimate owners of securities from the risk of loss on securities held in custody is by requiring the entity holding securities in custody to apply best accounting practices that enable the identification of the customer's securities at any time without any doubt or delay. In particular, the entity should apply the double-entry accounting principle, whereby for each credit/debit made on the account of the beneficiary, there should be a corresponding debit/credit entry on the account of the counterparty delivering/receiving the securities. When this practice is applied along the whole chain of accounts up to the issuer account, the interests of the investors and the integrity of the issuance are maintained. The customer's securities must also be protected against the claims of the creditors of the entity holding securities in custody in the event of its insolvency. One way to achieve this is through segregation (identification) of customer securities on the books of the custodian (and of all sub-custodians, as well as ultimately, of the CSD as well). Furthermore, entities that hold securities in custody (or maintain records of balances of securities) should reconcile their records regularly, at least once a day, so as to ensure that any errors that might occur are identified and corrected quickly. In case of multi-tiered holding of securities, reconciliation should take place by each entity with the next layer in the custody chain. However, in the case of cross-border transactions with countries outside the EU, the impact of, for example, (foreign) bank holidays and different settlement cut-off times should be taken into account and may prevent daily reconciliation. In such instances reconciliation should be made as soon as possible. Other ways to protect customers from losses resulting from negligence or fraud include external and internal controls and insurance or other compensation schemes, as well as adequate supervision.

4. A customer's securities must be immune from claims made by third-party creditors of the entity holding securities in custody. In addition, in the event of insolvency of a custodian or sub-custodian, it should not be possible for a customer's securities to be frozen or made unavailable for an extended period of time.²⁰ If that were to happen, the customer could come under liquidity pressures, suffer price losses or fail to meet its obligations. Segregation will facilitate the movement of a customer's positions to a solvent entity holding securities in custody by a receiver/insolvency administrator where this is permitted by national law, thereby enabling customers to manage their positions and meet their settlement obligations. It is therefore essential that the legal framework supports the segregation of customer assets or other arrangements for protecting and prioritising customer claims in the event of insolvency. It is also important for supervisory authorities to enforce effective segregation or equivalent measures by entities holding securities in custody.

5. An entity holding securities in custody should audit its books on a regular basis to certify that its clients' securities holdings correspond to the global clients' positions that the entities hold in the CSD's, registrar's or depository's books. It should also audit its book with the holdings of its custodians. The audit reports may, upon request, be submitted to the supervisory and oversight authorities.

²⁰ However, the freezing of assets in the event of insolvency is a matter determined by national insolvency law and lies outside the control of the operators of clearing and settlement systems.

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6. A customer's securities may also be at risk if the intermediary uses them for its own business, such as providing them as collateral for receiving cash or for short-selling transactions. The intermediary should not be allowed to use the customer's securities for any transaction, except with the latter's explicit consent. The assets of the customers could be subject to contractual and statutory liens in favour of the intermediary in order to secure an obligation to the intermediary, with the support of national legislation and the explicit consent of the participants and the customers.

7. Cross-border holdings of securities often involve several layers of intermediaries acting as entities holding securities in custody. For example, an institutional investor may hold its securities through a global custodian, which, in turn, holds securities in a sub-custodian (a bank or an investment firm) that is a member of the local depository (typically a CSD). Alternatively, a broker-dealer may hold its securities through its home country CSD or an international CSD, which, in turn, holds its securities through a cross-border link with the local CSD or through a local custodian. Mechanisms to protect customer assets may vary depending on the type of securities holding system instituted in a jurisdiction. The ultimate owners of securities should be advised of the extent of a custodian's responsibility for securities held through a chain of intermediaries (see Recommendation 19).

8. To prevent unexpected losses, an entity holding "foreign" securities in custody should determine whether the legal framework in the jurisdiction of each of its local custodians has appropriate mechanisms to protect customer assets. It should keep its customers apprised of the custody risk arising from holding securities in a particular jurisdiction. It should also ascertain whether the local custodians employ appropriate accounting, safekeeping and segregation procedures for customer securities.

9. Likewise, when home country CSDs establish links to other CSDs, they should ensure that these other CSDs protect customer securities adequately (Recommendation 19). With complex cross-border arrangements, it is imperative that sound practices and procedures are used by all entities in the chain of entities holding securities in custody so that the interests of ultimate owners are protected from legal actions relating to the insolvency of, or the committing of fraud by, any one of the them. Each jurisdiction should take the attributes of its securities holding system into account in judging whether its legal framework includes appropriate mechanisms to protect a customers against loss upon the insolvency of, or the committing of fraud by, an entity holding securities in custody or against the claims of a third party.

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Key issues

1. An entity holding securities in custody should employ best accounting practices, and should segregate in its books customers' securities from its own securities so as to ensure that customer securities are protected, particularly against claims of the entity's creditors.

2. At regular intervals, and at least once a day, entities holding securities in custody should reconcile their records (e.g. with the issuer CSD, the investor CSD or a custodian bank, depending on the tiering of the custody chain) so as to ensure that customer claims can be satisfied, in line with the implementation of the MiFID.

3. In addition to Key Issue 1, national law should ensure that customer securities are kept immune from any claims made by creditors of the entity holding the securities in custody or by entities upstream in the custodial chain.

4. Entities holding securities in custody should audit their books on a regular basis to certify that their clients' individual securities holdings correspond to the global clients' positions that the entities register in the CSD's, registrar's or depository's books. Entities should submit audit reports to supervisory and oversight authorities upon request.

5. Entities holding securities in custody must not use customer securities for any purpose unless they have obtained the customer's express consent. Their records shall include details of the client and of the financial instruments that they may have used to enable the correct calculation in any loss allocation mechanism that might be applicable.

6. In no case should securities debit balances or securities creation be allowed by entities holding securities in custody.

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7. When securities are held through several intermediaries, the entity with which the customer holds the securities should ascertain whether adequate procedures for its customers' protection are in place (including, where relevant, procedures applicable to all upstream intermediaries) and should inform the customers accordingly.

8. Entities holding securities in custody should be regulated and supervised.

Recommendation 13: Governance

The recommendation

Governance arrangements for CSDs should be designed to fulfil public interest requirements and to promote the objectives of owners and relevant market participants.

Explanatory memorandum

1. Governance arrangements encompass the relationships between management and owners and other interested parties, including relevant market participants and authorities representing the public interest, and additionally taking into account the interests of investors in a low-cost provision of post-trade services. The key components of governance include: corporate governance, i.e. transparency regarding ownership structure and any group structure; the composition of the Board; the reporting lines between management and the Board; as well as requirements regarding management expertise.

2. CSDs lie at the heart of the settlement process. Moreover, many CSDs are sole providers of certain services to the markets they serve. Therefore, their performance is a critical determinant of the safety and efficiency of these markets, which is a matter of public as well as private interest. The OECD Principles of Corporate Governance and Commission Recommendation 2005/162/EC²¹ can serve as a starting point when designing these arrangements.

3. Governance arrangements should be designed to fulfil the relevant public policy interest requirements, namely to ensure the safety and efficiency of the European securities markets. No single set of governance arrangements is appropriate for all institutions within the various securities markets and regulatory schemes. In particular, governance arrangements do not determine whether a CSD is operated on a for-profit basis or not, or whether a CSD is shareholder-oriented or not. However, an effectively governed institution should meet certain basic requirements. Governance arrangements should be clearly specified, coherent, comprehensible and fully transparent. The objectives, those principally responsible for achieving them, and the extent to which they have been met, should be disclosed to owners, market participants and public authorities involved. Management should have a level of expertise and experience comparable with those required by the fitness and propriety criteria applied to the management of other regulated financial institutions in the EU, and the incentives and skills needed to achieve those objectives should be present. Furthermore, management should be fully accountable for its performance. The reporting lines between management and the Board should be clear and direct. The Board should have the required expertise and should take account of all relevant interests. It is important that the role of those non-executive or supervisory board members who are fully independent²² is clear. In a group structure, there should be independent board members at least on the Board of the parent company. Market participants should be represented, in particular, through consultation mechanisms, ideally drawing on different market participant categories, including small and retail investors as well as issuers. The entity should be accountable for the way it responds to these views. These basic requirements should be met regardless of the corporate structure of the institution, i.e. whether it is a mutual or a for-profit entity.

21. Commission Recommendation of 17 February 2005 on the role of non-executive or supervisory directors of listed companies and on the committees of the (supervisory) board (2005/162/EC) OJ L 52, 25.2.2005, p. 51.

22. According to the Commission recommendation 2005/162/EC, non executive or supervisory directors are not involved in the every day running of the business and have no current engagement with management. The EU recommendations define independence as the absence of any material conflict of interest. The recommendations suggest that a director should be considered independent only if he/she is free of any "business, family or another relationship, with the company, its controlling shareholder or the management of either, that creates a conflict of interest such as to impair his judgement".

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4. CSDs provide services to various groups of market participants including entities that belong to the same group. However, the interests of these market participants are not always compatible, which leads to the possibility of conflicts of interest arising among the market participants, and between the market participants and the operator of the system itself. There should be a predefined policy and procedures for identifying and managing these potential conflicts of interest. Transparency in the identification and resolution of conflicts of interests increases trust in the clearing and settlement process and in the operators of systems. As a minimum, there should be transparency at the level of general policy and procedures and, where the operator of a system is part of a group, on the group structure. Finally, the limits of total credit exposure to participants and large individual credit exposures should be approved by the Board or at the appropriate decision-making level of the entity, in accordance with existing national regulation.

Key issues

1. Governance arrangements should be clearly specified and transparent.
2. Objectives and major decisions should be disclosed to the owners, relevant market participants and public authorities involved.
3. Management and the Board of Directors ("the Board") should have the incentives and skills needed to achieve objectives, and should be fully accountable for their performance.
4. The Board or the relevant governance body should have the required expertise and take all relevant interests into account.
5. Governance arrangements should include the identification of conflicts of interest and should use resolution procedures whenever there is a possibility of such conflicts occurring.
6. When appropriate, the relevant appropriate decision-making level of the CSD should approve the limits on total credit exposure to participants, and on any large individual exposures. When there is a risk of a conflict of interests, such a decision should be taken with due regard to this conflict of interests.

Recommendation 14: Access

The recommendation

CSDs should have objective and publicly disclosed criteria for participation that permit fair and open access. Rules and requirements that restrict access should be aimed at controlling risk.

Explanatory memorandum

1. Broad access to CSDs encourages competition and promotes efficient and low-cost clearing and settlement. Access should be granted to all participants that have sufficient technical, business and risk management expertise, the necessary legal powers and adequate financial resources so that their activities do not generate unacceptable risks for the operator or for other users and their customers.
2. CSDs need to establish criteria that fairly balance the benefits of openness against the need to limit participation to those with the necessary expertise, powers and financial resources. Conditions for limiting access should be made publicly available.
3. Protecting the financial market against unacceptable risk is an issue of public interest that justifies the denial of access to any applicants that do not meet the minimum requirements established by the service providers. However, access may also be denied if the technical, operational and financial resources are such that they could cause disturbances in the system, even if the scale of possible disturbance is not systemic in magnitude.
4. CSDs must carefully consider the risks to which they and their users are exposed in determining appropriate access criteria. They may have to apply different access criteria to various categories of participants. However, the rationale for such a differentiation should be based solely on risk exposure. CSDs, particularly those in which members incur little or no

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liquidity and credit exposure to one another, tend to emphasise technical expertise and legal powers. Some CSDs may establish more stringent criteria for members that act as a custodian. When reviewing applications for access to clearing and settlement functions, CSDs should assess the applicants' relevant level of technical expertise, business practices and risk management policies. Moreover, the applicants should have adequate financial resources, such as a specified minimum capital base.

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5. Unnecessarily restrictive criteria can reduce efficiency and generate risk by concentrating activity and exposure within a small group of users. The more restrictive the criteria, the greater the importance of the operator assuring itself that its members can control the risks generated by their customers. To avoid discriminating against classes of users and introducing competitive distortions, criteria should be fair and objective. They should be clearly stated, communicated to the relevant authorities and publicly disclosed, so as to promote certainty and transparency. It may be possible for criteria to include indirect indicators of risk, such as whether an institution is supervised, but these indicators should clearly relate to the relevant risks the operator is managing. Some jurisdictions may find it useful for the authorities with responsibility for competition issues to have a role in reviewing access rules, or for there to be an appeals procedure that is independent of the CSD.

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6. Denial of access should be explained in writing, and, in case of dispute, the fairness of the rules which led to the refusal decision could be made subject to third-party review. Protecting the market against biased competition means that "fair access" should signify equal access to the use of functions: it does not imply that any participant may access any system at any time at the same price (fees may include development costs).

7. Restrictions on access should only be based on risk-related criteria or other criteria as set out in EU law. So, for example, restrictions on access for non-resident users are unlikely to be acceptable except where material doubts exist over whether system rules are enforceable against residents of other jurisdictions, or where remote access would expose the operator or other users to unacceptable risks which cannot reasonably be mitigated. Restrictions on access for competitors and others providing comparable services are acceptable if clearly justifiable on the same risk grounds. For example, to facilitate cross-border settlement, CSDs should, where consistent with law and public policy, grant access to foreign CSDs (see Recommendation 19) and CCPs, provided the legal and other risks associated with such links can be controlled effectively.

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8. When remote members located outside the EU are granted access, the host country regulator (the country of the securities service provider) may need to reach an agreement with the regulator of the home country (the country of the remote applicant) on matters related to information-sharing, etc. (see Recommendation 18).

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9. Access refusal could be justified in a case where there are doubts as to the enforceability of the legal powers of the service provider vis-à-vis applicants from another jurisdiction, or if there is a lack of adequate supervision. Such a refusal, justified in writing and subject to review, is not considered an unnecessary barrier to trading. Refusal could also be justified when there are doubts about the enforceability of legal powers with regard to money laundering, in the case of applicants located in countries blacklisted by the Financial Action Task Force (FATF).

10. Finally, explicit exit procedures are needed, including criteria for termination of contractual arrangements and the conclusion of pending transactions, in order to maintain a swift and orderly flow of activities that limits any impact on other participants. In case of insolvency of a custodian, its clients' securities accounts should be transferred to another entity authorised to carry out safekeeping activities, thereby avoiding to the greatest possible extent any additional costs to the investor. Exit procedures should also be publicly disclosed.

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Key issues

1. Criteria should be objective, clearly stated, communicated to the relevant authorities and publicly disclosed.

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2. Access should be granted to all participants that have sufficient technical, business and risk management expertise, the necessary legal powers and adequate financial resources so that their activities do not generate unacceptable risks for the operator or for other users and their

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customers. Denial of access should only be based on risk-related criteria or other criteria as set out in EU law and should be explained in writing

3. Procedures facilitating the orderly exit of participants – for example, those that no longer meet membership criteria – should be clearly stated and publicly disclosed.

Recommendation 15: Efficiency

The recommendation

While maintaining safe and secure operations, securities settlement systems should be cost-effective in meeting the requirements of users.

Explanatory memorandum

1. In assessing the efficiency of securities settlement systems, the needs of market participants and efficiency must be carefully balanced against the requirement that the system should meet appropriate standards of safety and security. If systems are inefficient, financial activity may be distorted. However, the first priority of an entity operating a securities settlement system is to assure domestic and foreign market participants that their trades will consistently settle on time, and at the agreed terms of the transaction. If market participants view a settlement system as unsafe, they will not use it, regardless of how efficient it is.

2. Efficiency has several aspects, and it is difficult to assess the efficiency of a particular service provider in any definitive manner. Accordingly, the focus of any assessment should largely be on whether the system operator or other relevant party has in place the mechanisms to review periodically the service levels, efficiency and operational reliability of the system.

3. Securities settlement systems should seek to meet the service requirements of system participants in an efficient manner. This includes meeting the needs of its participants, operating reliably and having adequate system capacity to handle both current and potential transaction volumes. The rules of the systems should enable a receiver to reuse securities and cash without delay once finality is achieved, both within and across systems, in order to optimise settlement liquidity.

4. The primary responsibility for promoting the efficiency and controlling the costs of a system lies with its designers, owners and operators. In a competitive environment, market forces are likely to provide incentives to control costs.

Key issues

1. CSDs should have in place the mechanisms to review regularly their costs and pricing.

2. CSDs should have in place the mechanisms to review regularly their service levels and operational reliability.

Recommendation 16: COMMUNICATION PROCEDURES, messaging STANDARDS and straight-through processing (STP)

The recommendation

CSDs and participants in their systems, should use or accommodate the relevant international communication procedures and standards for messaging and reference data in order to facilitate efficient clearing and settlement across systems. This will promote straight-through processing (STP) across the entire securities transaction flow.

Explanatory memorandum

1. The adoption of universal messaging standards, with communication protocols covering the entire securities transaction flow, will contribute to the elimination of manual intervention in securities processing and thereby will reduce the risks and costs for the securities industry. Therefore, securities service providers, i.e. CSDs and other relevant entities, should support and use consistent messaging standards, communication protocols and reference data standards

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relating to securities identification processes and counterparty identification. For these standards to reduce risk and provide efficiency gains, they must be adopted by relevant market participants, entities providing trade confirmation and network communication providers.

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2. Increasingly, internationally recognised message and securities numbering procedures, plus communication standards and protocols, are being utilised for cross-border transactions. The industry published the Giovanni Protocol Recommendations²³ in March 2006 which aimed the elimination of the so-called Barrier One ('National differences in information technology and interfaces')²⁴. To complement the Giovannini Protocol Recommendation, SWIFT had been working with senior industry representatives to develop the File Transfer Rulebook, which specifies generic rules for file construction and best practices for file transfer operations for any and all file transfers, on any network. Furthermore, the industry is currently moving towards the use of ISO 20022²⁵ as an international standard for securities messaging. Being aware of the crucial importance of promoting industry solutions for standardising protocols regarding communication with national clearing and settlement systems and between the systems themselves, implying harmonised connection and messaging protocols, the application of the Giovanni Protocol Recommendations and the File Transfer Rulebook should be encouraged, and it is equally important that service providers define each component of their business in a consistent way in order to benefit from ISO 20022 for the entire securities transaction life cycle, including the asset servicing requirements.

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Deleted: These currently include the international numbering process (ISO 6166) and international message standard (ISO 15022). Not all securities settlement systems may wish to use these international procedures and standards for purely domestic securities transactions. However, securities settlement systems that want to play an active role in cross-border transactions will need to be able to process messages written according to these procedures and standards. This can be accomplished by developing systems for the efficient translation or conversion of these message procedures and standards into domestic equivalents and translating domestic acknowledgment and other messages and securities identification codes into the relevant international procedures and standards. Alternatively, SSSs may widen the scope of messages accepted and generated by the local system to include the generally accepted international procedures and standards.

3. The quality of transmitted data and the consistent use of standards should be ensured, to allow market participants to receive and process messages through their systems without the need for intervention.

4. All involved parties, such as exchanges, CSDs and relevant market participants, should support and implement reference data standards that cover the needs of the issuers and the users in the securities value chain. The use of comprehensive and widely adopted reference data standards will improve the quality and efficiency of securities processing.

5. At present, many network providers that previously used proprietary protocols are moving to develop Internet Protocol-based communication networks.

6. The use of international communication protocols and standardised messaging and reference data is a crucial precondition for the introduction of STP, as it enables different systems to receive, process and send information with little or no human intervention. This suppression of manual intervention can reduce the number of errors, avoid information losses and reduce the resources needed for data processing.

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7. Notwithstanding the fact that the end-to-end automated processing of information, via a single point of entry, is highly beneficial in terms of risk-mitigation and efficiency, rapid implementation of STP would be costly. Nevertheless, the widespread use of STP should be the goal of all service providers, and they should be urged to work with their participants to establish a clear plan for moving towards STP.

²³ For further details, see http://www.swift.com/index.cfm?item_id=58219

²⁴ In 2001, the Giovannini group, as advisor to the European Commission, published a report identifying 15 'barriers' to efficient and cost-effective cross-border clearing and settlement of securities transactions within the European Union (EU). In April 2003, a second Giovanni report identified the organisations responsible for defining solutions to the elimination of each barrier. The Barrier One recommendation was:

"National differences in the information technology and interfaces used by clearing and settlement providers should be eliminated via an EU-wide protocol. SWIFT should ensure the definition of this protocol through the Securities Market Practice Group (SMPG). Once defined, the Protocol should be immediately adopted by the European System of Central Banks (ESCB) in respect of its operations. This barrier should be removed within two years from the initiation of this project."

²⁵ ISO 20022 - UNiversal Financial Industry Message scheme (UNIFI) is the international standard that defines the ISO platform for the development of financial message standards. Its business modelling approach allows users and developers to represent financial business processes and underlying transactions in a formal but syntax-independent notation. These business transaction models are the "real" business standards. They can be converted into physical messages in the desired syntax. At the time UNIFI was developed, XML (eXtensible Mark-up Language) was already the preferred syntax for e-communication. Therefore, the first edition of UNIFI proposes a standardized XML-based syntax for messages. The standard was developed within the Technical Committee TC68 – Financial Services of ISO – the International Organization for Standardization (source: www.iso20022.org). 20022 is replacing an older standard 15022, which should be used if a 20022 solution is not yet available.

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8. The use of international communication standards is also a crucial precondition for interoperability between EU clearing and settlement infrastructures. It is important that the implementation of standardisation and STP goes hand in hand with a flexible information systems structure (open architecture) that allows communication and interoperability between different segments of the securities clearing and settlement infrastructure. Market participants should be able to move swiftly and easily from one system to another and to select services without facing technical hurdles such as having to implement multiple local networks. Therefore, to enable more than one system to be involved in the processing of a trade, public authorities should encourage service providers to ensure interoperability in terms of communication and information infrastructures, as well as messaging services and standards.

9. Some securities service providers may not adopt these international procedures and standards. In this case, other alternatives should be explored by service providers such as setting up efficient translation or conversion mechanisms that would allow them to be an integral part of the European securities infrastructure.

Key issues

For this recommendation to be effective, it also needs to be applied either directly or indirectly by other providers of securities communication services, such as messaging services and network providers.

1. International communication procedures and standards relating to securities messages, securities identification processes and counterparty identification should be applied.

Recommendation 17: Transparency

The recommendation

CSDs should provide market participants with sufficient information for them to identify and accurately evaluate the risks and costs associated with securities clearing and settlement services.

Explanatory memorandum

1. In the past decades there has been growing appreciation of the contribution that transparency can make to the stability and smooth functioning of financial markets. In general, financial markets operate most efficiently when participants have access to relevant information concerning the risks to which they are exposed and, therefore, can take actions to manage those risks. As a result, there has been a concerted effort to improve the public disclosures of major participants in the financial markets.

2. Informed market participants can more effectively evaluate the costs and risks to which they are exposed as a result of participation in the system. They can then impose strong and effective discipline on the operators of that infrastructure, encouraging them to pursue objectives that are consistent with those of owners and users and with any public policy concerns. Providing information on prices/fees, services offered, key statistics and balance sheet data can promote competition between service providers and may lead to lowered costs and improved levels of service. Therefore, when CSDs offer value-added services, this offer should be made at transparent prices. Specific services and functions should be priced separately to allow users the option of selecting the services and functions that they wish to use.

3. CSDs make public the rights and obligations of market participants, the rules, regulations and laws governing the system, their governance procedures, any risks arising either to participants or the operator, and any steps taken to mitigate those risks. To enhance safety and risk awareness among participants, CSDs should publicly and clearly disclose their risk exposure policy and risk management methodology. Relevant information should be made accessible, for example via the internet. Information should be current, accurate and available in formats that meet the needs of users, in a language commonly used in the international securities markets as well as in at least one of the domestic languages²⁶. In order to be useful, the information should

²⁶ If required in the respective domestic market.

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be updated on a regular basis, at least once a year, or when major changes occur. CSDs are not obliged to disclose proprietary or confidential information, e.g. on business continuity plans.²⁷

4. Completion of the answers to the key questions set out in this report will serve not only as a basis for assessment of the implementation of the recommendations but as a basis for public disclosure to provide market participants with the complete and accurate information they need. The accuracy and completeness of disclosures should be reviewed periodically by a CSD, at least once a year, or when major changes occur.

Key issues

1. CSDs shall provide market participants with the information necessary to evaluate the risks and prices/fees associated with the CSDs' settlement service; this information should include the main statistics and the balance sheet of the system's operator.

2. CSDs should publicly and clearly disclose their risk exposure policy and risk management methodology.

3. Information should be publicly accessible, for example via the internet, and not restricted to the system's participants. Information should be available in formats that meet the needs of the users, in a language commonly used in the international financial markets as well as in at least one of the domestic languages²⁸.

4. CSDs should complete and disclose the answers to the key questions (other than those on Regulation, Supervision and Oversight) of this report. The accuracy and completeness of disclosures should be reviewed at least once a year by the CSDs. Information should be updated on a regular basis.

Recommendation 18: Regulation, Supervision and oversight

The recommendation

CSDs and securities settlement systems should be subject to transparent, consistent and effective regulation, supervision and oversight. In both a national and a cross-border context, central banks and securities regulators should cooperate with each other and with other relevant authorities regarding the CSD and the securities settlement systems it operates. Central banks and securities regulators should also ensure a consistent implementation of the recommendations.

Explanatory memorandum

1. Securities regulators (including, in this context, banking supervisors where they have similar responsibilities and regulatory authority with respect to CSDs) and central banks share the common objective of promoting the implementation of measures that enhance the safety soundness and efficiency of CSDs and the securities settlement systems they operate. The division of responsibilities among relevant authorities for the regulation, supervision and oversight of securities clearing and settlement services and systems varies from country to country depending on the legal and institutional framework.

2. Securities regulators and central banks will ensure the consistent application of these recommendations and to achieve a level playing field for CSDs and securities settlement systems in the European Union.

3. While the primary responsibility for ensuring the safe, sound and efficient operation of the CSD and the securities settlement systems/arrangements lies with its designers, owners and operators, the relevant authorities will review on the basis of regulation, supervision and oversight that the designers, owners and operators of securities clearing and settlement systems fulfil their responsibilities.

4. The objectives and responsibilities as well as the roles and major policies of the relevant authorities should be clearly defined and publicly disclosed, so that the designers, owners,

²⁷ Information should be classified as proprietary or confidential in accordance with the relevant law.

²⁸ If required in the respective domestic market.

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operators and participants of securities settlement systems are able to operate in a predictable environment and to act in a manner consistent with those policies and these recommendations.

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5. The relevant authorities should have the ability and the resources to carry out regulation and supervision effectively. Regulatory, supervisory and oversight activities should have a sound basis, which may or may not be based on statutes, depending on a country's legal and institutional framework. Cooperation and coordination among relevant authorities, in particular sharing of information, is subject to the provisions embedded in national law and – where relevant – to the provisions of applicable EU-directives. Relevant authorities will contribute on a best efforts basis to the relevant national procedures with the aim to eliminate obstacles which hamper the sharing of information. The relevant authorities should have adequate resources to carry out their regulatory, supervisory and oversight functions, such as gathering information on the CSDs and securities settlement systems they operate, assessing the structure, operation and design of the systems, conducting on-site visits or inspections, if necessary, and taking action to promote observance of the recommendations. To allow the relevant authorities to exercise their tasks effectively, CSDs should provide them with the necessary information and data, preferably in a standardised way.

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6. Cooperation between the relevant authorities is important if their respective policy goals are to be achieved. The risk profile of cross-border activities varies depending on the type of the cross-border arrangement, for example, links between CSDs, CSDs operating in a group structure sharing various business element, CSDs operating in a group structure subject to a consolidated supervision, the outsourcing of services or "off-shore systems". The justification for and level of a cooperative arrangement between relevant authorities, should take into account these varying risk profiles and should be addressed in a way that delivers regulation/supervision/oversight consistent with each relevant authority's responsibilities and avoids gaps, imposing unnecessary cost, and/or duplication of controls. Regulators/overseers can consider a variety of approaches including (1) information-sharing arrangements; (2) coordination of regulatory/oversight actions for specific matters, and issues of common interest; and (3) other cooperation arrangements. The approach selected may vary, depending on such issues as the law and regulatory approach in each jurisdiction. The approach set out in (2) above might entail a cooperative agreement for coordinating the implementation of the regulatory/oversight responsibilities of the competent authorities in line with the principles set in the 1990 Lamfalussy Report and with the cooperative oversight principles outlined in the 2005 CPSS report on 'Central bank oversight of payment and settlement systems'. The principles governing these cooperative arrangements should be set out in a formal framework, which in the interest of transparency, should be publicly disclosed. Cooperation could include co-ordination of crisis management plans as well as, to the extent permitted, early, confidential flow of information between relevant authorities and CSDs. The 2008 Memorandum of Understanding on cooperation between the financial supervisory authorities, central banks and finance ministries of the European Union on cross-border financial stability provides a basis for cooperation in the management of any cross-border financial crisis. In any case, the relevant authorities should establish prior contact channels and processes (including ones with the senior and key managers of the clearing and settlement systems) to ensure continuity of communication in case of a crisis situation.

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Key issues

1. CSDs and securities settlement systems should be subject to transparent, consistent and effective regulation, supervision and oversight. Securities regulators (including in this context banking supervisors where they have similar responsibilities and regulatory authority for CSDs) and central banks should have the ability and the resources to carry out their regulation, supervision and oversight responsibilities effectively.

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2. Securities regulators and central banks should clearly define and publicly disclose their objectives, their roles and key aspects of major policies for CSDs.

3. To ensure transparent, consistent and effective regulation, supervision and oversight, different forms of cooperation amongst relevant authorities may be required, both in national and cross-border context. Central banks and securities regulators should also ensure the consistent implementation of the recommendations and to achieve a level playing field for CSDs and securities settlement systems in the European Union.

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4. To enable them to carry out their tasks securities regulators and central banks should require CSDs and operators of securities settlement systems/arrangements to provide information necessary for regulation, supervision and oversight in a timely manner, including information on operations that have been outsourced to third parties or where the CSD proposes to undertake new activities.
5. Securities regulators, central banks and other relevant authorities should cooperate with one another, both nationally and in a cross-border context, to contribute to a safe, sound and efficient operation of CSDs.

Recommendation 19: Risks in cross-system LINKS or interoperable systems ³¹

The recommendation

CSDs that establish links to settle cross-system trades should design and operate such links so that they effectively reduce the risks associated with cross-system settlements. They should evaluate and mitigate the potential sources of risks that can arise from the linked CSDs and from the link itself.

Explanatory memorandum

1. The settlement of cross-system securities transactions is typically more complicated and potentially involves more risk than the settlement of domestic transactions. A CSD can provide arrangements to its participants by establishing direct links with other systems or relayed links where a third CSD is used as an intermediary. The recommendation applies to all cross-system links, or interoperable systems, both between two systems located in the same jurisdiction and between systems in different jurisdictions (i.e. cross-border links).
2. Direct links between CSDs may take a variety of forms. One way to distinguish between links is by the degree of customisation in service offering. If a CSD links to another CSD like any other standard participant this scenario is called standard access. If a CSD links to another CSD and some specific services are offered by one CSD to the other the scenario is called customised access. However, links may also take a form in which the CSDs establish advanced forms of relationships, where they agree to establish mutual solutions. Domestic cross-system links pose the same problems as cross-border links, although there may be fewer conflicts of law problems because the former are located in the same jurisdiction. It is important that cross-system links satisfy the relevant requirements set out in this recommendation.
3. Links may be established for different purposes. Links across systems may provide securities transfer, custody and settlement services. The choice of functions determines the design of the link, as does the structure of the CSD and the legal framework applicable in the respective jurisdictions. For example, to settle cross-system securities instructions between their participants, one or both of the linked CSDs becomes a participant in the other CSD. Such links permit participants in either CSD to settle trades in securities from multiple jurisdictions through a single gateway operated by its domestic CSD or by an international CSD. Links can also facilitate data transmission and information exchange about securities holdings. Furthermore, links can reduce the costs to participants of holding securities in various jurisdictions. Finally, links can, in certain circumstances, reduce the number of intermediaries involved in cross-system settlements, which tends to reduce legal, operational and custody risks.
4. However, CSDs need to design links carefully to ensure that risks are, in fact, reduced. Therefore, a CSD should evaluate and mitigate the potential sources of risks that can arise from the linked CSD and from the link itself. A CSD should evaluate the financial integrity and operational reliability of any CSD with which it intends to establish a link. The resulting arrangements should be designed such that risks are mitigated and the CSD remains able to observe the other recommendations contained in this report. Because linked CSDs are located in different jurisdictions, they must address legal and operational complexities that are more challenging than those they confront in their domestic operations. If a link is not properly designed, settling transactions across the link could subject participants to new or exacerbated

³¹ This recommendation does not cover links established by CCPs. This issue is covered in Part II on CCPs.

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risks relative to the risks to which the participant would be subject to if it settled its transactions through alternative channels, such as local agent.

5. Links may present legal risks relating to a coordination of the rules of, and the laws governing, the linked systems, including laws and rules relating to netting and the finality of transfers, and potential conflicts of law. Links may also present additional operational risks owing to inefficiencies associated with the operation of the link. These inefficiencies may arise because of variations in the operating hours of the linked systems or because of the need to block securities that are to be used in settling transactions across a link. Lastly, settlement links may create significant credit and liquidity interdependencies between systems, particularly if one of the linked systems experiences an operational problem or permits provisional transfers of funds or securities that may be unwound. An operational failure or default in one system may precipitate settlement failures or defaults in the linked system, and could expose participants in that system (even participants that did not transact across the link) to losses. In this respect, a clear allocation of responsibilities between the linked systems should be pursued. In light of the above, a link should not be unnecessarily complex.

6. Any credit extensions between CSDs should be fully secured by securities, letters of credit, other high-quality collateral or other means that ensure the same level of protection and should be subject to limits. Liquidity management arrangements should be implemented to address operational inefficiencies and potential defaults. Notwithstanding operational and legal difficulties, DVP should be achieved and steps should be taken to reduce the length of the (DVP) settlement process across the link. To reduce liquidity risks, intraday finality should be provided on a real-time basis or, at least, through several batches a day (see Recommendation 8). Moreover, to eliminate the danger of unwinds, provisional transfers across the link should be prohibited, or, at least their retransfer should be prohibited until the first transfer is final.

7. Links between CSDs should be designed so that they operate in accordance with the rules of each CSD and the terms of any associated contracts between the linked CSDs and between the individual CSDs and their participants, and with the necessary support of the legal framework in each jurisdiction in which the linked CSDs operate. Each CSD should assess the extent to which its legal framework supports the proper operation of links with other CSDs. The CSDs should aim to co-ordinate their rules as regards the moment of entry of a transfer order into a system and the moment of irrevocability. To the extent that jurisdictions permit CSDs operating there to establish a link, the legal frameworks of both jurisdictions should support the operation of the link in accordance with these recommendations. The laws applicable to the linked CSDs and their participants and the various steps and mechanisms in the operation of the link should be clear and transparent, and should protect participants and their customers in the event of the insolvency of one of the linked CSDs or one of their direct participants. Any choice of applicable law should be enforceable in the jurisdiction of each linked CSD and should be documented and transparent to all participants. Issues associated with the protection of customer securities should also be addressed in the design and operation of cross-system links, particularly the need for accurate and timely reconciliation of holdings (see Recommendation 12). Reconciliation is particularly important when more than two CSDs are involved (i.e. indirect or relayed links, where the securities are kept by one CSD or custodian while the seller and the buyer participate in two other CSDs). As a rule, when indirect links are used, participants should be informed of the risks they are assuming.

8. This recommendation also applies to relayed links and to other types of link where a CSD intermediates in the relation between an investor CSD and an issuer CSD. These links are defined as contractual and technical arrangements that allow two settlement systems not directly connected to each other to exchange securities transactions or transfers through a third settlement system (or systems) acting as the intermediary. Despite the further layer of complexity introduced by the operation of relayed links, such links should be designed in a way that minimises or contains settlement risks and does not impede the efficiency of cross-system settlement. This means that relayed links should be subject to the requirements set out in the ESCB-CESR recommendations. Each CSD should assess the extent to which its legal framework supports the proper operation of relayed links. To the extent that jurisdictions permit CSDs operating there to establish a relayed link, the legal frameworks of the jurisdictions involved should support the operation of the link in accordance with these recommendations. In terms of investor protection, it is important that the use of a relayed link does not in any way adversely

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affect the protection of end-investors against custody risk. For this reason, appropriate risk management procedures such as reconciliation and realignment should be in place. Moreover, as far as investor protection is concerned, the interaction of at least three different jurisdictions has to be carefully investigated and supported by legal opinions. With regard to market efficiency, it is important that the design and operation of relayed links allow efficient cross-system transfers in terms of processing times, so that the participants of the involved relayed CSDs can receive and use transferred securities within the same day.

Key issues

1. CSDs should design links or interoperable systems to ensure that settlement risks are minimised or contained. A CSD should evaluate the financial integrity and operational reliability of any other CSD with which it intends to establish a link. It should evaluate and mitigate the potential sources of risks that can arise from the linked CSD and from the link itself. The resulting arrangements should be designed such that risks are mitigated and the CSD remains able to observe the other recommendations contained in this report. The risk assessment should be kept updated

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2. Provisional transfers across a link should be prohibited (or at least retransfers, until the first transfer is final), and DVP should be achieved. CSDs should achieve DVP for links that process transactions against cash. The length of the settlement cycle and the achievement of DVP with intraday finality should not be jeopardised by the establishment of a link (see Recommendations 7 and 8).

3. Any credit extensions between CSDs should be fully secured and subject to limits. Liquidity management arrangements should be implemented to address operational inefficiencies and potential defaults.

4. Relayed links should be designed and operated in a way that minimises or contains settlement risks and does not impede the efficiency of cross-system settlement.

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PART 2:

RECOMMENDATIONS FOR
CENTRAL COUNTERPARTIES

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Recommendation 1: Legal risk

The recommendation

CCPs, linked or interoperable CCPs should have a well-founded, transparent and enforceable legal framework for each aspect of their activities in all relevant jurisdictions.

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Explanatory memorandum

1. A well-founded legal framework should support each aspect of a CCP's risk management and operations for all cleared products. The legal system (including bankruptcy laws) should clearly support: novation or open offer, acceleration and termination of outstanding obligations, netting, default procedures, collateral and clearing fund arrangements, enforceability of a CCP's rules with regard to its participants, insolvency of the CCP, a CCP's conflict of law determinations, and a CCP's right to information about participants and, directly or indirectly, about underlying customers. Further, the laws and regulations governing a CCP, a CCP's rules, procedures and contractual arrangements, and a CCP's timing of assuming its obligations should be clearly stated, internally coherent and readily accessible to participants and the public. If the legal framework is underdeveloped, opaque or inconsistent, the resulting legal risk will undermine a CCP's ability to operate effectively. Financial market participants will face the dilemma of either: (1) using a CCP with an incomplete ability to assess their risk of participation; or (2) declining to use a CCP. Under either circumstance, the risk reduction benefits of a CCP may not be realised and, depending on the significance of weaknesses in the legal framework, the activity of a CCP could be a potential source of systemic risk.

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2. In most jurisdictions, the legal concept that enables a CCP to become the counterparty is either novation or open offer. Through novation, the original contract between the buyer and seller is extinguished and replaced by two new contracts, one between the CCP and the buyer and the other between the CCP and the seller. In an open offer system, a CCP is automatically and immediately interposed in a transaction at the moment the buyer and seller agree on the terms. If all pre-agreed conditions are met, there is never a contractual relationship between the buyer and seller in an open offer system. Both novation and open offer give market participants legal certainty that a CCP is obligated to effect settlement if the legal framework is supportive of the method used.

3. A CCP may accept trades from a range of sources, including exchanges, electronic trading platforms, over-the-counter markets and trade processing platforms. In order to determine the obligations of the CCP and its participants and the risks they face, the legal terms defining and governing the contracts of these trades must be certain. A CCP's rules and procedures should set out the relevant contractual terms and make clear the extent to which a CCP relies on the legal framework or determinations of third-parties (e.g. determination concerning the handling of credit events). Recognising that a CCP will generally only ever serve a subset of a given product market, use of widely accepted market definitions should be made provided that such use does not create legal uncertainty.

4. The legal framework should support the essential steps that a CCP takes to handle a defaulting or insolvent participant, including any transfers and closing out of a direct or indirect participant's positions. A CCP must act quickly in the event of a participant's default, and ambiguity over the enforceability of these procedures could delay, and possibly prevent altogether, a CCP from taking actions that fulfil its obligations to non-defaulting participants or minimise its potential losses. Insolvency law should support isolating risk and retaining and applying collateral (including margin) and cash payments previously paid into a CCP, notwithstanding a default or the commencement of an administration or bankruptcy proceeding by or against a participant.

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5. The legal framework must enable a CCP to clearly establish its interest in collateral (including margin). Generally, collateral arrangements involve either a pledge or a title transfer. If a CCP accepts a pledge, it must have a high degree of assurance that the pledge has been validly created in the relevant jurisdiction and validly perfected, if necessary. If a CCP relies on a

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title transfer, it should have a high degree of assurance that the transfer will be enforced as written and not recharacterised as an invalid or unperfected pledge.

6. A strong legal framework will support the rapid deployment of the collateral held by a CCP when a participant defaults on its obligations or becomes insolvent. This aspect of the legal framework is critical because delay in the use of collateral may prevent a CCP from meeting its obligations as expected. The legal framework will accomplish this goal if the rules, procedures and contracts for operating a CCP and the obligations of its participants are enforceable, and a CCP has the unimpeded ability to liquidate collateral and close out transactions. This means that actions taken by a CCP under such rules and procedures may not later be stayed, avoided or reversed.

7. The enforceability of a CCP's netting arrangements must also have a sound and transparent legal basis. Netting involves the offsetting of obligations by trading partners or participants. CCPs often bilaterally net their obligations with each participant. Netting reduces the number and value of deliveries and payments needed to settle a set of transactions and significantly reduces the potential losses to a CCP in the event of a participant's default. Some CCPs also net gains and losses from the close out of positions in different securities or derivatives. Netting arrangements must be enforceable against a CCP's failed participants in bankruptcy, and the legal framework should support the CCP's netting arrangements. Without such legal underpinnings, net obligations may be challenged in judicial or administrative insolvency proceedings. If these challenges are successful, the CCP or its participants would be obligated for gross amounts potentially a huge, even devastating, change because the gross obligations could be many multiples of the net obligations.

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8. A CCP's legal framework should also support finality of settlement. A critical issue in a CCP's money settlement arrangements is the timing of the finality of funds transfers between the CCP's accounts and the accounts of its participants at the banks used to effect such settlements. The funds transfers should be final (irrevocable and unconditional) when effected (when accounts are debited and credited) also in relation to interoperable CCPs. The laws of the relevant jurisdictions must support the provisions of the CCP's legal agreements with its settlement banks relating to finality. Similarly, there must be a clear and effective legal basis for the finality of the transfers of financial instruments.

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9. The rules governing the CCP's activities should clearly indicate the law that is intended to apply to each aspect of a CCP's operations, including (a) the law governing the CCP; (b) the law that will be applicable to the contractual aspects of the relationship with each participant; (c) the law that will be applicable to the proprietary aspects of securities held on a participant's account with a CCP; (d) the law covering collateral pledged to the CCP including where relevant, the conditions for rehypothecation of collateral and e) the law governing contracts to which the CCP becomes the counterparty. If CCPs operate in more than one market or jurisdiction, the legal framework should be clear and consistent to avoid systemic risk. Potential conflicts of law should be identified and the CCP must address conflicts of law issues when there is a difference in the substantive laws of the jurisdictions that have potential application to a CCP's activities. The legal framework for a CCP must be evaluated in the relevant jurisdictions. These include those jurisdiction(s) (i) in which the CCP is established (ii) in which the CCP's direct participants are established, regulated, domiciled or have their principal office, centre of main interests or the branch office through which they operate their business with the CCP; and (iii) whose laws affect the operation of the CCP as a result of: (a) the law governing the CCP; (b) the law that will be applicable to the contractual aspects of the relationship with participant; and (c), if different from (b), the law that will be applicable to the proprietary aspects of securities cleared by the CCP or provided as collateral. Relevant jurisdictions may also include a jurisdiction in which a security handled by the CCP is issued, jurisdictions in which a clearing member or its bank, is established, domiciled or has its principal office centre of main interests and branch through which it operates; or a jurisdiction whose laws govern a contract between these parties or interoperable CCPs. In such circumstances, each jurisdiction's conflict of laws rules should specify the criteria that determine the law applicable to the activity. CCPs should take into account the conflicts of law issues when structuring their rules and setting the law that governs the CCPs. Both CCPs and participants also should be aware of applicable constraints on their ability to choose the law that will govern a CCP's activities. A jurisdiction ordinarily does not permit CCPs and participants to circumvent the fundamental public policy of that jurisdiction by contract.

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10. A CCP and the appropriate regulatory authorities should organise and license a CCP in a manner that enables it to take advantage of all of the legal protections available in the jurisdiction. As the Settlement Finality Directive provides legislation that supports most of the legal issues listed above, CCPs whose operations are governed by the law of an EEA Member State should apply for designation under this Directive. Regardless of its organisation or regulatory status, a CCP should have the legal authority to establish requirements for direct access to its services and deny access to entities that fail those requirements. Further, legal, regulatory or confidentiality restrictions should not prevent market participants from providing information about themselves relevant to their participation in a CCP.

11. The application of a multitude of laws to the operations of a CCP increases the legal complexity and could possibly affect systemic stability. In the EEA the Settlement Finality Directive reduces these risks by providing clear rules on the law used to govern the system and the law used to govern the rights and obligations of a participant in an insolvency situation. In the same vein, the range of jurisdictions governing a CCP's operations should be kept to a minimum. Subject to a legal risk analysis, it may prove to be advisable that only one legal system governs the contractual aspects of the relationship between the CCP and each of its participants. Ideally, the applicable law should be identical to the law governing the CCP, in order to safeguard systemic finality, certainty and transparency. Linked or interoperable CCPs should identify, disclose and address any additional legal risks.

12. CCPs should, as a minimum, provide information to market participants (where appropriate and relevant, supported by an internal or external analysis or opinion) on the following subject matters: (1) the legal status of the CCP; (2) the law governing the CCP and its activities for all cleared products; (3) the rules governing access to the CCP; (4) the applicable law governing the contractual relationship between the CCP and participants; (5) the office(s) where activities related to the maintenance of financial instruments accounts are being conducted; (6) the rules governing the use of collateral including - if applicable - that provided by non clearing participant; (7) the rules and applicable law for default and collateral, including the liquidation of positions and of assets pledged or transferred as collateral; (8) CCP risk management techniques, including the CCP legal position vis-à-vis clearing members and – if applicable - non clearing participants; (9) the laws governing the transfer of payments and those covering the final settlement of a transaction particularly if physical delivery occurs, also in links and interoperable CCPs (10) the extent to which collateral pledged to the CCP is protected against any third party claims (11) a general description on the above matters in case of a default or insolvency of the CCP including (but not limited to) – if applicable – details of any facilities offered to facilitate the segregation of assets provided by participants, including non clearing participants (12) the applicable law governing the contractual relationship underpinning links and interoperable CCPs. The applicable legal framework should ensure that all participants are adequately protected against custody risk, in particular including for example, insurance policies, contractual exclusion and agreed treatment regarding shortfalls of securities.

13. For systemic risk purposes, the harmonisation of rules should be promoted to minimise discrepancies stemming from different national rules and legal frameworks. This will minimise the effects of potential conflict of laws thereby increasing the level of legal certainty. The legal and regulatory framework comprises different kind of “rules”. In case the rule is set out in the law, the relevant competent authorities should address the relevant issues. In this respect, some harmonisation has been achieved by the implementation of the Settlement Finality Directive, of the Financial Collateral Directive and of MiFiD. Further harmonisation may be considered at the EU level in the future. In case the rule is not set by an international or national law but depends on self-regulatory bodies or by the CCP itself, these institutions should endeavour to harmonise rules at European Level.

Key issues

1. The laws, regulations, rules, procedures, and contractual provisions governing the operation of a CCP, of linked CCPs or of interoperable CCPs³² (see Recommendation 11) should be clearly stated, internally coherent, and readily accessible to participants and the public.

³² Were a CCP to act as a clearing member of another CCP, all recommendations except 11 apply.

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2. The legal framework should provide a high degree of assurance for each aspect of a CCP's operations and risk management procedures.

3. The rules, procedures, and contracts of a CCP should be enforceable if a CCP participant, a linked CCP or an interoperable CCP or a participant in a linked or interoperable CCP defaults or becomes insolvent. There should be a high degree of assurance that actions taken under such rules and procedures may not later be stayed, avoided or reversed

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4. A CCP should identify and address any potential conflicts of law issues arising from cross-border arrangements. In doing this, the CCP's analysis should include the laws intended to cover those elements specified in C.8.

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5. In accordance with the relevant national implementation provisions, all CCPs should apply for designation under the Settlement Finality Directive 98/26/EC on settlement finality in payment and securities settlement systems, as amended (hereinafter referred to as the Settlement Finality Directive). The relevant authorities should actually designate the systems that meet the criteria of the Settlement Finality Directive.

6. The relevant public authorities should support the harmonisation of rules so as to minimise any discrepancies stemming from different national rules and frameworks.

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Recommendation 2: Participation requirements

The recommendation

A CCP should require participants to have sufficient financial resources and robust operational capacity to meet obligations arising from participation in the CCP. A CCP should have procedures in place to monitor that participation requirements are met on an ongoing basis. A CCP's participation requirements should be objective, publicly disclosed, and permit fair and open access. Rules and requirements that restrict access should be aimed at controlling risk.

Explanatory memorandum

1. A CCP seeks to control the risks to which it is exposed by dealing only with sound and reliable counterparties. Participation requirements established by a CCP are its primary means to ensure that participants have sufficient financial resources and robust operational capacity to meet obligations arising from participation. Where a CCP admits non regulated entities as participants, it should analyze any specific risks that non regulated entities bring to the CCP and establish appropriate requirements for such participants to ensure that those risks are adequately controlled. Requirements should be clearly stated and publicly disclosed so as to promote certainty and transparency. To avoid discriminating against classes of participants and introducing competitive distortions, participation requirements should be objective and avoid limiting competition through unnecessarily restrictive criteria, thereby permitting fair and open access within the scope of services offered by the CCP³³. Restrictions on access should only be based on risk-related criteria or other criteria as set out in EU law. So, for example, restrictions on access for non-resident participants are unlikely to be acceptable except when material doubts exist over whether system rules are enforceable against residents of other jurisdictions or remote access would expose a CCP to unacceptable risks which cannot reasonably be mitigated. A CCP may include other indicators of risk in its requirements, such as whether an institution is supervised, but these indicators should be related clearly to the risks the CCP is managing. Refusal could also be justified when there are doubts about the enforceability of legal powers with regard to money laundering, in case of applicants located in countries blacklisted by the Financial Action Task Force (FATF).

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2. Protecting the financial market against unacceptable risk is an issue of public interest that justifies the denial of access to any applicants that do not meet the minimum requirements established by the CCP. However, access may also be denied if the technical, operational and financial resources are such that they could cause disturbances in the system, even if the scale of

³³ For example, a CCP offering its services only to wholesale market participants is not required to provide its services to retail market participants.

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possible disturbance is not systemic in magnitude. Denial of access should be explained in writing. If an applicant questions the fairness of the refusal decision, the decision can be brought to third-party review. Protecting the market against biased competition means that “fair access” should signify equal access to the use of functions; it does not imply that any participant may access any CCP at any time at the same price.

3. To reduce the likelihood of a participant's default and to ensure timely performance by the participant, a CCP should establish rigorous financial requirements for participation. Participants are typically required to meet minimum capital standards. Some CCPs impose more stringent capital requirements if exposures of or carried by a participant are large or if the participant clears for other market participants. Capital requirements for participation may also take account of the types of products cleared by a CCP. In addition to capital requirements, some CCPs impose standards such as a minimum credit rating or parental guarantees. Additional risks may be introduced to the CCP by non clearing participants and more specifically by non-regulated entities (e.g. hedge funds). Consequently, even though CCPs only have direct exposures to clearing members and rely on the latter's due diligence to address risks created by non clearing participants, CCPs should consider explicitly requiring that clearing members apply appropriate risk management tools to non clearing participants in their rules or introducing additional admission criteria. In the medium term, CEBS will investigate risk management aspects relevant to banks that take on the role of a general clearing member.

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4. A CCP should establish requirements to ensure that participants have robust operational capacity, e.g. sufficient level of relevant expertise, necessary legal powers and business practices, including appropriate procedures for managing risks, such that the participants are able to achieve timely performance of obligations owed to the CCP. The requirements should ensure that participants can process the expected volumes and values of transactions within the required time frames, including at peak times and on peak days. They should also have arrangements to effect collateral, payment, and delivery obligations to the CCP. A CCP should also ensure that its requirements are addressed through regular review of operational capacity and risk management policies by participants' senior management and by independent internal audit. Furthermore, a CCP may require its participants who are exposed to greater risks to demonstrate a higher level of operational robustness than other participants, because the operational failure of such a participant is likely to have greater market-wide impact than that of participants with less significant exposures. A CCP may impose specific additional obligations on participants to participate in default management processes, for example participation in auctions of a defaulting clearing member's positions. These may be particularly appropriate in the case of OTC derivatives in order to ensure a timely resolution of a large and complex portfolio and may be included in the relevant participation requirements. Any participation by clearing members in the default management process should be in good faith and closely monitored by the CCP.

5. A CCP also needs to ensure that directors and senior management of participants meet relevant fit and proper requirements, as appropriate. If participants are regulated entities, this may already have been evaluated by public authorities.

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6. A CCP should have procedures and allocate sufficient resources for effective monitoring of compliance with participation requirements on an ongoing basis³⁴. A CCP should have the authority to receive timely and accurate information on participants' compliance with its requirements, either through access to regulatory reports filed by the participants with regulators (if permitted by law) or directly from the participants. Participants should be required to report any developments that may affect their ability to comply with participation requirements, and a CCP should be able to impose more stringent restrictions on individual participants in situations where it determines that the participant poses heightened risk. Some CCPs also have the authority to conduct on-site visits to participants. A CCP should have in place arrangements for the suspension and orderly exit of participants that no longer meet participation requirements, and those arrangements should be publicly disclosed.

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³⁴ The requirement is for a CCP to monitor compliance with its participation requirements and should not be interpreted as mandating a regulatory role for a CCP beyond those requirements the CCP imposes as a condition for participation in the CCP. Where applicable, a CCP may rely on the supervisory activities of the participant's regulators, but this does not absolve the CCP from conducting its own due diligence

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Key issues

1. To ensure timely performance by participants, a CCP should establish requirements for participation to ensure that participants have sufficient financial resources and robust operational capacity, including a sufficient level of relevant expertise, necessary legal powers and business practices.
2. A CCP should have procedures in place to monitor that participation requirements are met on an ongoing basis, either through timely access to regulatory reports filed by participants or directly if such reports are not available or do not contain the required information.
3. Participation requirements should be objective, permitting fair and open access, Denial of access should only be based on risk-related criteria or other criteria as set out in EU law and should be explained in writing. Participation requirements, including arrangements for orderly exit of participants, should be clearly stated and publicly disclosed.

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Recommendation 3: Measurement and management of credit exposures

The recommendation

A CCP should measure its credit exposures to its participants at least once a day. Through margin requirements, and other risk control mechanisms, a CCP should limit its exposures to potential losses from defaults by its participants so that the operations of the CCP would not be disrupted and non-defaulting participants would not be exposed to losses that they cannot anticipate or control.

Explanatory memorandum

1. To manage its counterparty credit exposures to its participants effectively, a CCP must be able to measure those exposures. A CCP can ascertain its current credit exposure to each participant by marking each participant's outstanding contracts to current market prices and (to the extent permitted by a CCP's rules and supported by law) netting any gains against any losses. A CCP faces the risk that the participants' exposures can change as a result of changes in prices, in positions, or both. Adverse price movements can rapidly increase exposures to participants.³⁵ Furthermore, participants may rapidly build their positions through new trading, although some markets impose trading limits or position limits that reduce this risk. Recommendation 11 elaborates on the management of the counterparty credit exposures towards other CCPs.

2. A CCP thus should recalculate its exposures to its participants frequently, based on timely information on market prices and on the size and concentration of positions, to ensure that its estimates of those exposures are accurate. How frequently a CCP must recalculate its exposures to participants depends on the volatility of prices in the markets it serves and the potential for participants to quickly build large positions in those markets. The latter depends on the liquidity of the markets and on whether the markets set and enforce trading limits or position limits. Nevertheless, a CCP should measure its exposures at least once a day and should have the operational ability to measure its exposures on an intra-day basis, either routinely or at a minimum when specified thresholds are breached (for example, when market price changes exceed pre-specified thresholds or when one or more participants build up large positions during the day). Mark-to-market should be used to the largest extent possible when measuring an instrument. In case of illiquidity of an instrument and of consequent difficulty in assessing a reasonable daily settlement price, the CCP should elaborate a model for assessing a reasonable daily settlement price, on the basis of the theoretical value of the financial instrument concerned.

3. A CCP must be able not only to measure its exposures to its participants but also to take actions as necessary based on the results of those measurements. A CCP must maintain sufficient financial resources to ensure that it continues to meet its obligations when due. Without some mechanism to limit its potential exposures, a CCP would not be able to meet that requirement unless it were able to augment its financial resources very rapidly. But augmenting resources might well prove difficult in the circumstances that would generate a need for those additional resources. A CCP also must ensure at a minimum that the default of the participant to which it has the largest exposure would not result in losses that would disrupt the operations of the CCP or non-defaulting participants. Some CCPs may require non-defaulting participants to provide additional funds to it in the event of default. These non-defaulting participants could be exposed to significant risks that they themselves cannot control. Therefore, the CCP must have in place mechanisms to limit its uncollateralised credit exposures to its participants.

4. To prevent disruption in the operation of a CCP or its non-defaulting participants, this recommendation requires a CCP to have mechanisms designed to limit its exposures to its participants so that, in closing out any participant's positions, non-defaulting participants would not be exposed to losses that they cannot anticipate or control. The current key mechanism to protect the CCP and the non-defaulting participants against the potential losses arising from a participant default is a requirement that participants post margin commensurate with the risk of their positions. Margin requirements should cover a high percentage of such losses (see recommendation 4). Margin posted by a defaulter should be used prior to other financial

³⁵ Price limits and trading halts may delay the adjustment of market prices but there is little evidence that they can reduce the ultimate size of adjustments that occur once trading resumes.

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resources in covering losses. Many CCPs also control the accumulation of exposures by requiring frequent (often daily or intra-day) settlement of gains and losses through cash payments. In effect, the margin requirements seek to ensure that losses from closing out a defaulting participant's positions would be covered by the margin posted by the defaulting participant.

5. Additional financial resources (including participants' contributions to a clearing fund as well as the CCP's own capital) should ensure that the CCP is in a position to protect itself from potential residual losses that are not covered by margin (see recommendation 5). Trading limits, position limits or provisions - whereby trades may be held prior to acceptance by the CCP until additional collateral is provided or other action is taken - may also be used by the markets for which a CCP clears to control the build-up of positions and should be taken into account as a risk mitigation tool.

Key issues

1. A CCP should measure its exposures to its participants at least once a day and should have the capacity to measure its exposures on an intra-day basis, either routinely or at a minimum when specified thresholds are breached. The information on market prices and participants' positions that are used to calculate the exposures should be timely.
2. Through margin requirements, and other risk control mechanisms, a CCP should ensure that it is adequately protected against potential losses from defaults by its participants, so that closing out any participant's positions would not disrupt the operations of a CCP or expose non-defaulting participants to losses that they cannot anticipate or control.

Recommendation 4: Margin requirements

The recommendation

A CCP should to the greatest extent feasible impose margin requirements to limit its credit exposures to participants. These requirements should be sufficient to cover potential exposures that the CCP estimates to occur until the liquidation of the relevant positions. The models and parameters used in setting margin requirements should be risk-based and reviewed regularly.

Explanatory memorandum

1. CCPs should impose margin requirements to limit the build-up of credit exposures and to generate a pool of resources to cover losses in the event a participant defaults.
2. In setting margin requirements, a CCP should use models and parameters that capture the risk characteristics of the products cleared and that take into account the interval between margin collections. Product risk characteristics can include historic price volatility, non-linear price characteristics, and jump-to-default risks. Margins should take into account market liquidity, which can also change through the life of a transaction. The margin models and parameters should be reviewed and back tested regularly (at least quarterly) to assess the reliability of the methodology in achieving the desired coverage. During periods of market turbulence, these reviews should occur more frequently, to take account of potential changes to the suitability of underlying assumptions. The margin-setting process should be approved by a CCP's senior management responsible for risk issues. CCPs should be transparent about their reliance and use of market, quotation and modelled prices for the calculation of margin requirements to the relevant authorities, and, to an appropriate extent, to their participants.
3. Margin requirements, as well as additional financial resources, impose opportunity costs on CCP participants. So, a CCP needs to strike a balance between greater protection for itself and higher opportunity costs for its participants. For this reason, margin requirements are not designed to cover price risk in all market conditions. Nonetheless, margins should be sufficient to protect the CCP from losses that result from at least 99 % of the price movements over an appropriate time horizon. This time horizon should be appropriate to capture and identify the risk characteristics of the specific instrument in order to allow the CCP to estimate the magnitude of the price changes to be expected to occur in the interval between the last margin collection and

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the time the CCP estimates it will be able to liquidate the relevant positions. In other words, exposures from price movements should breach margin requirements not more often than 1 percent of the time. The price estimations should be based on relevant historical data as well as forthcoming price-sensitive events that are foreseeable for the CCP. This recommendation does not prescribe how much historical data must be used for this purpose. The appropriate amount of data to use will vary from product to product and over time. If, for example, volatility rises, a CCP may want to use a short interval that better captures the new, higher volatility prevailing in its markets. In case of newly listed securities, margin parameters should be generally based on conservative assumptions over a significant number of comparable issuers/financial instruments.

4. To mitigate intraday risks, a CCP should have the authority and operational capacity to make intraday margin calls, at a minimum when pre-specified thresholds are breached (for example, when market price changes exceed pre-determined thresholds or when one or more participants build up large positions during the day). Some CCPs provide services for markets in which exposures can change dramatically within the day, either because of participants' trading activity or price volatility. In such cases, a CCP should monitor exposures intra-day (recommendation 3) and limit the build up of potential losses from exposures through both routine and special intra-day margin calls.

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5. In calculating margin requirements, a CCP may allow offsets or reductions in required margins between products for which it is counterparty if the price risk of one product is significantly and reliably correlated with the price risk of another. A CCP should base such offsets on an economically meaningful methodology that reflects the degree of price correlations between the products. It should also allow for potential changes in correlations between products, particularly at times of market turbulence.

6. Because of the role margin plays in a default, a CCP needs assurance of its value in the event of liquidation, and a CCP needs the capacity to draw upon it promptly. A CCP generally should limit the assets accepted as margin to those with high liquidity. Margin assets should be marked to market daily. Haircuts should be applied to the market values of the assets so as to adequately reflect the potential for their value to decline over the interval between their last revaluation and the time by which they can reasonably be assumed to be liquidated; these haircut procedures should be reviewed regularly. If market prices do not fairly represent values, a CCP should have the authority to exercise discretion in valuing margin assets according to its predefined methods. If a CCP accepts assets in foreign currencies, any foreign exchange risk should also be taken into consideration. Because of potential concerns about the ability to liquidate margin assets quickly and without significant price effects, a CCP may limit the concentration of holdings of certain assets (e.g., securities issued by individual obligors).

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Key issues

1. Margin requirements should be imposed where feasible and should be sufficient to cover losses that result from at least 99 % of the price movements over an appropriate time horizon. This time horizon should be appropriate to capture and identify the risk characteristics of the specific instrument in order to allow the CCP to estimate the magnitude of the price changes to be expected to occur in the interval between the last margin collection and the time the CCP estimates it will be able to liquidate the relevant positions. Models and parameters used in determining margin requirements are based on the risk characteristics of the products cleared and take into account the interval between margin collections. The ability of the models and parameters to achieve the desired coverage should be validated regularly.

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2. A CCP should have the policy, the authority and operational capacity to make intraday margin calls to mitigate credit exposures arising from new positions or from price changes.

3. The assets that a CCP accepts to meet margin requirements should be limited to highly liquid instruments.⁴⁰ Haircuts should be applied to asset values that reflect the potential for their value to decline over the interval between their last revaluation and the time by which they can reasonably be assumed to be liquidated.

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⁴⁰ In special circumstances it may be appropriate for a CCP to accept less liquid assets, for example, the underlying stock might be accepted as a margin asset for an option on that stock, even though the stock might not be highly liquid

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Recommendation 5: Other risk controls

The recommendation

A CCP should maintain sufficient available financial resources to cover potential losses that exceed the losses to be covered by margin requirements. For this purpose, the CCP should develop plausible scenarios and conduct stress tests accordingly. At a minimum, a CCP should be able to withstand a default by the participant to which it has the largest exposure in extreme but plausible market conditions.

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Explanatory memorandum

1. Although risk management tools (notably a CCP's participation requirements) are designed to ensure that defaults are unlikely, a CCP must nonetheless plan for the possibility that a default occurs. In that event, a CCP has an obligation to continue to make payments to non-defaulting participants on time. It must maintain financial resources both to provide it with liquidity to make timely payments in the short term and to enable it to cover the losses that result from defaults. In addition to margin requirements to cover losses from price movements that the CCP estimates to occur on the basis of historical data and other foreseeable price-sensitive events, the CCP should maintain further financial resources (e.g. resources of a clearing fund to which all the participants have contributed as well as the CCP's own capital) to cover potential residual losses that exceed the estimated/expected losses. For this purpose, the CCP should develop plausible scenarios (e.g. where simultaneous crystallisation of different risks could occur) and conduct stress tests accordingly.

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2. Assessing the adequacy of resources can be difficult because it depends on the scenario that the CCPs focuses on, i.e. it rests on assumptions about which participant or participants default and about market conditions at the time of the default. Many CCPs focus on a default by the participant to which the CCP has the largest exposure in the market scenarios under consideration.⁴¹ Linked or interoperable CCPs that have been assessed against recommendation 11 are not to be considered when identifying the largest residual exposure. The evaluation of the largest potential exposure should also take into account risks which may arise from the participant's further relation to the CCP, e.g. as intermediary, settlement bank, issuer of collateral, guarantor, the issuer of a security being cleared, or a reference entity for a credit default swap. This should be viewed as a minimum recommendation in a CCP's evaluation of its resources. However, market conditions that typically accompany a default put pressures on other participants (particularly related group members or affiliates), and a default itself tends to heighten market volatility, further contributing to stresses. Planning by a CCP should consider the potential for two or more participants to default in a short time frame, resulting in a combined exposure greater than the single largest exposure.

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3. Stress testing is used by CCPs to assess the adequacy of their financial resources.⁴² A CCP assumes extreme market conditions (that is, price changes significantly larger than the normally prevailing levels of volatility), and evaluates the potential losses in individual participants' positions. Stress testing provides insights into several aspects of the financial resources the CCP may need. The largest debit from such a test helps a CCP evaluate its potential liquidity needs. Calculations taking into account the resources of the potential defaulter that are available to a CCP (margins, clearing fund contributions or other assets) provide perspective on the potential size of the losses that a CCP might face. Other stress tests may consider the distribution of positions between the participant and its customers in evaluating potential losses.

4. The relevant stress tests will differ from one CCP to another and, for a given CCP, over time. Typically, a CCP will conduct a range of stress tests. These tests should reflect a CCP's product mix and other risk management choices. Key elements of stress testing are the market conditions and default scenarios assumed and the frequency with which the tests are conducted. A CCP must make judgments about what constitutes "extreme but plausible" market conditions. The

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⁴¹ This recommendation focuses on the largest potential exposure of a CCP, regardless of whether that exposure arises in a participant's account or in the account of a participant's customer. In assessing the adequacy of resources, however, an individual CCP's analysis will need to take into account the source of the default if that affects the financial resources available to cover losses.

⁴² Stress testing also is conducted to help a CCP understand the risks it is assuming and potential ways to mitigate those risks.

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conditions evaluated should include the most volatile periods that have been experienced by the markets for which a CCP provides its services. A CCP also should evaluate the losses that would result if levels of volatility observed in related products were also experienced in its products (this is particularly relevant when a CCP begins clearing a new product) and if the usual patterns of correlations in prices among its products changed. CCPs conduct multiple types of stress tests. Tests to check the adequacy of resources in the event of a default in extreme market conditions should be performed monthly, and more frequently when markets are unusually volatile or less liquid or when the size or concentrations of positions held by its participants increase significantly. In addition, comprehensive stress tests involving a full validation of model parameters and assumptions and reconsideration of appropriate stress scenarios should be conducted at least annually.⁴³

5. Based upon the stress testing process, a CCP must reach a judgment about the adequacy of its resources. A CCP should provide its participants and authorities specific information about its assumptions related to the number and size of participants that default and the market conditions at the time of default in coming to this judgment. A CCP should have clear policies for the actions it would take if stress testing indicates that its resources are not likely to be adequate either for meeting liquidity demands or for covering an exposure resulting from default. The actions that a CCP might take will vary, but the ultimate effect must be either to reduce the potential exposure of the CCP or to increase the resources of the CCP. These policies should be made available to a CCP's participants and its authorities.

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6. The financial resources available to a CCP can take a variety of forms. For many CCPs, some assets that they require participants to post can only be used to cover losses arising from that participant's default.⁴⁴ Other financial resources are available to cover losses arising from any participant's default. Many CCPs require participants to post assets in a clearing fund that can be used in the event of a default by any participant.⁴⁵ CCPs generally have their own capital and retained earnings from operations. Resources can include loss sharing arrangements, insurance arrangements, capital, parental guarantees or other similar provisions. For example, a CCP's rules may require non-defaulting participants to provide additional funds to it in the event of default. The parents of some CCPs provide a guarantee, and other CCPs obtain default insurance that covers a certain amount of losses after a deductible has been met. Resources posted by a defaulter should be used prior to other financial resources in covering losses.

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7. The availability of these financial resources and their liquidity vary. When margin is held, it should be readily available and liquid (recommendation 4). A CCP's clearing funds, own capital, or retained earnings are under its immediate control, but they generally are invested and may not be immediately available. Insurance contracts, parental guarantees or rights to call for funds from non-defaulting participants are often available only after specific conditions are met. In assessing the adequacy of its financial resources, a CCP should consider the availability and liquidity of the assets it holds, as well as possible concentration risk.

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8. A CCP should include only those resources that it can reliably draw on in the event of a default in evaluating the adequacy of its resources. For example, possible payouts from insurance contracts should be counted only if there is high degree of certainty that the terms of the contracts would be payable in the event of a default. The precise circumstances under which a CCP can draw upon any resources that require conditions to be met should be carefully evaluated in judging their contribution to the overall adequacy of resources.

9. Even if there is assurance that a CCP can draw on resources in a default, some types of financial resources are subject to potential losses in value. Haircuts should be applied to these resources to reflect potential volatility in their market values resulting from price, credit and liquidity risk. Only the value subject to the appropriate haircuts should be counted as part of the financial resources of a CCP.

⁴³ CCPs conduct different types of stress tests, some of which are conducted weekly or even daily. Such stress tests often are mechanical, evaluating positions at higher confidence intervals for price movements, for example. This requirement for conducting monthly and comprehensive annual stress tests is considerably more demanding than these routine risk management activities.

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⁴⁴ Some CCPs also enter into cross-margining agreements that enable a CCP to access a defaulting participant's assets at another CCP in certain circumstances.

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⁴⁵ See section 3 for a discussion of the differing terminology with respect to financial resources used by CCPs.

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10. Rules of a CCP should expressly set out the structure of resources, the situations in which specific resources can be used, and the order that those resources would be applied to a default. For purposes of assessing observance of this recommendation, financial resources should be counted only if a CCP's rules do not permit them to be used to cover its normal operating losses or to cover losses from other activities in which it is engaged. Nevertheless, a CCP should have sufficient resources to cover also such losses. If a CCP serves multiple markets (either in the same jurisdiction or multiple jurisdictions), the CCP's ability to use resources supplied by participants in one market to cover losses from a default in another market should be clear to all participants. (A CCP's design of its stress tests also should take into account the extent to which resources are pooled across markets.) When a CCP extends its activity to a new type of product(s) (e.g. OTC products) compared with the other cleared products, the CCP should contemplate the possibility to implement dedicated resources (e.g. like a dedicated clearing fund) in order to mitigate potential spill-over effects, and if relevant, clearly justify the rationale for using the existing arrangements of resources available to cover other markets.

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11. Because a function of the financial resources of a CCP is to enable it to face immediate liquidity demands, a CCP should obtain credit lines that allow it to borrow against resources that are not immediately available. These credit lines should be committed and subject only to presentment.⁴⁶ The presence of such credit lines is an important consideration in assessing the adequacy of a CCP's resources from a liquidity perspective.

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12. A CCP which has a clearing fund must have a clear and transparent method for determining participants' contributions to its financial resources that reinforces incentives for participants to manage the risk that they pose for the CCP. Generally such incentives involve a system in which contributions are linked to the riskiness of participants' activity as measured by margin posted, by size of positions or sometimes by stress-testing results. A CCP also should establish rules that address replenishing resources following a default. These rules typically set out responsibilities and expected contributions before a participant can cease participation.

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Key issues

1. In addition to margin requirements, a CCP should maintain sufficient available financial resources to cover potential residual losses that exceed the losses to be covered by margin requirements. For this purpose, the CCP should develop scenarios of extreme but plausible market conditions and conduct stress tests accordingly. The market conditions evaluated should include the most volatile periods that have been experienced by the markets for which a CCP provides its services. While the recommendation focuses on a default by the participant to which a CCP has the largest exposure in a specific scenario, the potential for defaults by two or more participants should be evaluated (particularly related group members or affiliates). Stress tests to check the adequacy of resources in the event of a default in extreme market conditions should be performed monthly, or more frequently when markets are unusually volatile, become less liquid, or when the size or concentration of positions held by a CCP's participants increases significantly. In addition, comprehensive stress tests, involving a full validation of models, parameters and assumptions and reconsideration of appropriate stress scenarios, should be conducted at least annually. The stress testing assumptions that a CCP uses in reaching a judgment about the adequacy of its resources should be disclosed to participants and authorities. A CCP should have a clear policy on the actions it would take in the event tests indicate resources are not likely to be adequate; either its exposure should be reduced or its resources should be enhanced. The policy should be made available to its participants and authorities.

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2. A CCP's financial resources can take a variety of forms, including any clearing fund provided by participants or other parties, loss sharing arrangements, insurance arrangements, capital, parental guarantees or other similar provisions. In order to assess observance of this recommendation, resources should be counted only if there is a high degree of assurance that a CCP can draw on them for the anticipated value and a CCP's rules do not permit them to be used to cover its normal operating losses or losses from other activities in which it is engaged.

3. If any of the resources that are being relied upon are not immediately available to a CCP, it should obtain credit lines that are committed and subject only to presentment in order that it can

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⁴⁶ The credit lines should not contain material adverse change clauses.

borrow against those assets to meet its liquidity needs. The CCP's rules should ensure that the resources posted by a defaulter are used prior to other financial resources in covering losses.

Recommendation 6: Default procedures

The recommendation

A CCP's default procedures should be clearly stated, and they should ensure that the CCP can take timely action to contain losses and liquidity pressures and to continue meeting its obligations. Key aspects of the default procedures should be publicly available and tested regularly.

Explanatory memorandum

1. The purpose of default procedures is to protect the continuing functioning of a CCP by limiting the potential for the effects of a default to spread beyond the defaulting participant. Key objectives of default procedures include minimising further losses at the defaulting participant, winding down its positions in an orderly way, and enabling a CCP to continue performing its obligations. To the extent consistent with these key objectives, a CCP should seek to preserve other participants' ability to manage their portfolios.

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2. A priority, of course, should be to avoid defaults. As noted above, a CCP's participation requirements should include financial requirements that reduce the likelihood of defaults. Furthermore, a CCP should identify situations that it determines may pose a threat of default and develop early warning pre-default plans and procedures, such as increasing monitoring or imposing restrictions on a participant. These procedures should provide an incentive to participants for early notification of potential financial, liquidity or systems problems that could lead to a default.

3. A CCP's default procedures should clearly define an event of default and the method for identifying a default. As part of the default procedure, the CCP should consider the cause of the default and whether it may be associated with financial difficulties of the defaulting participant. The procedures should specify whether the default event is automatic or whether a specific decision must be taken to declare the default, and who is authorised to make such decisions. The procedures should set out broadly the measures a CCP can take when a default is declared; the extent to which the actions are automatic or whether a decision is necessary; changes to normal settlement practices; how contracts in the process of delivery will be handled; the expected treatment of the proprietary account, and of the customers' accounts; the probable sequencing of actions; the information that will be needed; the roles, obligations and responsibilities of the various parties (such as clearing participants, authorities, any exchanges and the CCP itself); and the existence of mechanisms other than those of the CCP itself that may be activated to contain the impact of a default. As regards credit derivatives, a CCP's default procedures should provide for adequate mechanisms (e.g. auctions, see RCCP 2 C4).

4. In the event of default, a CCP should have arrangements or mechanisms to facilitate close out, hedging or the transfer of a defaulting participant's proprietary positions promptly. The longer these positions remain open, the larger are the potential credit exposures from them. A CCP should have the ability to apply the proceeds of liquidation, as well as all other funds and assets of the defaulting participant, to meet the defaulting participant's obligations to it. Typically a CCP will attempt to liquidate positions quickly, but in some instances a CCP may determine that its exposure would be minimised by hedging positions and managing the liquidation over time. What is critical is that a CCP has the authority to act promptly in the manner it thinks best to contain its exposure and to mitigate overall market effects.

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5. The default procedures of a CCP (or mechanisms other than those of a CCP) should provide for the handling of positions and collateral (including margin) of customers of the defaulting participant. In doing so, a CCP should endeavour to transfer customer positions and collateral (if provided to the CCP) should the customer agree, provided that the safety of the CCP and its clearing members is not compromised. The rules should identify the circumstances under which positions may be liquidated or transferred, which positions are eligible for liquidation or transfer, who may exercise this authority, and what are the applicable time frames within which actions

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would be taken. At a minimum, a liquidation of positions or application of previously posted collateral should not be prevented, stayed or reversed.

6. A CCP's procedures should permit it to use promptly any financial resources that it maintains for covering losses and liquidity pressures resulting from defaults, including use of liquidity facilities. The rules of a CCP should specify the order in which different types of resources will be used. This information enables participants to assess their potential exposures from using a CCP's services. Typically, a CCP will look first to assets posted by the defaulting participant to provide incentives for participants to manage prudently the risks they pose for a CCP.

7. Relevant national law should provide certainty that actions taken by a CCP as part of its default procedures are enforceable and that actions taken under such procedures may not later be stayed, avoided, or reversed, (see recommendation 1). To facilitate the transfer or liquidation of positions and assets, national insolvency law should permit the identification and separate treatment of customer and proprietary assets.

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8. A CCP's management should be well prepared and have sufficient discretion to implement default procedures in a flexible manner. The exercise of this discretion needs to be subject to appropriate arrangements to minimise any conflicts of interest issues that may arise. Management should have internal plans that clearly delineate the roles and responsibilities for addressing a default, and provide guidance to its staff on how the default procedures should be implemented, in particular for promptly closing out or hedging a defaulting participant's contracts and for closing out or transferring customers' contracts, for liquidating a defaulting participant's collateral and other assets (such as any contributions to a clearing fund) and for drawing on financial resources other than margin. As preparation for implementing the default procedure, a CCP should analyse the effect different options for handling a participant's default could have on the market, for example possible effects on prices of its liquidating collateral. Management must also ensure that it has the operational capabilities needed to implement its default procedures in a timely manner. The internal plan should also address documentation, the CCP's information needs and coordination when more than one CCP or authority is involved. Timely communication with regulators, exchanges that use the CCP, other affected CCPs and payment and settlement systems are of critical importance. The CCP, to the extent permitted, should clearly convey information which helps those affected manage their own risks. The internal plan should be reviewed at least once a year, and should be tested regularly. As far as possible, and while ensuring there is no threat to the confidentiality of data, default management exercises should be based on real and live participant positions and market data.

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9. To provide certainty and predictability to all market participants about the measures that may be taken by a CCP and other relevant entities in the event of a default, a CCP should make available key aspects of its default procedures: (i) the circumstances in which action may be taken, (ii) who may take those actions, (iii) the scope of the actions which may be taken, including the treatment of both proprietary and customer positions, funds and assets, and (iv) the mechanisms to address a CCP's obligations to non-defaulting participants, and (v) the mechanisms to address the defaulting participant's obligations to its customers as far as the CCP is capable of.⁴⁷ This transparency helps the orderly handling of defaults, enables non-defaulting participants to understand their obligations to a CCP and to their customers, and gives market participants the information they need to make an informed assessment about whether to trade in a given market and how best to structure their customer account agreements. The widespread availability and understanding of default procedures may also help to foster confidence in the market should a major default occur and help to sustain market liquidity by avoiding or minimising withdrawals by other market participants.

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Key issues

1. A CCP's default procedures should clearly state what constitutes a default and permit a CCP to promptly close out or effectively manage a defaulting participant's positions and to apply collateral or other resources. There should be clear procedures, or mechanisms other than those of the CCP, for handling customers' positions and margin. Default procedures should also permit a

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⁴⁷ For more details on the key aspects under each of the headings, see Report on Cooperation between Market Authorities and Default Procedures (IOSCO 1996).

CCP to utilise promptly any financial resources that it maintains for covering losses and liquidity pressures resulting from the defaults.

2. The legal framework applicable to a CCP should provide a high degree of assurance that its default procedures are enforceable, despite the insolvency of a participant. The national insolvency law should permit the identification and separate treatment of customer and proprietary assets.

3. A CCP should analyse the effect which its default procedure may have on the market. A CCP's management should be well prepared to implement its default procedures in a flexible manner, and management should have internal plans for such an event, including communication with the operator of the market the CCP serves if that operator is a separate entity. The plans should be reviewed at least once a year, and tested regularly.

4. Key aspects of the default procedures should be publicly available.

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Recommendation 7: Custody and investment risks

The recommendation

A CCP should hold assets in a manner whereby risk of loss or of delay in its access to them is minimised. Assets invested by a CCP should be held in instruments with minimal credit, market and liquidity risks.

Explanatory memorandum

1. A CCP has the responsibility of safeguarding assets that secure participants' obligations to it. These assets can be cash or securities, and they must be held in such a manner that their timely availability is assured if a CCP needs to draw on them. Further, assets that are invested must be placed in instruments with minimal credit, market and liquidity risks so that a CCP knows the amount of resources at its disposal and can realise that value promptly.

2. If a participant has posted securities as margin, a CCP needs a custodian, which may be a central securities depository (CSD) or a financial institution, to hold those securities. Any institution providing custodial services should employ procedures that protect the securities. This means that they employ procedures that protect securities as described in Recommendation 12 of the ESCB-CESR Recommendations for Securities Clearing and Settlement in the European Union. In this regard, a CCP should ascertain that its custodian's accounting practices, safekeeping procedures, and internal and external controls protect the securities against the custodian's insolvency, negligence, misuse of assets, fraud, poor administration, or inadequate record keeping. Of particular concern is that assets held in custody be protected against claims of a custodian's creditors. Generally, this is accomplished through a legal framework supporting segregation of customer assets and through supervisory enforcement of effective segregation. Failures in any of these areas could jeopardise a CCP's ability to retrieve the securities promptly. The custodian must also have a strong financial position to be able to sustain losses from operational problems or non-custodial activities. A CCP must confirm that its interest in the securities can be enforced and that it can have prompt access to the securities when required; such issues are particularly challenging when securities are held at custodians in different time zones or jurisdictions. A CCP should monitor the financial condition, safeguarding procedures and the operational capacity of its custodians on an ongoing basis. In meeting the requirements of this paragraph, a CCP may rely, where reasonable and prudent, on the relevant regulatory frameworks for the custodians and CSDs it chooses to use.

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3. A CCP's investment strategy should be consistent with its overall risk management strategy. In some instances, a CCP may invest cash that participants have posted. Also, it must make decisions about investing its own resources. A CCP has the responsibility to ensure that such investments do not compromise its ability to use the funds for their intended purpose. Cash posted by a participant represents a resource a CCP may need to call upon in the event of a default. Similarly, some CCPs may plan to use their own resources as means for covering losses exceeding a defaulting participant's resources. If a CCP intends for its own resources to be used to

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cover losses and liquidity pressures from a default, its investment of those resources should comply with this recommendation so that the resources are readily available if it needs to draw on them. (Some CCP resources will be invested in physical assets such as computers and buildings, which are not the subject of this recommendation.) Investments should be secured or they should be claims on high-quality obligors to mitigate the credit risk to which a CCP is exposed. Because the value of these investments may need to be realised quickly, they should be of a type that would enable a CCP to liquidate them with little if any adverse price effect. Investments in illiquid or volatile instruments are not appropriate. The CCP should consider how its choice of issuer and maturities of financial instruments will affect its ability to liquidate its portfolio quickly. Investments of the CCP's capital or of cash margins that the CCP intends to use for risk management purposes in the CCP's own securities or those of its parent company should be prohibited. Furthermore, some CCPs use cash margins to meet their liquidity needs stemming from their participation in SSSs that do not offer simultaneous DVP and RVP (typically SSSs working on an RTGS basis). When this is the case, a CCP should set limits to this use of cash margins.

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4. Often a CCP has several types of relationship with major financial institutions. For example, an institution might offer a CCP settlement bank services, custodial services, and a liquidity facility; it might be a participant itself, offer clearing services to other participants, as well as being a place where a CCP deposits cash. A CCP should carefully consider its multiple relationships with institutions in evaluating its exposure to obligors. In making investments, a CCP should take into account its overall credit risk exposures to individual obligors, whether from cash investments or other relationships, and ensure that its overall credit risk exposure to any individual obligor remains within acceptable concentration limits.

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Key issues

1. A CCP should hold securities in custody at entities that employ accounting practices, safekeeping procedures, internal and external controls, insurance, and other compensation schemes that fully protect these securities; the legal framework also should be such that the securities are protected against the claims of a custodian's creditors, as described in the relevant ESCB-CESR Recommendations for Securities Clearing and Settlement in the European Union. A CCP should have prompt access to securities when required. A CCP should monitor its custodians' financial condition, safeguarding procedures and operational capacity on an ongoing basis.

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2. Investments should be secured or they should be claims on high-quality obligors. Investments should be capable of being liquidated quickly with little if any adverse price effect. A CCP should be prohibited from investing its capital or cash margins that the CCP intends to use for risk management purposes in its own securities or those of its parent company.

3. In making investment decisions, a CCP should take into account its overall credit risk exposures to individual obligors, whether from cash investments or other relationships, and ensure that its overall credit risk exposure to any individual obligor remains within acceptable concentration limits.

Recommendation 8: Operational risk

The recommendation

A CCP should identify sources of operational risk, monitor and regularly assess them. The CCP should minimise these risks through the development of appropriate systems, and effective controls and procedures. Systems and related functions should be (i) reliable and secure, (ii) based on sound technical solutions, (iii) developed and maintained in accordance with proven procedures and (iv) have adequate, scalable capacity. The CCP should have appropriate business continuity and disaster recovery plans that allow for timely recovery of operations and fulfilment of a CCP's obligations. Systems should be subject to frequent and independent audits.

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Explanatory memorandum

1. Operational risk is the risk that deficiencies in information systems or internal controls, human errors, management failures, or disruptions from external events such as natural disasters result in unexpected losses. The importance of operational risk lies in its capacity to impede the effectiveness of measures adopted to address other risks and to cause participants to incur unforeseen losses, which, if sizeable, could have systemic implications. Operational failures can also lead to legal liability, reputation loss and business loss.

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2. Sources of operational risk to a CCP include inadequate control of systems and processes; inadequate management more generally (lack of expertise, poor supervision or training, inadequate resources); inadequate identification or understanding of risks and the controls and procedures needed to limit and manage them; and inadequate attention to compliance procedures. External events of terrorism or health crises, as well as natural disasters, also are sources of operational risk that a CCP must manage.

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3. Potential operational failures include errors or delays in message handling, transaction processing, system deficiencies or interruption, fraudulent activities by staff and disclosure of confidential information. Errors or delays in transaction processing may result from miscommunication, incomplete or inaccurate information or documentation, failure to follow instructions, or errors in transmitting information. These problems are particularly common in manual processes, but automation brings its own risks of system deficiencies, interruptions and computer crime that may arise from factors such as inadequate security, capacity, testing of software or resilience of backup systems.

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4. To minimise operational risk, CCPs should actively identify and analyse sources of risk, whether arising from the arrangements of the CCP itself, from those of its participants, or from external factors, including trading and settlement arrangements, as well as data warehouses, price and market data providers and establish clear policies and procedures to address those risks. Sound internal controls are essential to a CCP's management of operational risk. There should be adequate management controls and sufficient (and sufficiently well qualified) personnel to ensure that procedures are implemented appropriately. Operational policies and procedures should be frequently updated and tested to ensure that they remain current. These policies and procedures should be reassessed periodically (at least annually or whenever significant changes occur to the system or related functions). The relevant governance body should be informed of the results of the review and approve any follow-up work. Senior management should have the responsibility for implementing changes to the risk strategy approved by the relevant governance body. The relevant governance body generally refers to the Board of Directors, however this may differ in some countries. Operational risk policies and procedures should be made available to the relevant public authorities.

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5. The institution should also have in place accurate and clear information flows within its organisation in order to establish and maintain an effective operational risk management framework and to foster a consistent operational risk management culture across the institution. Furthermore, adequate crisis management structures, including formal procedures to manage crises, alternative means of communication and contact lists (both at local and cross-border level) should be defined in advance and be available in order to deal efficiently and promptly with operational failure that may have local or cross-border systemic consequences.

6. Information systems and other related functions should be subject to internal audit by qualified information systems auditors, and external audits should be seriously considered. Audit results should be reported to the relevant governance body. The audit reports (both internal and external) should also be made available to regulators and overseers upon request. The supervisor and overseers should also conduct regular independent evaluations of the institution's strategies, policies, procedures and processes related to operational risk.

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7. All key systems should be secure (that is, have access controls, be equipped with adequate safeguards to prevent external and/or internal intrusions and misuse, preserve data integrity and provide audit trails). They should be reliable, scalable and able to handle volume under stress conditions. CCPs are dependent on electronic communications and need to ensure the integrity of messages by using reliable networks and procedures (such as cryptographic techniques) to transmit data accurately, promptly and without material interruption. The reliability of these

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networks is a key element to consider when assessing operational risks. Core Principle VII of the Core Principles for Systemically Important Payment Systems provides more details on operational issues.⁴⁸

8. Before a CCP embarks on other activities that are not directly related to its CCP functions, for example developing software, processing transactions for which it is not counterparty or operating a trading system, it should be satisfied that these activities do not divert resources required to support its CCP functions. Where such a concern exists for current operations, it should either reduce its activities or increase its resources to a level that supports all of its activities adequately.

9. A CCP should have a business continuity and disaster recovery plan that addresses events posing a significant risk of disrupting operations. Responsibility for business continuity planning within the CCP should be explicit, adequate resources should be devoted to this planning, and the commitment to planning should come from the highest levels of management. Business continuity and disaster recovery plans should have clearly stated objectives, policies, and procedures that allow for rapid recovery and timely resumption of critical operations and that allow a CCP to continue to monitor the risks of its participants. Business continuity and disaster recovery plans should be audited by independent auditors regularly.

10. Ideally, backup systems should commence processing immediately. While it may be possible to recommence operations following a system disruption with some data loss, contingency plans should, as a minimum, provide for the recovery of all transactions at the time of the disruption to allow systems to continue to operate with certainty. At a minimum, the recovery of operations and data should occur in a manner and time period that enables a CCP to meet its obligations on time. In particular, CCPs should define clear targets in terms of operational robustness and business continuity, for example through the implementation of Service Level Agreements (SLA). Critical functions should be identified and processes within those functions categorised according to their criticality. Any assumption behind the categorisation should be fully documented and reviewed regularly. If any critical functions are dependent on outsourcing arrangements, these agreements should ensure adequate service provision by third parties. Business continuity and disaster recovery plans should be regularly reviewed and tested with participants, and appropriate adjustments should be made to plans based on the results of such exercises and of any operational failures which may have occurred.

11. In order to fulfil their obligations, CCPs should have business continuity and disaster recovery plans including an evaluation of their reliance on third parties. All reasonable measures should be undertaken to resume business under plausible scenarios no later than two hours after the occurrence of a disruption. In order to meet these obligations, CCPs must set up a second processing site with the requisite level of key resources, capabilities and functionalities, including appropriately skilled and experienced staff.

12. When a second processing site is established, data processing should be switched to the second site, ideally instantly, in the event of disruption. The back-up site should therefore provide a level of efficiency comparable to the level provided by the primary site. The second site should be located at an appropriate geographical distance and be protected from any events potentially affecting the primary site. The operator of the systems should minimise the reliance on relocating key staff and where some reliance is unavoidable, operator should anticipate how relocation would be achieved. The continuation of the activity on the second site within a short period of time, in principle less than two hours, generally requires data to be transmitted to and updated at the second site continuously, preferably in real time. The secondary site should be capable to ensure business continuity to all participants in the event that the primary site is rendered unusable for a longer period of time (e.g. days and weeks).

13. CCPs should communicate as much information to market participants as is possible without increasing the risk of unwanted events or attacks. This will enable them to assess the operational risks to which they in turn are exposed. The operational failure of a system in one market may directly affect another market if the size of cross-border clearing activities is substantial. The regulators and overseers of such important providers of clearing services should encourage these

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⁴⁸ See CPSS, Core Principles for Systemically Important Payment Systems (BIS, 2001).

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providers to set up a plan for industry-wide contingency planning ensuring co-ordination between such institutions.

14. In principle, CCPs should carry out the different functions on their own behalf. However, outsourcing is permitted within the limits outlined hereafter. CCPs should only outsource their actual clearing operations after having obtained prior approval from the relevant competent authorities, if required under the applicable regulatory regime. If not so required, CCPs should at least inform the relevant competent authorities when outsourcing such operations or functions. In such instances a contractual relationship should be in place between the outsourcing entity and the external provider that allows the relevant competent authorities to have full access to any information they deem necessary. The outsourcing entity should remain fully answerable to the relevant competent authorities, as required according to national law. The outsourcing should be made known to the participants in the outsourcing entity. Further outsourcing must be duly authorised by the CCP and notified or approved by the relevant competent authorities, according to the national requirements.

15. If any critical functions are dependent on outsourcing arrangements, operational failures by the outside service providers can create operational risk for a CCP. Clear lines of communication should be established between the outsourcing entity and the external provider to facilitate the flow of functions and information between parties both in ordinary and exceptional circumstances. CCPs that outsource operations should ensure that those operations meet the same recommendations as if they were provided directly. In so doing, a CCP should have the information and controls to ensure that it can meet the elements of this requirement. Further, a CCP should evaluate its vulnerability arising from reliance on one or a small number of outside providers for utility and similar services. If such a service provider stops operating, a CCP's ability to operate could be compromised, possibly causing uncertainty in financial markets if it occurred with little or no warning. A CCP should manage this risk by seeking to achieve diversity in key systems such as electricity and telecommunications, and/or make back up arrangements, to the extent possible.

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Key issues

1. A CCP should actively identify, monitor, assess and minimise sources of operational risk and should establish clear policies and procedures to address those risks, including risks from those operations that are outsourced to third parties, or from its other activities.

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2. Operational risk policies and procedures should be clearly defined, frequently reassessed and updated and tested to remain current. The responsibilities of the relevant governance bodies and senior management should be clearly established. There should be adequate management controls and sufficient (and sufficiently well-qualified) personnel to ensure that procedures are implemented accordingly. Information systems should be subject to periodic independent auditing.

3. A CCP should have a business continuity and disaster recovery plan that addresses events posing a significant risk of disrupting operations including its reliance on third parties; the plan should allow for timely resumption of critical operations and allow them to extend operating hours if this ensures safe and complete settlement in case of emergency. This means that the CCP can meet its obligations on time. Contingency plans should, as a minimum, provide for the recovery of all transactions at the time of the disruption to allow systems to continue to operate with certainty. A second site must be set-up in order to meet these obligations. Business continuity and disaster recovery plans should be regularly reviewed, tested on a regular basis and after modifications to the system and tested with participants. Appropriate adjustments should be made to plans based on the results of such exercises. Adequate crisis management structures, including formal procedures, alternative means of communication and contact lists (both at local and cross-border level) should be available.

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4. All key systems should be reliable, secure, and able to handle volume under stress conditions.

5. CCPs should only outsource settlement operations or functions to third parties after the approval of the relevant competent authorities, if it is required by regulation. If it is not required, they should at least notify in advance the relevant competent authorities, and should ensure that the external providers meet the relevant recommendations. The relevant outsourcing entities should have the power to require adaptation of the outsourcing measures. Appropriate change

management procedures which give the relevant outsourcing entities the power to require, control and approve changes to the outsourced services should be in place.

Recommendation 9: Money settlements

The recommendation

A CCP should employ money settlement arrangements that eliminate or strictly limit credit and liquidity risks. If central bank money is not used, steps must be taken to strictly limit cash settlement risks, that is, credit and liquidity risks stemming from the use of banks by a CCP to effect money settlements with its participants. Funds transfers to a CCP should be final when effected and rely on efficient and safe payment systems.

Explanatory memorandum

1. CCPs need to make money settlements with their participants for a variety of purposes, including the collection and payment of cash used to meet margin requirements. To make such money settlements, a CCP must make arrangements with its participants and one or more banks (cash settlement agents and settlement banks⁵⁰).

2. The details of the money settlement arrangements used by CCPs vary considerably. Nonetheless, two basic models can be identified: a central bank model and a private settlement agent model. In the central bank model, the central bank of issue (the central bank that issues the currency in which the payments are being made) is the sole cash settlement agent used by a CCP, and all money settlements between a CCP and its participants are effected in central bank money. In the private settlement agent model a CCP selects a group of private banks as its cash settlement agents, establishes an account with each of these settlement agents, and requires each of its participants to establish an account with one of them. Money settlements between a CCP and its participants are effected in private bank money through their accounts at the settlement banks. To the extent necessary, a CCP's accounts at the cash settlement agent can then be balanced by transfers between the settlement banks, which typically are effected in central bank money through the national payment system.

3. The payment system that a CCP uses should be safe and sound, preferably it should comply with the Core Principles for Systemically Important Payment Systems.

4. Use of the central bank model eliminates a CCP's cash settlement agent risks and therefore unambiguously contributes to meet this recommendation. For transactions denominated in the currency of the country where the settlement takes place, central bank money should consequently be used when practicable and feasible. Depending whether central bank money or commercial bank money is used, a CCP's participants (i) may have accounts with the central bank of issue or private cash settlement agent(s), or (ii) may effect settlements with the CCP through banks (settlement banks) with accounts at the central bank of issue or private cash settlement agents. Where such tiered settlement arrangement exists, some settlement banks may concentrate payment flows of several clearing participants⁵². Thus it is important that such settlement banks are properly regulated with the legal and technical capacity to provide an effective service and with satisfactory financial conditions. In particular, a CCP should be able to define minimum criteria in terms of creditworthiness, operational reliability and access to liquidity that the settlement banks chosen by their clearing members or used by itself should meet. It should also be able to monitor its exposure to settlement banks and evaluate its risks by taking into consideration their concentration of payment flows with regard to their financial conditions. Where practicable, a CCP may take account of the supervisory activities of the relevant banking regulators with respect to monitoring of the private settlement agent's adherence to some or all of those criteria. A CCP should assess its potential losses and liquidity

⁵⁰ In Part II, the meaning of the term "settlement bank" is harmonised with the definition provided in Part I and differs from the definition of the CPSS-IOSCO report for CCPs. In this report, a "settlement bank" is an entity that maintains accounts with the cash settlement agent in order to receive/make payments with the CCP, both on its own behalf and on behalf of other clearing participants. A cash settlement agent is the entity in which the cash balances are held to settle the ultimate payment obligations with the CCP.

⁵² This situation can generate risks for CCPs since default by one of these settlement banks could leave several clearing members simultaneously unable to settle their transactions in a timely fashion

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pressures in the event that the settlement bank with the largest shares of settlements were to fail.

5. The use of the central bank model may not always be practicable because it requires a CCP to have access to an account with the central bank of issue. For instance, in a multicurrency system, a CCP seldom (if ever) has remote access to accounts at all the central banks of issue. Even if a CCP had such access, the relevant central banks' payment systems often do not operate (or provide finality) at the times when a CCP needs to make money settlements. When it operates in a multicurrency system, a CCP consequently needs to find arrangements that enable it to make and receive payments in due time in the different currencies used. To that purpose, a CCP may decide to use one or several private settlement agents for its settlements in foreign currencies. In this situation, it should identify risks of liquidity pressure that may stem from its payment obligations in several assets and currencies; adequate steps should accordingly be taken to monitor and mitigate these risks. In addition, it is also possible that a CCP may not have an easy access to central bank money in a single currency system and may resort to private settlement agents. In such a case, steps should be taken to facilitate the CCP's access to central bank money.

6. Use of the private settlement agent model exposes a CCP to the risk of a settlement agent's failure. Therefore, a CCP that uses the private settlement agent model should take steps to limit the probability of being exposed to a settlement agent's failure and limiting the potential losses and liquidity pressures to which it would be exposed in the event of such a failure. These steps should include: (1) the establishment and ongoing monitoring of strict criteria for use of a private bank as a settlement agent; and (2) where practicable, the use of multiple settlement agents and the ongoing monitoring of concentration of payment activities among them.

7. As the use of additional entities such as private settlement agents may lead to additional operational complexity and liquidity risks for the CCP, the CCP should establish strict criteria for private settlement agents. In order to ensure that only regulated financial institutions with robust legal, financial (creditworthiness, access to liquidity) and technical capacity are used as settlement agents. Private settlement agents should be subject to effective banking supervision and regulation and should be well capitalised. They should have access to ample liquidity in the marketplace or from the central bank of issue. They should have the technical capacity to provide reliable payments services at the times and on the terms required by the CCP. A CCP should monitor adherence of its private settlement agents to its criteria both on an initial and an ongoing basis. Where it is reasonable and prudent to do so, a CCP may take account of the supervisory activities of the relevant banking regulators with respect to monitoring of the private settlement agent's adherence to some or all of those criteria.

8. A CCP using the private settlement agent model should take further steps to limit its exposures in the event of settlement agent failures. Ideally, a CCP should use multiple settlement agents to diversify the risks of failure. In some jurisdictions, however, only a single private bank may meet appropriate criteria for creditworthiness and operational reliability. In any event, even with multiple private settlement agents, the extent to which risks are actually diversified depends upon the number of settlement agents and the distribution among the different banks of participants and of amounts owed by those participants. Despite the use of multiple settlement agents, a CCP's exposures may remain concentrated if many participants (or even a few of its largest participants) choose to use the same private settlement agent. Concentration of exposures to a CCP may be exacerbated if a settlement agent is also a clearing participant, or if a CCP has invested all or a part of the resources it maintains to cover participants' defaults with this private settlement agent. Therefore, a CCP should closely monitor the distribution of exposures among settlement agents. Taking also into consideration their financial conditions, a CCP should assess its potential losses and liquidity pressures in the event that the agents with the largest shares of settlements were to fail.

9. In both the central bank model and the private settlement agent model a critical issue is the timing of the finality of funds transfers to/ from a CCP's account or accounts. The timing of payment is a critical issue as it determines the moment when a CCP's obligations to its participants are discharged and conversely, the moment when participants' payment obligations to the CCP are extinguished. The clear definition of this timing is of particular importance in order to avoid that in case of default of a settlement agent (or settlement bank), a CCP may be exposed to a double payment obligation, or that its claims on clearing members may be considered

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as extinguished while the CCP may never have received the corresponding funds. In the central bank model participants' obligations to a CCP are not discharged (and therefore a CCP's counterparty exposures are not reduced) until the transfers are final, that is, irrevocable and unconditional; conversely, once final payments are effected from the CCP's account to the clearing members' accounts, or their payment agents' accounts with the central bank, clearing members' corresponding claims on the CCP should be extinguished. The timing of extinction of payment obligations should be defined in the legal, regulatory and/or contractual arrangements with the clearing members. In the private settlement agent model, participants' obligations are not discharged until transfers to a CCP's accounts at its settlement agent are final, and a CCP's exposures to its settlement agent cannot be reduced or eliminated until a CCP can make final transfers of funds from its accounts at the settlement banks. Thus, such transfers (both on the books of individual settlement agent, including the central bank of issue, and between settlement agents) should be final when effected (that is, at the time that credits are first posted to the CCP's accounts). To this end, a CCP's legal agreements with its settlement agents should state clearly when transfers on the books of individual settlement agents are to occur and that they are to be final when effected and should permit immediate retransfer of funds received. The legal, regulatory and/or contractual frameworks with clearing members should also specify the timing when the CCP's payment obligations are discharged, i.e. the moment when the CCP's payments are effected on the books of the settlement agent. If a CCP is to have the capacity to make intraday margin calls (recommendation 4), the payment systems for the currencies used will need to provide real-time finality or intraday finality at the times at which a CCP wishes to make such intraday calls. The laws of the relevant jurisdictions must support the provisions of a CCP's legal agreements with its settlement agents relating to finality. Finally, a CCP should confirm that funds transfers are effected as and when required.

10. A CCP should harmonise its operating hours and days and, where appropriate, be open at least during TARGET2 operating hours and days, in particular for transactions denominated in euro.

Key issues

1. A CCP uses the central bank model or it uses the private agent model and takes additional steps (see key issue 3) to limit the probability of a settlement agent's failure and limit the potential losses in the event of such a failure.
2. Funds transfers to a CCP should be final when effected. A CCP should routinely confirm that funds transfers have been effected as and when required by its agreements with its settlement agent(s). The legal, regulatory and contractual framework of the CCP should clearly define the moment at which the CCP and clearing participants' obligations are extinguished. The payment system used by a CCP should be safe and sound, and should observe the Core Principles for Systemically Important Payments Systems (CPSIPS).
3. A CCP should establish and monitor adherence to strict criteria for private settlement agents that address their creditworthiness, access to liquidity, and operational reliability. in order to ensure that only regulated financial institutions with robust legal, financial (creditworthiness, access to liquidity) and technical capacity are used as settlement agents. The adherence to the criteria should be monitored both on an initial and an ongoing basis. A CCP should closely monitor the distribution of its exposures among its settlement agents, and assess its potential losses and liquidity pressures in the event that the agents with the largest share of settlements were to fail. A CCP should also monitor liquidity risks that may stem from the use of several currencies or assets for payment activities.
4. When a multi-tiered system is used for payment activities, a CCP should define criteria in terms of creditworthiness, access to liquidity and operational reliability that settlement banks should meet. A CCP should monitor the concentration of payment flows between settlement banks and assess its potential losses and liquidity pressure if the settlement bank with the largest share of settlement defaults.

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Recommendation 10: Physical deliveries

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A CCP should clearly state its obligations with respect to physical deliveries. The risks from these obligations should be identified and managed.

Explanatory memorandum

1. The obligations that CCPs assume vary, and this is particularly true with respect to obligations arising at delivery.⁵³ Settlement of many contracts cleared by CCPs requires (or permits) physical settlement, that is, delivery by the seller to the buyer of the deliverable assets against payment of cash ~~— for example, equities, bonds or foreign currency.~~ These contracts include cash market trades and derivatives trades that do not require cash settlement on the delivery date or expiration date. At settlement or exercise, a CCP might assume an obligation to make and to receive delivery of a physical instrument. Alternatively, a CCP might assign deliver and receive obligations to specific participants but, in the event ~~one~~ fails to perform, indemnify the non-defaulting participant for any loss incurred. In this latter arrangement, a CCP would not guarantee receipt or delivery of the physical instrument itself nor the associated payment. In case a delivery cannot be carried out due to a lack of securities the CCP might for example start a buy-in procedure with cash compensation as a method to reduce fail rates. Many other variations of a CCP's delivery obligations are possible. The effect of multilateral netting may give rise to a range of settlement obligations including cases where the value of the delivered instrument and the cash payment may differ significantly, or there may need to be a free of payment delivery or a clean cash payment, or other outcomes. Regardless of the obligation assumed, a CCP should clearly state to its participants the obligations that it assumes with respect to deliveries of physical instruments.

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2. A CCP faces both credit and liquidity risks from the delivery process that it must manage. In addition the CCP may face replacement cost risk. At delivery, the entire principal value of a transaction may be at risk, thus this form of credit risk is often termed principal risk. Both the buyer (receiver of the physical instrument) and seller (deliverer of the physical instrument) are exposed to principal risk. Liquidity risk arises because, if the buyer defaults, a CCP must still make payment to the (non-defaulting) seller. If a CCP guarantees delivery of a physical instrument, it faces a form of liquidity risk associated with acquiring that instrument should the seller default. Replacement cost risk is the risk that the CCP will face a loss when it has to replace the resulting position of a defaulting buyer or seller at current market prices. A CCP should identify and mitigate the credit, liquidity and replacement cost risks to which it is exposed in the delivery process. The steps necessary to mitigate risks depend on the obligations a CCP assumes, the mechanisms available for settlement of the physical instrument being delivered and the importance of the risks from physical settlement to the operations of the CCP and any related market as a whole. For some CCPs, these may be a relatively minor source of risk.

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3. Principal risk can be eliminated through use of a delivery-versus-payment (DVP) mechanism. A DVP mechanism links a system for transferring funds (payment) to a system for transferring the physical instrument (delivery) in a way that ensures payment occurs if and only if delivery occurs. If a CCP has an obligation to make a delivery, it should eliminate principal risk through the use of the available DVP mechanism.

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4. The settlement system used by the CCP may not offer simultaneous settlement of the two transactions underlying physical delivery i.e. delivery of the physical instrument against cash and payment of cash against delivery of the instrument. In a scenario where the settlement system is unable to provide simultaneous DVP and RVP (for the CCPs transactions with the seller and buyer respectively) the settlement system books the DVP leg and securities are delivered to the CCP against the simultaneous exchange of payment, but because the RVP leg (whereby payment is made to the CCP against the simultaneous exchange of securities) is only booked at a later time, the CCP must effect payment (in the context of DVP with the seller) before receiving final payment (in the context of RVP with the buyer). This time lag between the booking of the delivery and receipt of the (physical instrument) transactions exposes the CCP to liquidity and replacement cost risks until both processes are complete. A CCP often holds margin to mitigate the replacement cost risk of a position. For the CCP to effect the payment, the settlement bank may grant it collateralised credit or require it to pre-fund the payment to the

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⁵³ This recommendation does not cover free movements of collateral to satisfy margin requirements.

seller. In the latter case, in the time period between the CCP's transmission of funds to the settlement bank and the booking of RVP, the CCP is exposed to the risk of settlement bank failure.

5. In some instances, a CCP may assume obligations related to deliveries of physical instruments for which there is no DVP mechanism for settlements, and a CCP must take other steps to mitigate principal risk. In terms of risk mitigation, the CCP can take a number of steps. Often, a CCP holds margin to mitigate the replacement cost risk of a position. These margin deposits should be held until delivery is complete, (in the above 'time-lag' scenario until both transactions are finally booked). But their value is generally less than the principal value at risk in delivery, so a CCP must build additional protections into the delivery process. Some CCPs require participants to pre-fund payments associated with deliveries or to provide some form of guarantee of payment through an agent bank. (The latter instrument might be an irrevocable commitment on the part of a participant's bank to guarantee payment to a CCP's bank.) Other CCPs adopt practices of shaping whereby large transactions are split into smaller portions as a method of reducing the amount of payment to be pre-funded. For the physical instrument, a CCP might designate an approved entity to which delivery must be made. Only when proper evidence of delivery to this entity exists are funds released to the seller. The physical instrument is released to the buyer only if he has pre-funded his payment obligation or provided an acceptable guarantee of payment.

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6. Liquidity risk must be managed by a CCP even when DVP mechanisms are available for delivery of the physical instrument. A CCP must have a liquidity facility in order to guarantee the availability of funds to pay a seller in the event a buyer defaults on delivery⁵⁴. Typically this facility would be collateralised by the physical instrument delivered by the seller. In addition, a CCP must have arrangements for selling the instrument delivered, (sell-out procedure). When a CCP assumes the obligation of delivering a physical instrument to buyers, it must have a facility that allows it to acquire that instrument in the event the seller defaults on delivery. In such circumstances, it must also set out clear requirements regarding late delivery on the part of the seller (for example, charging for late settlements or mandatory securities borrowing and lending) to facilitate a high settlement rate leading to a reduction in risk.

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7. Apart from credit and liquidity risks, a CCP may also face and have to manage risks relating to the assets to be delivered, i.e. risks associated with cash assets used to make payments and with the storage and delivery obligations of the physical instruments for settlement. Regarding risks on physical instruments, if a CCP is responsible for warehousing and transportation of the instruments, it should make arrangements taking into account the particular characteristics of these instruments (e.g. storage under specific conditions of temperature and humidity for perishables). A CCP should also consider other measures (e.g. physical security measures and insurance coverage) to mitigate its storage and delivery risks (other than principal risk). In some instances, a CCP may match participants with delivery obligations with those who are due to receive the instruments, thereby removing itself from direct involvement in the storage and delivery process. In such instances, the legal obligations for delivery of the instruments should be clearly expressed in the rules, including default rules, and any related agreements. In particular, it should be clear whether the receiving participant should seek compensation from a CCP or the delivering participant should there be any losses. A CCP should also have the powers to check that its participants have the necessary systems and resources to be able to competently fulfil their delivery obligations.

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Key issues

1. A CCP's rules should clearly state its obligations with respect to deliveries of physical instruments, including whether it has an obligation to make or receive delivery of a physical instrument or whether it indemnifies participants for losses incurred in the delivery process.

2. If a CCP has an obligation to make or receive deliveries of physical instruments, it should eliminate principal risk through the use of a DVP mechanism. If the settlement systems used by the CCP offer DVP but do not offer simultaneous booking of the DVP and RVP leg, a CCP should

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⁵⁴ CCPs should also take into account the risks linked with the use by several clearing members of the same financial intermediary for the settlement of their transactions. This situation can generate risks for CCPs since default by one of these settlement banks could leave several clearing members simultaneously unable to settle their transactions in a timely fashion

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take additional steps to mitigate replacement cost risk. If no DVP mechanism is available, a CCP should take other steps to mitigate principal risk. Liquidity risk must be managed by a CCP whether or not a DVP mechanism is available.

3. If a CCP has obligations to make or receive deliveries of physical instruments, it should take steps to identify and mitigate all the money settlement, liquidity, storage and delivery (other than principal) risks to which it is exposed in the delivery process for the physical instruments.

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Recommendation 11: Risks in links between CCPs

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CCPs that establish links either cross-border or domestically to clear trades should design and operate such links so that they effectively reduce the risks associated with the link. It should evaluate the potential sources of risks that can arise from the linked CCP and from the link itself. It should ensure that the risks are managed prudently on an ongoing basis. There should be a framework for co-operation and co-ordination between the relevant regulators and overseers.

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Explanatory memorandum

1. CCPs engage in links or interoperable systems to facilitate more efficient clearing. A link enables the participants of a CCP for one market to trade in another market while clearing that trade through their existing arrangements. By broadening trading opportunities for market participants without imposing all of the costs normally associated with establishing clearing relationships, links can deepen the liquidity in markets. A link may also reduce the costs of systems development and operation faced by CCPs because it enables them to share these expenses.

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2. Links between CCPs may take a variety of forms. Different types of links can be distinguished according to the degree to which the systems of the linked CCPs are integrated and whether the obligations of the CCPs to their clearing participants are shifted. In the most straightforward type of link, one CCP becomes a clearing participant of another CCP without any further integration of systems. This type of link is also called standard access. If a CCP links to another CCP and some specific services are offered by one CCP to the other, the scenario is called customised access. Links may also take a form in which the CCPs establish advanced forms of relationships, where they agree to establish mutual solutions. Cross-margining arrangements have some of the same implications for CCPs as links because the CCPs rely on each other's risk management systems when viewing a participant's positions and supporting margin as a single portfolio. These arrangements should also be assessed as part of this recommendation.

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3. The type and level of risks presented by a link will depend on the degree of integration. For example, a link with only limited system interdependencies may not entail major changes to the way the linked CCPs manage risks. Nonetheless, the default of such a linked CCP may have more complex and wider implications than the default of an ordinary participant or even another large clearing participant. Although each link will present a unique risk profile, a number of generic risks can be identified relating to legal, operational, credit, liquidity and settlement risks, as well as generic challenges to effective regulation and oversight. Before entering into a link, CCPs should conduct an initial risk assessment to evaluate the potential sources of risks arising from the linked CCP and from the link itself. The resulting arrangements should be designed so as to manage these risks effectively, such that a CCP is still able to observe these recommendations. A CCP participating in a link should be able to meet in a timely manner all of its obligations to its linked CCP and to its participants that use the link. Furthermore, a CCP's participation in a link should not compromise its ability to meet in a timely manner its obligations to its participants that are not using the link. Risk assessments should be kept updated.

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4. To that purpose, before establishing a link and on an ongoing basis, a CCP should be able to identify risks that may potentially stem from the (future) linked CCP, in order to take the adequate steps to mitigate them. The initial risk assessment of the linked CCP should include sufficient understanding of the entirety of the other CCP's risk arrangements, including any other link arrangements. In particular, a CCP should make sure that the future linked CCP is

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recognised as such in its jurisdiction, authorised to provide CCP services and submitted to adequate oversight, supervision and regulation. Its CCP activities should also be based on an adequate legal and regulatory framework in its jurisdiction which ensures protection against the zero hour rule and against the risks that the CCP's rules, contracts and procedures may no longer be enforceable in case of default or insolvency of a participant. If no or partial protection is ensured, a CCP should identify the potential risks and take the adequate steps to mitigate them. In order to identify other risks that may be associated with the linked CCP, a CCP should also seek to obtain the relevant information on the level of observance of the linked CCP with the ESCB-CESR recommendations for CCPs, or of the CPSS-IOSCO recommendations for CCPs (for non-EU CCPs). When there are differences in the levels of requirements with regards to recommendations, or when weaknesses are evidenced, a CCP should take steps to mitigate these potential risks that may arise. When the link creates a bilateral financial exposure between the CCPs, the linked CCP should have sufficient and liquid resources to meet its obligations in time towards the home CCP even in case of default of one of its participants. In some cases, the CCPs may not use the same methods, procedures and parameters to manage risks. In such cases, there can be differences between the risk parameters used by the CCPs to cover their exposure to their clearing members, as well as their reciprocal exposures. If such differences exist, the CCPs should identify them, assess risks that may arise and take measures that effectively limit their impact on the link as well as their potential consequences in terms of contagion risks, and ensure that these differences do not create frictions in case of default of a participant.

5. In addition to the identification of the potential risks associated with the CCP it is linked to, a CCP should evaluate legal, operational, credit, liquidity and settlement risks that may stem from the design and operation of the link itself. Links may present legal risk arising from differences between the laws and contractual rules governing the linked systems and their participants, including those relating to novation or open offer, netting, collateral arrangements and settlement finality as well as conflict of laws. Differences in laws or rules may create uncertainties regarding the enforceability of CCP obligations assumed by novation or open offer in jurisdictions where these concepts are not recognised. Further, differences between the criteria and timing of finality also creates risks as transfers regarded as final in one system are not necessarily final in the linked CCP. To limit these uncertainties, the respective obligations and rights of the linked CCPs should be clearly defined in the link agreement, which should also set out an unambiguous choice of law. CCPs should aim to co-ordinate their rules as regards the moment of entry of a transfer order into a system and the moment of irrevocability⁵⁵. Thus, the laws and contractual rules governing the linked systems, and governing the link itself, should support the design of the link and provide adequate protection to both CCPs and their participants in the operation of the link. Potential conflicts of law and rules between the jurisdiction of the CCPs should be identified and addressed in accordance with the analysis framework provided in recommendation 1. Also, differences in laws or rules may unintentionally give the participants of one CCP a claim vis-à-vis the linked CCP in the event of the first mentioned CCP's default. Therefore, the CCPs' reciprocal rights and obligations should be unambiguously stated in order to avoid unexpected distortions of rights/obligations and prevent one CCP from being unintentionally exposed to direct claims of the other CCP's participants (unless the link is explicitly and adequately designed to facilitate the transfer of positions between CCPs).

6. Links may present operational risk due to inefficiencies associated with the operation of the link. Steps should be taken with a view to ensure that the link's operational risks are adequately addressed. Systems and communications arrangements between the CCPs should be reliable and secure so that the operation of the link does not pose significant operational risks to the linked CCPs. In particular, it is essential that a CCP knows, understands and regularly participates in tests that involve the linked CCP and the other infrastructures (communication, settlement and payment ones) that are used in the framework of the link. As far as payment and settlement infrastructures used in a link are concerned, it is also necessary that the access mode chosen by a CCP to these systems (either directly or indirectly through intermediaries) is soundly designed and avoids additional risks for these systems and for the other CCP. Conversely, when a common infrastructure is used by the CCPs for the operation of the link, it is recommendable that its

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⁵⁵ A lack of co-ordination as to which rules on the moment of entry/irrevocability apply may expose the CCPs and their participants to the spill-over effects of a default in the other system.

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failure should not affect the ability of the CCPs to keep on clearing and settling transactions that are not concerned by the link. Finally, operational inefficiencies may arise because of differences in time zones, operating days and hours, and daily schedules, particularly as these affect staff availability and the operations of other connected systems or institutions such as CSDs. The linked CCPs should address and coordinate operational differences associated with the operation of the link.

7. Links may also create significant credit and liquidity interdependencies between systems. If a CCP becomes a participant of another CCP through a link, the two CCPs have direct credit and liquidity exposures to each other. A CCP might fail which leaves the other CCP with the need to replace, at current market prices, the net position of the failing CCP. The risk exposure between linked CCPs should be measured at least daily. In general CCPs should not make exceptions to their existing policies on margin coverage and on post-default backings for any market which they clear through a link. Since a CCP's credit exposure to the linked CCP is dependent on the latter's risk management measures, observance of recommendations relating to credit and liquidity risks is necessary, or at least, measures should be taken to limit risks stemming from this exposure.

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Additional exposures may arise through participant concentrations, cross-margining arrangements and pooled financial resources (if applicable) so that a default in one system may precipitate losses and liquidity pressures in the linked system. These interdependencies may lower the probability of a default, but enhance the impact should one occur. Consequently, potential sources of credit and liquidity risks to the CCP arising from the operation of the link should be analysed. In particular risks stemming from mutual exposure, cross-margining arrangements, the use of different settlement assets/currencies, or from the concentration of settlements with the same private cash settlement banks agents, should be identified, monitored and effectively managed. To that purpose, the terms of the link agreement should set forth how these exposures will be managed by taking into account the need to ensure an adequate level of coverage while limiting contagion risks.

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8. Finally, a link may expose a CCP to additional settlement risk (for example, failed transactions involving the linked CCPs and if the buy-in procedures of the linked CCPs are not harmonised) that should be reduced.

9. Cross-border CCP links may also create uncertainties about the respective responsibilities of the relevant regulatory and oversight authorities. It may be uncertain which authority regulates a particular aspect of a link, or the CCPs may be subject to duplicative and possibly conflicting regulation. To limit some of these uncertainties, a link should be subject to prior notification to the relevant regulatory and oversight authorities, so that they can satisfy the authorities that the link does not undermine the effectiveness of regulation and oversight. There should also be a framework for co-operation and co-ordination between the relevant authorities, including provisions on appropriate information sharing and the division of responsibilities in the event of any need for joint regulatory action.

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Key issues

1. CCPs should design links or interoperable systems in such a way that risks are minimised or contained. Before entering into a link relationship with one or more CCPs or when significant changes occur in an existing link, a CCP should evaluate the potential sources of risks arising from the linked CCP and from the link. The initial risk assessment of the linked CCP should include sufficient understanding of the entirety of the other CCP's risk arrangements, covering any other link arrangements. The risk assessment should be kept updated. The resulting arrangements should be designed such that risks are mitigated and the CCP remains able to observe the other recommendations contained in this report.

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2. The national laws and contractual rules governing the linked systems, and governing the link itself, should support the design of the link and provide adequate protection to the CCPs involved in the operation of the link. In particular, regulation and contractual rules should be designed such that no CCP is exposed to unexpected obligations or distortions of rights/obligations vis-à-vis the other one. Potential conflicts of law and rules between the jurisdictions of CCPs should be identified and addressed.

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3. Potential sources of operational, credit, liquidity [and settlement](#) risks to a CCP arising from a link should be effectively monitored and managed on an ongoing basis. [In particular, risks should be covered by adequate resources and contagion risks should be mitigated.](#)
4. For the purposes of regulation and oversight of the link, there should be a framework for co-operation and co-ordination between the relevant regulatory and oversight authorities, including provisions on information sharing and the division of responsibilities in the event of any need for regulatory action.

Recommendation 12: Efficiency

[The recommendation](#)

While maintaining safe and secure operations, CCPs should be cost-effective in meeting the requirements of participants.

[Explanatory memorandum](#)

1. In assessing the efficiency of CCPs, the needs of participants and the costs imposed on them [must](#) be carefully balanced with the requirement that the CCPs meet appropriate standards of safety and security. If CCPs are inefficient, financial activity may be distorted. However, the first priority of a CCP is to assure market participants that its obligations will be met in a timely fashion, notwithstanding the default of a participant.
2. Efficiency has several aspects, and it is difficult to assess the efficiency of a particular CCP in any definitive manner. Accordingly, the focus of any assessment should largely be on whether a CCP has in place the mechanisms to [review](#) periodically [service levels, costs, pricing and operational reliability](#). [CCPs should strive to understand the needs of users. One tool to accomplish this is a regular review of the CCP's service levels. One way this can be accomplished is by surveying participants of the CCP's services. The CCP should also make clear to users the channels which are available for complaints and how such complaints would be handled.](#)
3. CCPs should seek to meet the service requirements of participants in a cost-effective manner. This includes meeting the needs of its participants, operating reliably and having adequate system capacity to handle both current and potential activity. When looking at the overall costs of CCPs, it is important to include both the direct costs of operating any facilities, such as costs to participants, and indirect costs, such as liquidity costs.
4. The primary responsibility for promoting the efficiency and controlling the costs of a CCP lies with the designers, owners and operators. In some jurisdictions, regulatory or competition authorities may have a responsibility to review the direct costs imposed on participants, particularly where a CCP enjoys some form of monopoly over the service it provides. Antitrust and competition law principles may also be relevant. In the case of a CCP that faces effective competition, market forces are likely to provide incentives to control costs.
5. CCPs may use a variety of mechanisms to improve efficiency. For example, developing technical capabilities to meet operational service requirements of participants; where relevant, reducing the requirements for market participants to maintain multiple interfaces [by the creation](#) of consistent communication standards and system interface arrangements across different systems for market participants; and establishing communication procedures and standards that support straight through processing of transactions, wherever appropriate.

Key issues

1. A CCP should have in place the mechanisms to [review](#) regularly [its costs and pricing](#).
2. A CCP should have in place the mechanisms to [review](#) regularly [its service levels and operational reliability](#).

Recommendation 13: Governance

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Governance arrangements for a CCP should be clear and transparent to fulfil public interest requirements and to support the objectives of owners and relevant market participants. In particular, they should promote the effectiveness of a CCP's risk management procedures.

Explanatory memorandum

1. Governance arrangements encompass the relationships between owners, managers and other interested parties, including relevant market participants and authorities representing the public interest. The key components of governance include the ownership structure; the composition and role of the Board; the structure and role of audit; other key Board committees; the reporting lines between management and the Board and the processes for ensuring management is accountable for its performance.

2. CCPs, with CSDs, are at the heart of the settlement process. Moreover, because their activities are subject to significant economies of scale, many are sole providers of certain services to the market they serve. Therefore, their performance is a critical determinant of the safety and efficiency of those markets, which is a matter of public interest. This standard is intended to be consistent with each jurisdiction's codes of corporate governance, and to emphasize the need for a CCP's governance arrangements to support robust risk management. The OECD principles of corporate governance and Commission recommendation 2005/162/EC⁵⁶ can serve as a starting point when designing these arrangements.

3. No single set of governance arrangements is appropriate for all institutions within the various securities markets and regulatory schemes. However, an effectively governed institution should meet certain requirements. Governance arrangements should be clearly specified and publicly available. Objectives, those principally responsible for achieving them and the extent to which they have been met, should be disclosed to owners, relevant market participants (including customers of the clearing members) and public authorities. These objectives for all CCPs should include delivering sound risk management and meeting related public interest requirements. A key part of governance mechanisms is the composition of the board and the objectives that the board sets for management. It is important that those non executive or supervisory board members who are independent⁵⁷ have a clear role in the board of directors. In a group structure, there should be independent board members at least on the board of the parent company. The Board should contain suitable expertise and take account of all relevant interests. One means for the Board to take account of the objectives of all categories of participants is through their representation on the Board or through participant committees whose decisions and suggestions are adequately reported to the Board. Management and Board should have the appropriate skills and incentives to achieve a CCP's objectives and to fulfil public interest requirements, and should be accountable to owners and relevant participants for their performance. Reporting lines between management and the Board should be clear and direct.

4. Governance arrangements are particularly important because the interests in relation to risk management of a CCP's owners, its managers, its relevant market participants, the exchanges and trading platform it serves, and the public are different and may conflict. Given that the interests are not always compatible, there should be a predefined policy and procedures for identifying and managing these potential conflicts of interest, e.g. consultation mechanisms⁵⁸. To ensure that such conflicts do not undermine the effectiveness of a CCP's risk management, it is essential that those responsible for this aspect of a CCP's business have sufficient independence to perform their role effectively. There should therefore be a clear separation between the

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⁵⁶ Commission Recommendation of 17 February 2005 on the role of non-executive or supervisory directors of listed companies and on the committees of the (supervisory) board (2005/162/EC) OJ L 52, 25.2.2005, p. 51.

⁵⁷ According to the Commission recommendation 2005/162/EC, non executive or supervisory directors are not involved in the every day running of the business and have no current engagement with management. The EU recommendations define 'independence' as the absence of any material conflict of interest. The recommendations suggest that a director should be considered independent only if he/she is free of any "business, family or another relationship, with the company, its controlling shareholder or the management of either, that creates a conflict of interest such as to impair his judgement".

⁵⁸ Consulting relevant market participants prior to the decision to set-up one single clearing fund or multiple clearing funds when a CCP plans to extend its activities to a new type of product(s) (e.g. OTC derivative products) could be one example of the use of such consultation mechanisms.

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reporting lines for risk management and those for other operations of a CCP. In many cases, this may involve the creation of an independent risk committee. The mandate and operational procedures of any risk committee or other groups established to manage risks should be [approved by the Board and](#) clearly spelled out and disclosed.

5. A CCP has access to sensitive information on participants' positions, and this could be exploited for its other business activities. A CCP should take steps to prevent such misuse (e.g. Chinese walls between the different functions).

Key issues

1. Governance arrangements should be clearly specified and publicly available.
2. There should be a clear separation between the reporting lines for risk management and those for other operations of a CCP.
3. Management and the [Board of Directors \("the Board"\)](#) should have the appropriate skills and incentives to achieve a CCP's objectives, particularly delivering sound risk management and meeting related public interest requirements. Management and the [Board](#) should be fully accountable for [their](#) performance. The [Board](#) should contain suitable expertise and take into account all relevant interests.
4. Objectives, those principally responsible for achieving them and the extent to which they have been met, should be disclosed to owners, [relevant market](#) participants (including [customers of the clearing members](#)) and public authorities.
5. [Governance arrangements should include the identification of conflicts of interest and should use resolution procedures whenever there is a possibility of such conflicts occurring.](#)

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Recommendation 14: Transparency

The recommendation

A CCP should provide market participants with sufficient information for them to identify and evaluate accurately the risks and costs associated with using its services.

Explanatory memorandum

1. Informed market participants are able to identify and evaluate the risks and costs to which they are exposed as a result of participation in a CCP, and [therefore, can take actions to manage their risks and costs. Providing information on prices/fees of services offered can promote competition between service providers and may lead to lowered costs and improved levels of service. Therefore, CCPs should offer services at transparent prices that allow users to compare prices easily. To this end, specific services and functions should be priced separately to allow users the option of selecting the services and functions that they wish to use. A CCP should disclose to market participants its rules, regulations, relevant laws, governance procedures, risks, steps taken to mitigate risks, the rights and obligations of participants and the costs of using its services. The information should include the main statistics and, where relevant, the balance sheet of the CCP. In addition, a CCP may be in a position to contribute to asset segregation by providing separated accounts and margining \(and collateral\). In this case, the CCP should clearly describe the level segregation it can offer and the consequences thereof \(e.g. the approach to margining\). A CCP should make clear when and in what circumstances it assumes counterparty exposure and any restriction or limitations on its fulfilment of its obligations. A CCP should also disclose appropriate quantitative information on its clearing, netting, settlement activities and risk management performance. Types of information that are particularly useful in assessing the risks and costs of participating in a CCP include the coverage realised by margin requirements, the "extreme but plausible" market conditions used in evaluating the adequacy of financial resources, the source of prices and models used in margin calculations, and other stress testing information.⁵⁹ The effort by a CCP to improve transparency fosters confidence of market participants in its safety and efficiency. The information should be publicly available and clear](#)

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⁵⁹ In disclosing stress test information, care must be taken to avoid revealing information regarding the positions of individual participants.

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enough for market participants to understand the steps to be taken by a CCP and other relevant entities in the event of a default. A CCP should publicly and clearly disclose its risk exposure policy and risk management methodology.

2. Information should be readily accessible, at least through the internet. It should also be current, accurate and available in a language commonly used in financial markets as well as in at least one of the domestic languages⁶⁰.

3. Completion of the answers to the key questions set out in this report will serve not only as a basis for assessment of the implementation of the recommendations but as a basis for public disclosure to provide market participants with the complete and accurate information they need. The accuracy and completeness of disclosures should be reviewed periodically by a CCP and at least once a year or when major changes occur.

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Key issues

1. A CCP should provide market participants with sufficient information to evaluate the risks and costs of using its services. The information should include the main statistics and, where relevant, the latest audited balance sheet of the CCP. A CCP should publicly and clearly disclose its risk exposure policy and risk management methodology as defined under Recommendations 1-11.

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2. Information should be accessible, at least through the internet. Information should be available in a language commonly used in financial markets as well as in at least one of the domestic languages⁶¹.

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3. A CCP should complete and disclose the answers to the key questions (other than those on Regulation, Supervision and Oversight) of this report. The accuracy and completeness of disclosures should be reviewed periodically by a CCP and at least once a year or when major changes occur.

Recommendation 15: Regulation, SUPERVISION and oversight

The recommendation

A CCP should be subject to transparent, effective and consistent regulation, supervision and oversight. In both a national and a cross borders context, central banks and securities regulators should cooperate with each other and with other relevant authorities regarding the CCP. Such cooperation should also ensure a consistent implementation of the recommendations.

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Explanatory memorandum

1. Securities regulators (including, in this context, banking supervisors where they have similar responsibilities and regulatory authority for CCPs) and central banks share the objective of enhancing the safety, soundness and efficiency of CCPs. The division of responsibilities for regulation and oversight of CCPs among relevant authorities varies from country to country depending on the legal and institutional framework.

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2. Securities regulators and central banks will ensure the consistent application of these recommendations and to achieve a level playing field for CCPs and securities settlement systems in the European Union.

3. While the primary responsibility for ensuring the safe, sound and efficient operation of the CCP lies with its designers, owners and operators, the relevant authorities will review on the basis of regulation, supervision and oversight that the designers, owners and operators fulfil their responsibilities.

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4. The objectives, responsibilities, as well as the roles and major policies of the relevant authorities 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

⁶⁰ If required in the respective domestic market.

⁶¹ If required in the respective domestic market.

that is consistent with those policies and these recommendations. The relevant authorities should clearly define and publicly disclose their supervisory roles towards the CCP participants.

5. Securities regulators and central banks should have the ability and the resources to carry out their regulation and oversight responsibilities effectively. Regulation and oversight should have a sound basis, which may or may not be based on statute, depending on a country's legal and institutional framework. The relevant authorities should have adequate resources to carry out their regulatory and oversight functions, such as gathering information on a CCP, including information on relevant activities of participants in a CCP, assessing its operation and design, acting to promote its observance of the recommendations and conducting on-site visits or inspections if necessary.

6. To enable them to carry out their activities, securities regulators and central banks should require CCPs to provide them with the information necessary for regulation and oversight in a timely manner, including information on operations that have been outsourced to third parties or where a CCP proposes to undertake new activities. Information on stress tests provided to authorities should contain the scenarios and methodology employed to estimate exposures and results of the stress tests. Access to information is particularly important if the authorities need to take extraordinary actions in relation to a default.

7. Securities regulators and central banks should cooperate with each other and with other relevant authorities to achieve the safe, sound and efficient operation of CCPs and links between CCPs. to achieve the implementation of risk management practices and procedures consistent with these recommendations. The risk profile of cross-border activities varies depending on the type of the cross-border arrangement, for example, links between CCPs, cross-margining arrangements between CCPs, CCPs operating in a group structure sharing various business elements, CCPs operating in a group structure subject to a consolidated supervision, the outsourcing of services or "off-shore systems". The justification for and level of a cooperative arrangement between relevant authorities should take into account these varying risk profiles of cross-border activities and should be addressed in a way that delivers regulation/supervision/oversight consistent with each relevant authority's responsibilities and avoids gaps, imposing unnecessary cost and duplication of controls of CCPs. Regulators/overseers can consider a variety of approaches including (1) information-sharing arrangements; (2) coordination of regulatory/oversight actions for specific matters and issues of common interest; and (3) other cooperation arrangements. The approach selected may vary, depending on such issues as the law and regulatory approach in each jurisdiction. The approach set out in (2) above might entail a cooperative agreement for coordinating the implementation of the regulatory/oversight responsibilities of the competent authorities in line with the principles set in the 1990 Lamfalussy Report, and with the cooperative oversight principles outlined in the 2005 CPSS report on 'Central bank oversight of payment and settlement systems'. The principles governing these cooperative arrangements should be set out in a formal framework, which, in the interests of transparency, should be publicly disclosed. The relevant authorities should establish prior contact channels and processes (including ones with the senior and key managers of the clearing and settlement systems) to ensure continuity of communication in case of a crisis situation. Cooperation could include co-ordination of crisis management plans as well as, to the extent permitted, early, confidential flow of information between regulators and CCPs about cross-border participants who might be in trouble. The 2008 Memorandum of Understanding on cooperation between the financial supervisory authorities, central banks and finance ministries of the European Union on cross-border financial stability provides a basis for cooperation in the management of any cross-border financial crisis.

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Key issues

1. The CCP should be subject to transparent, effective and consistent regulation, supervision and oversight. Securities regulators (including, in this context, banking supervisors where they have similar responsibilities and regulatory authority for CCPs) and central banks should have the ability and the resources to carry out their regulation, supervision and oversight responsibilities effectively.

2. Securities regulators and central banks should clearly define and publicly disclose their objectives, their roles and key aspects of major policies for CCPs.

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3. To ensure transparent, consistent and effective regulation, supervision and oversight, different forms of cooperation amongst relevant authorities may be required: day to day cooperation of relevant authorities of a CCP, both in national and cross-border context, and the cooperation of central banks and regulators to ensure the consistent implementation of the recommendation and to achieve a level playing field for CCPs in the European Union.

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4. To enable them to carry out their activities, securities regulators and central banks should require CCPs to provide information necessary for regulation, supervision and oversight in a timely manner, including information on operations that have been outsourced to third parties or where the CCP proposes to undertake new activities.

5. Securities regulators, central banks and other relevant authorities should cooperate with one another, both nationally and in a cross border context, to achieve the safe and efficient operation of CCPs and links between CCPs.

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(In some markets many of the benefits of a CCP are achieved by establishing an entity that indemnifies market participants against losses from counterparty defaults without actually acting as CCP.) If a CCP manages its risks effectively, its probability of default may be less than that of all or most of the market participants. Moreover, a CCP often bilaterally nets its obligations vis-à-vis its participants, which achieves multilateral netting of each participant's obligations vis-à-vis all of the other participants. This can reduce substantially the potential losses in the event of the default of a participant, both on trades that have not reached settlement (replacement cost exposures) and on trades in the process of settlement (principal exposures). In addition, netting reduces the number and value of deliveries and payments needed to settle a given set of trades, thereby reducing liquidity risks and transaction costs.

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Introduction of a CCP is another tool, in addition to shortening settlement cycles, for reducing counterparty credit risks. It is especially effective for reducing risks vis-à-vis active market participants, who often buy and sell the same security for settlement on the same date. In addition

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If a CCP is established, it is important that it have sound risk management because the CCP assumes responsibility for risk management and reallocates risk among its participants through its policies and procedures. As a result, if a CCP does not perform risk management well, the CCP could increase risk to market participants. The ability of the system as a whole to withstand the default of individual participants depends crucially on the risk management procedures of the CCP and its access to resources to absorb financial losses. The failure of a CCP would almost certainly have serious systemic consequences, especially where multiple markets are served by one CCP. Consequently, a CCP's ability to monitor and control the credit, liquidity, legal and operational risks it incurs and to absorb losses is essential to the sound functioning of the markets it serves. A CCP must be able to withstand severe shocks, including defaults by one or more of its participants, and its financial support arrangements should be evaluated in this context. Furthermore, there must be a sound and transparent legal basis for the netting arrangements, whether by novation or otherwise. For example, netting must be enforceable against the participants in bankruptcy. Without such legal underpinnings, net obligations may be challenged in judicial or administrative insolvency

proceedings. If these challenges are successful, the CCP or the original counterparty may face additional settlement exposure. The CCP must also be operationally sound and must ensure that its participants have the incentive and the ability to manage the risks they assume.

CCPs adopt a variety of means to control risk. The precise means reflects the market served and the nature of the risks incurred. Access criteria are essential (see Recommendation 14 on access). The CCP's exposures should be collateralised. Most CCPs require members to deposit collateral to cover potential market movements on open positions or unsettled transactions. Positions are also generally marked to market one or more times daily, with the CCP taking additional cash or collateral to cover any changes in the net value of the open positions of participants since the previous valuation and settlement. During volatile periods, CCPs may collect additional collateral to minimise further their exposure. CCPs should also have rules specifying clearly how defaults will be handled and how losses will be shared in the event that a defaulting firm's collateral fails to cover its exposure. For example, CCPs may require their members to contribute to default clearing funds, typically composed of cash or high-quality, liquid securities and calculated using a formula based on the volume of the participant's settlement activity. Those funds are often augmented through insurance or other financial support. Liquidity demands are usually met by some combination of clearing fund assets and firmly committed bank credit lines. Rules and procedures for handling defaults should be transparent to enable members and other market participants to assess the risks they assume because of their membership in and use of a CCP.

CCPs are currently developing global risk management standards that draw on their common experience and expertise. In February 2001, senior executives of the European Association of Central Counterparty Clearing Houses (EACH) developed risk management standards for their organisations. Subsequently, CCP-12, a group that includes CCPs from Asia and the Americas as well as Europe, has been working to revise the EACH standards and broaden their acceptance among CCPs.¹ Once CCP-12's work is finalised, national authorities should consider using it as a starting point when evaluating the risk management procedures of a CCP.

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¹ The CCP-12 is composed of the following entities: (1) the Australian Stock Exchange; (2) the Brazilian Clearing and Depository Corporation; (3) Eurex Clearing; (4) the Chicago Mercantile Exchange; (5) Clearnet; (6) Hong Kong Exchanges and Clearing Limited; (7) the London Clearing House; (8) S D Indeval, SA de C V; (9) Singapore Exchange Limited; (10) The Canadian Depository for Securities Limited; (11) The Depository Trust & Clearing Corporation; (12) The Options Clearing Corporation; and (13) the Tokyo Stock Exchange.

For example, intraday or real-time finality is sometimes necessary for: monetary policy or payments operations; settlement of back-to-back transactions or intraday margin calls by CCPs; or safe and efficient cross-border links between CSDs.

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Furthermore, the CSD should prohibit the unilateral revocation of unsettled transfer instructions late in the settlement day, so as to avoid the liquidity risks that such actions can create.

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. One widely employed way of providing the necessary protection is for the CSD to organise itself as a limited purpose bank and become the settlement agent by offering cash accounts to its members. To limit the risk of default, the functions of the limited purpose bank must be clearly defined and the CSD should: institute reliable controls on its credit exposures to members (see Recommendation 9); be strongly capitalised or supported by effective loss-sharing mechanisms or reliable third-party credit support arrangements; and strictly limit any non-settlement activities and associated risks.

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A custodian should employ procedures ensuring that all customer assets are appropriately accounted for and kept safe whether it holds them directly or through a sub-custodian. Because customer securities must also be protected against the claims of a custodian's creditors, a customer's claims against a custodian are typically given priority or are given preferential treatment under insolvency law. (Nonetheless, customer assets could be subject to liens in favour of the custodian if, for example, the customer has pledged them to secure an obligation to the custodian.) One way that a customer can be protected in the event of a custodian's insolvency is through segregation (identification) of customer securities on the books of the custodian (and of all sub-custodians, and ultimately, the CSD). Even when customer securities are segregated from a custodian's own securities, customers may still be at risk of a loss if the custodian does not hold sufficient securities to satisfy all customer claims or if an individual customer's securities cannot be readily identified. Thus, entities that hold securities in custody (or maintain records of balances of securities) should reconcile their records regularly to keep them current and accurate. Other ways to safeguard or protect customers against misappropriation and theft include internal controls and insurance or other compensation schemes.

Ideally, a customer's securities are immune from claims made by third-party creditors of the custodian. Although the ideal is not realised in all circumstances, when the entities through which securities are held are performing their responsibilities effectively, the likelihood of a successful legal claim made on a customer's securities by a third-party creditor is minimised. In addition, in the event of a custodian's or sub-custodian's insolvency, it should be highly improbable that a customer's securities could be frozen or made unavailable for an extended period of time. If that were to happen, the customer could come under liquidity pressures, suffer price losses or fail to meet its obligations. Segregation is a common device that facilitates the movement of a customer's positions by a receiver to a solvent custodian, thereby enabling customers to manage their positions and meet their settlement obligations. To bring these results about, it is essential that the legal framework support segregation of customer assets or other arrangements for prioritising claims in bankruptcy that serve to protect customers' holdings. It is also important for supervisory authorities to enforce effective segregation of customer assets by custodians.

Cross-border holdings of securities often involve several layers of intermediaries acting as custodians. For example, an institutional investor may hold its securities through a global custodian, which, in turn, holds securities in a sub-custodian that is a member of the local

CSD. Or a broker-dealer may hold its securities through its home country CSD or an international CSD, which, in turn, holds its securities through a cross-border link with the local CSD or through a local custodian. Mechanisms to protect customer assets may vary depending on the type of securities holding system instituted in a jurisdiction. Beneficial owners of securities should understand the extent of a custodian's responsibility for securities held through intermediate custodians.

To prevent unexpected losses, a global custodian should determine whether the legal framework in the jurisdiction of each of its local sub-custodians has appropriate mechanisms to protect customer assets. Alternatively, a global custodian should keep its customers apprised of the custody risk arising from holding securities in a particular jurisdiction. Global custodians should also ascertain whether their local sub-custodians employ appropriate accounting, safekeeping and segregation procedures for customer securities. Likewise, when home country CSDs and ICSDs establish links to other CSDs, they should ensure that those other CSDs protect customer securities adequately. With complex cross-border arrangements, it is imperative that sound practices and procedures be used by all entities in the chain of custodians so that the interests of beneficial owners are protected from legal actions relating to the insolvency of, or the commission of fraud by, any one of the custodians.

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responsibility to review the costs imposed on users, particularly where the system enjoys some form of monopoly over the service it provides. Antitrust and competition law principles may also be relevant. In the absence of a monopoly

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Settlement systems may use a variety of mechanisms to improve efficiency. For example, immobilisation or dematerialisation of physical certificates enables securities transactions to be settled without the actual physical movement of securities. The book entry settlement of securities transactions increases the efficiency of the settlement system because it reduces manual errors, lowers costs and increases the speed of processing through automation.

Other examples of ways in which a cost-effective system may be achieved include: developing technical capabilities to meet operational service requirements of system users; where relevant, reducing the requirements for market participants to maintain multiple interfaces either by rationalisation of different securities systems or by the creation of consistent communication standards and system interface arrangements across different systems for market participants; and establishing communication procedures and standards that support straight through processing of transactions, wherever appropriate.

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settlement of cross-border transactions.

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The ability of all participants to communicate in a quick, reliable and accurate manner is central to achieving efficient domestic and cross-border securities transactions.

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answers to the key questions (see Section 5) would be ways to provide market participants with the information they need about the risks of CSD or CCP services. If a CSD or CCP publicly discloses the answers to the key questions, it need not complete the CPSS/IOSCO Disclosure Framework. The key questions address all of the major topics covered by the Disclosure Framework. Whatever approach is taken, it is critical that the disclosures are complete and accurate. Any assessment of implementation of this recommendation should include a review of the accuracy and completeness of any disclosures.

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CSDs may perform different sets of functions including the provision of depository, credit, securities lending, collateral management, custodian and settlement services. Links also may provide these functions, and the choice of functions determines the design of the link, as do the structure of the CSDs themselves and the legal framework applicable in the respective jurisdictions. For example, to settle cross-border trades between their participants, one or both of the linked CSDs become a participant in the other CSD. Such links permit participants in either CSD to settle trades in securities from multiple jurisdictions through a single gateway operated by its domestic CSD or by an international CSD. Links also can facilitate data transmission and information exchange about securities holdings. Furthermore, by expanding the range of collateral that can be held in an account with a single CSD, links can reduce costs to participants of meeting various collateral requirements.

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.2 A CCP providing counterparty services for short-dated contracts may rely on an analysis of historical price movements, its ability (or that of the market for which it clears) to limit the build-up of positions,

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its rules and resources to demonstrate that its operations would not be disrupted and non-defaulting participants would not

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exposed to losses they cannot anticipate or control. Non-defaulting participants' resources may be included in this analysis, provided that any allocation of losses to non-defaulting participants is subject to absolute limits or is otherwise controllable by the non-defaulting participants. Whatever the combination of risk-mitigating mechanisms used, a CCP not

2 In both derivatives and cash markets, a combination of measures may be used. Position limits are also used in derivatives markets as an additional risk-mitigating measure, while some cash markets may also apply margin to complement position limits or other controls.

employing risk-based margining would need to demonstrate that its approach is robust to sudden changes in prices or increases in the size of positions in the markets for which it clears.

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For contracts that have long durations or are inherently leveraged, a CCP should use margin requirements that observe Recommendation 4.

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in normal market conditions. For contracts that have long durations or are inherently leveraged, a CCP should use margin requirements. Many CCPs for cash markets that have initiated their services in recent years also employ margin requirements. 3

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(including historical price volatility, market liquidity, and whether the products exhibit non-linear price characteristics)

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Nonetheless, a CCP should estimate the interval between the last margin collection before default and the liquidation of positions in a particular product, and hold sufficient margin to cover potential losses over that interval in normal market conditions.

3 Some CCPs call these requirements "clearing fund requirements". See Section 3 for a discussion of this terminology.