To promote Hong Kong as an international financial centre, the operating hours of the RTGS systems and the CMU were extended to meet market demand; the HKMA and Bank Indonesia agreed to establish a payment-versus-payment link between Hong Kong's US dollar and Indonesia's Rupiah RTGS systems; and steps were taken to promote Islamic finance in Hong Kong.

### **OBJECTIVES**

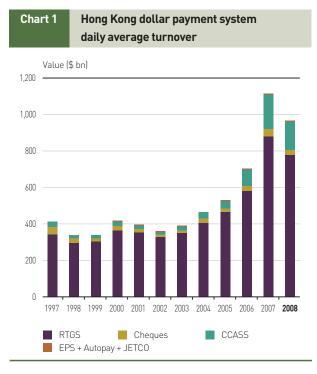
An important policy objective of the HKMA is to promote the development of a safe and efficient financial-market infrastructure to help maintain financial and monetary stability and Hong Kong's status as an international financial centre. Particular attention is paid to the clearing and settlement systems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

### **REVIEW OF 2008**

### 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 2008 HKICL processed a daily average of \$777 billion in CHATS transactions (22,633 items). 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).

The banks continued to make 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 totalling \$49 billion were carried out each day, representing 44% of the \$111 billion in Exchange Fund paper held by banks in December 2008.

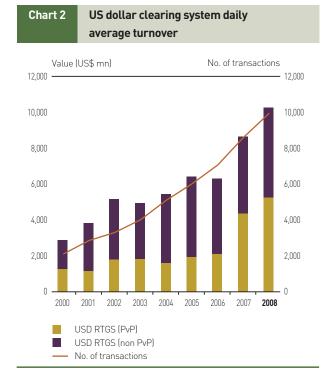


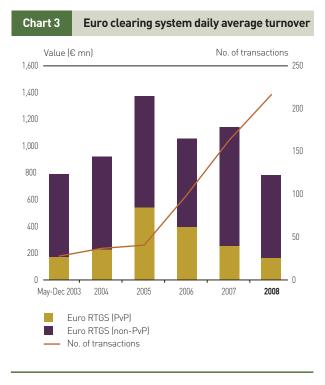
### **US dollar RTGS system**

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 2008, the system had 76 direct and 150 indirect participants, including 123 indirect participants from outside Hong Kong. On average, it handled more than 9,900 transactions amounting to US\$10 billion a day in 2008 (Chart 2). The system also processed a daily average of 7,570 US dollar cheques with a value of US\$234 million.

### **Euro RTGS system**

The euro RTGS system was launched in 2003 and has as its settlement institution the Standard Chartered Bank (Hong Kong) Limited with HKICL as system operator. At the end of 2008, there were 30 direct and 20 indirect participants, including 11 indirect participants from outside Hong Kong. In 2008 the system handled on average 217 transactions with a total value of €780 million a day (Chart 3).





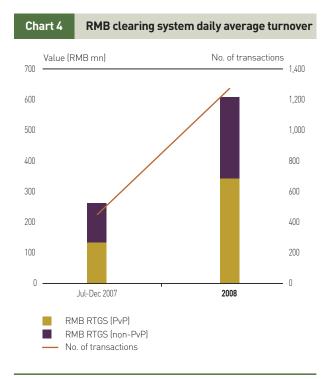
### **Renminbi RTGS system**

The Renminbi RTGS system, which was upgraded from the Renminbi Settlement System, was launched in 2007. The clearing bank is the Bank of China (Hong Kong) Limited with HKICL as system operator. At the end of 2008, there were 41 direct participants. On average, it handled 1,270 transactions with a total value of RMB610 million a day in 2008 (Chart 4).

### Payment-versus-Payment (PvP)

PvP is a mechanism for settling a foreign exchange transaction to ensure that payments in the two currencies involved are settled simultaneously. The Hong Kong dollar, US dollar and euro clearing systems in Hong Kong are interlinked to enable banks to settle US dollar/Hong Kong dollar, euro/US dollar, and euro/Hong Kong dollar foreign exchange transactions on a PvP basis. PvP greatly improves settlement efficiency, and eliminates settlement risk arising from time lags in settlements and from time-zone differences (known as Herstatt risk). In 2008 the transaction volume of Hong Kong dollar, US dollar and euro related PvP amounted to \$4,916 billion, US\$1,301 billion and €41 billion.

The Renminbi RTGS system is also linked with the Hong Kong dollar RTGS system to enable banks to square their renminbi positions on a PvP basis. In 2008 the transaction volume of renminbi-related PvP amounted to RMB85 billion.



### Payment links with the Mainland

In response to the increasing demand for cross-border payment services between Hong Kong and the Mainland, 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 2008 the average daily turnover of cross-border payments handled by the various system links was over \$1.7 billion (Chart 5).

The RTGS system links with Shenzhen and Guangdong handled more than 26,000 transactions during the year, with a total value equivalent to \$360 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.

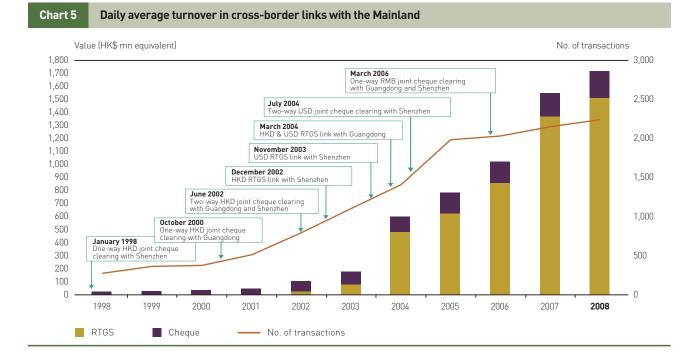
The two-way joint cheque clearing facilities cleared 508,779 Hong Kong dollar and US dollar cheques, with a value equivalent to \$50 billion in 2008. The facilities shortened the clearing time for cheques drawn on banks in Hong Kong and presented in Shenzhen and Guangdong, and vice versa. Since March 2006, the joint chequeclearing facilities have been expanded to cover renminbi cheques drawn on banks in Hong Kong, and presented in Shenzhen and Guangdong for consumer spending. In 2008 renminbi cheques with a total value equivalent to \$43 million were cleared.

### **Payment links with Macau**

The one-way joint clearing facility for Hong Kong dollar cheques between Hong Kong and Macau was launched in August 2007. The facility, which aims to meet the growing need for efficient payment services between Hong Kong and Macau, has reduced the time required for clearing Hong Kong dollar cheques drawn on banks in Hong Kong and presented in Macau from four or five days to two. In 2008 Hong Kong dollar cheques with a total value of over \$7 billion 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 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.



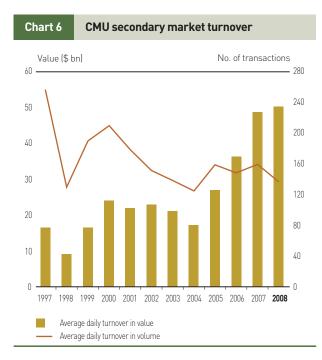
In 2008 the CMU processed a daily average value of \$50 billion (136 transactions) in secondary market transactions (Chart 6). Among the debt securities lodged with the CMU at the end of the year, the outstanding amount of EFBN was \$157.7 billion and the total amount of other securities was equivalent to \$234 billion.

### **Development initiatives in 2008**

The HKMA completed a number of systems initiatives and captured new business development opportunities to promote the safety and efficiency of the financial infrastructure, and to develop Hong Kong into a regional payment and settlement hub. In addition, a critical new project was implemented during the year to support the HKMA's introduction of measures to provide liquidity assistance to banks in Hong Kong.

### Systems development

The Central Clearing and Settlement System (CCASS) Optimiser was launched in January 2008 to further improve liquidity in the banking system. Through this optimiser, banks which expect to receive funds in the CCASS bulk settlement run can recycle the funds to those in need of liquidity for meeting their payment obligations, thereby improving the recycling of funds and avoiding



any undue impact on money market activities when stock market turnover is high.

The one-way joint clearing facility for US dollar cheques between Hong Kong and Macau was launched in June, 10 months after the successful launch of the joint clearing facility for Hong Kong dollar cheques. This new cross-border clearing service shortens to just two days, the time required for clearing and settling US dollar cheques drawn on banks in Hong Kong and presented in Macau. Following its inception, 363 US dollar cheques with a total value of US\$10.5 million were cleared up to the end of the year.

System improvements to the CMU were made for the introduction of temporary measures to provide liquidity assistance to banks in Hong Kong in September 2008. As a result, the CMU can now support a wider scope of securities for access to borrowing through the discount window and an extended duration of borrowing from overnight to up to three months.

Initiatives to support the development of Islamic finance in Hong Kong were introduced in September and November. These included activation of a payment code specifically for Islamic-related payment, provision of additional settlement accounts in the US dollar and euro RTGS systems for segregation of Islamic-related funds from other funds, and improvements to the CMU for custodian, clearing and settlement services for Islamic bonds in Hong Kong.

The operating hours of the Hong Kong dollar, US dollar, euro and renminbi RTGS systems, and the CMU were extended from 5:30 p.m. to 6:30 p.m. in November 2008. The initiative helps participating banks to better serve their customers in the region and gives them a longer processing window to manage their liquidity positions.

A re-engineered electronic Initial Public Offering (e-IPO) refund process was launched in December as part of the recommendations of the Review of Retail Payment Systems in Hong Kong to shorten the settlement cycle for credit transfer items. It allows e-IPO subscribers to receive their refunds on the refund day instead of the following day; shortens the turnaround time of the e-IPO monies; and further increases the attractiveness of using the e-IPO channel compared with conventional subscription. Implementation of other recommendations of the Review is in progress.

The SWIFTNet migration project, which replaces the existing proprietary platform of the various RTGS systems and the CMU with an open platform, is progressing and will be delivered in two phases in May 2009 and July 2010. SWIFTNet will improve compatibility with other clearing and settlement systems and make it easier for overseas banks to use Hong Kong's RTGS systems.

### **Business development**

Continued efforts were made to pursue two areas of business development — exploring opportunities to link Hong Kong's clearing and settlement systems with those of other Asian economies, and promoting the use of Hong Kong's payment services.

### Expanding system links

The HKMA and Bank Indonesia signed a Memorandum of Understanding in October 2008 on the establishment of a cross-border PvP link between Hong Kong's US dollar RTGS system and Indonesia's Rupiah RTGS system. The link builds on the success of the existing model of cross-border PvP link between Hong Kong and Malaysia. It promotes safer and more efficient payment flows and eliminates settlement risk arising from the delivery of different currencies in different time zones. The link will go live in early 2010. The HKMA and the People's Bank of China (PBoC) have agreed to establish cross-border links between Hong Kong's RTGS systems and the Mainland's domestic foreign-currency RTGS systems. The links, scheduled to start operating in March 2009, aim to increase the settlement efficiency of payments in Hong Kong dollars, US dollars, euros and British pounds between Hong Kong and most parts of Mainland China. A seminar was held in Hong Kong in November to introduce the cross-border links to all banks in Hong Kong.

Resulting from the review of the role of the CMU in 2007, steps have been taken to explore an expanded role for the CMU in the region, particularly in offering an infrastructural solution to helping the development of the Asian bond market.

# Promoting the use of Hong Kong's payment platform

Marketing efforts to increase system usage in the region continued throughout the year. The HKMA held or attended 36 seminars and made over 240 marketing calls to potential users in the Greater China region, South East Asia, the Indian sub-continent, the Middle East and Europe.

One approach was to form strategic partnerships with other institutions, including large regional banks and Invest Hong Kong, to make presentations to overseas financial institutions in seminars, road shows and marketing calls, highlighting the capabilities of Hong Kong's multi-currency, multi-dimensional financial infrastructure and promoting Regional CHATS for cross-border payments. The approach proved effective, as reflected in the increase in the average daily volume and value of the US dollar RTGS system over the previous year. 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 2008, 34 banks in Hong Kong had registered as service providers for cross-border payment services, covering 2,054 payment beneficiary points in 42 economies.

The HKMA was involved in a number of speaking engagements locally and overseas to promote Hong Kong as a payment and settlement hub. In addition, a series of bilateral meetings was held with existing and potential Regional CHATS service providers and users to identify areas for further service development to coincide with the launch of the SWIFTNet platform in 2009.

### **Oversight of clearing and settlement systems**

### Oversight of designated systems

The Clearing and Settlement Systems Ordinance (CSSO), which came into force in November 2004, 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 purpose of the CSSO is to promote the general safety and efficiency of the designated systems including the CMU, Hong Kong dollar CHATS, US dollar CHATS, Euro CHATS, Renminbi CHATS, and the Continuous Linked Settlement (CLS) System. Except for the CLS System, the HKMA oversees the designated systems through off-site reviews, continuous monitoring, on-site examinations and meetings with management.

The renminbi CHATS was designated on 11 July 2008 and is subject to oversight by the HKMA under the CSSO because the proper operation of the system is considered material to the functioning of Hong Kong as an international financial centre, and the monetary and financial stability of Hong Kong.

All designated systems were found to be in compliance with the safety and efficiency requirements under the CSSO in 2008.

### Co-operative oversight arrangements

Clearing and settlement systems have become increasingly interdependent, 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 participates in the international co-operative oversight of the CLS System with the US Federal Reserve and other central banks. In view of the System's importance in reducing the systemic risk arising from the settlement of foreign exchange trades and the expansion of its business to include settlement of non-PvP transactions, the central banks overseeing CLS, including the HKMA, established a CLS Oversight Committee to further strengthen the co-operative oversight of the system from 25 November 2008. Details of the oversight arrangement are specified in a protocol agreed among the central banks overseeing CLS.

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 being 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 to improve compatibility with other overseas clearing and settlement systems, the HKMA has an interest in the oversight of SWIFT and has participated in discussions with the National Bank of Belgium and other central banks on oversight matters.

In 2008 the HKMA continued with its co-operative effort with other central banks in the oversight of links between payment and settlement systems in Hong Kong and those in other countries. One such example was its co-operation with Bank Negara Malaysia, the Malaysian central bank, in overseeing the US dollar/ringgit PvP link between Hong Kong's US dollar CHATS and Malaysia's clearing and settlement system, RENTAS.

### Independent tribunal and committee

An independent Clearing and Settlement Systems Appeals Tribunal is established 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 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. Regular reports with accompanying management reports summarising the HKMA's oversight activities were submitted to the Committee.

The Committee held two meetings in 2008, reviewing four regular reports and 22 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. Under its terms of reference, the Committee submitted its annual report, which is available on the HKMA 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 risks and, at this stage, the HKMA considers that 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 the safety and efficiency of retail payment systems. 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 2008 OCL completed its third annual self-assessment against the Code. In July 2008 as a result of HKMA encouragement to the industry to explore ways to introduce competition in the market, OCL and a licensed bank in Hong Kong jointly launched a co-branded card which includes both credit card and contactless smartcard payment functions. This is the first credit card in Hong Kong to have Octopus functions embedded.

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 with the Code and report to the HKMA any incident which may have material and adverse impact on cardholders in Hong Kong. In 2008 the HKMA received and reviewed the first self-assessment for the year 2007 from the eight card scheme operators. All scheme operators reported full compliance with the Code.

### 🚵 > Financial Infrastructure > Oversight

### 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 for payment and settlement systems. In September 2008 the settlement institutions and the system operators of the local designated systems performed self-assessments of their respective systems against the findings in the report on The Interdependencies of Payment and Settlement Systems published by the Bank for International Settlements (BIS). The performance of all the local designated systems was generally found to be in line with the report's recommendations. The HKMA also took part in an international foreign exchange survey conducted by the BIS to assess the progress made in reducing foreign exchange settlement risk. Following publication of the report on Progress in Reducing Foreign Exchange Settlement Risk in May 2008, the HKMA continued to encourage the industry to adopt appropriate measures to further reduce settlement risks in line with the report's recommendations.

### Debt-market development

In early 2008 the Council of Financial Regulators endorsed the recommendations arising from the second phase of the review on debt-market development conducted by the HKMA. The recommendations cover issues related to the regulatory process, investment benchmarks and guidelines and tax treatments with the aim of attracting issuers and broadening the investor base. Implementation of these recommendations was followed up by the HKMA and other relevant authorities.

### **Exchange Fund Bills and Notes programme**

An electronic trading platform for EFBNs was launched in December 2007 to enhance the price transparency and streamline the trading process of EFBNs. The EFBN daily turnover that involved the electronic trading platform increased steadily to reach 40% of the market total in December 2008.

Separately, the HKMA continued its efforts to fine-tune the maturity mix of the EFBN portfolio, with increased issuance of five-, 10- and 15-year Exchange Fund Notes. To address the strong demand for short-dated Exchange Fund paper by banks for liquidity management purposes, an additional \$18 billion worth of the three-month Exchange Fund Bills was issued during the year.

👜 > Financial Infrastructure > Debt-market Development

Table 1    Outstanding issues of Exchange Fund Bills and Notes		
	2008	2007
	(in millions of Hong Kong dollars)	
Exchange Fund Bills (by original maturity)		
91 days	56,953	38,546
182 days	16,900	16,900
364 days	16,900	16,900
Sub-total	90,753	72,346
Exchange Fund Notes (by remaining tenor)		
1 year or below	13,600	13,800
Over 1 year and up to 3 years	28,400	25,000
Over 3 years and up to 5 years	14,800	14,800
Over 5 years and up to 10 years	8,300	10,100
Over 10 years	1,800	600
Sub-total	66,900	64,300
Total	157,653	136,646

### **Islamic finance**

The HKMA adopted a four-part approach in promoting the development of Islamic finance in Hong Kong:

- Facilitating infrastructure development through involvement in the Government's tax review to provide a level playing field for Islamic finance transactions in Hong Kong, by reference to the tax and regulatory regimes in other Islamic finance centres and the advice of Islamic finance experts who are members of the Treasury Markets Association (TMA).
- Raising Hong Kong's international profile as an emerging centre for Islamic finance through organising a range of promotional activities and participating in international Islamic finance forums. For example, the HKMA organised a road show to the United Arab Emirates and Jordan, engaging senior officials from financial regulatory bodies and major financial institutions to promote Hong Kong to Islamic investors. The HKMA also signed a Memorandum of Understanding with the Dubai International Financial Centre Authority to foster co-operation in the development of Islamic finance products and financial infrastructure.
- Encouraging product development through private sector efforts and liaison with government agencies to help resolve tax and regulatory issues to pave the way for new product launches. A range of Shariah-compliant financial services and products has been introduced in Hong Kong, such as the Islamic equity index featuring Mainland companies listed in Hong Kong, Islamic equity funds, exchangeable sukuk and Islamic banking windows.
- Raising market awareness by co-operating with the TMA to provide training for industry players in Hong Kong. The HKMA organised and participated in 12 education seminars and workshops covering a wide range of topics, including Islamic equity funds and indices, exchangeable sukuk, tax and accounting treatment of Islamic finance transactions, and Islamic banking developments.

### **Financial sector development**

To promote the competitiveness of Hong Kong's financial markets, the HKMA contributed to the analysis by the Government of the potential for reinforcing Hong Kong's position as a major asset management centre. Several areas for improvement involving different government agencies and regulatory authorities were identified and endorsed by the Council of Financial Regulators to further promote the development of Hong Kong's asset management business. The HKMA continued to assist the Government in developing related initiatives, such as improvements to tax issues that might erode Hong Kong's competitiveness, and co-operation with other agencies to attract asset management business to Hong Kong.

### **Treasury Markets Association**

To strengthen collaboration between the public and private sectors, the HKMA continued to work closely with the market and provide strategic support to the Treasury Markets Association, 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, achieved encouraging results in 2008:

- Membership now stands at some 2,000 individual and 86 institutional members from banks, investment houses, insurance companies, money brokers and large corporations.
- The TMA jointly developed and launched, with the Hong Kong Institute of Bankers, the Treasury Markets Certificate Programme in Beijing, aimed at Mainland treasury market practitioners; and the Professional Certificate in Treasury Markets (Derivatives & Structured Products) with the Hong Kong University School of Professional and Continuing Education (HKU SPACE), as part of the professional qualifications for its members. In 2008 more than 250 individuals took professional courses launched by the TMA.
- 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 developments.

- To help market participants identify the key themes driving the development of Asia's treasury markets amid the current challenges, the TMA and the HKMA jointly organised the Asia Treasury Markets Summit in Hong Kong in July. The Summit was attended by over 130 market professionals and featured a panel of distinguished speakers from the region comprising regulators and bankers. The TMA also co-organised the South Asia Bond Markets Conference in Hong Kong in September with the World Bank, the Asian Development Bank and the Commonwealth Secretariat, where representatives from different countries shared their experience and thoughts regarding bond market development and regional co-operation. As in previous years, representatives of the Association took part in major international forums to maintain close contacts with overseas counterparts throughout the year.
- The TMA, with the support of the HKMA, secured the decision of the ACI The Financial Markets
  Association to establish its first regional office,
  ACI Asia The Financial Markets Association Limited,
  in Hong Kong in July, reflecting Hong Kong's position
  as a key international financial centre.

### PLANS FOR 2009 AND BEYOND

In 2009 the HKMA will continue to improve Hong Kong's market infrastructure in support of initiatives to promote the stability and integrity of the monetary and financial system. The scheduled delivery of the SWIFTNet migration project is one of the priorities. Ensuring the safe and efficient operation of the RTGS systems and the CMU continues to be a key role for the HKMA. The HKMA will also review and improve the existing market infrastructure to attract international financial intermediation activities to Hong Kong and further develop Hong Kong into a regional payment and settlement hub. To this end, exploring opportunities for system links with other economies and promoting the regional use of Hong Kong's financial infrastructure will continue to be the core of business development plans.

The HKMA will work with relevant government departments and market participants to further develop the local debt market. The Exchange Fund Bills and Notes programme will be under constant review as part of efforts to ensure the programme keeps pace with market growth. Further measures will be taken in the development of Islamic finance, by collaborating with government agencies and the private sector to facilitate infrastructure building, promote Hong Kong's international profile, encourage product development and broaden market knowledge of Islamic finance.

As the overseer of designated systems under the CSSO, the HKMA will continue to be involved in promoting and ensuring the safety and efficiency of these systems. In particular, it will conduct assessments on the designated systems against the BIS Core Principles for Systemically Important Payment Systems.

A self-regulatory approach for retail payment systems has been implemented through 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 their Codes, and will also discuss with the industry additional ways to promote competition in the retail payment markets.

The HKMA will 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.