

CLEARING AND SETTLEMENT SYSTEMS ORDINANCE

Oversight Framework for Designated Systems

A Guideline issued by the Monetary Authority under Section 54

Purpose

To explain the oversight requirements, including the safety and efficiency requirements, under sections 7 and 8 of the Clearing and Settlement Systems Ordinance and the process that the Monetary Authority intends to follow in his oversight of the systems designated under the Ordinance.

Classification

A statutory guideline issued by the Monetary Authority under the Clearing and Settlement Systems Ordinance, section 54

Previous guidelines superseded

This supersedes the version dated 26 November 2004.

Application

To all designated systems under the Clearing and Settlement Systems Ordinance.

Structure

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INTRODUCTION

1. Background

- 1.1 The effective functioning of clearing and settlement systems, which allows transactions to be completed safely and on time, is essential to the monetary and financial stability of Hong Kong and to the functioning of Hong Kong as an international financial centre. The Monetary Authority (the "MA") is responsible for designating and overseeing important clearing and settlement systems with a view to promoting the general safety and efficiency of their operations. The statutory regime for such designation and oversight is set out in the Clearing and Settlement Systems Ordinance (Cap. 584) (the "Ordinance"). The designation regime under the Ordinance is further elaborated in the "Explanatory Note on Designation and Issuance of Certificate of Finality of Clearing and Settlement Systems under the

Clearing and Settlement Systems Ordinance”¹ (the “Explanatory Note”). By monitoring the compliance of designated systems with their obligations stipulated in the Ordinance, the MA aims to protect the monetary and financial systems in Hong Kong from possible destabilising effects arising from disruption to the functioning of any of those systems.

2. Purpose

- 2.1 This Guideline is issued under section 54 of the Ordinance. The purpose of this Guideline is to explain the MA’s interpretation of the oversight requirements, including the safety and efficiency requirements, under sections 7 and 8 of the Ordinance and the process that the MA intends to follow in his oversight of designated systems. Under section 41 of the Ordinance, contravention of section 7(1) or 7(3) is each liable on conviction upon indictment to a fine of \$400,000.
- 2.2 The MA will issue a certificate of finality in respect of a designated system if he is satisfied that ultimate settlement of transfer orders is effected within the system itself and that the requirements under section 7(1) of the Ordinance are complied with. The MA may suspend or revoke a certificate of finality if any of the issuance criteria is no longer met or the designated system fails to comply with certain provisions of the Ordinance. For details of the issuance, suspension or revocation of the certificate of finality, please refer to the Explanatory Note.
- 2.3 This Guideline is not intended to be a comprehensive guide to the obligations of designated systems set out in the Ordinance. System operators, settlement institutions and participants of designated systems are advised to familiarise themselves with all the obligations stipulated in the Ordinance. Reference should also be made to the Explanatory Note.

¹ Available on the Hong Kong Monetary Authority website: www.hkma.gov.hk

2.4 The MA may, from time to time, issue further guidelines containing information on this and other aspects relating to his exercise of any power or performance of any function assigned to him under the Ordinance.

3. Terminology

3.1 Terms used in this Guideline have the following meanings²:

- (a) “clearing and settlement system” means a system established for -
 - (i) the clearing or settlement of payment obligations; or
 - (ii) the clearing or settlement of obligations for the transfer of book-entry securities, or the transfer of such securities;
- (b) “designated system” means a clearing and settlement system that has been designated for the purposes of the Ordinance by the MA under section 4(1);
- (c) “operating rules”, in relation to a clearing and settlement system, means the rules or terms that govern the functioning or operations of the system;
- (d) “participant”, in relation to a clearing and settlement system, means a person who for the time being is a party to the arrangement by which the system is established;
- (e) “settlement institution”, in relation to a clearing and settlement system, means a person providing settlement accounts to the participants and to any central counterparty in the system for the settlement of transfer orders within the system and, as the case may be, for extending credit to such participants and any such central counterparty for settlement purposes; and
- (f) “system operator”, in relation to a clearing and settlement system, means any person who, for the purposes of the system’s operating rules, is responsible for the operation of the clearing and settlement functions of the system.

² The meanings are the same as the definitions of those terms under section 2 of the Clearing and Settlement Systems Ordinance.

POLICY FRAMEWORK

4. Oversight Standards

4.1 This Guideline sets out the minimum oversight standards for designated systems to comply with sections 7 and 8 of the Ordinance and these standards are explained in detail in the paragraphs under the heading “Oversight Requirements”. Designated systems, including the deemed designated systems specified in Schedule 2 to the Ordinance, are required to comply with these standards on a continuing basis and the MA will regularly evaluate the designated systems against these standards.

5. International Principles

5.1 The Committee on Payment and Settlement Systems (the “CPSS”)³ and the International Organization of Securities Commissions (the “IOSCO”)⁴ published a joint report “Principles for Financial Market Infrastructures” (the “PFMIs”)⁵ in April 2012. The PFMIs update, harmonise and strengthen the risk management and related standards applicable to financial market infrastructures (“FMIs”) which include systemically important payment systems, central securities depositories, securities settlement systems, central counterparties and trade repositories. The PFMIs are the latest international standards designed to ensure such FMIs supporting the global financial markets are more robust and thus well placed to withstand financial shocks.

5.2 The MA regards all systems designated under the Ordinance, each being a clearing and settlement system whose proper functioning is material to the monetary or financial stability of Hong Kong or to Hong Kong as an international financial centre, as systemically important and thus meet the definition of FMIs. The MA has therefore taken the PFMIs into account in

³ The CPSS is a forum within the Bank for International Settlements (“BIS”) that allows central banks to monitor and analyze developments in payment, clearing and settlement systems. The CPSS sets standards, conducts research, and promotes global co-operation in payment and settlement issues.

⁴ The IOSCO was formed in 1983 as the international standard setter for securities markets.

⁵ The joint report is available on the BIS website: <http://www.bis.org/publ/cpss101a.pdf>

establishing the oversight standards for those systems. In general, the MA expects all designated systems to comply with the PFMI where applicable. The PFMI are listed at the Annex as a reference and their explanations can be found in the full text of the CPSS/IOSCO joint report.

OVERSIGHT REQUIREMENTS

6. Introduction

- 6.1 Under section 7(1)(a) of the Ordinance, every system operator and settlement institution of a designated system should ensure that the operations of the system are conducted in a safe and efficient manner calculated to minimise the likelihood of any disruption to the functioning of the system. To this end, the MA expects the systems to meet, at a minimum, the oversight requirements, where applicable.

- 6.2 In general, every system operator and settlement institution of a designated system should have proper governance arrangements that are clear and transparent and promote safe and efficient operations of the system; and should provide sufficient information to enable participants to have an accurate understanding of the risks and costs they incur by participating in the system.

7. Safety Requirements

7.1 *Certainty as to what constitutes settlement*

- 7.1.1 Under section 8(1)(a) of the Ordinance, the operating rules of a designated system should provide for certainty as to the circumstances under which transfer orders effected through the system are to be regarded as settled for the purposes of the system (see also the requirements on operating rules in paragraph 9 of this Guideline). For this purpose, the operating rules should make

certain the status of payment instructions at the point of settlement, and where applicable, specify:

- (a) the point at which a transfer order takes effect as having been entered into the system;
- (b) the point after which a transfer order may not be revoked by a participant or any other party; and
- (c) how failure to settle is to be dealt with.

7.2 *Reliability and robustness of operations*

7.2.1 The rules and procedures of a clearing and settlement system play a key role in enabling participants to understand the risks (see paragraph 7.2.3) in participating in the system. To ensure that the operations of a designated system are reliable and robust as specified in section 8(1)(b) of the Ordinance, the operating rules and procedures of such system should be written in a clear and comprehensive manner so as to facilitate understanding by its participants of the risks they may encounter through participation in the system.

7.2.2 Every system operator and settlement institution of a designated system should have a sound risk-management framework that enables them to identify, measure, monitor, and manage risks that arise in or are borne by the system. The risk-management framework should be subject to periodic review.

7.2.3 The following are the major types of risks (extracted and modified from Annex H to the PFMI's report) that may undermine the reliability and robustness of the operations of a designated system if they are not properly managed:

- (a) *credit risk* - the risk that a counterparty, whether a participant or other entity, will be unable to meet fully its financial obligations when due, or at any time in the future;

- (b) *custody risk* - the risk of loss on assets held in custody in the event of a custodian's (or subcustodian's) insolvency, negligence, fraud, poor administration, or inadequate record-keeping;
- (c) *general business risk* - any potential impairment of a designated system's financial position (as a business concern) as a consequence of a decline in its revenues or an increase in its expenses, such that expenses exceed revenues and result in a loss that must be charged against capital;
- (d) *investment risk* - the risk of loss faced by a designated system when it invests its own or its participants' resources, such as collateral;
- (e) *legal risk* - the risk of the unexpected application of a law or regulation, usually resulting in a loss;
- (f) *liquidity risk* - the risk that a counterparty, whether a participant or other entity, will have insufficient funds to meet its financial obligations as and when expected, although it may be able to do so in the future;
- (g) *operational risk* - the risk that deficiencies in information systems or internal processes, human errors, management failures, or disruptions from external events will result in the reduction, deterioration, or breakdown of services provided by a designated system;
- (h) *settlement risk* - the general term used to designate the risk that settlement in a designated system will not take place as expected. This risk may comprise both credit and liquidity risks; and
- (i) *systemic risk* – the risk that the inability of one or more participants to perform as expected will cause other participants to be unable to meet their obligations when due.

System operators and settlement institutions should endeavour to minimise such risks where applicable.

7.2.4 Every system operator and settlement institution (as appropriate) of a designated system should have in place mechanisms to manage risks, which may include:

(a) *Mechanisms to control credit risk exposure*

Credit risk is driven mainly by exposures from extending intraday credit to its participants. Designated system should mitigate its credit risks to the extent possible and control its current exposures by setting intraday credit limit. Such limit should balance the usefulness of credit to facilitate settlement within the system against the system's credit exposures;

(b) *Liquidity arrangements to support timely settlement*

Mechanisms for managing liquidity risk may include:

(i) a robust framework to manage liquidity risks from its participants, settlement banks, nostro agents, custodian banks, liquidity providers and other entities, where applicable;

(ii) effective operational and analytical tools to identify, measure and monitor its settlement and funding flows on an on-going and timely basis, including its use of intraday liquidity;

(iii) mechanisms to manage payment queues effectively;

(iv) provision of intraday liquidity;

(v) mechanisms to minimise gridlock;

(vi) throughput guidelines;

(vii) provision of up-to-date information on account balances, as well as on settled and pending payments and securities deliveries in real time; and

(viii) explicit rules and procedures that enable the system to effect same-day and, where appropriate, intraday and multi-day settlement of payment obligations on time following any individual or combined default among its participants.

(c) *Measures to reduce custody and investment risks*

Designated system should safeguard its own and its participants' assets and minimise the risk of loss on and delay in access to these assets. Its investments of assets⁶ should be in instruments with minimal credit, market, and liquidity risks. The system should evaluate and understand its exposures to its custodian banks.

(d) *Measures to manage material risks arising from interdependencies*

Designated system is connected directly and indirectly to its participants, other FMIs, and service and utility providers. It should provide reliable service, not only for the benefit of its participants, but also for all entities that would be affected by its ability to process transfer orders. In order to properly manage risks arising from and posing to these interdependencies, a designated system should:

- (i) identify the likely impacts of an external failure of connected entities on the system's ability to clear and settle transfer orders in the normal course of business and manage risks arising from such failure. These impacts include those transmitted through its participants, which may participate in multiple FMIs;
 - (ii) identify, monitor, and manage material risks it faces from and poses to other FMIs. To the extent possible, interdependent designated systems should co-ordinate their business continuity arrangements;
 - (iii) identify, monitor and manage the risks associated with its critical service and utility providers (e.g., information technology and messaging providers) and the operational effect on the system if any of these service or utility providers fails to perform as expected;
- and

⁶ For the system operator, "assets" means all investible assets. For the settlement institution, it includes the assets in the settlement account and any other assets held for or related to the functioning of the system.

- (iv) before entering into a link arrangement with another FMI and on an on-going basis once the link is established, identify, monitor and manage all potential sources of material risks arising from such link arrangement.

7.2.5. Every system operator and settlement institution of a designated system should ensure that the designated system has adequate capacity to process expected volumes of transfer orders, including at peak times or on peak days. They should regularly monitor and test the actual capacity and performance of the systems, and plan for changes of volumes or business patterns, so that the required levels of transaction throughput are maintained. The system operator should also regularly conduct system capacity stress testing to verify whether the system can handle abnormally huge volumes of transfer orders under extreme circumstances.

7.2.6 Every designated system should have robust management and control systems to identify, monitor and manage its general business risks. Section 7(1)(d) of the Ordinance requires every designated system to have available financial resources appropriate for the proper performance of the system's particular functions. When assessing whether a designated system has complied with the safety requirements, the MA will consider the financial resources available to the system operator and settlement institution for both day-to-day operations and system development, taking into account the particular functions of the system and its business development plans. In this regard, the MA will review the financial data of the system operator and settlement institution, as well as the strength of and support from its shareholders or parent institution.

7.2.7 Every designated system should have in place a business continuity plan ("BCP") to ensure the timely recovery of its operations in the

event of a contingency. This requires that the system operator and settlement institution of a designated system:

- (a) to have detailed contingency plans, including back-up arrangements for its crucial communications and computer systems and key personnel. The contingency plans should have the following key elements:
 - (i) clearly stated objectives (including recovery time and recovery point) and policies and procedures that allow for the rapid recovery and timely resumption of critical operations following a disruption to a service;
 - (ii) identification of events that pose a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption to the operations of the system; and establishing measures to address such events; and
 - (iii) clearly defined procedures for crisis and event management, including timely and effective communication strategies to consult and inform its participants, interdependent FMIs, regulators, and others (e.g. critical service providers and, where relevant, the media);
- (b) to set up a secondary site with sufficient resources, capabilities, functionalities and appropriate staffing arrangements that would not be affected by a wide-scale disruption to the operations of the system at the primary site and would allow the secondary site to take over the operations at the primary site if needed;
- (c) to require its participants and service and utility providers (where applicable) to have appropriate complementary arrangements in the case of a contingency;
- (d) to undertake testing of its business recovery arrangements regularly. Tests should address scenarios that simulate wide-scale disruptions to the operations at the primary site and inter-site switch-overs. System participants, critical service

- providers and interdependent FMIs, where appropriate and to the extent possible, should be involved in the testing; and
- (e) to conduct regular reviews of the adequacy of these arrangements and make such modifications as are necessary.

7.2.8 In case there is a need for outsourcing arrangements for certain areas of the operations of a designated system, operational reliability, information integrity, security procedures and business continuity plan should extend to the outsourced areas, processes and personnel. As outsourcing arrangements differ from case to case, the system operator and settlement institution of any designated system which intends to outsource certain areas of the system's operation or make changes to or amend the scope of its outsourcing in respect of such areas should discuss their plans with the MA in advance. The proposed outsourcing arrangements should be subject to a comprehensive risk assessment and all the risks identified should be adequately addressed before the plans are implemented. Specifically, the risk assessment should cover, inter alia, the following:

- (a) the importance and criticality of the services to be outsourced;
- (b) reasons for the outsourcing (e.g., cost and benefit analysis);
and
- (c) the impact on the system's risk profile of the outsourcing.

7.2.9 Even when any operations or process of a designated system is outsourced, the system operator and settlement institution of the system remain responsible for the operations and processes to ensure that the requirements under the Ordinance are being complied with.

7.2.10 The MA expects there to be well-trained and competent personnel engaged in respect of every designated system to ensure the safe and reliable operation of the system. The personnel should possess levels of knowledge and experience appropriate for their tasks. The

staff responsible for technical support of all the components of the system should be available when needed (including out of normal business hours) to correct errors and resolve problems.

7.3 Access control

7.3.1 Under section 8(1)(c) of the Ordinance, every system operator and settlement institution of a designated system should ensure the safety of the system by controlling access to the operations of the system. Such controls should be secure and robust, with security reviewed and tested periodically.

7.4 Information integrity

7.4.1 The integrity of information held within a designated system is considered a key safety requirement under section 8(1)(d) of the Ordinance. Correct and complete processing of transfer orders and the confidentiality of data should be ensured by means of suitable measures and effective controls including but not limited to:

- (a) adequate back-up of all data and information (real-time backup is expected for important or key information);
- (b) mechanisms for storage and avoiding leakage to third parties;
and
- (c) mechanisms to minimise human input error.

8. Efficiency Requirements

8.1 In general, a designated system's efficiency depends on its clearing and settlement arrangements, operating structure, and use of technology and communication procedures. A designated system should be designed and operated to meet the needs of its participants and the markets it serves. The system's technical arrangements should be sufficiently flexible to respond to changing demand and new technologies. The system operator and settlement institution should bear in mind that the designated system's efficiency will

ultimately affect the use of the system by its participants and their customers as well as these entities' ability to conduct robust risk management, which may affect the broader efficiency of financial markets. In promoting system efficiency, the system operator and settlement institution of a designated system should consider the practicality and costs for the system's participants and other relevant parties (e.g. linked FMIs), and ensure that the actual performance of the system meets the standards as stated in the system specifications and relevant service agreements. The MA will assess a designated system's compliance with the efficiency requirements set under the Ordinance, taking into account the considerations above and based on such factors as users' feedback, in particular, through industry associations, and the performance benchmark, if applicable, of comparable local or overseas systems.

8.2 *Speed and efficiency of operations*

8.2.1 Under section 8(2)(a) of the Ordinance, every system operator and settlement institution of a designated system should ensure the operations relating to transfer orders within the system are carried out with efficiency. In particular, they should fulfil the following conditions:

- (a) the system operator should ensure that its system can process transfer orders with the required speed, including at peak times or on peak days. It should also plan for changes in volumes or business patterns, so that the required speed can be maintained;
- (b) in addition to the efficient running of the information technology system, the system operator and settlement institution, as appropriate, should put in place and regularly update liquidity management measures to provide adequate arrangements for intraday liquidity, effective management of payment queues and mechanisms to minimise gridlock; and
- (c) the system should seek to economise on costs by establishing mechanisms for the regular review of its efficiency, including

its costs and pricing structure. Cost considerations, however, should always be balanced against the safety requirements of the system.

8.3 *Cost of participation*

8.3.1 Under section 8(2)(b) of the Ordinance, every system operator and settlement institution of a designated system should ensure efficiency by keeping the overall cost to a participant of his participation in the system reasonable, having regard to the services provided by the system to its participants.

8.3.2 Generally speaking, the cost of participation comprises three components:

- (a) system services fees and charges – which can be affected by the processing costs of the system;
- (b) participants' internal processing costs – which are external to the system but can be influenced by the system design; and
- (c) liquidity costs to participants – which are indirect costs of participation.

8.3.3 The internal processing costs of participants in a designated system may include the costs of preparing instructions capable to be accepted by the system, transmitting and receiving system messages and internal processing borne by the participants. While the system operator cannot control these costs directly, it needs to be aware of how the system design, as well as technology and procedures adopted by the system, might affect these costs.

8.3.4 The liquidity costs to participants, as indirect costs of participation, include the amount of cash or other financial instruments that a participant must provide to the system in order to process its transfer orders, and the opportunity cost of providing such assets. Liquidity costs can be affected by the level of intraday liquidity that normally

needs to be maintained by a participant given the queuing mechanism or liquidity provision facility of the system.

8.3.5 The MA will take into account the above when considering the cost of participation in a system. Where appropriate, comparison would be made with systems offering similar services elsewhere.

8.4 *Admission criteria*

8.4.1 Every settlement institution of a designated system should ensure that access to the designated system is non-discriminatory as unreasonable barriers to entry could reduce usage, which in turn may increase the average processing cost per transfer orders and potentially increase each participant's share of cost, thereby affecting efficiency.

8.4.2 Section 8(2)(c) of the Ordinance provides that the criteria for admission as a participant in any designated system should be reasonable. The criteria for admission should be objective, risk-based and publicly disclosed, permitting fair and open access to the system's services by direct participants and, where relevant, indirect participants and other FMIs. The criteria should also be justified in terms of the safety and efficiency of the system and the markets it serves. Prudential standards such as the financial standing of a participant should be adopted to ensure system integrity. Subject to maintaining acceptable risk control standards, the system should endeavour to set requirements that have minimum restrictive impact on access that circumstances permit. The system should monitor participants' compliance with its participation requirements on a continuous basis and have procedures for facilitating the suspension or orderly exit of a participant that breaches, or no longer meets, the participation requirements.

8.5 *No measures unfairly limiting competition*

8.5.1 Section 8(2)(d) of the Ordinance requires that generally, there should not be any measure having the effect of unfairly limiting, or exploiting the absence of, competition in relation to the functions performed by a designated system.

9. Requirements on Operating Rules

9.1 The operating rules of a clearing and settlement system, if properly designed and maintained, help ensure safe and efficient operation of the system. Under section 7(1)(b) of the Ordinance, a designated system is required to have in place operating rules that comply with the requirements in section 7(2) and with any prescribed requirements relating to the operating rules of a designated system. Section 7(2)(a) of the Ordinance also provides that those rules shall impose on participants requirements that are no less stringent than the requirements imposed on participants under the other provisions of the Ordinance. Specifically, the MA expects the operating rules of every designated system to satisfy the requirements below.

9.2 *Design of the rules*

9.2.1 The operating rules of a designated system should be clear, understandable, comprehensive, up-to-date and available to all participants. They should have a well-founded legal basis consistent with relevant laws and regulations, be enforceable in relevant jurisdictions, and provide a high degree of certainty for each material aspect of the system's activities. There should be a high degree of certainty that actions taken by the system under such rules will not be voided, reversed or subject to stays by order of competent court. The operating rules should also identify the settlement institution, outline clearly the roles of participants, the system operator and the settlement institution, and the procedures that will be followed in different circumstances (e.g., which parties

are to be notified of particular events and the timetables for decision-making and notification), and if applicable, provide clearly the point at which transfer orders are irrevocable. The operating rules should apply to all participants in the same category on equal footing. The participants should be informed of any changes to the operating rules as soon as practicable.

9.3 *Arrangements to monitor compliance with the operating rules*

9.3.1 Under section 7(1)(c) of the Ordinance, every system operator and settlement institution of a designated system should ensure that adequate arrangements are in place to monitor and enforce compliance with the operating rules of the system, including arrangements regarding the resources available to the system operator.

9.3.2 The system operator and/or settlement institution of a designated system should enter into contracts and other agreements as appropriate with their participants, which lay down the conditions of participation and suspension or termination of participation, and describe comprehensively the rights and obligations of the relevant parties involved.

9.3.3 The system operator and/or settlement institution should promptly notify the MA of the failure of any participant to comply with the operating rules that could create risks to the system which has come to their attention.

9.4 *Mechanisms to deal with insolvency and default of participant*

9.4.1 Under section 7(2)(b) and (c) of the Ordinance, the operating rules of a designated system are required to provide that if a participant becomes insolvent he may be suspended from the system, and to provide for default arrangements which are appropriate and

adequate for the system in all circumstances. Such default arrangements are defined in the Ordinance as the arrangements in place within the system for limiting systemic and other types of risk in the event of a participant appearing to be, or likely to become, unable to meet his obligations in respect of a transfer order; and, without affecting the generality of the foregoing, includes any arrangements for:

- (a) the netting of obligations owed to or by the participant;
- (b) the closing out of open positions held by the participant; or
- (c) the realising of collateral security securing obligations owed by the participant.

9.4.2 The operating rules should include a requirement that when a participant becomes, or is likely to become, unable to meet his obligations for any reason, he should notify the system operator or settlement institution as appropriate as soon as possible. In case the problem is likely to affect the normal operations of the system, the relevant system operator or settlement institution should also inform each other and the MA as soon as practicable after being notified by the concerned participant.

9.5 *Changes to operating rules*

9.5.1 Section 7(3) of the Ordinance prohibits any change to a designated system's operating rules without the prior approval in writing of the MA. When seeking the MA's approval for any change in the operating rules, the system operator or settlement institution is required to submit to the MA information, which covers, inter alia, the following:

- (a) details and reasons for the amendment;
- (b) proposed date and time from which the change is to become effective;
- (c) the transactions and parties affected; and

- (d) an assessment of the prospective risks, if any, arising from the change, and measures to mitigate those risks, including testing schedule and testing results if available.

OVERSIGHT APPROACH

10. Introduction

10.1 The objective of the oversight approach of the MA is to provide an effective process to monitor and assess the compliance of designated systems with the obligations imposed under the Ordinance, in particular the safety and efficiency requirements, on a continuing basis. The process follows a risk-based approach. This involves on-going monitoring of the compliance of designated systems with a focus on areas of high risks using a wide variety of techniques which aim at detecting problems at an early stage.

10.2 The MA will conduct an annual assessment on the compliance of every designated system with the minimum standards set out in this Guideline under the heading “Oversight Requirements”. The oversight of designated systems is carried out through one or more of the following means:

- (a) off-site review and continuous monitoring;
- (b) on-site examination;
- (c) auditor’s report;
- (d) meeting with the management of the system operators and settlement institutions of designated systems; and
- (e) co-operative oversight of cross-border designated systems.

11. Off-site review and continuous monitoring

11.1 Off-site review and continuous monitoring form the core of the MA’s oversight approach of designated systems.

11.2 The MA's power to request information or documents from the system operator or settlement institution of a designated system on both regular and ad hoc bases is provided for by section 12 of the Ordinance. It is important for the MA to have access to timely and reliable information of a designated system, as the information collected will be used to measure the performance of the system against the safety and efficiency requirements under the Ordinance.

11.3 The MA will collect information, on a monthly basis, on transfer order volumes and values, system performance statistics, incidents of default and non-compliance with operating rules by participants, and significant events in the coming months which may have risk implications on a designated system. In addition, the MA will also require the system operator and settlement institution of a designated system to provide supplementary information for off-site reviews. This includes submissions of data on the financial strength and financial commitment of the system operator and settlement institution, or, as the case may be, of the shareholders or parent institution of the system, internal or external auditor's reports on various risk areas (e.g., internal control procedures, robustness of information technology systems, contingency arrangements or any other areas specified by the MA) and business continuity plan. The MA will have important regard to auditor's reports in assessing the performance of the system. As such, the system operator and settlement institution of a designated system should provide periodic auditor's report, based on its in-house audit cycle, to the MA. Where internal auditor's reports are submitted, the system operator and settlement institution should satisfy the MA that the audit functions within their respective organisational structures are independent of their day-to-day operations. The information obtained by the MA will be used to evaluate the degree of compliance of the system with the requirements of the Ordinance and to conduct cross-institutional or peer group analysis.

11.4 In addition to regular submission of returns, the system operator and/or settlement institution of a designated system should report any abnormal

events and production incidents of the system to the MA as soon as possible. This should be followed by a written report to the MA within a reasonable time as specified by the MA, explaining the cause and impact of the event, and the remedial actions taken or to be taken. The system operator or settlement institution should inform the MA as early as possible if it has difficulty in submitting the report within the specified time.

11.5 The prompt and accurate reporting of oversight information and statistics is of central importance to the effectiveness of the MA's oversight regime. Non-compliance with information requirements will be seen as a warning sign requiring close investigation by the MA. Failure to provide information or documents as requested by the MA under the Ordinance, or provision of false or misleading information in a material particular, is each liable on conviction upon indictment to a fine of \$400,000 and to imprisonment for 2 years. In case of a continuing offence of failure to provide information or documents as requested by the MA, the relevant system operator or settlement institution is liable to a further fine of \$10,000 for every day during which the offence continues.

11.6 To preserve confidentiality, oversight information obtained from the system operator and settlement institution of a designated system during the course of oversight is subject to official secrecy requirements set out in section 50 of the Ordinance and may not be disclosed by the MA to third parties except in the circumstances set out in that section.

12. On-site examination

12.1 On-site examination will complement the MA's off-site review and provides the MA with the opportunity to assess at first hand how a designated system is operated, managed and controlled.

12.2 Generally speaking, on-site examination focuses on topics identified through off-site review process that either present high risks or where control process validations are warranted. The scope of on-site

examination may include, credit and liquidity risk management, settlement failure and crisis management and information technology infrastructure. The MA may also conduct meetings with the designated system's risk management, compliance, audit and operations staff during the examination.

12.3 The MA will discuss the main conclusions of the examination with the system operator and settlement institution of the designated system and will consider their comments before issuing a formal on-site examination report. The on-site examination report will identify any area of weaknesses or concerns and make recommendations for remedial action.

12.4 The frequency of on-site examination varies from system to system. The MA will conduct on-site examination in respect of both the system operator and settlement institution on a need basis.

13. Auditor's report

13.1 To supplement off-site review and on-site examination, the MA may, under section 12 of the Ordinance, request the system operator or settlement institution of a designated system to submit an auditor's report on high-risk areas or other areas of concern or areas that require assessment by experts (e.g. operation or information technology-related audits). If considered necessary, the MA may request the external auditor's report to include an assessment of the quality of the internal audit's testing of controls. The auditor's report will assist the MA to decide whether the system is in compliance with the Ordinance. The system operator and settlement institution should inform and, if necessary, consult the MA on the external auditor to be appointed by the system operator or settlement institution (as the case may be).

13.2 If considered necessary, the MA may hold a tripartite meeting with the auditor and the senior management of the system operator or settlement institution (as the case may be) to discuss matters arising from the auditor's report.

14. Meeting with management of system operators and settlement institutions of designated systems

14.1 As part of the continuous oversight process, the MA will hold an annual meeting with the senior management of the system operator and settlement institution of a designated system. The purpose of the meeting is to discuss the findings of off-site reviews (and on-site examinations if such examinations have been conducted during the year), particularly any significant deficiencies in safety and efficiency requirements identified or any other matters of concern or mutual interest. The MA will prepare a report to the system operator and settlement institution, summarising the discussion made, the agreement reached and any follow-up actions required.

14.2 The MA attaches great importance to this regular dialogue as it enables the MA to understand better how the system operator and settlement institution view and control risks and how they view the business situation and future developments of their system.

15. Co-operative oversight of cross-border designated systems

15.1 The MA will, where appropriate, rely on co-operative oversight with the relevant supervisory authority of an overseas designated system to which an exemption under section 11(2) and/or (3) of the Ordinance are granted. In this connection, the MA expects to work closely with the relevant overseas supervisory authority, in respect of the designated system concerned based on the following main considerations:

- (a) the MA and relevant authorities will co-operate with each other to foster efficient and effective communication and consultation in order to support each other in fulfilling their respective mandates with respect to such designated system;
- (b) if an authority has identified an actual or proposed operation of a cross-border or multicurrency FMI in its jurisdiction, the authority should, as soon as it is practicable, inform other relevant authorities that may have an interest in the FMI's observance of the PFMI's;

- (c) at least one authority should accept responsibility for establishing efficient and effective co-operation among all relevant authorities. In international co-operative arrangements where no other authority accepts this responsibility, the presumption is the authority or authorities with primary responsibility in the designated system's home jurisdiction should accept this responsibility;
- (d) at least one authority will ensure that the designated system is periodically assessed against the PFMI and will, in conducting these assessments, consult with other authorities that conduct the supervision or oversight of the system and for which the system is systemically important;
- (e) when assessing against the PFMI the designated system's payment and settlement arrangements and its related liquidity risk-management procedures in any one or more currency for which its settlements are systemically important, the authority or authorities with primary responsibility with respect to the system will consider the views of the central banks of issue of such currencies. If a central bank of issue is required under its responsibilities to conduct its own assessment of these arrangements and procedures, the central bank will consider the views of the authority or authorities with primary responsibility with respect to the system;
- (f) the central bank of the country in which a cross-border or multi-currency clearing and settlement arrangement is located would have primary responsibility for the oversight of such an arrangement;
- (g) the authority with primary oversight will consult with other relevant authorities, giving particular attention to the designated system's risk management procedures;
- (h) the determination of the designated system's settlement and settlement failure procedures will be the joint responsibility of the central bank of issue of a currency included in the system and the authority with the primary oversight responsibility for the system; and
- (i) relevant authorities will provide advance notification, where practicable and otherwise as soon as possible thereafter, regarding

proposed material regulatory changes and adverse events with respect to the designated system that may significantly affect another authority's regulatory, supervisory, or oversight interests.

15.2 Under section 50(4) of the Ordinance, the MA may disclose information to an overseas supervisory authority which exercises functions corresponding to those of the MA, where in the opinion of the MA:

- (a) the disclosure is not contrary to the public interest;
- (b) the overseas supervisory authority is subject to adequate secrecy provisions; and
- (c) such disclosure will assist the overseas supervisory authority to exercise those functions and help maintain and promote safety and efficiency in the operation of designated systems.

16. Follow-up actions

16.1 When evaluating the compliance of a designated system with the Ordinance, the MA may make recommendations to the system operator and settlement institution of the system, asking them to take steps to meet the oversight requirements under the Ordinance, where appropriate. The system operator and settlement institution are expected to follow and implement such recommendations as soon as practicable. The MA will closely monitor the implementation of the recommendations by the system operator and settlement institution.

16.2 If the system operator or settlement institution refuses or fails to implement any of the recommendations so as to comply with the oversight requirements within a reasonable timeframe as specified by the MA, the MA may consider giving a direction under section 13 of the Ordinance to specify any action that needs to be taken by the system operator or settlement institution (as the case may be) within a specified period.

16.3 Under section 14 of the Ordinance, the MA may by notice in writing given to the system operator or settlement institution of a designated system direct

that the operating rules of the designated system need to be amended in such manner as to bring the rules into compliance with section 7(1)(b) of the Ordinance. Before giving such a direction, the MA shall consult the Financial Secretary and the system operator or settlement institution concerned. If there is any failure to comply with the direction and to adopt the required amendment(s) into the operating rules, the MA may by gazette notice declare that the operating rules of such designated system is to be amended in the manner as specified in the direction, and the operating rules is, as from the time of publication of such gazette notice, to have effect as if they had been so amended.

17. Miscellaneous

- 17.1 It should be noted that although the MA has an oversight role on designated systems, the primary responsibility for day-to-day operational aspects of any designated system rests with its system operator and settlement institution. The MA, in performing his oversight function under the Ordinance, does not get involved in the daily operations of any designated system, except to the extent that the MA is himself involved as participant in, or operationally involved as provider of a particular service to, a designated system, in which case the MA's involvement will be only as participant or service provider (as the case may be).
- 17.2 The MA does not oversee the relations between the participants in a designated system and their respective customers. It is the responsibility of the system operator and settlement institution of a designated system to identify, monitor and manage those risks arising from the relationship between the system and its participants.

CPSS-IOSCO Principles for Financial Market Infrastructures

General Organisation

Principle 1: Legal basis

An FMI should have a well-founded, clear, transparent, and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.

Principle 2: Governance

An FMI should have governance arrangements that are clear and transparent, promote the safety and efficiency of the FMI, and support the stability of the broader financial system, other relevant public interest considerations, and the objectives of relevant stakeholders.

Principle 3: Framework for the comprehensive management of risks

An FMI should have a sound risk-management framework for comprehensively managing legal, credit, liquidity, operational, and other risks.

Credit and liquidity risk management

Principle 4: Credit risk

An FMI should effectively measure, monitor, and manage its credit exposures to participants and those arising from its payment, clearing, and settlement processes. An FMI should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market conditions. All other CCPs should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market conditions.

Principle 5: Collateral

An FMI that requires collateral to manage its or its participants' credit exposure should accept collateral with low credit, liquidity, and market risks. An FMI should also set and enforce appropriately conservative haircuts and concentration limits.

Principle 6: Margin

A CCP should cover its credit exposures to its participants for all products through an effective margin system that is risk-based and regularly reviewed.

Principle 7: Liquidity risk

An FMI should effectively measure, monitor, and manage its liquidity risk. An FMI should maintain sufficient liquid resources in all relevant currencies to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate liquidity obligation for the FMI in extreme but plausible market conditions.

Settlement

Principle 8: Settlement finality

An FMI should provide clear and certain final settlement, at a minimum by the end of the value date. Where necessary or preferable, an FMI should provide final settlement intraday or in real time.

Principle 9: Money settlements

An FMI should conduct its money settlements in central bank money where practical and available. If central bank money is not used, an FMI should minimise and strictly control the credit and liquidity risk arising from the use of commercial bank money.

Principle 10: Physical deliveries

An FMI should clearly state its obligations with respect to the delivery of physical instruments or commodities and should identify, monitor, and manage the risks associated with such physical deliveries.

Central securities depositories and exchange-of-value settlement systems

Principle 11: Central securities depositories

A CSD should have appropriate rules and procedures to help ensure the integrity of securities issues and minimise and manage the risks associated with the safekeeping and transfer of securities. A CSD should maintain securities in an immobilised or dematerialised form for their transfer by book entry.

Principle 12: Exchange-of-value settlement systems

If an FMI settles transactions that involve the settlement of two linked obligations (for example, securities or foreign exchange transactions), it should eliminate principal risk by conditioning the final settlement of one obligation upon the final settlement of the other.

Default management

Principle 13: Participant-default rules and procedures

An FMI should have effective and clearly defined rules and procedures to manage a participant default. These rules and procedures should be designed to ensure that the FMI can take timely action to contain losses and liquidity pressures and continue to meet its obligations.

Principle 14: Segregation and portability

A CCP should have rules and procedures that enable the segregation and portability of positions of a participant's customers and the collateral provided to the CCP with respect to those positions.

General business and operational risk management

Principle 15: General business risk

An FMI should identify, monitor, and manage its general business risk and hold sufficient liquid net assets funded by equity to cover potential general business losses so that it can continue operations and services as a going concern if those losses materialise. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.

Principle 16: Custody and investment risks

An FMI should safeguard its own and its participants' assets and minimise the risk of loss on and delay in access to these assets. An FMI's investments should be in instruments with minimal credit, market, and liquidity risks.

Principle 17: Operational risk

An FMI should identify the plausible sources of operational risk, both internal and external, and mitigate their impact through the use of appropriate systems, policies, procedures, and controls. Systems should be designed to ensure a high degree of security and operational reliability and should have adequate, scalable capacity. Business continuity management should aim for timely recovery of operations and fulfilment of the FMI's obligations, including in the event of a wide-scale or major disruption.

Access

Principle 18: Access and participation requirements

An FMI should have objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access.

Principle 19: Tiered participation arrangements

An FMI should identify, monitor, and manage the material risks to the FMI arising from tiered participation arrangements.

Principle 20: FMI links

An FMI that establishes a link with one or more FMIs should identify, monitor, and manage link-related risks.

Efficiency

Principle 21: Efficiency and effectiveness

An FMI should be efficient and effective in meeting the requirements of its participants and the markets it serves.

Principle 22: Communication procedures and standards

An FMI should use, or at a minimum accommodate, relevant internationally accepted communication procedures and standards in order to facilitate efficient payment, clearing, settlement, and recording.

Transparency

Principle 23: Disclosure of rules, key procedures, and market data

An FMI should have clear and comprehensive rules and procedures and should provide sufficient information to enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the FMI. All relevant rules and key procedures should be publicly disclosed.

Principle 24: Disclosure of market data by trade repositories

A trade repository should provide timely and accurate data to relevant authorities and the public in line with their respective needs.