



Market Infrastructure

A fully fledged Renminbi RTGS system was launched in 2007. System improvements helped increase RTGS efficiency to meet higher turnover. An electronic bond trading platform and the link between Malaysia's debt securities settlement system and Hong Kong's US dollar RTGS system were launched. The Exchange Fund Bills and Notes programme was further improved. A study was also completed on developing an Islamic bond market in Hong Kong.

OBJECTIVES

One of the HKMA's key policy objectives is to promote the development of a safe and efficient financial market infrastructure to help maintain financial and monetary stability and Hong Kong's status as an international financial centre. Particular attention is paid to the clearing and settlement systems for the safe and efficient transfer of funds and securities within Hong Kong and between Hong Kong and other financial centres, especially the Mainland.

REVIEW OF 2007

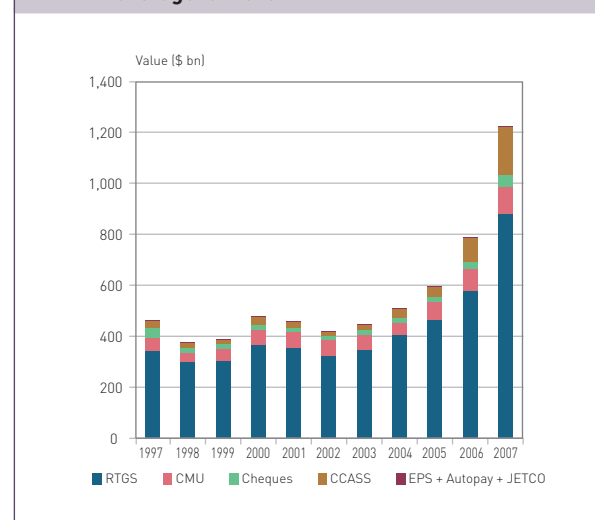
Hong Kong dollar interbank payment system

The Hong Kong dollar Clearing House Automated Transfer System (CHATS), which operates on a Real Time Gross Settlement (RTGS) basis, is responsible for clearing all Hong Kong dollar interbank payments. It has a direct link with the Central Moneymarkets Unit (CMU), which is the debt securities clearing and settlement system operated by the HKMA, to provide both real-time and end-of-day delivery-versus-payment (DvP) settlement services. Hong Kong Interbank Clearing Limited (HKICL), the system operator of CHATS, was established in 1995 and is owned equally by the HKMA and the Hong Kong Association of Banks. In 2007, HKICL processed a daily average of \$879 billion in CHATS transactions (22,367 items). On 5 November the system registered a record turnover of \$1.67 trillion because of a large initial public offering (IPO).

In addition to settling large-value payments, CHATS also handles daily bulk clearings of stock market transactions, credit card transactions, cheques and auto-debit transactions, low-value bulk electronic payment items (EPS and auto-credit), and low-value ATM transfers (Chart 1).

During the year, banks made good use of their Exchange Fund Bills and Notes (EFBN) to obtain interest-free intraday liquidity through intraday repurchase agreements with the HKMA to settle their interbank payments. On average, intraday repurchase transactions amounting to \$59.8 billion were carried out each day, representing 62% of the \$96 billion in Exchange Fund paper held by banks in December 2007.

Chart 1. Hong Kong dollar payment system daily average turnover



The CCASS Optimiser and other new measures

A number of new measures have been introduced to the RTGS and CMU systems to improve system efficiency and to support increased turnover arising from stock market activities.

The CCASS Optimiser is a mechanism that settles money items for stock market transactions and large-value CHATS payments simultaneously and on a net basis. As money items for stock market transactions are settled daily in a bulk run at a specific time by multilateral netting, banks can use the CCASS Optimiser to offset CHATS payments during the bulk settlement run. This makes it easier for banks to manage their funding more efficiently and promotes the smooth and effective functioning of the system.

The opening time of the Hong Kong dollar RTGS and CMU systems was advanced by half an hour to 8:30 a.m. to provide more time for banks to arrange funding for payments.

An improved eIPO service that supports multiple receiving banks was introduced jointly with the Hong Kong Association of Banks and Hong Kong Exchanges and Clearing Limited. With the upgraded service, the proportion of IPO application monies submitted through electronic channels has increased and, more importantly, IPO statistics are made available earlier to facilitate better liquidity management and recycling of funds.

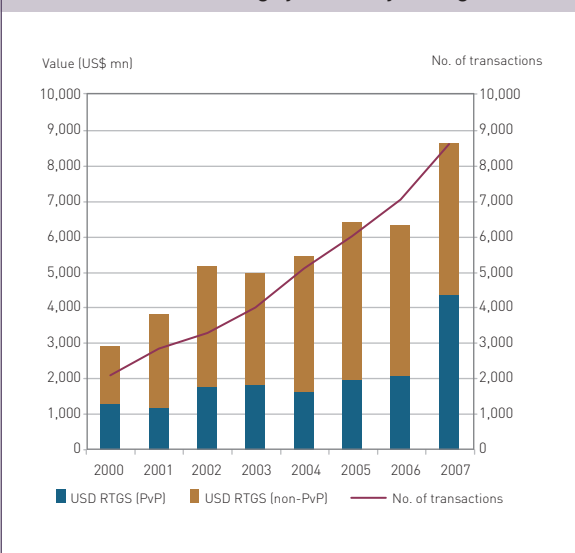
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US dollar RTGS system

The US dollar RTGS system has been operating efficiently since its launch in 2000. The Hongkong and Shanghai Banking Corporation is the settlement institution with HKICL as system operator. At the end of 2007, the system had 74 direct and 157 indirect participants, including 129 indirect participants from outside Hong Kong. On average,

it handled more than 8,600 transactions, with a total value of US\$8.6 billion, a day in 2007 (Chart 2). Buoyed by large IPO-related payments, the turnover of the US dollar RTGS system set a record of US\$22.42 billion on 23 November. The system processed an average of 7,457 US dollar cheques, with a value of US\$216 million, a day in 2007.

Chart 2. US dollar clearing system daily average turnover



Euro RTGS system

The euro RTGS system was launched in 2003. The settlement institution is Standard Chartered Bank (Hong Kong) Limited, with HKICL as system operator. At the end of 2007, there were 28 direct and 20 indirect participants, including 11 indirect participants from outside Hong Kong. In 2007, the system handled on average 163 transactions, with a total value of over €1.1 billion, a day (Chart 3).

The RTGS system links with Shenzhen and Guangdong handled more than 26,700 transactions during the year, with a total value equivalent to over \$319.3 billion. The system enables cross-border payments in Hong Kong dollars and US dollars between banks in Hong Kong and their counterparts in Shenzhen and Guangdong to be settled efficiently and safely.

Payment links with the Mainland

In response to the increasing demand for cross-border payment services, the HKMA has been working closely with Mainland authorities to establish cross-border payment links. The use of these links has risen gradually over the years. In 2007, the average daily turnover of cross-border payments handled by the various system links was over \$1.5 billion (Chart 4).

Chart 3. Euro clearing system daily average turnover

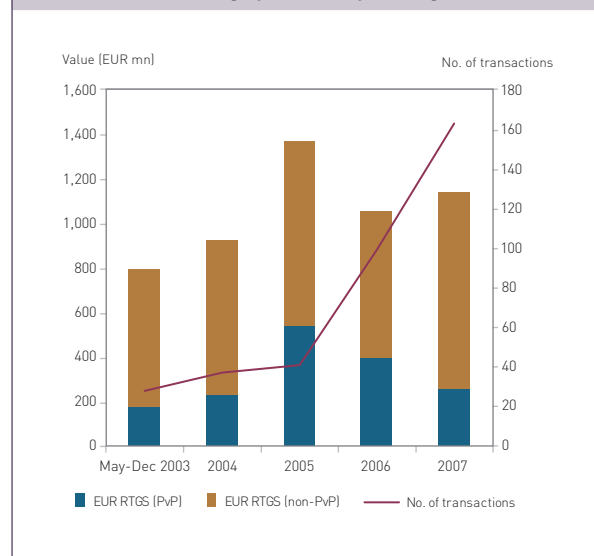
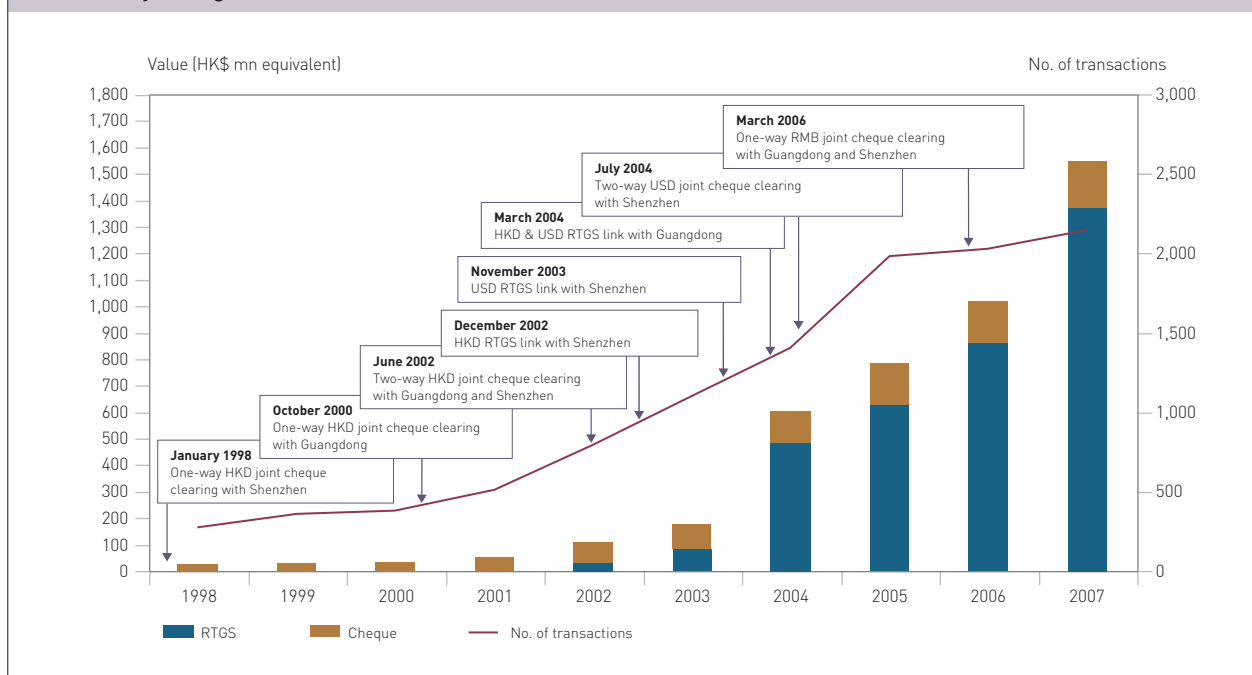


Chart 4. Daily average turnover in cross-border links



The two-way joint cheque clearing facilities cleared 472,997 Hong Kong dollar and US dollar cheques, with a value equivalent to \$41 billion in 2007. The facilities shortened the clearing time for cheques drawn on banks in Hong Kong that were presented in Shenzhen and Guangdong, and vice versa. Since March 2006, the joint cheque-clearing facilities have been expanded to cover renminbi cheques drawn on banks in Hong Kong, and presented in Shenzhen and Guangdong for consumer spending. In 2007, renminbi cheques with a total value equivalent to \$25 million were cleared.

Debt settlement systems

The CMU provides an efficient, one-stop clearing, settlement and depository service for Hong Kong

dollar and other international debt securities. Since its establishment in 1990, the CMU has developed links with many regional and international central securities depositories. Overseas investors can now hold and settle securities lodged with the CMU. It also helps Hong Kong investors to hold and settle foreign securities held with regional and international central securities depositories.

In 2007, the CMU processed a daily average value of \$48.6 billion (159 transactions) in secondary market transactions. Among the debt securities lodged with the CMU at the end of the year, the outstanding amount of EFBN was \$136.6 billion and the total amount of other securities was equivalent to \$263.1 billion.

Financial infrastructure review

The HKMA completed a comprehensive review of Hong Kong's financial infrastructure in 2005 with the aim of developing a safe and efficient multi-currency, multi-dimensional clearing and settlement platform and helping turn Hong Kong into a regional payment and settlement hub. After implementing a number of projects in 2006, the HKMA continued to make progress in 2007, completing most of the review's recommendations. New project development and business promotion opportunities were also identified during the year.

Project development

The **Renminbi Settlement System** launched in March 2006 was upgraded to a fully fledged RTGS system in June 2007 to cater for the issuance of renminbi bonds and future expansion of renminbi business. The Renminbi RTGS system has developed an automated link with the CMU to provide DvP settlement for renminbi bonds in Hong Kong. This new infrastructure handles the clearing, settlement, custody and payments associated with renminbi bonds issued in Hong Kong. In 2007, total issuance of renminbi bonds amounted

to RMB10 billion and the RTGS system handled 356 transactions with a total value of RMB211 million a day on average.

The **DvP link between Malaysia's debt securities settlement system and Hong Kong's US dollar RTGS system** was launched in October 2007, one year after the successful implementation of the link between Malaysia's ringgit RTGS system and Hong Kong's US dollar RTGS system. The DvP link helps eliminate settlement risk by ensuring the simultaneous settlement of securities in Malaysia and US dollars in Hong Kong.

The **one-way joint clearing facility for Hong Kong dollar cheques between Hong Kong and Macau** developed jointly with the Monetary Authority of Macao was launched in August 2007. The facility, which aims to fulfil the growing need for efficient payment services between Hong Kong and Macau, has more than halved the time required for clearing Hong Kong dollar cheques issued by banks in Hong Kong and presented in Macau, from four or five working days to two. In 2007, over 21,400 Hong Kong dollar cheques with a total value of \$2,869 million were cleared.

Financial infrastructure review (cont'd)

An **electronic bond trading platform** was launched in December 2007 for the trading of bonds in Hong Kong, primarily for EFBN. It has helped improve the price transparency among market players and streamline the trading process. The platform will be linked to the CMU to facilitate straight-through processing.

The **Regional CHATS service** was launched in July 2007 to process cross-border commercial payments through Hong Kong using its RTGS systems during Asian business hours. By the end of December, 34 banks in Hong Kong had registered as service providers for cross-border payment services, covering over 1,860 payment beneficiary points in 42 economies.

The **migration to SWIFTNet** aims to replace the existing proprietary platform of the various RTGS systems and the CMU with an open platform to improve compatibility with other clearing and settlement systems and make it easier for overseas banks to use Hong Kong's RTGS systems.

Business development

To further expand the Hong Kong's multi-currency and multi-dimensional infrastructure network, the HKMA will continue to explore opportunities to link the RTGS systems and the CMU with other clearing and settlement systems in the region, and to promote

greater use of Hong Kong's services. A comprehensive marketing programme has been implemented to pursue these objectives through seminars and visits to potential users in the Asia Pacific region, with over 220 marketing calls being made in 2007.

Promoting links with other Asian economies – building on the success of the payment-versus-payment (PvP) and DvP links with Malaysia, discussions with central bank authorities and system operators, including those in Mainland China, Thailand, Indonesia and Dubai, were held during the year.

Promoting the use of Hong Kong's clearing and settlement platform – marketing calls and seminars were arranged in a number of Asian economies, including those in the Indian Subcontinent and the Middle East. As a result, a number of banks in the region and some international financial institutions have started to settle the US dollar legs of their foreign exchange transactions in Hong Kong. Leveraging on Hong Kong's US dollar CHATS, Euroclear Bank, an international central securities depository, offered Asian-time-zone US dollar payment facilities to its members in the region.

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Oversight of clearing and settlement systems

Oversight of designated systems

The Clearing and Settlement Systems Ordinance (CSSO) empowers the Monetary Authority to designate and oversee clearing and settlement systems that are material to the monetary or financial stability of Hong Kong, or to the functioning of Hong Kong as an international financial centre. The CSSO is designed to promote the general safety and efficiency of designated systems including the CMU, Hong Kong dollar CHATS, US dollar CHATS, Euro CHATS and the Continuous Linked Settlement (CLS) System. Except for the CLS System, the HKMA oversees the designated systems through off-site reviews and continuous monitoring, on-site examinations and meetings with management.

In 2007, all designated systems were found to be in compliance with the safety and efficiency requirements under the CSSO.

Co-operative oversight arrangements

Clearing and settlement systems have become increasingly inter-dependent, leading to the establishment of international co-operative oversight arrangements.

The CLS System, a designated system in Hong Kong, is operated by CLS Bank, which is primarily regulated by its home supervisor, the US Federal Reserve. The HKMA and other central banks (including the US Fed) participate in the international co-operative oversight of the CLS System. Since the CLS system has expanded its settlement services to non-PvP transactions, the HKMA has been working closely with other central banks to

discuss and identify issues that may arise because of this expansion.

Following the establishment in November 2006 of the US dollar/ringgit PvP link between the US dollar CHATS in Hong Kong and RENTAS in Malaysia, the HKMA and Bank Negara Malaysia established a co-operative oversight arrangement for the PvP link in December 2006. This arrangement also covered the US dollar CHATS-RENTAS DvP link established in October 2007. Under the arrangement, an information sharing mechanism was set up through which the two parties agree to alert each other about issues that may affect the operations of the link. The arrangement has proved effective.

The central banks of the G10 countries agreed that SWIFT, a major global message carrier for payment systems, should be subject to co-operative oversight by central banks, with the National Bank of Belgium as the lead overseer since the carrier is incorporated in Belgium. As the CMU accepts SWIFT messages and all the local designated systems will migrate to the SWIFTNet platform, the HKMA has an interest in the oversight of the system. In 2007, the HKMA monitored the development of SWIFT's oversight framework and was involved in discussions with other central banks and with the National Bank of Belgium.

Independent tribunal and committee

An independent Clearing and Settlement Systems Appeals Tribunal was established in 2004 under the CSSO to hear appeals by any party aggrieved by a decision of the Monetary Authority on designation and related matters. There has been no appeal since the establishment of the Tribunal.

An independent Process Review Committee reviews processes and procedures adopted by the HKMA in applying standards set under the CSSO to systems in which the HKMA has a legal or beneficial interest. The Committee uses the procedures in the Internal Operating Manual, which sets out the procedures for evaluating the designated systems' compliance with the oversight standards, as the benchmark to assess whether the HKMA has applied the same set of procedures to all designated systems. Quarterly reports and management reports summarising the HKMA's oversight activities were submitted to the Committee.

The Committee held two meetings in 2007, reviewing four quarterly reports and 25 accompanying oversight activities management reports of the designated systems. The Committee concluded that it was not aware of any cases where the HKMA had not duly followed the internal operational procedures, or where the HKMA had not been procedurally fair in carrying out its oversight activities. The Committee submitted its annual reports, which are available on the HKMA's website, to the Financial Secretary.

Informal oversight of retail payment systems

Compared with large-value interbank payment systems, the retail payment systems generally carry little, if any, systemic risk and, at this stage, the HKMA considers they are not systemically significant enough to be designated under the CSSO. However, the HKMA encourages the retail payment industry to adopt a self-regulatory approach by issuing codes of practice to promote their safety and efficiency.

In August 2005, the HKMA endorsed the *Code of Practice for Multi-purpose Stored Value Card Operation* issued by Octopus Cards Limited (OCL) and is responsible for monitoring OCL's compliance with the Code. In 2007 OCL completed its second annual self assessment. During the year the HKMA helped to facilitate discussions with the industry to explore possible ways of introducing competition to the market.

In December 2006, a *Code of Practice for Payment Card Scheme Operators* was drawn up and issued by eight credit and debit card scheme operators with the support of the HKMA. The Code sets out the principles covering operational reliability, data and network security, and the efficiency and transparency of payment card operations in Hong Kong. The HKMA monitors the payment card scheme operators' compliance with the Code, and all operators are required to perform an annual self-assessment of their compliance and to report to the HKMA any incident which may have material and adverse impact on cardholders.

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International participation

In addition to the international co-operative oversight arrangements, the HKMA participated in other regional and international forums for payment system overseers to discuss issues of mutual interest, including interdependencies between payment and settlement systems, and international principles and standards on payment and settlement systems. The HKMA also took part in an international foreign exchange survey conducted by the Bank for International Settlements to assess the progress being made in reducing foreign exchange settlement risk.

Debt market development

Gross issuance of Hong Kong dollar debt amounted to \$445 billion in 2007, declining by 2% from \$454 billion in 2006 (Chart 5). Overseas borrowers became generally less active in the local primary market compared with the previous year. Multilateral development banks (MDBs) and other overseas borrowers reduced their issuance from \$3 billion and \$147 billion to \$1.7 billion and \$131 billion respectively, although the latter remained the most active issuers tapping the local market after the Exchange Fund. Issuance by statutory bodies and government-owned corporations and authorized institutions grew by 11% and 13% respectively, while that by local corporations declined by 13%.

The value of outstanding Hong Kong dollar debt rose slightly by 2% to \$764 billion at the end of 2007, compared with \$748 billion a year earlier (Chart 6). Overseas borrowers excluding the MDBs were the largest group of borrowers in the local debt market with outstanding debt amounting to \$350 billion. With more debt maturing than was issued during the year, the outstanding debt issued by authorized institutions declined by 7% to \$137 billion at the end of 2007.

During 2007 the HKMA completed the second phase of the review on debt market development, which examined issues related to the investor base, issuer base, regulation, taxation, and market infrastructure. The study made a number of recommendations associated with the regulatory process, investment benchmarks and guidelines, and tax treatments with the aim of attracting issuers and broadening the investor base. The findings and recommendations have been submitted to the Government.

The HKMA also initiated a study on developing an Islamic finance platform in Hong Kong drawing on the expertise of the Treasury Markets Association (TMA). The study was designed to assess the market potential and identify existing hurdles to the development of an Islamic bond market in Hong Kong, and to make recommendations on any changes that might be needed in the taxation, legal and regulatory framework. The findings suggest that Hong Kong's existing legal and regulatory infrastructure can readily support the development of an Islamic bond market. However, Hong Kong's tax laws need to be changed or clarified to provide a level playing field for the issuance of Islamic bonds in Hong Kong. A report containing policy recommendations was submitted to the Government in late 2007.

Chart 5. New issues of Hong Kong dollar debt instruments

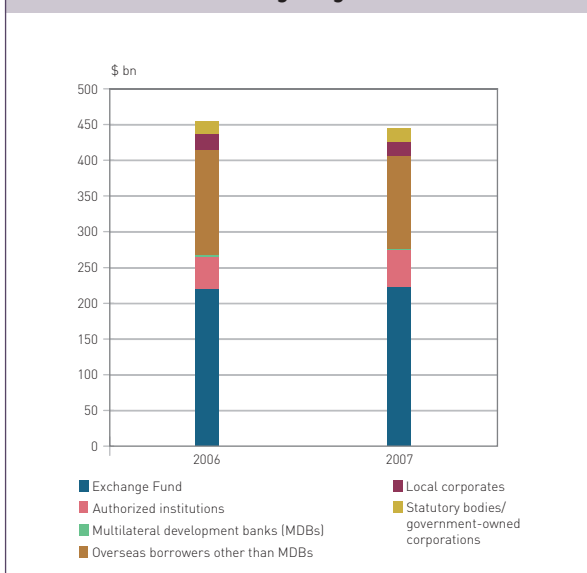
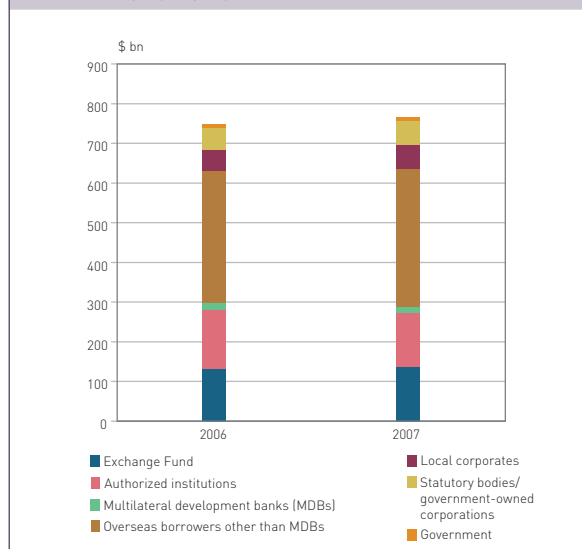


Chart 6. Outstanding amount of Hong Kong dollar debt instruments



Exchange Fund Bills and Notes programme

During 2007, the HKMA implemented the recommendations from the review of the EFBN programme completed in late 2006. These included:

- refining the market-making system for EFBN by publishing, starting from December 2006, half-yearly league tables of top-performing market makers for Exchange Fund Bills (EFB) and Exchange Fund Notes (EFN) to encourage them to trade the EFBN. From July 2007, exclusive tender rights for EFB and EFN were granted to market makers in the league tables
- extending the benchmark yield curve with the inaugural issue of the 15-year EFN (expected to be issued every six months) in August 2007
- streamlining the issuance programme by removing the seven-year EFN following the launch of the 15-year EFN

- introducing an electronic trading platform for EFBN in December 2007 to improve the price transparency and streamline the trading process of EFBN.

In addition to implementing the review's recommendations, the HKMA continued to fine-tune the maturity mix of the EFBN portfolio to increase liquidity at the longer end. The EFBN maturity profile was adjusted by increasing the issuance of five- and 10-year EFN, and the launch of 15-year EFN. The share of EFN with remaining maturity of more than one year and up to five years increased to 62% in 2007 from 59% in 2006 (Table 1). A progressively more balanced distribution along the EFBN yield curve can facilitate the pricing of private and public sector debt products. During the year, three retail issues of the two-year EFN, totalling \$587 million, were launched and were well received by the market.

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Table 1. Outstanding issues of Exchange Fund Bills and Notes

	2007	2006
	(in millions of Hong Kong dollars)	
Exchange Fund Bills (by original maturity)		
91 days	38,546	36,288
182 days	16,900	16,900
364 days	16,900	16,900
Sub-total	72,346	70,088
Exchange Fund Notes (by remaining tenor)		
1 year or below	13,800	14,400
Over 1 year and up to 3 years	25,000	22,600
Over 3 years and up to 5 years	14,800	14,000
Over 5 years and up to 10 years	10,100	10,700
Over 10 years	600	0
Sub-total	64,300	61,700
Total	136,646	131,788

Treasury Markets Association

Building on the public sector-private sector partnership, the HKMA is working closely with the market and providing strategic support to the TMA, whose mission is to further promote the professionalism and competitiveness of Hong Kong's treasury markets. The Association, currently chaired by the HKMA's Deputy Chief Executive, Mr Eddie Yue, completed another successful year in 2007:

- Membership: nearly 2,000 individual and 86 institutional members from banks, investment houses, insurance companies, money brokers and large corporations had joined the TMA by the end of the year.
- Qualifications: the TMA developed the Treasury Markets Certificate and the Treasury Markets (Debt Securities) Certificate in collaboration with the Hong Kong Institute of Bankers and the Hong Kong University of Science and Technology as part of the professional qualifications for its members. At the end of 2007, more than 200 individuals had completed the courses.
- More than 50 seminars, workshops and talks were organised during the year for both individual members and staff of institutional members to keep them abreast of market trends and development.
- Market development: to tie in with the debut issuance of renminbi bonds in Hong Kong and to facilitate their trading, the TMA introduced a daily renminbi bond price fixing in July, developed an information sheet on renminbi bond documentation, and developed an annex to the Global Master Repurchase Agreement for renminbi bonds.
- The TMA formed a working group in August 2007 to examine the prospects of developing an Islamic

bond market in Hong Kong and submitted its recommendations to the Government. Another working group was formed to examine the status of the foreign exchange market in Hong Kong and make recommendations at both policy and market levels to further improve market development.

- Treasury market promotion: to promote Hong Kong's financial infrastructure and treasury markets to the Mainland, the HKMA and the TMA jointly organised the Treasury Markets Summit in Beijing in December. The summit was attended by over 400 participants from Mainland financial institutions and corporations, and sponsored by 13 financial institutions in Hong Kong. In October 2007, the TMA hosted the Executive Committee and Council meetings of the ACI-Financial Markets Association in Hong Kong. Throughout the year, representatives of the Association also took part in major international forums to maintain close contact with overseas counterparts.

PLANS FOR 2008 AND BEYOND

The priority in 2008 is to continue with the review of the retail payment system and the role of the CMU, both started in 2007, and to plan for the implementation of the recommendations arising from these studies. As a sponsor, the HKMA is heavily involved in the progress of the SWIFTNet migration, which will help provide a safe and efficient multi-dimensional clearing and settlement platform in Hong Kong for regional use. Ensuring the safe and efficient operation of the RTGS systems and the CMU continues to be a key role for the HKMA as they are instrumental in maintaining the stability and integrity of Hong Kong's monetary and financial systems.

Further steps will be taken to develop Hong Kong into a regional payment and settlement hub, and the HKMA will continue to develop the EFBN programme as part of its plan to develop the local debt market. Follow-up actions will be taken together with the Government and

other authorities to implement recommendations from the Phase Two review of the debt market. Initiatives to establish an Islamic finance platform in Hong Kong will be pursued in conjunction with the TMA and the Government.

As the overseer of designated systems under the CSSO, the HKMA will continue to be involved in promoting their safety and efficiency.

A self-regulatory approach for retail payment systems has been implemented through the two Codes of Practice covering multi-purpose stored value cards, and credit and debit cards. The HKMA will continue to monitor the operators' self-compliance with the Codes. And the HKMA will discuss with the industry possible ways to promote competition in the small-value retail payment markets.

The HKMA will continue to monitor developments in the payment industry in Hong Kong and participate in international forums to keep abreast of global trends in the oversight of payment and settlement systems, and to improve the current oversight regime where necessary.