



HONG KONG MONETARY AUTHORITY
香港金融管理局

*Assessment of HKD CHATS
against the
Principles for Financial Market Infrastructures*

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Assessment of HKD CHATS against the Principles for Financial Market Infrastructures

I. Executive summary

This report contains the assessment of the Hong Kong Monetary Authority (HKMA) (via the Payment Systems Oversight (PSO) team of the Payment Systems Oversight & Licensing Division (PSOLD)) on the Hong Kong Dollar Clearing House Automated Transfer System (HKD CHATS). HKD CHATS is the interbank payment system in Hong Kong for clearing and settling HKD transactions. The objective of the assessment is to evaluate how well HKD CHATS observes with the Principles for Financial Market Infrastructures (PFMI) issued jointly by the Committee on Payments and Market Infrastructures (CPMI)¹ of the Bank for International Settlements and the Technical Committee of the International Organization of Securities Commissions (IOSCO) in April 2012.

The assessment was conducted in accordance with the approach and rating system set out in the “Principles for financial market infrastructures: Disclosure framework and Assessment methodology” issued by CPMI-IOSCO.

The assessment finds that HKD CHATS observes all the relevant principles (i.e. Principles 1-5, 7-9, 12-13, 15-18 and 21-23) in the assessment period, based on the rating system of CPMI-IOSCO. The remaining principles (Principles 6, 10-11, 14, 19-20 and 24) are not applicable to HKD CHATS. The assessment includes recommended actions to be taken by the settlement institution (SI) and/or system operator (SO) of HKD CHATS to further enhance the safety and efficiency of the system. The recommended actions² are related to Principles 2, 3, 15 and 17 and are summarised in Table 2 of Part IV of this document.

The HKMA will review the assessment regularly in accordance with the requirements of the PFMI.

II. Introduction

HKD CHATS is the interbank payment system in Hong Kong for clearing and settling HKD transactions. Because of its importance to the monetary and financial stability in Hong Kong, HKD CHATS meets the criteria for classification as a financial market infrastructure (FMI). The present document is the assessment of HKD CHATS based on the CPMI-IOSCO PFMI.

¹ The CPMI was formerly known as the Committee on Payment and Settlement Systems (CPSS) before September 2014.

² The recommended actions in relation to Principles 2, 3, 15 and 17 are not issues of concern but are of a nature that the system could consider taking them up in the normal course of business. According to the assessment methodology, these will not affect the observed rating of these principles.

The assessment was conducted by the PSO team of the HKMA, which is the payment system overseer of HKD CHATS.

HKD CHATS is a payment system. It is linked to other payment systems and securities settlement systems to provide payment-versus-payment (PvP) and delivery-versus-payment (DvP) services. The assessment covers all the PFMI principles which are applicable to a payment system. All the clearing and settlement services provided by HKD CHATS and its links with the other payment and securities settlement systems are within the scope of the assessment.

The information used in the assessment includes all the relevant laws, clearing house rules and operating procedures governing HKD CHATS as well as the oversight information available to the HKMA, as the payment system overseer of HKD CHATS. The oversight information includes monthly returns on turnover and performance of the system, incident reports, information gathered during on-site reviews and regular meetings with the management of the system, and a self-assessment of HKD CHATS against the PFMI conducted by the SI and the SO in April 2013. The assessment was made based on the position of HKD CHATS as at 31 December 2015.

The HKMA did not encounter any particular difficulties in obtaining the information required to conduct the assessment of HKD CHATS against the PFMI.

This is the first assessment report on HKD CHATS against the PFMI. It will be reviewed every two years, or more frequently if required when there is material change to the system.

III. Overview of the payment, clearing and settlement landscape

Introduction

To support the objective of developing Hong Kong as an international financial centre and a regional settlement hub, the HKMA plays an important role in developing the financial infrastructure of Hong Kong. This is one of the policy objectives of the HKMA.

HKD CHATS commenced operation on 9 December 1996. HKD CHATS is the interbank payment system which can be used for clearing and settling Hong Kong dollar (HKD) transactions in Hong Kong. Interbank payment systems in Hong Kong support interbank transfers in the HK dollar, US dollar, Euro, and Renminbi. The SI for the HKD CHATS is the HKMA through its Payment Systems Operation Division (PSOD) of the Financial Infrastructure Department (FID). The SI in turn appoints Hong Kong Interbank Clearing Limited (HKICL), which is jointly owned by the HKMA and Hong Kong Association of Banks (HKAB), as the SO of the HKD CHATS. The HKAB is the association of the licensed banks in Hong Kong.

Currently, FMIs under the purview of the HKMA include multi-currency payment systems for the settlement of interbank payments; a debt securities

settlement system; system links to facilitate PvP and DvP services, and external links to facilitate cross-border transactions. In addition, the HKMA operates a trade repository that maintains an electronic database of records of over-the-counter (OTC) derivatives transactions. FMIs which are not under the purview of the HKMA, include the central counterparties (CCP) for securities, futures and options and OTC derivatives transactions and the securities settlement system for stocks and futures³.

Operations and services of HKD CHATS

HKD CHATS opens for settlement from 08:30 to 18:30 (Hong Kong Time) every working day, Monday to Friday, except Hong Kong's public holidays. It is available around-the-clock during Monday to Sunday for transaction input (or cancellation), except for pre-scheduled times for system housekeeping tasks. All payments submitted to the system go through a validation process. Payment instructions with input errors are automatically rejected. All validated transactions (except bulk items, see next paragraph) are settled immediately on a gross deal-by-deal basis across the book of the SI provided there is sufficient balance in the settlement account of the paying participant. If sufficient funds are not available, payment instructions are queued in the system and will be settled on a first-in-first-out basis when there are sufficient funds in the paying participant's settlement account. If a payment valued on the same day is not settled by the cut-off time of the system, it will be automatically cancelled by the system. Participants are provided with real-time enquiry functions allowing them to monitor the account status and queue management to re-sequence outstanding payments in payment queues. To facilitate participants' liquidity management, the HKMA offers repo facilities to participants of the system.

In addition to settling large-value payments among banks, the system also handles bulk settlement of paper cheques, e-Cheques⁴, stock market-related payments, MPF schemes' switching transactions, credit card payments and other small-value bulk electronic payments such as electronic point-of-sale payments, auto-credit and auto-debit transactions, automatic teller machine transfers and electronic bill payments. These bulk items are settled on a multilateral netting basis. Each type of bulk item has its own set of operating procedures, which describe comprehensively the clearing and settlement processing flow and requirements and contingency measures.

HKD CHATS also settles transactions that involve the settlement of two linked obligations simultaneously, thus eliminating the principal risk arising from any time lag in settling the two obligations. The system supports PvP for USD/HKD, EUR/HKD, and RMB/HKD foreign exchange transactions via the links with the USD, Euro and RMB CHATS, and DvP for debt and equities transactions via the links with the Central Moneymarkets Unit (CMU) and Central Clearing and Settlement System (CCASS) respectively.

³ These FMIs are under the purview of the Securities and Futures Commission in Hong Kong.

⁴ e-Cheque is an electronic counterpart of traditional paper cheque. It adopts a fully digitalized processing model during the issuance, presentment, clearing and settlement processes. The service was launched on 7 December 2015.

Communications between HKD CHATS and its participants are based on SWIFT messaging standards and services. Participants must connect to the SWIFT network in order to access the HKD CHATS to initiate or receive payment instructions. Moreover, they can access the “eMBT” developed by HKICL to perform payment control, payment enquiry and other administrative functions. The eMBT is a browser-based system which can be accessed through SWIFT Browse and InterAct services.

Participation in HKD CHATS is mandatory for licensed banks (LBs) in Hong Kong, and each of them is required to maintain a settlement account with the HKMA. Restricted licence banks (RLBs) may also join the system on a need basis. The HKMA can also exercise discretion to approve other financial institutions to access to HKD CHATS. The HKD CHATS participants are required to comply with the Clearing and Settlement Systems Ordinance (CSSO) (and Payment Systems and Stored Value Facilities Ordinance (PSSVFO) since 13 November 2015)⁵, the Rules and Procedures of HKD CHATS, which are well documented and communicated to the participants. At the end of December 2015, HKD CHATS had 156 participants, comprising 154 LBs, 1 RLB and CLS Bank International. CLS Bank International was granted access to HKD CHATS under the discretion of the HKMA in order to mitigate or eliminate settlement risks for foreign exchange transactions.

HKD CHATS is not a CCP and it does not guarantee settlement. There is no loss-sharing arrangement in case of default of participants. Each participant has a responsibility to ensure that it has sufficient liquidity to effect its payments in a timely and orderly manner. Default procedures are in place and regularly drilled to minimise the impact of a default on the system and participants.

System statistics

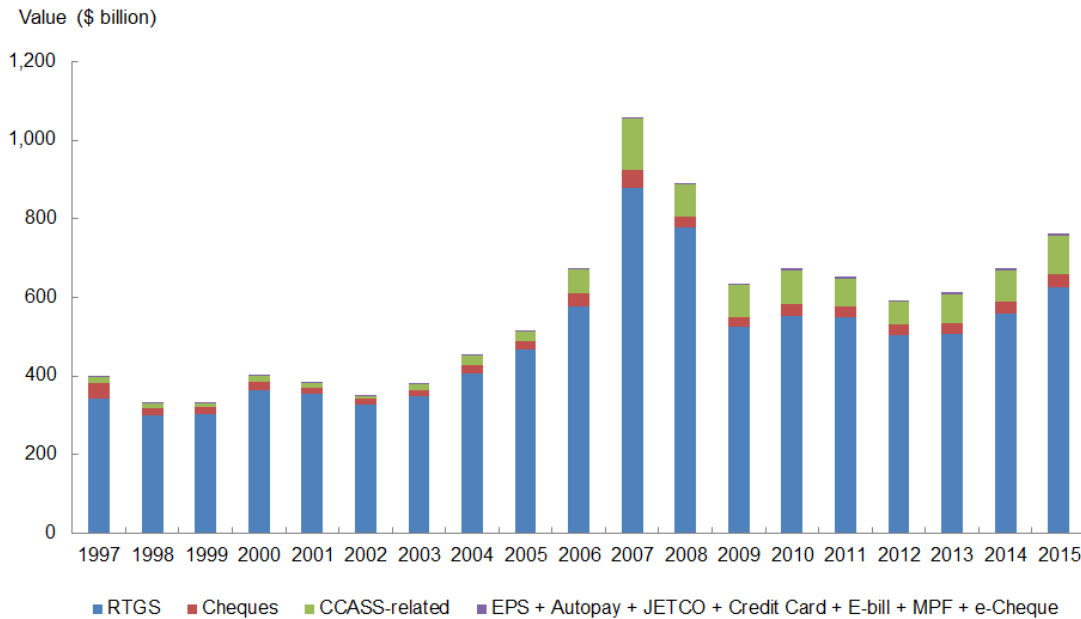
The system availability of HKD CHATS was continuously above the target of 99.9% for prime time and 99.5% for non-prime time⁶ in 2015. Some minor system incidents occurred with minimal operational impact and proper remedial actions were taken to prevent recurrence.

In 2015, HKD CHATS settled on average around 28,000 real time gross settlement (RTGS) transactions each operating day, with an average daily value of HK\$627 billion. It also processed on average around 0.8 million bulk items each operating day, involving an average daily value of HK\$136 billion (see Chart 1).

⁵ The CSSO was amended and retitled as the PSSVFO on 13 November 2015. The key provisions applicable to designated clearing and settlement systems, including HKD CHATS, remain substantially unchanged. Since the change took place at the end of the assessment period, references in the assessment are to the CSSO. However, unless otherwise stated, references to the CSSO may be read as references to the PSSVFO.

⁶ Prime time is defined as 08:30 hours – 18:45 hours (Monday to Friday excluding all general holidays). Non-prime time covers the rest of time other than the prime time excluding the time required for scheduled housekeeping tasks and maintenance. The system availability target is defined according to the Service Agreement between HKMA and HKICL.

Chart 1: Average daily turnover of HKD CHATS



Oversight arrangements for HKD CHATS

The CSSO, which came into effect on 4 November 2004, establishes a statutory regime for the Monetary Authority (MA)⁷ to designate and oversee clearing and settlement systems which are material to the monetary and financial stability of Hong Kong or to Hong Kong as an international financial centre. The objective is to promote the general safety and efficiency of designated clearing and settlement systems. As the overseer, the HKMA monitors the compliance of designated systems with the safety and efficiency requirements stipulated in the CSSO and, where appropriate, instigates changes to designated systems to bring them into compliance with the requirements.

On 13 November 2015, the CSSO was amended and retitled as the PSSVFO to introduce a regulatory regime for stored value facilities and retail payment systems in addition to the existing oversight framework for clearing and settlement systems under the pre-amended CSSO. As far as the clearing and settlement systems designated under the CSSO are concerned, all designations, certificates of finality and exemptions granted under the pre-amended CSSO continue to have effect under the PSSVFO.

The HKMA is empowered to issue explanatory notes and guidelines to explain its role, policies and requirements in relation to the designation and oversight of clearing and settlement systems under the PSSVFO. For example, the HKMA has

⁷ Hong Kong Monetary Authority (HKMA) is the institution of which the Monetary Authority (MA) is the chief executive and which is established with public officers appointed under the Exchange Fund Ordinance to assist the MA to perform his functions. In this document, we use the term “HKMA” instead of the legal name “MA” to describe its function as the overseer of the system.

issued under section 54 of the CSSO a Guideline on the Oversight Framework for Designated Systems (“Guideline”) which explains the HKMA’s interpretation of the oversight requirements, including the safety and efficiency requirements under sections 7 and 8 of the CSSO, and the process that the HKMA intends to follow in its oversight of the designated systems.

The HKMA adopts international regulatory standards on FMIs in its oversight framework for designated clearing and settlement systems. Specifically, the requirements from the PFMI issued jointly by the CPMI-IOSCO in April 2012 have been incorporated into the Guideline⁸. The Guideline requires designated systems to observe the PFMI where applicable.

HKD CHATS is deemed designated under the PSSVFO and is granted a certificate of finality under the PSSVFO to provide statutory backing to the finality of settlement for transactions made through a designated system. This settlement finality is protected from insolvency and other laws. As a result, transactions settled through HKD CHATS are final and irrevocable.

The payment system overseer function of the HKMA under the PSSVFO is performed by the PSO team within the PSOLD under the Banking Conduct Department of the HKMA. The focus of payment systems oversight is on the safety and efficiency of the system as a whole and the performance of SI and SO in managing and operating the designated clearing and settlement system.

Another role taken up by the HKMA is that of developer and facilitator of the financial infrastructures in Hong Kong, through the FID. The HKMA also sits on the Board of HKICL.

Process Review Committee (PRC)

The PRC was established in 2004 composing of independent members to review the processes and procedures adopted by the MA in making decisions relating to or affecting the designated clearing and settlement systems under the PSSVFO in which the MA has a legal or beneficial interest. This arrangement helps ensure that the same set of oversight standards is applied to all designated clearing and settlement systems, whether or not the MA has an interest in them. The PRC evaluates the designated clearing and settlement systems’ compliance with the oversight standards and assesses whether the HKMA has applied the same procedures to all designated clearing and settlement systems.

⁸ The HKMA is in the process of amending the Guideline to reflect the changes made in the PSSVFO and a new Guideline on application of PFMI to designated clearing and settlement systems is being prepared to fully incorporate the PFMI requirements. The HKMA will consult the SI and SO before finalizing the documents and the revised documents will be published in due course.

IV. Summary assessment

Recommendations for the FMI

The assessment finds that HKD CHATS observes all relevant principles of the PFMI (i.e. Principles 1-5, 7-9, 12-13, 15-18 and 21-23), based on the rating system of CPMI-IOSCO⁹. The remaining principles (Principles 6, 10-11, 14, 19-20 and 24) are not applicable to HKD CHATS. Table 1 summarises the ratings for each principle. The assessment also identified recommended actions to be taken by the settlement institution and/or system operator of HKD CHATS. The recommended actions are related to Principles 2, 3, 15 and 17 and are summarised in Table 2. A narrative summary of the key findings and recommendations are presented after Tables 1 and 2.

Table 1 - Ratings summary

Assessment category	Principle
Observed	<i>Principles 1-5, 7-9, 12-13, 15-18 and 21-23</i>
Broadly observed	<i>Nil</i>
Partly observed	<i>Nil</i>
Not observed	<i>Nil</i>
Not applicable	<i>Principles 6, 10-11, 14, 19-20 and 24</i>

Table 2 - List of recommended actions

Principle	Issue of concern or other gap or shortcoming	Recommended actions
<i>To be addressed under normal course of business</i>		
2	<i>Refining governance arrangements</i>	<i>Following the implementation of relevant governance arrangements to observe the PFMI in 2015, HKICL should continue to review and fine-tune its approach after accumulating experience and to ensure governance arrangements remain appropriate.</i>
3,15	<i>Refining the recovery plan</i>	<i>After adopting its recovery plan prepared based on the CPMI report on recovery of FMIs published in October 2014 at the end of 2015, HKICL should continue to</i>

⁹ The assessment was made based on the position of HKD CHATS as at 31 December 2015.

Principle	Issue of concern or other gap or shortcoming	Recommended actions
		<i>review and refine the plan to ensure it remains up-to-date and appropriate.</i>
17	<i>Enhancing cyber resilience and business continuity arrangements</i>	<i>HKICL should continue to review its approach to cyber security on an ongoing basis, in particular its mechanisms for preventing, detecting, responding to and recovering from cyber attacks, and its plans to enhance its business continuity arrangements, taking into account developments both in Hong Kong and overseas, including the international guidance on cyber resilience for financial market infrastructures being developed by the CPMI-IOSCO.</i>

Narrative summary key findings and recommendations

General organisation (Principles 1–3)

The relevant laws in Hong Kong provide a comprehensive and well-founded legal framework for the establishment and operation of HKD CHATS in Hong Kong. The legal framework provides a sound legal basis for the enforcement of rules governing irrevocability and finality of settlement. The rules, procedures and contracts signed between participants and the SO / the SI are clear, understandable and comprehensive. The HKD CHATS rules, procedures and contracts have not been subject of any judicial controversy. Moreover, actions taken under such rules, procedures and contracts have not been voided or reversed by another administrative or judicial authority.

HKD CHATS plays an important role in supporting Hong Kong as an international financial centre. It is an important FMI that supports the financial and monetary stability of Hong Kong. Governance arrangements of the settlement institution and system operator of HKD CHATS are in place to ensure safety and efficiency of the system. HKD CHATS is a designated clearing and settlement system and is required to operate safely and efficiently under the PSSVFO. In accordance with the PFMI requirements on governance, HKICL, as SO of HKD CHATS, has strengthened its governance arrangements through, among other things, the appointment of two independent non-executive directors to its Board, establishment of a Risk Management Committee and an internal audit function and the implementation of a mechanism to review the performance of its Board and of individual Board members. PSOD, which operates as a unit of the HKMA, is subject to the internal audit, risk assessment and management framework of the HKMA.

HKD CHATS has developed robust risk management policies and procedures that enable it to manage risks associated with the operation of the system. There are various risk management tools built into the system design of HKD CHATS to enable participants to manage the risks they may face by participating in the system as well as the risks they may pose to the system. A business continuity plan (BCP) and drills are in place to ensure continuity or recovery of services during a crisis. HKICL has developed a recovery plan based on the international standard on FMI recovery published in October 2014. The HKMA, as a central banking institution, is exempt from the requirement to have a recovery plan. HKICL, as the SO of HKD CHATS, will be covered by the resolution regime in Hong Kong, which is being developed by the government authorities.

Credit and liquidity risk management (Principles 4–7)

HKD CHATS is a payment system, with no minimum settlement balance requirement. Payment instructions are settled only when there are sufficient available funds in the settlement account of the paying bank. The credit risk faced by the system is limited to collateral lending in the form of a repo facility, which is mitigated through the use of high quality collateral with conservative haircuts.

The HKMA accepts Exchange Fund Bills and Notes and Hong Kong Government Bonds with low risk and high credit rating for repo with appropriate haircuts. As a standard practice, the collateral is kept under regular review by the HKMA. The repo facility is provided through HKD CHATS' linkage with the CMU, both of which are designated clearing and settlement systems under the oversight of the HKMA.

HKD CHATS conducts its settlements on an RTGS basis and does not guarantee settlement. The HKMA, as the SI of HKD CHATS, therefore does not assume liquidity risk through these operations. HKD CHATS has built in a number of tools to assist the participants to manage their liquidity risks, including its liquidity-efficient design, the provision of liquidity via repo, and the provision of real-time information on transactions and settlement account balances. Participants are also required to manage their liquidity positions prudently and follow the throughput guideline. The SI monitors the payment flows within the system and the use of repo and account balances of individual participants. Any payment abnormality will be reported to the Banking Supervision Department as appropriate for follow up to minimise the impact to the flow of liquidity. These tools have proved effective so far in managing the liquidity risk of the system.

Settlement (Principles 8–10)

The Clearing House Rules of HKD CHATS clearly define the point at which settlement is final, and the settlement finality has legal backing under the PSSVFO as HKD CHATS is deemed designated under the PSSVFO and is granted a certificate of finality under the PSSVFO.

HKD CHATS conducts money settlements in central bank money. Money

settlements are effected through accounts on the books of the HKMA.

Central securities depositories and exchange-of-value settlement systems (Principles 11–12)

HKD CHATS is not a central securities depository (CSD), therefore Principle 11 concerning CSDs is not applicable to HKD CHATS.

HKD CHATS supports PvP and DvP transactions by linking with other local CHATSs and the CMU, all of which are designated clearing and settlement systems under the PSSVFO. HKD CHATS also supports DvP for equity transaction via the link with CCASS. The DvP and PvP processes of HKD CHATS are supported by appropriate system software and its interface with the other designated clearing and settlement systems. A PvP transaction will be settled only if the system confirms that a corresponding payment from the receiving participant of that transaction to the sending participant in another relevant currency will be settled at the same time. A DvP transaction will be settled only if the systems confirm that both the funds and securities are available. The payment and securities legs are settled at the same time. Once the PvP and DvP transactions are settled, they are final and irrevocable under statutory settlement finality protection of the PSSVFO.

Default management (Principles 13–14)

HKD CHATS is a payment system, with no loss-sharing arrangement in case of default of participants. The Rules and Procedures of the system clearly describe how insolvency/default of a participant will be handled. Default procedures are regularly rehearsed by the SIs, SO, participants and other relevant parties as appropriate.

General business and operational risk management (Principles 15–17)

General business risk faced by the HKMA is minimal given HKMA is Hong Kong's central banking institution. General business risk only applies to HKICL as the SO of HKD CHATS. HKICL operates on a user-pay principle and has set aside an amount equivalent to at least six months' operating expenses to ensure continuity of operation.

The SI does not possess any assets on its own. It only uses the CMU as a CSD to house the securities posted as collateral under repo arrangements. The SO is not exposed to specific custody risk and investment risks.

The SI and SO have established a robust risk-management framework covering operational risk, with appropriate systems, policies, procedures and controls to identify, monitor, and manage operational risks. Both SI and SO have developed robust physical and information security policies and control, and are required to make an annual declaration to the HKMA that these continue to be in place and kept under review. The business continuity plan for HKD CHATS is comprehensive and

well-tested. Various system and network BCP drills are conducted annually. A hot back-up site has been set up to ensure timely recovery of operation in case of serious disruption.

Access (Principles 18–20)

HKD CHATS has objective, risk-based and publicly disclosed criteria for participants, which permit fair and open access. The Rules and Procedures stipulate the arrangements for handling accession of new participants, suspensions and exits of participants and communicating such changes.

Efficiency (Principles 21–22)

Since its inception in 1996, HKD CHATS has met the objectives of providing a reliable and efficient interbank payment system, and maintaining Hong Kong's status as an international financial centre. HKD CHATS is operationally efficient and has been able to accommodate the growing needs of market participants. HKD CHATS operates on an internationally accepted communication platform and it follows international standards to effect payments. The operation of HKD CHATS using the SWIFTNet platform is generally smooth and satisfactory.

Transparency (Principles 23–24)

HKD CHATS has clear and comprehensive rules and procedures to facilitate participants to understand the risks, fees and other material costs they incur by participating in the system. Training, briefings and enquiry support are provided to participants. HKD CHATS operates in a transparent manner and discloses as much information as possible to the public. The basic features and essential information of the system are set out in the Disclosure Framework of HKD CHATS, which is available on the website of both SI and SO. A redacted version of the HKD CHATS Clearing House Rules, with certain sensitive information which might compromise the security of the system left out, is available on the HKICL's website for public information.

List of Abbreviations

BCP	Business Continuity Plan
CCP	Central Counterparty
CCASS	Central Clearing and Settlement System (for equities)
CHATS	Clearing House Automated Transfer System
CLS	Continuous Linked Settlement
CSD	Central Securities Depositories
CMU	Central Moneymarkets Unit
CPMI	Committee on Payments and Market Infrastructures
CPSS	Committee on Payment and Settlement Systems (name changed to CPMI from 1 September 2014)
CSSO	Clearing and Settlement Systems Ordinance (retitled as PSSVFO from 13 November 2015)
DvP	Delivery versus Payment
EUR	Euro
FID	Financial Infrastructure Department
FMI	Financial Market Infrastructures
HKAB	Hong Kong Association of Banks
HKD	Hong Kong Dollar
HKICL	Hong Kong Interbank Clearing Limited
HKMA	Hong Kong Monetary Authority
MA	The Monetary Authority
LBs	Licensed Banks
MPF	Mandatory Provident Fund
Procedures	Operating Procedures
PFMI	Principles for Financial Market Infrastructures
PSO	Payment Systems Oversight
PSOD	Payment Systems Operation Division
PSOLD	Payment Systems Oversight and Licensing Division
PSSVFO	Payment Systems and Stored Value Facilities Ordinance
PvP	Payment versus Payment
RMB	Renminbi
RLBs	Restricted Licence Banks
Rules	Clearing House Rules
RTGS	Real Time Gross Settlement
SI	Settlement institution
SO	System operator
USD	US Dollar