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Payment systems in Malaysia: Recent developments and issues

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Payment Systems in Malaysia: Recent Developments and Issues

Amir Akmar Basir

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Asian Development Bank Institute
Kasumigaseki Building 8F
3-2-5 Kasumigaseki, Chiyoda-ku
Tokyo 100-6008, Japan

Tel: +81-3-3593-5500
Fax: +81-3-3593-5571
URL: www.adbi.org
E-mail: info@adbi.org

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Abstract

Payment systems in Malaysia have been undergoing changes in recent years. Among the notable changes is the emergence of electronic-based payment systems. The central bank has been playing an active role in shaping the development of payment systems, particularly in the gradual introduction of electronic-based payment schemes, in the belief that these have the potential to increase efficiency in the economy as whole. The active introduction of e-payment instruments has increased both the value and volume of transactions per capita use of e-payment instruments in recent years. Checks continue to be the major payment instrument, however. Small- and medium-sized enterprises could benefit tremendously from the use of e-payment schemes through more efficient business operations, cost reductions, enhanced security and wider payment channel choice. Noted improvements have also resulted from the introduction of large-value payment systems, such as the payment versus payment infrastructure for the settlement of Malaysian ringgit-United States dollar foreign exchange trades and the delivery versus payment settlement for United States dollar securities that are issued, deposited, and traded in Malaysia. The development of the domestic payment system is becoming more important in the development of a deep and active domestic financial market that promotes financial market stability and the reinvestment of savings in the country. Closer financial market integration in the region and closer cooperation and policy coordination among the monetary authorities in the region is becoming increasingly important. Eight years after implementation in Malaysia, the e-payment schemes should be studied to assess any economic benefits they may have provided**.**

JEL Classification: D49, G28, L98

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1. INTRODUCTION

The development of a nation's payment system is of the utmost importance due to its relevance for national monetary policy, financial stability and the overall economy. Reforms in a nation's payment system strive for improved safety and efficiency. According to the Bank for International Settlement (BIS) Committee on Payment and Settlement System's *General Guidance for National Payment System Development* (2006) report, recent trends in national payment system development involved initiatives to broaden the range of payment instruments and services; improve cost efficiency in terms of operating costs and access to and usage of liquidity; enhance the interoperability and resiliency of banking, payment and securities –infrastructures; better contain legal, operational, financial and systemic risks in payment infrastructures; create more suitable oversight and regulatory regimes for the national payment system and improve the efficiency and stability of payment service markets. Malaysia, a rapidly developing country, has undertaken reforms in the country's payment system after the Asian financial crisis, as evidenced by the Malaysian Central Bank's mapping of the country's future financial sector landscape in its Financial Sector Master Plan 2001 (2000). This paper discusses the development of payment systems in Malaysia and the benefits they bring to small- and medium-sized enterprises (SMEs) in the country. In addition, the paper also discusses the possible impact of the recent global financial crisis on the payment system.

2. EVOLUTION OF PAYMENT SYSTEMS IN MALAYSIA

As enshrined in the Payment System Act of 2003, payment systems in Malaysia are under the purview of the central bank, with one major exception. The clearinghouses, that received recognition under the Securities Industries Act of 1993 and approval under the Futures Industry Act of 1993, however, are regulated and supervised by the Securities Commission of Malaysia. As noted by the BIS Committee on Payment and Settlement Systems, a national payment system is broader in concept than the infrastructure for any particular individual payment system. It includes a country's entire matrix of institutional and infrastructure arrangements and processes for initiating and transferring monetary claims in the form of commercial bank, nonbank finance, and central bank liabilities. Payment systems in Malaysia can be broadly categorized into four groups: the Real-Time Electronic Transfer of Funds and Securities (Sistem Pemindahan Dana dan Sekuriti secara Elektronik Masa Nyata, also known as RENTAS); the National Image-based Check Settlement System, (Sistem PenjelasanImej Cek Kebbangsaan, also known as SPICK); the Automated Teller Machine (ATM) and other retail payment networks; and the Clearinghouse operating under the control of the Malaysia Securities Exchange Berhad and the Malaysia Derivatives Exchange Berhad. Table 1 provides indicators of the cash circulation and the size of the financial markets in Malaysia.[1] Figure 1 depicts the overall payment system in Malaysia.

[1] See Appendix Table A1 for the structure of the financial system.

Table 1: Flow of Funds Indicators, Selected Years

Indicator	Year 2000	Year 2007	Year 2008
M2:GDP[a] (%)	105%	124%	—
M2:Cash	13.29	18.89	18.90
Equity Market capitalization[b] (RM billion)	444.35	1,106.15	664
(US$ billion)	116.93	334.53	275.86
Equity Market: GDP (%)	131%	172%	—
Bonds Outstanding: GDP (%)	78%	87%	—
Total trade (exports + imports: GDP)(%)	202%	173%	—
Remittances (RM million)	—	11,227.42	—
(US$ million)	—	3,395.16	—
Foreign exchange market transactions			
(average daily volume by value, RM million)	1,098.28	4,137.31	5,687.69
(average daily volume by value, US$ million)	298.02	1,251.26	2,362.97

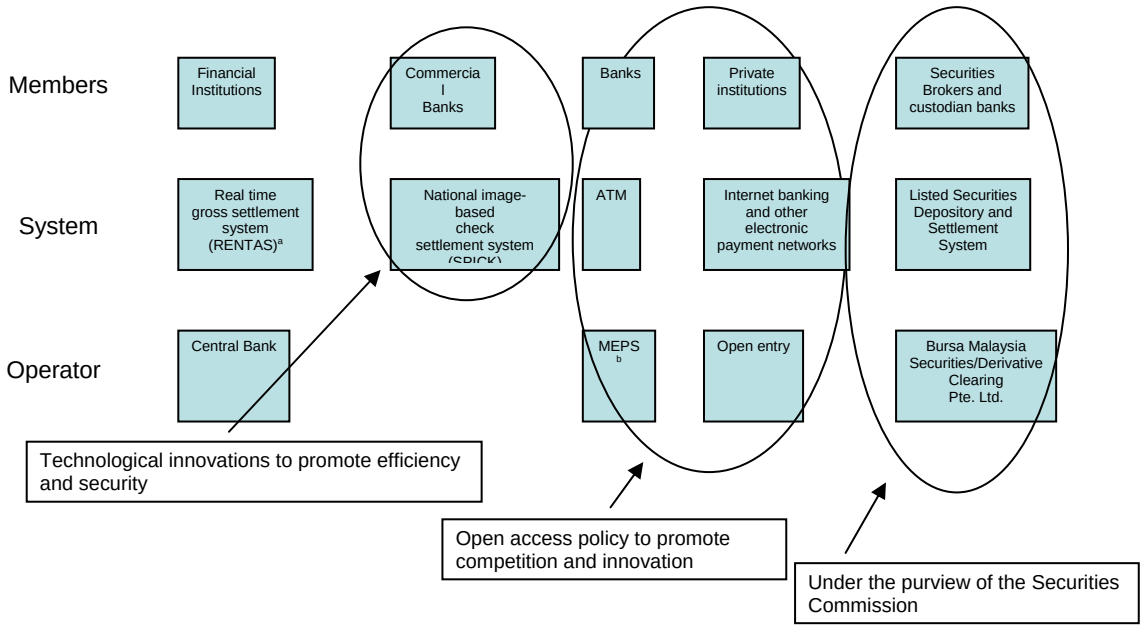
Notes: — means not available.

a. GDP=gross domestic product.

b. The total value of shares listed on the Kuala Lumpur Stock Exchange.

Source: Bank Negara Malaysia. Monthly Statistical Bulletins.

Figure 1: Overall Payment System in Malaysia



Notes: a. Settlement system for funds and scripless securities launched in July 1999.

b. Malaysian Electronic Payment System, a consortium owned by domestic commercial banks. However, banks are allowed to establish their own ATM networks.

Source: Author summary.

Many reforms have taken place in the country's payment system in recent years, especially after the Asian financial crisis. Table A2 in the Appendix lists the major events that have taken place in the payment system in Malaysia. As shown in the Appendix (Table A1), new and modern payment services based on networks and the internet were first actively introduced in the late 1990s and early 2000s in Malaysia. The emergence of modern payment services corresponds with the rapid advances in information and communication technology in the late 1990s and early 2000s. After 2005, there was an increase in both the number of payment service providers and the variety of payment channels in Malaysia.

Foreign banks started a new ATM network separate from the existing Malaysian Electronic Payment System (MEPS) ATM network. In 2004, the Government began its involvement in e-payment schemes by accepting Bankcard, a new ATM Card created by MEPS to replace the magnetic stripe ATM cards nationwide, as a payment instrument and started to offer online payment services to the public. Starting in 2006, electronic cross-border payment channels were also offered, such as cross-border ATM withdrawal services and mobile-to-mobile cross-border money transfers. The evolution of payment systems in Malaysia involved not only the introduction of new payment channels, such as internet banking, mobile banking, and MEPS Cash—a nationwide system that enables an ATM card, or a national registration card, which has the MEPS Cash logo, to make payments after it has been preloaded with funds at an ATM machine—but also the enhancement of the existing payment channels, such as the adoption of a fully image-based check clearing process, a necessary step towards transforming paper-based checks into electronic checks (Bank Negara Malaysia 2007). Enhancing the check clearing process is important as checks continue to be the most popular mode of payment in Malaysia. After 2000, marked improvements were also made to the large-value payment system. The large-value payment system, RENTAS, is conducted on a gross real-time basis, and was introduced in 1999. After 2005, further enhancements were made, such as the introduction of payment versus payment infrastructure for the settlement of interbank ringgit-US dollar foreign exchange. Since RENTAS entails a higher liquidity cost, there are plans to improve the liquidity efficiency of the system. All the reforms were in consistent with the recommendations of the country's Financial Sector Master Plan 2001.

3. ROLE AND STRATEGY OF THE CENTRAL BANK

The central bank has been very active in promoting the development of e-payment schemes in Malaysia. This active role is in line with the Payment System Act of 2003, which details the role of the central bank as the operator, overseer and facilitator for development of the country's payment system (Bank Negara Malaysia 2004). In this regard, the central bank has promoted the development of e-payment schemes by adopting a liberalization policy that both allow banks to offer retail payment services and potential e-money issuers to penetrate the payment service market. The objective of the liberalization policy is to increase competition in the payment service market, leading to more efficient payment services available to the public. The central bank assumes the central role in facilitating and driving the developments in the payment landscape in Malaysia (Bank Negara Malaysia 2007). This includes sustaining public confidence in the retail payment systems and steering the national agenda to promote the migration to electronic payments.

3.1 Collaboration with Government

One of the strategies undertaken by the central bank is establishing close collaboration with the government. This close collaboration resulted in the government accepting payment cards by the government, as announced in the 2006 budget. In addition, the government introduced online payment services to the public in 2007 (Bank Negara Malaysia 2007) including the ability to pay for electronic filing of company and business statutory documents for both the Companies Commission of Malaysia as well as the Financial Processing Exchange offered by the Inland Revenue Board Malaysia to complement its e-filing services.

3.2 Management of Systemic Risk in the Retail Payment System

To enhance public confidence in the payment system, the central bank undertook oversight activities in order to reduce the systemic risks in the payment system. One of the major risks in the retail payment system is fraud. Recognizing this, from 2005 the central bank required

migration to the Europay-MasterCard-Visa standard for credit cards as a step to reduce fraud risk arising from credit card use. This change prevented the use of cloned domestic credit cards. The new standard, however, is less effective against credit card fraud arising from purchases made over the internet or by telephone (Bank Negara Malaysia 2007). The central bank also issued a set of guidelines on managing fraud and risks on credit card operations to all banks.

Fraud is also a risk faced by internet banking users. To mitigate the risks arising from internet banking, the central bank issued guidelines that outline the minimum risk management requirements for all forms of electronic banking, including internet banking. In addition, in 2004 the government established the Internet Banking Task Force, comprising the leading banking institutions, the Malaysian Cyber Security Agency (a national body established to address information, communication and technology security issues), the Malaysian Communications and Multimedia Commission, the Royal Malaysia Police, Bank Negara Malaysia and TM Net Sendirian Berhad (the government linked corporation which provides internet services in Malaysia). Specific requirements were also issued to banks, such as the requirement to implement two-factor authentication for internet banking transactions.

Recognizing that controls are needed to address risks facing the public from using e-money, the central bank is formulating a regulatory framework for the electronic money business. The central bank also extended its regulatory oversight to cover nonbank remittance operators. This step was taken due to the growing importance of remittance flows, in particular remittances sent abroad by foreign workers in the Malaysia. The initial step was to formulate a set of prudential requirements for remittance operators and to subject remittance operators to the Anti-Money Laundering and Counter Financing of Terrorism (AML/CFT) requirements (Bank Negara Malaysia 2006).

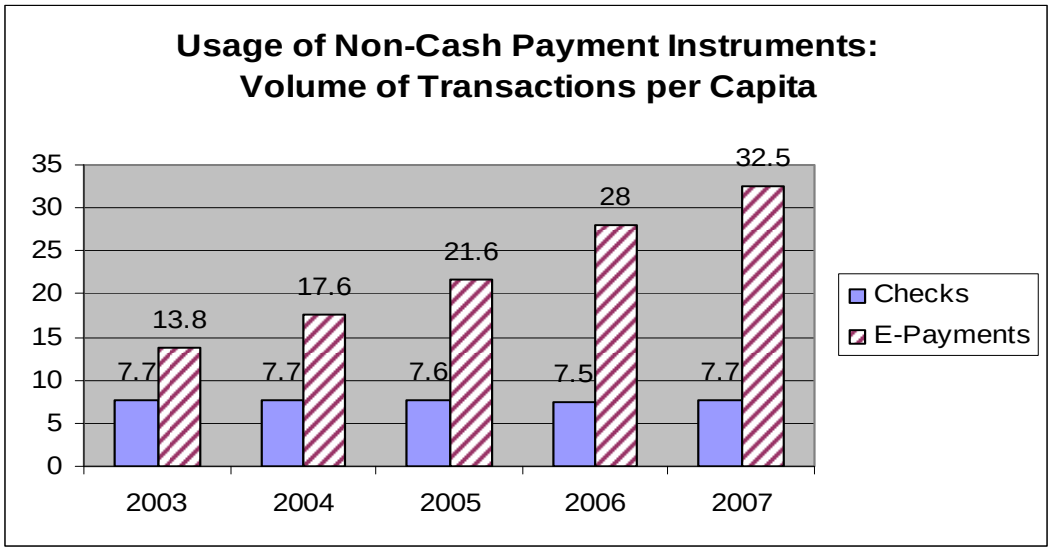
As part of its efforts to mitigate systemic risk in the payment system, MEPS conducts a disaster recovery exercise for three of its core service networks: the shared ATM network, e-Debit, payment for goods or services through cashless methods such as credit cards or online purchases, and Interbank GIRO (IBG), a funds transfer payment system operated by MEPS that enables consumers to transfer funds through banks across Malaysia (Bank Negara Malaysia 2007). The live disaster recovery exercise is critical, as it serves to familiarize the MEPS disaster recovery team, financial institutions and related service providers with the disaster recovery process.

4. E-PAYMENT USAGE TRENDS IN MALAYSIA

The e-payment system has seen increasing acceptance among consumers in Malaysia. This can be observed from the increases in the non-cash retail transactions in recent years (Figure 2). The volume of non-cash transactions per capita in Malaysia increased from 13.8 to 32.5 (from 2003 to 2007). In terms of value, e-payment's share of the total non-cash retail payments increased from 3% to 7% (from 2003 to 2007) (Bank Negara Malaysia 2007). The increase in the use of e-payment instruments is due to cost, with possible savings in security and insurance premiums, and safety, with the risk of theft, robbery and human error due to holding cash reduced. Also contributing to consumer willingness to use e-payments is the confidence conferred from security measures of e-payment instruments that provide protection against theft and fraud, such as the Bankcard security feature of requiring Personal Identification Numbers. Among e-payment instruments, the major instruments in use in Malaysia are credit cards, internet banking and IBG. Also in use, but of lesser importance, are charge cards and debit cards. E-money—a term generally used for mediums of settlement that use neither cash nor paper—refers specifically to prepaid instruments containing monetary value that can be used make purchases, at merchants that accept it as payment, the amount of which is automatically deducted from the e-money

balance. There are currently two types of e-money: card-based, such as prepaid cards; and network-based, such as internet accounts that may be accessed via a mobile phone. Both of these are also of minor importance among e-payment instruments. Mobile banking is still not widely used (Figure 3).

Figure 2: Usage of Non-Cash Payment Instruments

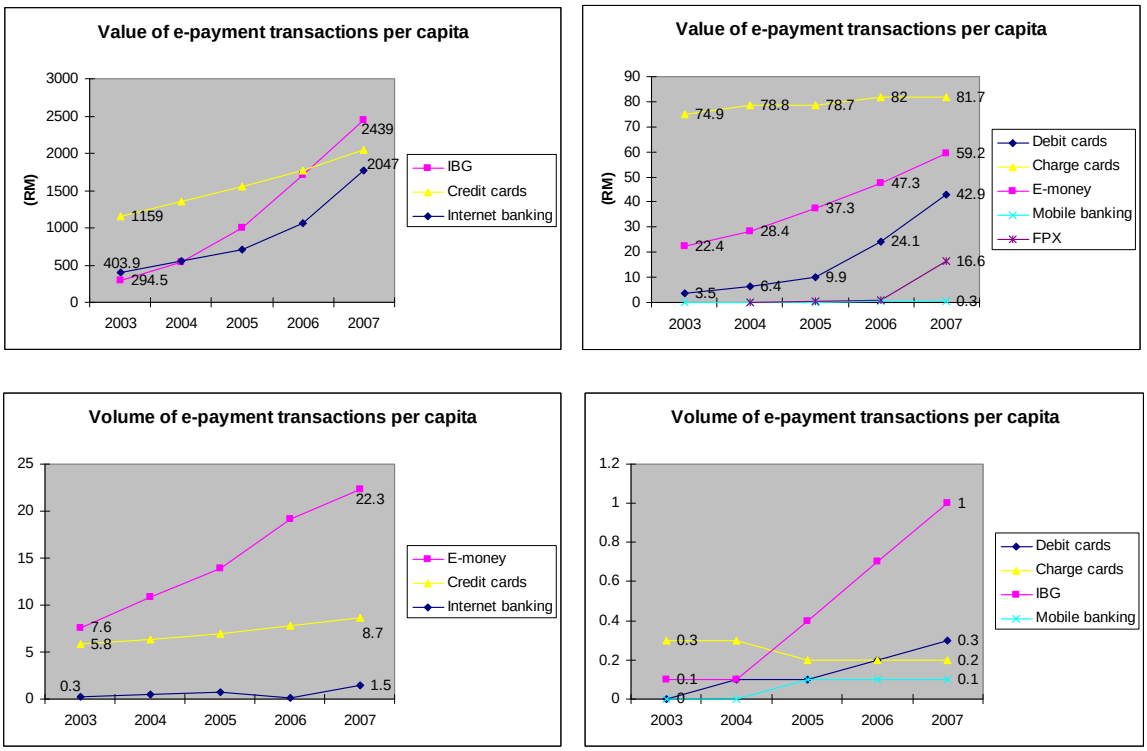


Source: Mohammad. 2008.

4.1 Credit Cards

Credit cards are the most widely used e-payment instruments in Malaysia in terms of volume of transactions and the second most widely used in terms of value of transactions. Both the value and volume of transactions per capita have increased from RM1,159 and 5.8 to RM2,047 and 8.7, respectively (from 2003 to 2007) (Figure 3). Possible reasons for the continued high usage levels for credit cards are its acceptance by consumers due to it being the oldest e-payment instrument in Malaysia, and consumer demand for credit.

Figure 3: Value and Volume of E-Payments Per Capita in Malaysia



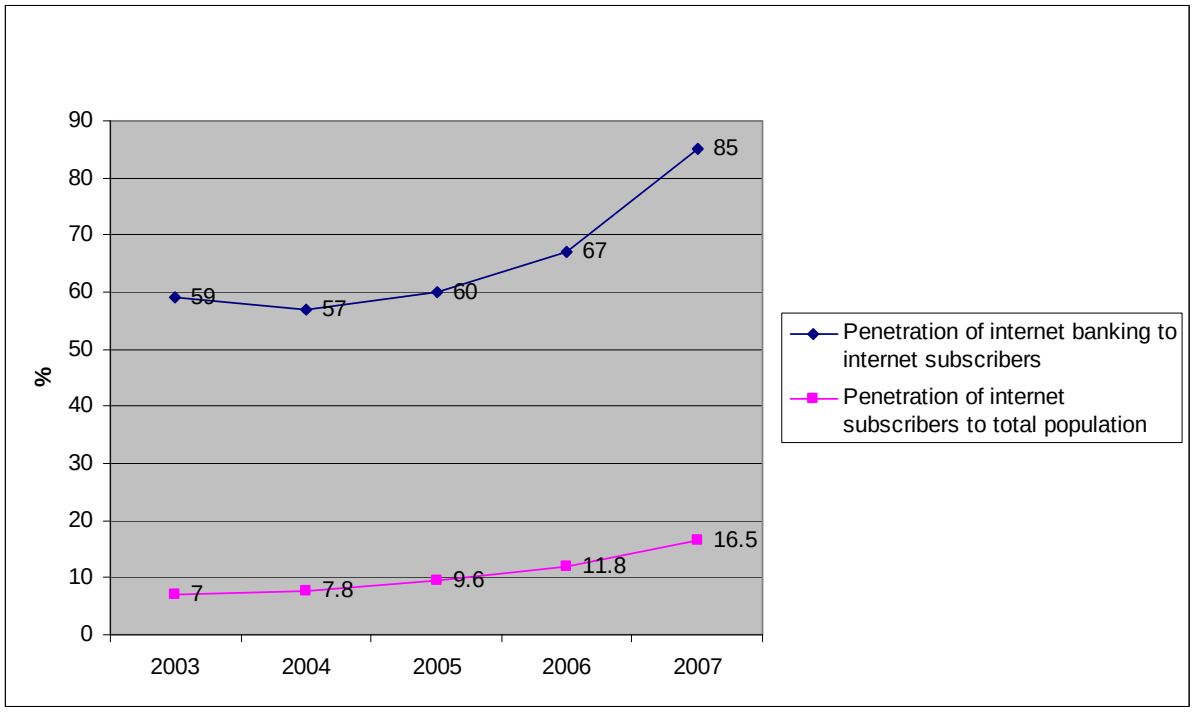
Source: Mohammad. 2008.

IBG is the leading e-payment instrument in terms of value of transaction per capita. IBG's value of transactions per capita has increased from RM294 to RM2,439 (from 2003 to 2007) (Figure 3). In terms of volume of transactions per capita, however, its usage is still low at 1.0 (2007). According to the central bank, the increase in 2007 was due to the three reasons: three additional banks joined the IBG system, usage in the government sector was encouraged by the government and corporate clients were aggressively recruited to adopt IBG (Bank Negara Malaysia 2007). Usage of IBG is expected to increase further, as the government sector has only begun to use it and acceptance of it in the corporate sector could grow.

4.2 Internet Banking

Internet banking registered strong growth in Malaysia (Figure 3). The value and volume of transactions per capita increased from RM403 and 0.3 to RM2,047 and 1.5 respectively (from 2003 to 2007). In addition, the use of internet banking among internet subscribers in Malaysia increased from 59% to 85% (from 2003 to 2007). The increased subscription rate was due to the extensive use of internet banking for salary and bill payments, third party fund transfers, and credit card settlement (Figure 4) (Bank Negara Malaysia 2007).

Figure 4: Internet banking growth (%)



Source: Bank Negara Malaysia. Annual Report 2007.

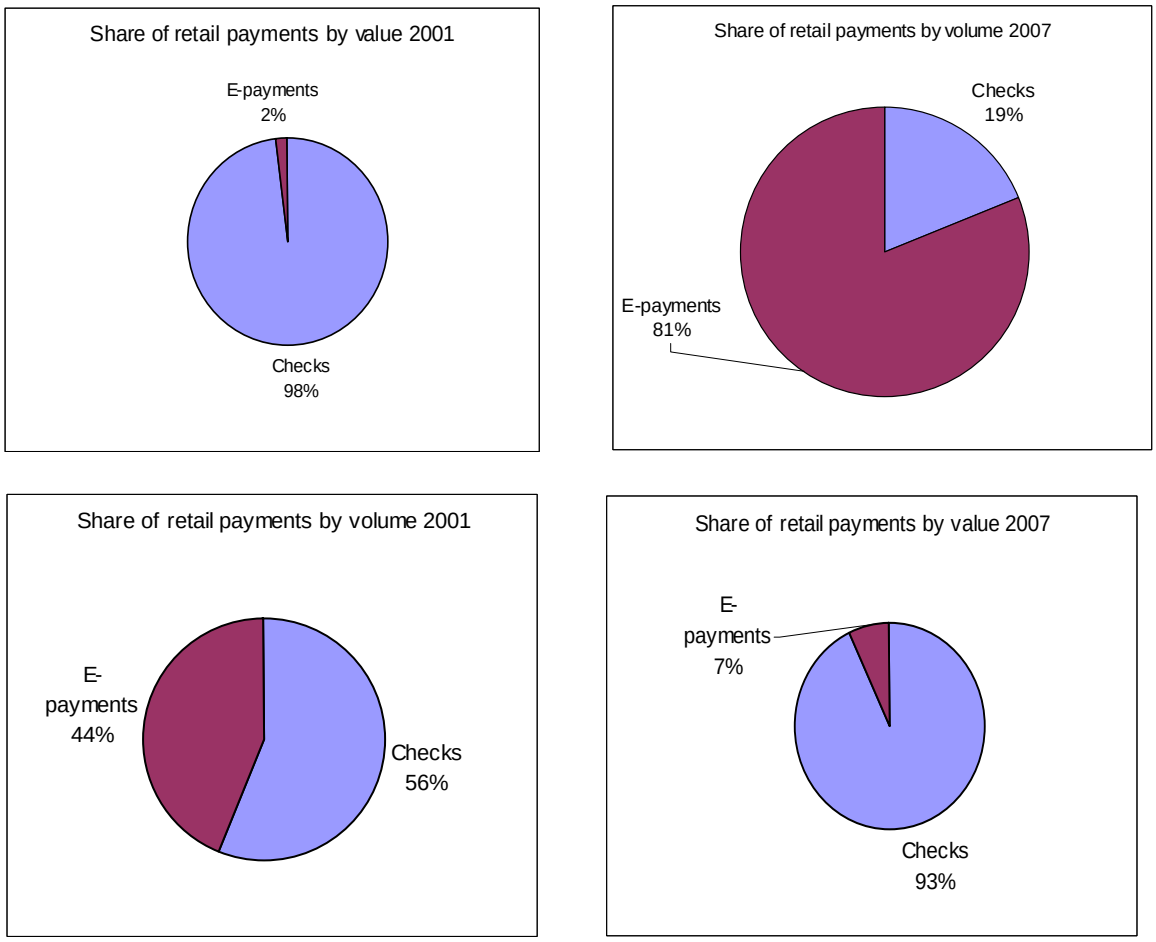
4.3 Others

Charge cards and e-money are the fourth and fifth most widely used e-payment instruments in terms of value of transactions per capita. From 2003 to 2007, the value of transactions per capita for both payment instruments showed a notable increase (Figure 3) from RM74.9 to RM81.7 for charge cards and from RM22.4 to RM59.0 for e-money. The volume of transactions per capita for e-money increased from 7.6 to 22.3, but volume of transactions per capita for charge cards was flat. The value of transactions per capita for debit cards showed a significant increase from RM3.5 to RM42.9. However, the volume of transaction per capita remained static. Mobile banking is still not widely used in Malaysia, with a very low value of transaction per capita of RM0.3 in 2007.

4.4 Checks

Check usage has been flat (Figure 2). The number of checks issued per capita declined from 7.7 to 7.5 (from 2003 to 2007). This decline could be due to the increasing availability of e-payment channels, which offer convenience and cost efficiency to consumers and business. In terms of the value of transactions, however, checks remained dominant, accounting for 93% of the total value of non-cash retail payments in 2007, although that was down from 98% in 2001 (Figure 5).

Figure 5: Share of Retail Payments in Value and Volume, 2001 and 2007 (in %)



Source: Mohammad. 2008.

5. BENEFITS TO SMEs PROVIDED BY THE LATEST INNOVATIONS IN PAYMENT SYSTEMS

SMEs are becoming an increasingly important driver in Malaysia's economy. SME loans grew from 14% of outstanding bank loans in 1996 to 18% in 2005 (Ooi 2008). Currently in Malaysia, SMEs account for 99% of all business establishments and 56% of total employment. SMEs contribute about 32% of Malaysian gross domestic product and 19% of total exports. The introduction of e-payment schemes provides enormous benefits to SMEs in terms of increased efficiency, cost reduction, enhanced security, and more flexibility through a wider choice of payment methods.

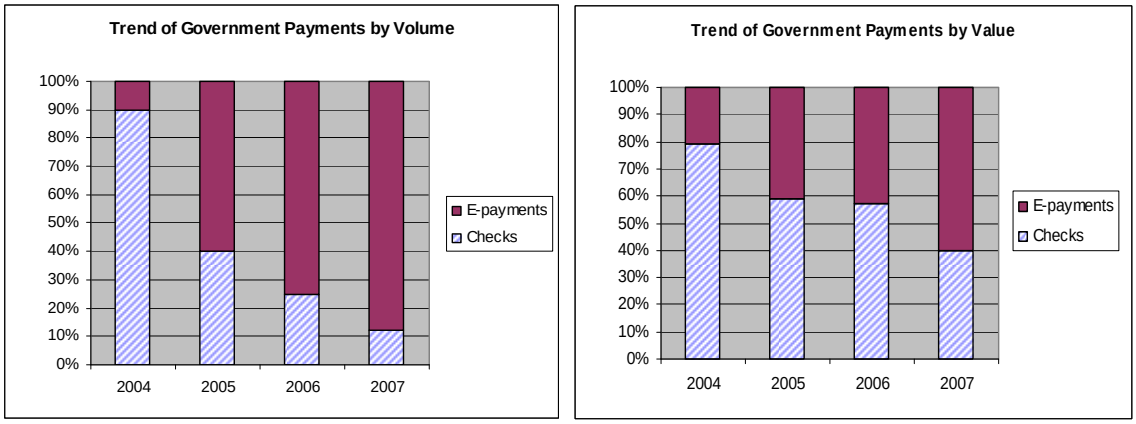
5.1 Increased Efficiency

There are various examples of SMEs enjoying improved efficiency as a result of the introduction of e-payment schemes. One example is provided by the IBG system, where interbank transfers are made electronically, settling on either a T+ 0 or T + 1 basis, that is, settlement on the day of the trade or one day after, respectively. By taking advantage of this facility, SMEs could shorten the waiting period before receiving customer payments, especially when payments are due from different states in the country. The adoption of a fully image-based check clearing system also decreases the cash conversion cycle for SMEs, as less time is spent on transporting checks between banks and regional offices.

5.2 Cost Reduction

The acceptance of Bankcard and the establishment of online payments and other services by the government could reduce the cost of conducting business in Malaysia. The electronic filing and online payment facility offered by the Companies Commission of Malaysia could save SMEs administrative costs. The e-filing service and online payment mode offered by the Inland Revenue Board offers SMEs further administrative cost savings. Figure 6 shows e-payment trends in the government sector. By using the Financial Processing Exchange ((FPX), or Bursa Pemprosesan Kewangan), the national internet-based multi-bank payment infrastructure in Malaysia that facilitates online payments for e-commerce transactions, Bankcards and debit cards, SMEs could reduce the amount of cash held, and as a result also reduce the cost of insurance and risk of losses due to robberies. In addition, transportation cost savings could result from reducing the frequency of visits to banks, customers, and suppliers. These are only a few of the examples cited in this report. With increased competition between the payment system providers, it is expected that the cost of accessing payment system channels in Malaysia will be further reduced, which could provide further cost reduction benefit to SMEs.

Figure 6: Trends in the Volume and Value of Government Payments Composition, (%)



Source: Bank Negara Malaysia. Annual Report 2007.

5.3 Wider Choice

The varieties of payment system channels and instruments have grown significantly during the last 10 years. SMEs can choose from a range of payment instruments and channels such as IBG, FXP, electronic checks, debit cards, and mobile banking. The increase in the variety of payment instruments affords the SMEs more choices from which to choose a channel or instrument that best suits that firm's market size and the level of technological, capital and labor intensity.

5.4 Enhanced Security

The migration to e-payment systems requires developing and maintaining users' confidence in these systems. The security features of a payment instrument, arrayed against systemic and fraud risks, are the main factors influencing user confidence. Accordingly, the central bank has emphasized security and has been continuously enhancing the security features of the payment channels in Malaysia. SMEs benefit from the increases in both efficiency and security.

6. THE IMPACT OF THE GLOBAL FINANCIAL CRISIS ON CAPITAL FLOWS AND PAYMENT SYSTEMS

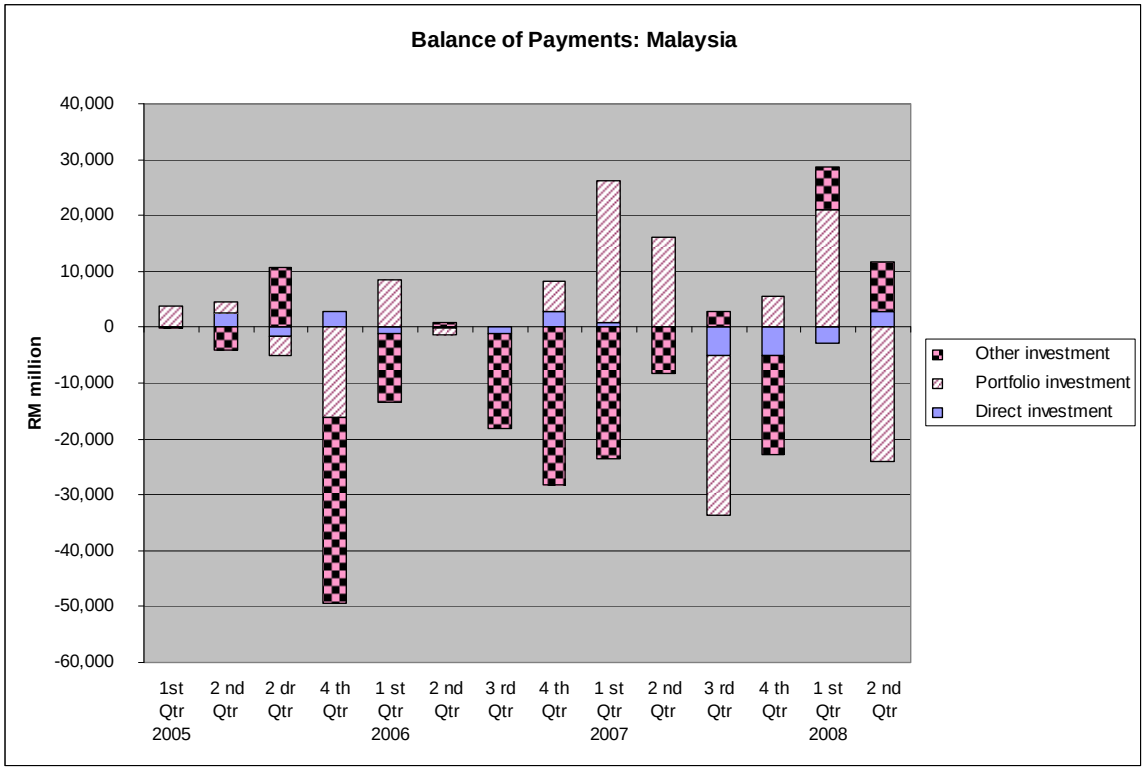
Malaysia has a high degree of economic and financial openness. In 2002, total trade was more than twice the size of the economy, indicating that Malaysia is one of the most economically open nations in the world. A study by the central bank also demonstrated that Malaysia's economic openness increased substantially from 1990 to 2002 (Ooi 2008). The high degree of openness attracted large foreign capital flows into the country, consisting of both trade and non-trade capital flows.

While there were large non-trade capital inflows prior to 1998, during the Asian financial crisis these past inflows, speculative in nature, became capital outflows, leading to instabilities in the domestic financial market. Malaysia's currency, the ringgit, came under heavy selling pressure from speculative trading in offshore markets. Due to the heavy sell-off, Malaysia imposed capital controls and the ringgit was pegged to the US dollar on 1 September 1998, as the government needed monetary autonomy to influence domestic rates to support an economic recovery and so could not devote resources in defense of the exchange rate (Merican 2005).

In March 2001, the central bank unveiled the Financial Sector Master Plan, which charts the financial sector's future landscape. The key theme of the plan is to build resilient and efficient institutions and systems able to face the challenges of financial sector liberalization and globalization. In preparation for this challenge, the government oversaw progressive capacity building and liberalization in the financial sector over the past decade. The New Interest Rate Framework was unveiled on 26 April 2004. Under the new framework, the central bank signals a change in its monetary policy by using the Overnight Policy Rate, which is the target for the average overnight interbank rate; the interbank rates for longer maturities are determined by the market. The ringgit peg to the US dollar ended on 21 July 2005 and the country adopted the managed floating exchange rate system. The ending of the ringgit peg has led to higher volatility in portfolio and other investment capital flows (Figure 7 and Table 2). The exchange rate volatility also has increased (Figure 8).

The global financial crisis has affected Malaysia much less than other countries, although foreign capital flows and exchange rates have shown signs of higher volatility. Domestic interbank money rates have been stable and there is no sign of liquidity evaporating (Figure 9), despite the drastic fall in the liquidity of US money markets and an increase in outflows of foreign portfolio investment capital. The reason that Malaysia has been less affected than other countries by the global financial crisis is due to many underlying factors, such as prudent macroeconomic management, effective supervision of domestic banks by the central bank and significant improvements in the risk management practices of domestic banks. In view of the high degree of openness in the economic and financial sectors, however, the systemic risks of domestic payment systems and financial markets should not be disregarded.

Figure 7: Balance of Payments: Malaysia



Source: Bank Negara Malaysia. Monthly Statistical Bulletin. January 2005 to June 2009.

Table 2: Portfolio Flows in Malaysia, 2003Q1 – 2008Q3 (RM in Billions)

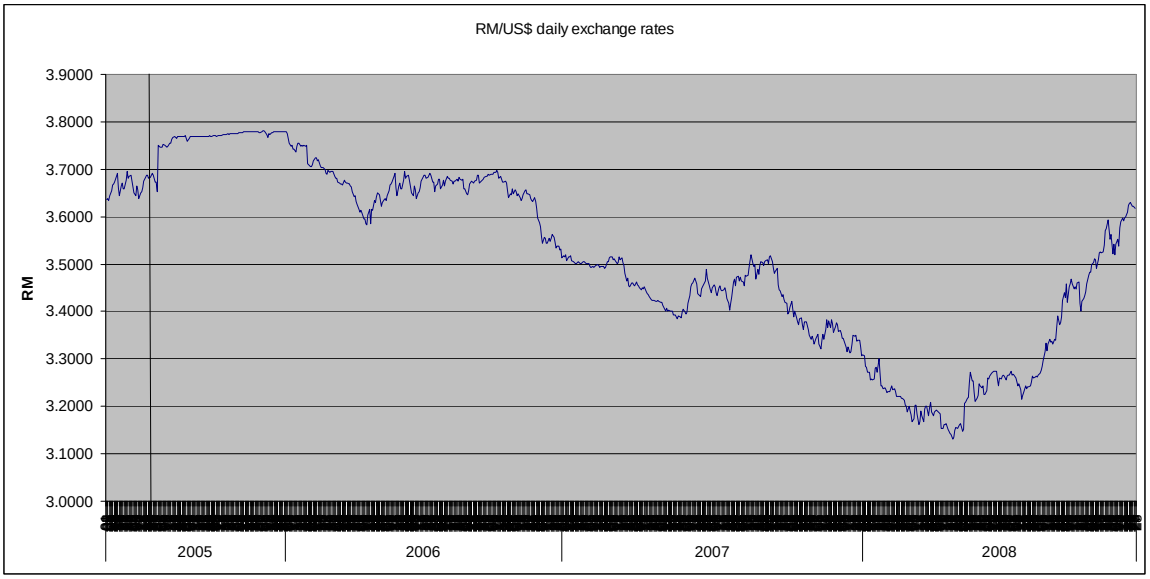
Period	Shares and Corporate Securities		Malaysian Government Securities		Foreign Government Securities		Private Debt Securities		Money Market Instruments		Financial Derivatives		Total	
	Receipts	Payments	Receipts	Payments	Receipts	Payments	Receipts	Payments	Receipts	Payments	Receipts	Payments	Receipts	Payments
2003 *1st qtr.*	6,079	7,381	240	270	2,210	2,239	1,756	2,127	20	23	916	968	**11,220**	**13,009**
2nd qtr.	8,319	8,519	376	216	3,136	2,927	2,708	2,203	13	22	1,305	1,416	**15,857**	**15,304**
3rd *qtr.*	16,806	12,679	—	—	1,889	2,109	1,124	1,471	220	131	908	1,008	**20,948**	**17,399**
4th qtr.	21,203	15,528	185	23	1,359	1,233	1,572	1,108	809	460	2,861	1,100	**27,988**	**19,452**
2004 *1st qtr.*	26,908	16,842	2,024	229	2,587	2,457	3,344	2,296	4,716	1,658	838	726	**40,417**	**24,208**
2nd qtr.	14,346	15,285	2,569	619	1,461	1,624	3,962	4,010	3,721	1,915	1,131	846	**27,189**	**24,300**
3rd *qtr.*	15,892	12,734	2,949	731	1,439	1,088	6,643	5,415	3,236	4,331	944	1,104	**31,104**	**25,402**
4th qtr.	18,793	15,618	5,431	506	378	352	4,331	5,109	6,189	3,433	1,275	1,492	**36,397**	**26,509**
2005 *1st qtr.*	19,113	18,489	4,343	1,685	717	856	3,418	4,068	5,685	5,769	734	1,215	**34,011**	**32,082**
2nd qtr.	18,611	17,942	5,178	2,178	754	631	4,312	4,915	7,731	6,974	1,648	1,878	**38,234**	**34,518**
3rd *qtr.*	19,087	17,503	2,435	2,420	235	269	3,563	4,422	8,894	8,981	1,012	1,150	**35,226**	**34,744**
4th qtr.	14,386	19,911	456	2,226	143	164	1,186	3,040	2,211	6,409	1,297	1,643	**19,678**	**33,393**
2006 *1st qtr.*	18,860	19,930	1,033	614	193	254	6,599	4,191	8,053	5,557	1,097	1,132	**35,836**	**31,678**
2nd qtr.	22,708	25,818	4,046	1,749	79	60	2,816	3,335	10,945	8,255	1,688	1,958	**42,282**	**41,176**
3rd *qtr.*	20,093	21,240	2,567	2,045	50	7	4,756	4,362	12,494	14,560	1,731	2,048	**41,692**	**44,261**
4th qtr.	34,189	25,208	1,872	1,598	127	63	5,459	5,946	8,667	9,918	2,537	2,653	**52,852**	**45,384**
2007 *1st qtr.*	61,608	43,701	3,386	1,499	63	42	3,432	2,387	19,139	13,415	2,379	2,666	**90,009**	**63,709**
2nd qtr.	63,910	58,479	5,032	3,344	7	—	3,426	2,611	32,321	25,183	3,095	3,293	**107,791**	**92,910**

Period	Shares and Corporate Securities		Malaysian Government Securities		Foreign Government Securities		Private Debt Securities		Money Market Instruments		Financial Derivatives		Total	
	Receipts	Payments	Receipts	Payments	Receipts	Payments	Receipts	Payments	Receipts	Payments	Receipts	Payments	Receipts	Payments
3rd *qtr.*	43,202	58,769	3,375	1,841	342	136	3,482	8,224	31,306	33,828	3,131	4,115	**84,838**	**106,913**
4th qtr.	47,299	48,402	6,393	2,998	865	734	4,358	4,120	31,032	29,282	3,983	4,104	**93,931**	**89,641**
1st 2008*qtr.*	43,177	49,678	16,512	6,591	2,538	2,778	1,206	3,805	39,404	35,946	3,936	4,137	**106,773**	**102,934**
2nd qtr.	28,542	43,099	8,180	9,158	5,277	4,891	2,064	3,346	22,966	36,182	3,090	3,776	**70,118**	**100,452**
3rd *qtr.*	18,266	30,537	5,727	11,446	1,159	1,150	2,153	3,339	18,357	36,550	4,954	5,648	**50,616**	**88,670**

Note: — means not available.

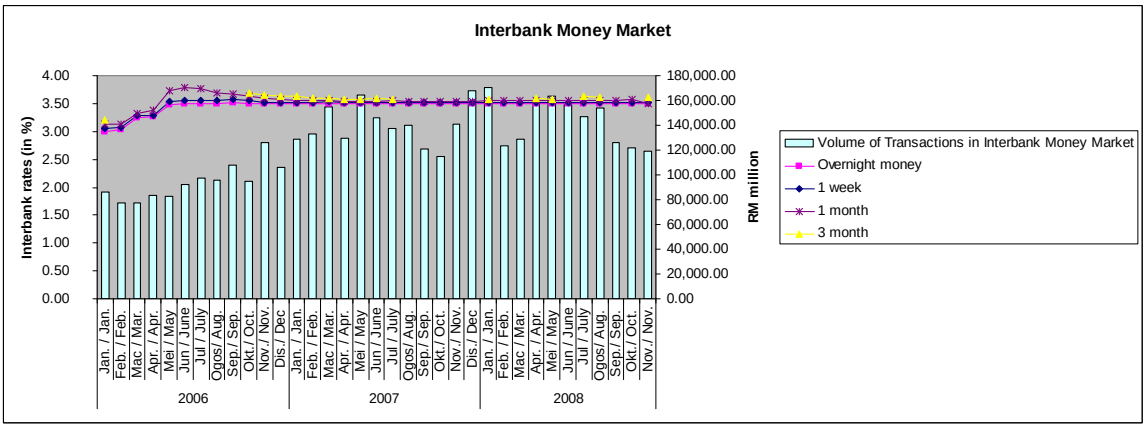
Source: Bank Negara Malaysia. Monthly Statistical Bulletin, November 2008.

Figure 8: Exchange Rate Movements, 2005–2008



Source: Bank Negara Malaysia. Monthly Statistical Bulletin, January 2005 to December 2008.

Figure 9: Interbank Money Market



Source: Bank Negara Malaysia's Monthly Statistical Bulletin, November 2008.

A nation's payment and settlement system will become more interconnected with the global payment and settlement infrastructure as the nation's financial sector's openness increases. Systems can be interconnected in a variety of ways. First, interdependencies arise from direct relationships among systems. For example, central securities depositories and large-value payment systems may establish technical links or account relationships to facilitate efficient delivery versus payment settlement of securities transfers. Similarly, the continuous linked settlement (CLS) system depends on the account relationships that a CLS bank has established with the central banks of countries whose currencies are CLS-eligible to facilitate the funding process that supports the payment versus payment settlement of foreign exchange trades. Second, systems can be interconnected indirectly through the activities of large financial institutions that have settlement activities in several systems or that provide services to several systems, and so create indirect relationships among these systems. Third, interdependencies can also result from the dependence of a number of systems on a common messaging service provider, such as Society for Worldwide Interbank Financial Transactions, or on a common resource, such as a third-party service provider for their information technology systems (BIS 2008). In Malaysia, a direct connection to the CLS system does not exist since the ringgit is not a CLS-eligible currency. An indirect relationship, however, exists between RENTAS and CLS through their relationship with the US$ Clearinghouse Automated Transfer System (CHATS). An indirect relationship also

forms between RENTAS and International Central Securities Depositories, such as Euroclear and Clearstream, when these International Central Securities Depositories appoint as their clearing agents in Malaysia domestic depository institutions that are clearing members in RENTAS.

While the tighter interconnection between systems has helped to reduce costs and risk, it also increases the potential for disruptions to spread quickly and widely across multiple systems and markets. This possibility arises when the smooth functioning of one or more systems is dependent on that of another system. For example, if a large-value payment system participant experiences an operational disruption or liquidity shortfall, it may be unable to transfer funds to its counterparties. As a result, other large-value payment system participants may have lower balances than expected. This shortage of funds could prevent these institutions from receiving incoming securities transfers from a linked central securities depository. In this way, a disruption in the large-value payment system could pass to the central securities depositories. This type of interdependency creates cross-system risk between the central securities depositories and the large-value payment system (BIS 2008).

To mitigate cross-system risk due to a liquidity shortfall, the central bank limits membership in RENTAS to principal dealers. Under this system, the central bank appoints selected banking institutions as principal dealers annually based on a set of criteria, including a firm's ability to handle a large volume of transactions, as indicated by its equity balance, secondary market trading volume, and overall risk management capabilities. In addition, in order to manage liquidity and settlement risk, market participants can borrow funds or securities from the central bank, either through repo or reverse repo trades, or through borrowing or lending securities. The central bank also issued a New Liquidity Framework that requires banks to hold a certain percentage of liquid assets to guard against a possible liquidity crisis.

To address the increased potential for disruptions to quickly spread across many interdependent systems, it is important that systems, institutions and service providers adapt their risk management efforts. First, it is important that these stakeholders adopt broad risk management perspectives, and look beyond their direct operations and exposures to identify the broad range of disruptions that might affect them as a result of interdependencies. Second, it is important that systems, institutions, and service providers at the center of key interdependencies have especially strong risk management controls (BIS 2008). Accordingly, the central bank focuses its oversight resources on the RENTAS system since it handles large-value payments that have the greatest potential impact on the financial stability of the country (Bank Negara Malaysia 2007). In managing the systemic risks in RENTAS, the central bank is committed to strict adherence to the international best practices issued by international bodies such as the BIS's Recommendations of the Committee on Payment and Settlement Systems, and the Technical Committee of the International Organizational of Securities Commission for Securities Settlement. In 2007 RENTAS successfully passed a self-assessment to test if its operations—comprising the Interbank Funds Transfer System, the Scripless Security Transfer System and the RENTAS-US$ CHATS system—closely adhered to the Core Principles recommended by BIS. In addition, the central bank, in its efforts to mitigate the risks arising from RENTAS' dependence on other systems, conducted an industry-wide live disaster recovery operation in June 2007.

Since interdependencies allow disruptions to pass among systems through complex paths and with uncertain intensity, interdependencies also call for wide coordination of risk management and crisis management efforts. Cooperation among central banks and other authorities, including on a cross-border basis, is important (BIS 2008). In Malaysia, the major foreign currency settlement risk arises from the ringgit-US dollar foreign exchange trade as it accounts for most of the total payment flows (73.8% of total payment flows in 2006). To minimize US dollar settlement risk, the central bank introduced payment versus payment infrastructure for the settlement of interbank ringgit-US dollar foreign exchange trades through the RENTAS-USD CHATS system in November 2006. Subsequently, the central

bank established a cooperative oversight arrangement with the Hong Kong Monetary Authority as the overseer of the USD CHATS system in order to minimize risks associated with cross-border links between RENTAS and USD CHATS. The clearinghouses for exchange traded shares and derivative instruments are not under the regulatory purview of the central bank. Disruptions in these clearinghouses, however, could pose a systemic risk to the financial system. Therefore, the central bank and the Securities Commission planned to enter into a Memorandum of Understanding to outline the specific aspects of the cooperation, consultation and information exchange between the two regulators (Bank Negara Malaysia 2006).

7. CONCLUSION AND POLICY ISSUES

In the current increasingly competitive economic scenario climate, countries continuously seek avenues to improve their competitive edge. One of the avenues that countries could consider is the national payment system. In this light, various improvements to the payment system infrastructure and institutions have been made, both in retail and large-value payment systems. However, the technological innovations that had greatly influenced the shape of today's payment system could expose the users to new systemic risks. Therefore regulatory authorities always need to consider the balance between efficiency and security. Many investments have been made to implement e-payment schemes and to ensure their safe usage. Few, if any, quantitative empirical studies of the benefits this brought to the economy have been undertaken, however. Hence, quantitative empirical studies should be conducted soon in order to assess the economic benefits provided by e-payment schemes and to recommend further possible improvements.

Robust risk management and close cooperation with cross-border authorities are becoming more important as Malaysia's economy and financial sector become more integrated with the world. The current global financial crisis dictates some future developments in the financial sector. Accordingly, future enhancements to the payment system should emphasize this feature. The development of the domestic financial market has become increasingly important to maintain future global competitiveness. In this regard, the development of payment systems is important to support a stable domestic financial market that promotes the reinvestment of domestic savings in the domestic economy. Closer regional financial integration is also becoming increasingly important to enable surplus savings in the less developed Asian countries to be reinvested in the region, and to allow more synchronized monetary policy actions among the monetary authorities in the region.

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APPENDIX

Table A1: Structure of the Financial System in Malaysia

Financial Institution Type		Number of offices	Number of offices/population[a]	Total Assets (RM million) (US$ million)
Banks (as of 31 Dec 2007)	Commercial and Islamic banks	1,720	0.0000633	1,468,210 444,037
	Investment banks	100	0.0000037	58,708 17,755
Nonbank institutions				
	Insurance companies and Takaful[b] operators	537	0.0000198	127,655 38,607
	Development financial institutions	768	0.0000283	128,300 38,802
	Money brokers	7	0.0000003	—
	Other financial intermediaries[c]	82	0.0000030	169,700 51,323

Notes: [a] 27,170,000 in 2007.

[b] An Islamic insurance concept, operating under the rules and regulations of Islamic law.

[c] Includes unit trusts (Amanah Saham Nasional and Amanah Saham Nasional Mara), cooperative societies, leasing and factoring companies and housing credit institutions (comprising Cagamas Berhad, Borneo Housing Mortgage Finance Berhad and Malaysia Building Society Berhad).

Sources: Bank Negara Malaysia Annual Report 2007, Bank Negara Malaysia. Monthly Statistical Bulletin, January 2007 to December 2007, and financial institutions' webpage for 2007.

Table A2: Recent Developments in the Payment System in Malaysia

Date	Events
Early 1980s	Automated Teller Machine (ATM) cards started to be introduced in Malaysia
Late 1980s	Prepaid and debit cards were introduced
Late 1990s	E-money services were introduced
Early 2000	Prepaid cards and debit cards became popular among Malaysian consumers
April 2000	Interbank GIRO (IBG) was launched
June 2000	Internet banking was introduced
2001	The central bank unveiled the Financial Sector Master Plan: - Outlined the medium and long-term strategies for the development of the financial sector including the strategies for the payment system Domestic banks fully integrated the nationwide ATM network
2002	MEPS Cash was launched: – A national card-based e-money system, that incorporated an ATM card and Mykad (a government issued identity card) – An e-payment alternative to cash for retail payments Mobile banking began to be introduced
September 2002	The policy requiring banking institutions to use MEPS for all payments on the internet was abolished: – Allowed banking institutions to establish their own internet payment gateways – Market forces shape the development of the payments system and result in greater efficiency
August 2003	The Payment System Act of 2003 was enacted – The Central Bank established as the sole authority for the oversight of the payment system – The objective: To ensure the safety and efficiency of payment related infrastructure – The Central Bank performs three roles: (1) Operator; (2) Overseer; (3) Facilitator for development (The Central Bank is currently reviewing its roles and is considering separating its oversight and operational responsibilities)
October 2003	- Magnetic-stripe ATM cards were converted to chip-based ATM cards (known as Bankcard), which offers better security.
2004	Government agencies started to accept credit cards and Bankcards. The Financial Process Exchange (FPX) was introduced. – An internet-based payment system that allows participants, such as companies, to make payments electronically – Augmented banking institutions' internet banking services by providing online payments and accompanying payment references for reconciliation purposes
2005	The banking industry fully migrated to the chip-based infrastructure for ATM and credit cards – The use of ATM cards had grown to include bill payments and fund transfers
2006	Links with four of MEPS' counterparts in Indonesia; Singapore; Thailand; and the People's Republic of China were established to facilitate cross-border cash withdrawals. A new ATM network was established by four foreign banks, known as HOUSe (the name is formed from the founding banks: HSBC Bank, OCBC Bank, Standard Chartered Bank, and UOB Bank). The Central Bank introduced payment versus payment (PvP) infrastructure for the settlement of inter-bank ringgit-US dollar foreign exchange trades through the RENTAS-US$ CHATS system
2007	Online payment services were introduced by government agencies International mobile-to-mobile money transfer between Malaysia (Maxis Corporation) and Philippines (GCash) was launched and extended to Indonesia. Delivery versus payment infrastructure for US dollar securities that are issued, deposited and traded in Malaysia was introduced
2008	A fully image-based check clearing process was adopted for Kuala Lumpur – Eliminates the physical movement of checks once deposited at the collecting banks – Receipt of funds would be on the next business day, regardless of where the checks are deposited

Source: Author Summary.