



Payment Systems Report

Payment and Settlement Systems

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Payment and Settlement Systems

As the global financial crisis deteriorated, the resilience and capacity of payment and settlement systems were truly tested in the face of record high transaction volumes. All payment and settlement systems during the year operated smoothly even as the global financial markets experienced liquidity shortages, high volatility and uncertainty. Indeed, the critical importance that central banks have placed on ensuring the smooth and reliable functioning of payment and settlement systems has paid off. The failure of any payment and settlement system during a crisis would magnify its severity and undermine public confidence. Hence, a resilient and well-functioning payment and settlement system remains critical towards maintaining monetary and financial stability.

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Against this backdrop, the Bank's focus in 2008 remained on ensuring the safety and stability of the major payment and settlement systems. In addition, efforts were also directed towards consumer protection and preserving confidence. At the same time, recognising the significant efficiency gains that electronic payments (e-payments) can offer, the Bank continued to pursue its agenda of migration to e-payments.

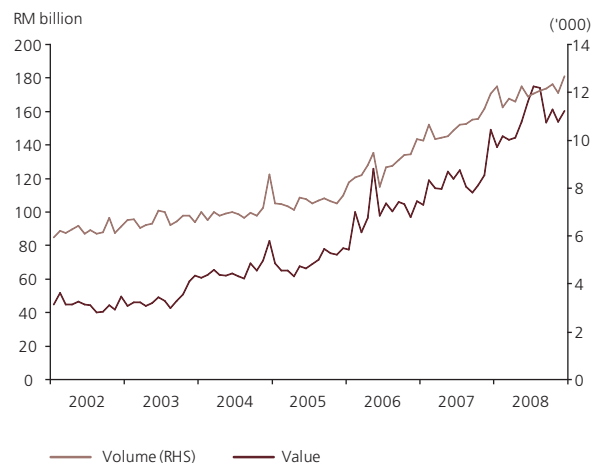
SAFETY AND STABILITY

The RENTAS (Real-time Electronic Transfer of Funds and Securities) system, a systemically important payment system (SIPS) by virtue of the large values of payments that are settled through the system, is a critical financial infrastructure in the country. Its systemic importance is also reflected in the close interconnection of financial institutions through the RENTAS system. Guided by this, the safety, stability and resilience of the RENTAS system have been enhanced over the years. These include establishing the cross-border Payment versus

Payment (PvP) link between the Malaysian and Hong Kong systems to mitigate foreign exchange settlement risk, strengthening business continuity to ensure uninterrupted availability of the RENTAS system and reinforcing the Bank's oversight responsibilities by segregating these duties from its role as operator of RENTAS. The Bank also places great importance in ensuring that the features and operation of RENTAS are in line with international best practices, such as the Core Principles for SIPS as issued by the Bank for International Settlements (BIS) Committee on Payment and Settlement Systems. The continuous efforts to enhance RENTAS have resulted in a system that is safe and resilient with minimal operational disruption, settling more than 90% of total non-cash payments in the country.

In 2008, the RENTAS system settled 3 million transactions amounting to RM38.7 trillion, an increase of 29.7% in transaction value from the preceding year, which represents more than 50 times Malaysia's gross domestic product (GDP). On average, RENTAS processed approximately 12,000 transactions per day with an average daily value of RM156 billion. The daily average turnover of RENTAS continued to expand in 2008, registering an annual growth of 30.7%. At its peak, RENTAS processed 17,508 transactions within a day with a total value of RM195.2 billion.

Chart 4.1
Daily Average by Value and Volume



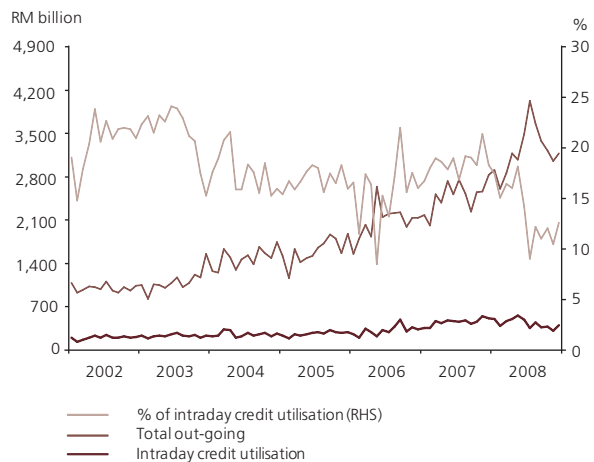
Despite higher volatility in the financial markets, RENTAS remained resilient and continued to operate smoothly throughout 2008. There were no counterparty credit concerns as the global developments did not have any impact on participants' ability to meet payment obligations. Furthermore, the RENTAS system settles each payment individually on a gross basis as each payment order enters the system on a real-time basis. This minimises interbank credit exposure during the day which eliminates settlement risks. The intraday credit facility that is made available to all system participants minimises the incidence of payment gridlock, thus maintaining a smooth flow of payments within the RENTAS system. Although there was an increase in transaction value settled through RENTAS during the year, there was no significant increase in the utilisation of intraday credit. Only approximately RM5.2 trillion or 13.6% of RENTAS transactions in 2008 were completed utilising the intraday credit facility, a decline of 5% compared to the previous year. This can be attributed to the ample liquidity in the financial system.

Despite higher volatility in the financial markets, RENTAS remained resilient and continued to operate smoothly throughout 2008

Foreign Exchange Settlement Risk

The volume and value of foreign exchange (FX) trades have increased each year. In 2008, the daily FX trades amounted to an average of RM13.4 billion, an increase of 53.2% over the previous year. As the amounts involved in FX settlements are large, the settlement risk and the banks' exposure can be substantial. By virtue that 69% of ringgit trades are against the US dollar and that ringgit is not an eligible currency to be settled via CLS Bank International, which provides multi-currency settlement for FX transactions; a direct link between RENTAS in Malaysia and the USD Clearing House Automated Transfer System (USD CHATS) system in Hong Kong was established in November 2006 to mitigate the settlement risk for ringgit and US dollar FX transactions. This link is a PvP infrastructure which allows for the simultaneous settlement of ringgit in Malaysia and US dollar in Hong Kong during Malaysian business hours.

Chart 4.2
Intraday Credit Usage



Since the link was established, transactions settled via the link have grown strongly. At the end of 2008, there were 24 banks that utilise the PvP link to reduce their FX settlement risk, compared to 16 banks when it was first introduced. On a daily basis, an average of RM8.3 billion was settled via the link in 2008. This represents an increase of 59% compared to the previous year. For the whole of 2008, a total of RM2.1 trillion of FX trades were settled through the PvP link, accounting for 62% of total FX trades, resulting in a significant reduction in FX settlement risk of ringgit-US dollar trades.

Resilience

Given the systemic significance of the RENTAS system, safeguarding the resilience and uninterrupted availability of the system remained a high priority of the Bank, especially in times of market uncertainty. No major disruptions were encountered during the year and RENTAS achieved 99.9% system availability. In March 2008, the Bank rolled out the second level back-up facility to participating members to avoid operational disruptions in the event that both the production and disaster recovery sites of members fail. The RENTAS System Participation and Operation Rules were also amended, requiring members to incorporate business continuity management plans for RENTAS operations, as the resilience of the system itself is dependent on its members' resilience. Scheduled monthly live-runs continued to be conducted from the RENTAS

Disaster Recovery Centre (DRC) to test the state of readiness of the DRC in times of crisis. The contingency testing by member institutions were also monitored closely to ensure that their respective DRCs are readily available and operational in times of crisis.

Given the systemic significance of the RENTAS system, safeguarding the resilience and uninterrupted availability of the system remained a high priority of the Bank

Oversight Governance

Another fundamental component in promoting safety and stability is the oversight responsibilities of the Bank over payment and settlement systems. Similar with most other central banks, the Bank is also the operator of the RENTAS system, on account of its systemic importance towards maintaining financial stability. In line with best practices and the BIS recommendations, the Bank reviewed the organisational responsibility with respect to the oversight of RENTAS with a view to segregate it from the operational responsibility. Following the review, the Bank established a payment subsidiary known as the Malaysian Electronic Clearing Corporation Sdn. Bhd. (MyClear) in October 2008. Its establishment reinforces the Bank's oversight responsibilities and supports more effective surveillance, independent assessment, evaluation and monitoring of the different types of risk on the major payment systems. MyClear's responsibility is to operate RENTAS and the Cheque Truncation and Conversion System (eSPICK), and to spearhead the migration to e-payments agenda of the Bank. This will be achieved through strategic alliances with various stakeholders and the industry as a whole. As both RENTAS and eSPICK are widely used and critical to the smooth functioning of the economy, both systems have been designated as Designated Payment Systems pursuant to Section 6 of the Payment Systems Act 2003.

Retail Payment Systems and Payment Instruments

In the area of retail payments, the Bank's focus is on preserving public confidence in the use of

retail payment systems and instruments as well as establishing adequate consumer safeguards. In this regard, the Bank's oversight activities are directed at the two major retail payment system operators, the Malaysian Electronic Payment System (1997) Sdn. Bhd. (MEPS) and Touch 'n Go Sdn. Bhd. (TnG), to ensure the robustness and reliability of their systems. During the year, MEPS, which operates the Shared ATM Network, domestic PIN-based ATM card, Interbank GIRO (IBG) and the Financial Process Exchange (FPX), processed approximately 197 million transactions amounting to RM135 billion; whereas TnG, the system operator and issuer of the Touch 'n Go prepaid cards, processed over 540 million transactions amounting to RM1.6 billion. While disruptions to these systems may not have systemic implications, the impact would be widespread inconvenience in view of the significant volume of transactions that are processed by these two systems. If the disruptions are prolonged,

The establishment of MyClear reinforces the Bank's oversight responsibilities and supports more effective surveillance, independent assessment, evaluation and monitoring of the different types of risk on the major payment systems

the retail, transport and e-commerce sectors would be adversely affected, thus eroding public confidence in the use of such systems and curtailing the migration to e-payments. As such, both MEPS and TnG were required to undertake a self-assessment on their compliance with the relevant principles of the BIS Core Principles for SIPS in 2008. The purpose of the assessment was to identify possible gaps and risks in the systems and operations of MEPS and TnG to ensure their security, reliability and robustness. While the Core Principles were specifically drawn up for SIPS, certain principles on the management of legal, financial and operational risks are relevant and applicable to retail payment systems. To complement these principles, the Bank is working towards

developing its own standards for retail payment systems to address settlement risks, resilience to major operational disruptions, governance issues and risk management procedures and controls.

Fraud Risk in Retail Payments

Over the years, the Bank has collaborated with industry players and relevant authorities to proactively combat fraud in payment systems. Measures that have been implemented to sustain public confidence in the use of electronic payments include the migration from magnetic stripe to chip-based ATM cards, the migration to the Europay-MasterCard-Visa (EMV) standard for credit cards and the introduction of additional security measures for Internet banking. As a result of these efforts, payment system fraud and attempted fraud rates in the country have been sustained at negligible levels. In 2008, fraud losses accounted for only 0.001% of total non-cash transactions during the year.

Credit card fraud remained negligible in 2008. The losses continued to be insignificant, accounting for less than 0.04% of total credit card transactions during the year. More than 59% of total credit card fraud losses during the year were attributed to card-not-present (CNP) transactions which do not require the presence of physical cards, whilst "lost and stolen" incidences accounted for 24% of total credit card fraud losses. As the modality of card fraud in Malaysia is similar to trends

Chart 4.3
Credit Card Fraud

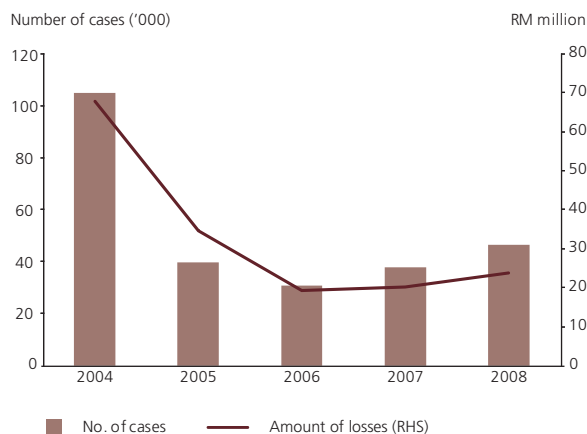
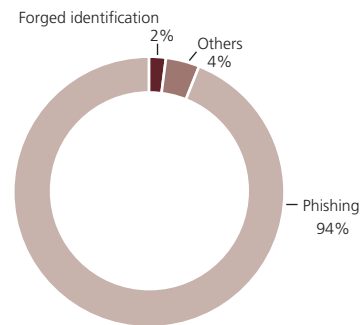


Chart 4.4
Internet Banking Fraud Cases in 2008



observed globally, concerted efforts to counter such fraud are being undertaken by the industry and the international card brand owners. Efforts are focused on two main areas, namely, enhancing the protection of card data and improving the identification and authentication techniques adopted.

Losses emanating from Internet banking fraud were also insignificant, accounting for only 0.00002% of the total value transacted via the Internet banking channel in 2008. Consistent with global trends, phishing remained the main threat to the Internet banking industry in Malaysia, accounting for 94% of Internet banking fraud cases reported. Phishing involves the sending of fake e-mail or text messages to lure recipients into divulging login credentials such as personal identification numbers (PINs), passwords, and second authentication factors such as token-generated-PINs or transaction authorisation codes (TAC).

Continuous efforts are being undertaken by the Bank and the industry to address Internet banking fraud. The Internet Banking Taskforce (IBTF), which is represented by the industry players, Suruhanjaya Komunikasi dan Multimedia Malaysia (SKMM), Cyber Security Malaysia and the Bank, keeps a close watch on developments including regularly assessing potential threats and proposing measures to combat these threats. In addition, banks implemented measures to enhance consumer awareness of common fraud tactics and the importance of keeping customer information confidential. Preventive measures taken by customers themselves are important as a first line of defence against such frauds.

MIGRATION TO ELECTRONIC PAYMENTS

Alongside the critical importance of ensuring the safety and stability of the payment and settlement systems, enhancing efficiency in the provision of payment services is also an important consideration. Efficiency in this context entails the settlement of payments in a fast and secure manner at low cost. E-payment systems, riding on the efficiency of electronic technologies, have proven to cost significantly less than paper-based systems. Hence, the widespread adoption of e-payments will pave the way towards the development of a more efficient payment system which would ultimately improve the competitiveness of the economy. An implementation strategy in promoting the greater use of e-payments is the engagement of the Government to champion the nation’s migration to e-payments. This is also in line with the Government’s objective to enhance the efficiency of the public delivery system.

Widespread adoption of e-payments will pave the way towards the development of a more efficient payment system which would ultimately improve the competitiveness of the economy

The Government Sector

Close collaboration with the Government sector has resulted in major achievements in the adoption of e-payments by the Government agencies. About 95% of the volume of payments made by the Government are now conducted using electronic channels. With this achievement, the Bank’s focus shifted to promoting the use of e-payments for Government collections, working closely with the Ministry of Finance, the Accountant General, and the Malaysian Administrative Modernisation and Management Planning Unit (MAMPU). The Bank also participated actively in the Special Taskforce to Facilitate Business (PEMUDAH) sub-committee for Streamlining E-Payment Implementation in the Public Sector chaired by the Secretary General of Treasury, which was established to expedite the implementation and adoption of e-payments

in the public sector. As a result of these efforts, there were 89 Government agencies offering 148 online payment services as at end-2008. For example, the adoption of e-payments has enabled a local council to reap cost savings. In less than a year of providing online payment services on the Internet, the number of visits to its counters had reduced by half from 22,535 to 11,066. This has led to the reduction in the number of counters from 20 to 12 and in the number of counter staff from 21 to 15.

The increased accessibility and flexibility to choose between multiple delivery channels have improved the convenience and ability of the public at large to interact and submit payments to Government agencies. Payment channels now include counter services accepting debit and credit cards, the Malaysian Government’s official Internet portal,

Chart 4.5
Trend of Government Payments by Volume

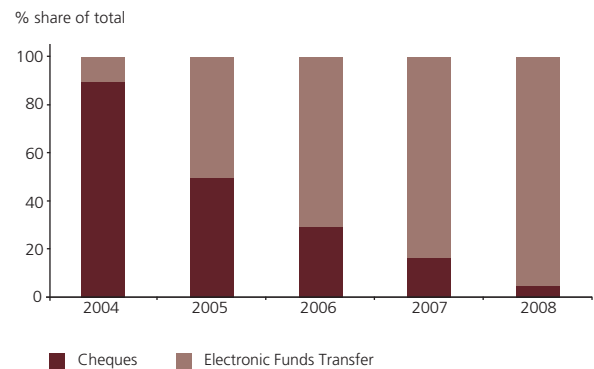
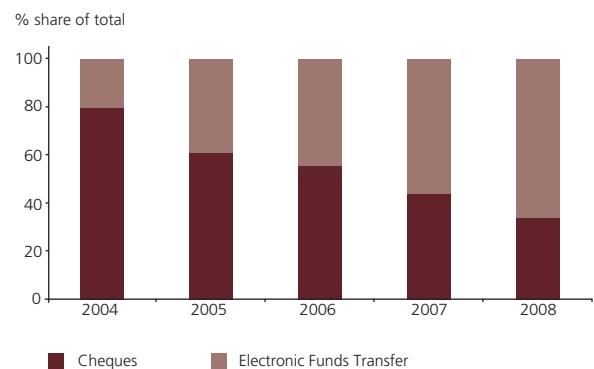


Chart 4.6
Trend of Government Payments by Value



Internet banking and automated teller machines (ATMs) or kiosks. Supported by a public awareness campaign under the “myBayar” banner, which was created to promote Government online payments, the offering of online payment services by Government agencies and their widespread usage is expected to increase further in the course of 2009.

During the last five months of 2008, more than 600,000 payment transactions valued at RM300 million made to the Government agencies were performed using payment cards. In addition, the use of the direct debit facility through the FPX system has increased, with more than 75,000 transactions valued at about RM21.9 million in 2008 as compared to 19,000 transactions valued at RM6.7 million in 2007.

The Insurance and Securities Sectors

Apart from the Government sector, the Bank has been strongly advocating the higher usage of e-payments in the insurance and securities industries and has initiated and coordinated efforts with the relevant stakeholders to achieve this. In the insurance industry, several insurance companies have since embarked on replacing cheques with direct credit payments to their adjusters, repairers and brokers. The provision of payment reference information for reconciliation purposes and the validation of the beneficiary's identity in addition to bank account number to eliminate the risk of wrongful crediting were critical to the adoption by the insurance companies. To facilitate payment of premiums by policyholders, some insurance companies have leveraged on Internet banking to enable payments for a wider range of insurance products. Following this, the number of insurance premium payments through Internet banking has increased by 28.1% to 914,294 transactions in 2008. The collection of insurance premiums using the direct debit service of the FPX system has also increased significantly accounting for more than one-third of the FPX transaction volume in 2008.

As for the securities industry, the Bank has been working with Bursa Malaysia and the Securities Commission to migrate public-listed companies to electronic channels for dividend payments (e-Dividend) to replace the existing practice of issuing dividend cheques. This would significantly accelerate the adoption of e-payments in the securities industry and boost the industry's

efficiency considering that dividend payment amounted to over RM20 billion annually in the past three years. The review of the dividend payment process was initiated during the year and various payment models leveraging on electronic channels were considered by the National Payments Advisory Council (NPAC). In addition, the required infrastructure enhancement to support this initiative will also facilitate payments via electronic channels for other corporate transactions such as capital repayment. The implementation of e-payments for the sale and purchase of shares via direct debiting of banking accounts and auto-crediting of sales proceeds to retail investors via their banking accounts is also being studied, with a working group comprising members from the Bank, the Securities Commission, Bursa Malaysia, the Association of Banks in Malaysia and the Association of Stockbroking Companies Malaysia established to take this forward.

Trends in Migration to Electronic Payments

The continuous shift from paper-based payments to electronic form is evident from the rising trend in the number and share of e-payment transactions recorded in 2008. The motivating force for this upward trend is the consumer demand for fast, convenient and secure transactions, as well as the merchants' efforts in improving business processes and lowering costs to enhance profitability and competitiveness. Over time, there has been an increasing awareness of the various costs that add up at each stage of the cash handling process, including 'hidden' costs that are borne by merchants. This has made e-payments a more attractive option.

Usage of Cash and Cheques

Cash payments remain popular although the role of cash in the Malaysian economy has declined gradually over the years, as indicated in the decline in the cash in circulation (CIC)-to-GDP ratio. The average value of ATM withdrawals, which had been on an increasing trend from RM400 in 2003 to RM461 in 2006, has remained fairly constant at around RM460 in 2007 and 2008. This is also supported by the rising trend observed in the ratio of e-payments-to-GDP. Similarly, while cheques remain a popular payment method, accounting for approximately 90% of total non-cash retail payments value in 2008, its ratio to GDP has declined significantly from 334.9% in 1998 to 237.8% in 2008. The number of cheques written

Table 4.1
Cash Holdings and Non-Cash Transactions

	2004	2005	2006	2007	2008
CIC per capita (RM)	1,106.6	1,144.0	1,245.6	1,320.5	1,443.1
CIC-to-GDP (%)	6.0	5.8	5.8	5.6	5.5
Number of cheques issued per capita	7.7	7.6	7.5	7.7	7.4
Number of e-payment* transactions per capita	18.1	22.3	29.0	33.9	37.6
Average value of ATM withdrawals (RM)	407.2	428.1	460.9	463.3	459.1

* E-payment refers to credit card, charge card, debit card, e-money, IBG, FPX, ATM, internet banking, mobile banking and RENTAS third party transactions

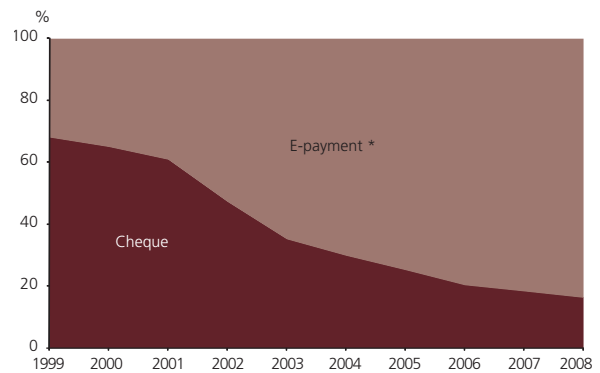
has also declined whilst the value of cheques written per capita has only recorded a marginal increase of 0.7% in 2008 compared to a high growth of 16.5% in 2007.

Continued Shift to Payment Cards

Payment cards are still the most popular e-payment mode used in Malaysia with electronic money (e-money) recording the highest number of transactions and credit cards leading the way in terms of amount spent. The preference shown by consumers in using credit cards to make payments is mostly supported by its long-established presence in the payments industry. This is also evident from the large number of payment terminals available in the market (144,897 terminals as at end-2008), a reflection of the large number of merchants who accept this payment mode. However, as more types of payment cards are now available in the market, consumers have a wider array of payment card options to choose from to suit their spending pattern. At the same time, the e-money industry, which is still at its infancy stage, continued to gain popularity as a payment instrument for micro payments in Malaysia, representing more than half of non-cash transactions performed in the economy. In 2008, there were 684.9 million e-money transactions valued at RM2.1 billion, an increase of 11.7% and 25.6% respectively from the previous year, with the bulk of the transactions in the transportation sector.

Debit cards continued to register strong growth, with an increase of 73.5% in transaction amount

Chart 4.7
Usage of Cheque and E-payment



* E-payment refers to credit card, charge card, debit card, e-money, IBG, FPX, ATM, internet banking, mobile banking and RENTAS third party transactions

in 2008, in line with the continued development of the point-of-sale infrastructure that had facilitated the increase in the number of retail locations that accept debit card payments. In this regard, the number of terminals that accept the domestic PIN-based ATM card, stood at 67,581 as at end-2008 compared to only 34,754 as at end-2007. Apart from increased accessibility, consumers are also realising the convenience of using debit cards to make payments, especially since there are no minimum qualification criteria to own a debit card and no fees and charges associated with it. With debit cards, consumers are essentially given an option to either withdraw the cash from the ATM or use the card to pay the merchants directly. Consequently, debit cards accord consumers with the convenience of a credit card without incurring finance charges and accumulating debt.

Increasing Popularity of the Internet Channel and Other Electronic Funds Transfer Systems

The Internet has revolutionised the way payments are made. Increasingly, more individuals and corporates in Malaysia have taken advantage of Internet banking services offered by financial institutions to perform their banking and payment transactions. Besides providing access 24 hours a day, seven days a week, Internet banking offers users the ease of undertaking transactions from virtually anywhere.

In 2008, Internet banking services continued to grow rapidly with the number of payments made

Table 4.2
Internet Banking Services

	2005	2006	2007	2008
Total value of transactions (RM billion)	259.1	334.8	417.8	624.4
Individual	18.6	28.5	48.5	53.0
Of which:				
Bill payments	1.2	2.7	3.7	3.7
Funds transfer	8.6	12.8	20.1	26.7
Card payments ¹	2.1	2.7	3.9	5.5
Investment in share and unit trust	4.7	5.9	13.9	10.2
Corporate	240.5	306.3	369.4	571.4
Of which:				
Salary payments	2.3	8.1	26.4	21.9
Funds transfer	105.4	165.1	305.7	491.2
Total volume² of transactions (million)	21.6	33.5	62.6	84.9
Individual	18.6	27.7	40.3	57.0
Of which:				
Bill payments	8.1	12.1	17.5	23.3
Funds transfer	6.1	9.8	13.3	20.7
Card payments ¹	2.3	3.2	4.5	6.2
Investment in share and unit trust	0.6	0.9	3.2	2.5
Corporate	3.0	5.8	22.3	27.9
Of which:				
Salary payments	0.7	1.6	13.7	13.1
Funds transfer	1.9	3.7	6.9	9.7

¹ Repayment of credit card and charge card outstanding balance

² Exclude non-financial transactions

Note: Numbers may not necessarily add up due to rounding

via this channel showing an increase of about 22.3 million or 57% to 84.9 million in 2008, while the value of transactions increased by RM206.6 billion or 49.4% to RM624.4 billion, mainly attributable to the increase in the value of transactions undertaken by corporate customers. During the year, the number of Internet banking subscribers has exceeded the number of Internet subscribers for the first time, registering a ratio of 100.8% as at end-2008 compared to 89.8% as at end-2007. The number of Internet banking subscribers vis-à-vis the population increased from 16.5% as at end-2007 to 21.6% as at end-2008. The strong growth in Internet banking is expected to continue in 2009 following the

Government's myBayar initiative and the various promotional campaigns including desktop banking packages for corporate customers and small and medium enterprises.

The growth of Internet banking subscribers and services, coupled with active merchant recruitment programmes, particularly in the Government, insurance and retail sectors, have also contributed to the expansion in the usage of IBG and FPX. IBG transactions grew by 35.9% to 36.2 million in terms of volume and grew by 33.8% to RM89.6 billion in terms of value in 2008. Meanwhile, FPX transactions increased by 357.9% to 0.3 million in terms of volume and increased by 121.2% to RM1 billion in terms of value in 2008. The national agenda on the deployment of broadband services and programmes to promote the adoption of e-commerce would provide further impetus for the growth in Internet banking, IBG and FPX.

The Potential of Mobile Banking and Payments

Mobile banking subscribers have nearly doubled from 0.3 million as at end-2007 to 0.5 million as at end-2008 while its transaction value surged from RM21.2 million in 2007 to RM71.5 million in 2008. The encouraging growth was mainly attributed to the launch of mobile banking services by three additional banking institutions and new services offered such as interbank funds transfer and corporate bill payment services that enable businesses to make payments to their suppliers via the mobile phone. Payments made by corporates to their suppliers comprised 38.1% of the total transaction value followed by bill payments at 32.4% and funds transfer at 24%. The adoption of mobile payments has also grown, expanding by 197.4% and 163.8% in terms of volume and value respectively. The increase was due to the higher usage of mobile e-money and mobile debit applications, whereby customers are able to make payments using their mobile phones via a direct debit to their e-money and bank accounts. The high growth reflects increased consumer awareness of its convenience, supported by wider merchant acceptance that grew by 11% to 12,512 merchants as at end-2008. Although the mobile channel has yet to gain widespread adoption with about two subscribers per 100 inhabitants, the encouraging growth trend in the past three years is evidence of its potential to be one of the mainstream payment channels.

MOVING FORWARD

While notable progress has been recorded in the drive towards migrating to e-payments, the usage of cheques remains a popular payment mode. In Malaysia, the price distortion between paper-based payments and e-payments has in some way hindered the progress to e-payments. Price incentives need to be provided to the users of payment services if their payment habits are to be changed. Given the substantial costs of cheque processing and handling, it would not be cost-effective for the country to

continue in its high adoption of cheques as a payment medium. Therefore, addressing the price distortion and having in place effective incentives to drive the migration to e-payments will be one of the main areas of focus moving forward. The efficiency of e-payment mechanisms would also be given emphasis to further increase the uptake by consumers. Further initiatives have been identified in the Electronic Payments Roadmap as priority areas, which include promoting an environment that is conducive for greater adoption of e-payments in financial transactions.

