Payment and Settlement Systems

Payment and Settlement Systems

PROMOTING THE STABILITY OF PAYMENT AND SETTLEMENT SYSTEMS

Continued resilience and reliability in RENTAS operations

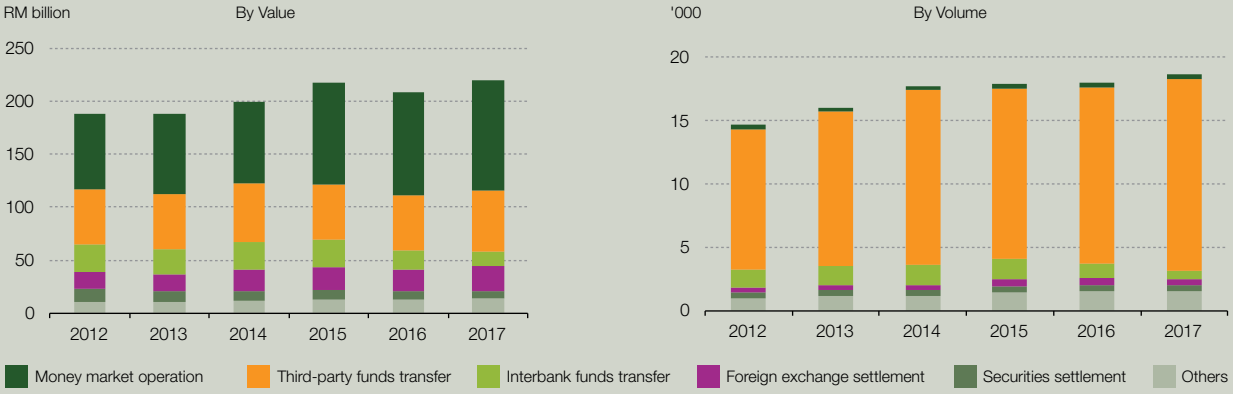
The Real-time Electronic Transfer of Funds and Securities System (RENTAS) facilitates multi-currency real-time gross settlement of interbank funds transfers and securities settlement. During the year, a total of 4.6 million transactions amounting to RM53.7 trillion were settled in RENTAS, which was 40 times of Malaysia's gross domestic product (GDP). This represents an annual growth of 2.3% and 4.3% in total volume and value, respectively. Similarly, the daily average transaction volume increased by 3.5% to 18,651 (2016: 18,013) while the value increased by 5.6% to RM220.3 billion (2016: RM208.7 billion) in 2017 (Chart 6.1).

RENTAS achieved 100% system uptime in 2017, above the target level of 99.9%. With the implementation of the New RENTAS in September 2016, further progress was made to support cross-border payment services. Key to this was the introduction of multi-currency settlement functionalities and the adoption of the Society for Worldwide Interbank Financial Telecommunication (SWIFT) messaging standards under the New RENTAS. These enhancements facilitated greater levels of automation and standardisation across RENTAS participants and in turn improved participants' Straight-Through-Processing (STP) rate of outgoing RENTAS transactions by an average of 33.6%. The New RENTAS also enhanced the submission of Renminbi transactions in RENTAS by supporting new access channels and a more seamless process for participants.

During the year, financial institutions completed a self-assessment of security systems as required by the Bank as part of ongoing efforts to mitigate cyber risks to payment system infrastructures. The exercise also served to identify and address key gaps ahead of the implementation timeline for SWIFT's mandatory security controls. These controls include measures to heighten the physical

Chart 6.1: RENTAS – Daily Average Transactions

Marginal increase recorded in RENTAS average daily transactions



Source: Bank Negara Malaysia

and technical security of SWIFT-related infrastructure, improve access controls through strong authentication methods, and enhance the response planning to system disruptions. Drawing on the key issues identified from the exercise, the Bank required financial institutions to formulate action plans to ensure a smooth and timely implementation of the security practices. As at end-January 2018, all but one financial institution attested compliance with the relevant mandatory security controls. The remaining institution is expected to comply by end-2018.

Retail payment systems remained stable without major disruptions

Retail payment systems[1] functioned smoothly throughout 2017, with high system availability above the target level of 99.9%. Interbank GIRO (IBG) and Instant Transfer transactions continued to grow rapidly in value (IBG: 21.3%; Instant Transfer: 60.7%) and volume (IBG: 13.0%; Instant Transfer: 59.4%). Cheque transactions continued to decline by 3.2% in value and 10.6% in volume, in line with the sustained momentum in migration to credit transfer[2] services. Amid the increase in transaction volume, Payments Network Malaysia Sdn. Bhd. (PayNet) introduced additional measures to mitigate settlement risk and streamline recovery processes to ensure the reliability of the Instant Transfer system. These measures complemented the broader range of initiatives rolled out since 2015 to strengthen the resilience of the Instant Transfer system, including upgrades to the network infrastructure and introduction of an additional interbank settlement window.

The Bank continues to closely monitor cross-border retail payments amid the entry of new players, namely issuers of payment instruments based outside Malaysia using Quick Response (QR) codes at Malaysian merchants. During the year, there were 0.8 million payment transactions valued at RM228.5 million made using foreign-issued QR code mobile payment services at Malaysian merchants. As such operations commenced only from the second quarter of 2017, the transaction volume and value of such payment services remained low at 3.4% and 2.0%, respectively, of the transaction volume and value of foreign-issued credit and charge cards used in Malaysia. However, such transactions are expected to increase more rapidly going forward as mobile payments continue to gain traction as a convenient mode of payment.

The use of foreign-issued mobile payment services entails specific risks associated with the timely settlement of funds by foreign issuers. These risks are mitigated through requirements imposed by the Bank for local acquirers that facilitate foreign-issued mobile payment instruments to provide full funds settlement to merchants in the event that a foreign issuer defaults on its settlement obligations. Where SME merchants are acquired, non-bank acquirers are required to establish a trust account to deposit funds that can only be used for making payment to their SME merchants.

Strengthened security and efficiency through payment card infrastructure enhancements

The payment card infrastructure in Malaysia continues to be strengthened, underpinned by a two-pronged approach. This entails: (i) migrating from signature to Personal Identification Number (PIN) verification under the Chip and PIN initiative; and (ii) the adoption of Europay-Mastercard-Visa (EMV) standard and contactless functionality for the domestic debit card scheme as provided by the Malaysian Chip Card Specification (MCCS) initiative. Collectively, this approach has contributed towards strengthening the security, interoperability and efficiency of payment card transactions.

On 1 July 2017, the industry successfully completed the migration from signature to PIN-based payment cards. Cardholders are now required to enter a six-digit PIN to authenticate payment card transactions at all point-of-sale (POS) terminals. This serves as a pre-emptive measure to combat lost and stolen card fraud. Prior to the effective cut-over date, a six-month transition period was observed where cardholders were allowed to bypass the PIN requirement if they did not remember their PIN. This was accompanied by extensive public awareness and education initiatives to encourage the adoption of PIN for payment card transactions. These initiatives contributed to the significant decrease of the PIN bypass rate[3] from 84% in September 2016 to a negligible level of 3% by the cut-over date, thereby ensuring minimal disruptions to payment transactions using locally-issued payment cards (Chart 6.2).

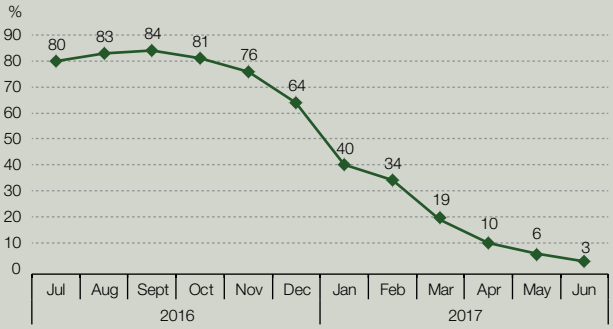
[1] Interbank GIRO (IBG), Instant Transfer, Financial Process Exchange (FPX), Direct Debit (DD) and the National Electronic Bill Payment Scheme (JomPAY).

[2] Credit transfers refer to payment services that allow a payer to instruct the institution, with which the payer's account is held, to transfer funds to a beneficiary. In Malaysia, these include IBG and Instant Transfer services.

[3] The rate at which transactions were completed by signature during the six-month transition period.

Chart 6.2: PIN Bypass Rate

Progressive decline in PIN bypass rate ensured a smooth migration to PIN-based cards



Source: Bank Negara Malaysia

The MCCS initiative also saw the industry-wide introduction of secure contactless debit cards. Given that contactless payments are relatively new in Malaysia, debit and prepaid cardholders are provided with the option of reducing the default transaction limit for contactless payments, namely the maximum amount that a cardholder can transact without the need to sign or enter a PIN. Cardholders can also elect to switch off the contactless functionality altogether, if desired.

Payments fraud remained low

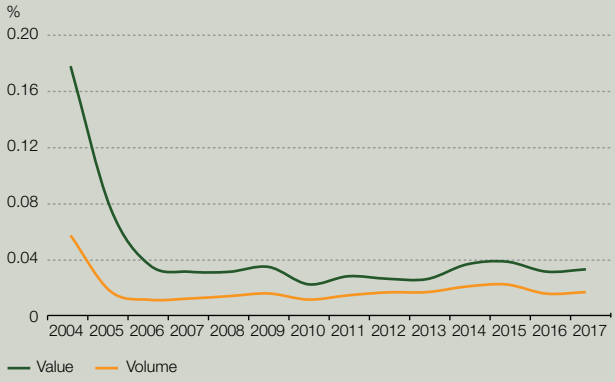
In 2017, payment card[4] fraud losses marginally increased to 0.0197% of total transaction volume (2016: 0.0186%) and 0.0355% of total transaction value (2016: 0.0339%) (Chart 6.3). Card-not-present (CNP) fraud such as unauthorised online transactions accounted for 92.8% of the total fraud cases and 89.2% of the total fraud losses. The bulk of the fraud losses (92.5%) were borne by foreign entities, based on rules that shift the liability to parties that have yet to implement a strong authentication method, which requires cardholders to enter a one-time password to authorise online transactions. Losses to cardholders were therefore minimised as a result of stronger authentication methods adopted in Malaysia. Following the full implementation of the Chip and PIN initiative effective 1 July 2017, lost and stolen card fraud declined further in the second half of 2017 to 0.0009% of transaction volume and 0.002% of total transaction value (January to June 2017: 0.0013%; 0.003%).

Online banking fraud in Malaysia remained low at 0.0004% as a share of total transaction volume (2016: 0.0003%) and 0.0003% as a share of total transaction value (2016: 0.0002%) (Chart 6.4).

[4] Payment cards consist of credit cards, debit cards and charge cards.

Chart 6.3: Payment Card Fraud as a % of Total Transactions

Payment card fraud remained low supported by adoption of robust security measures



Source: Bank Negara Malaysia

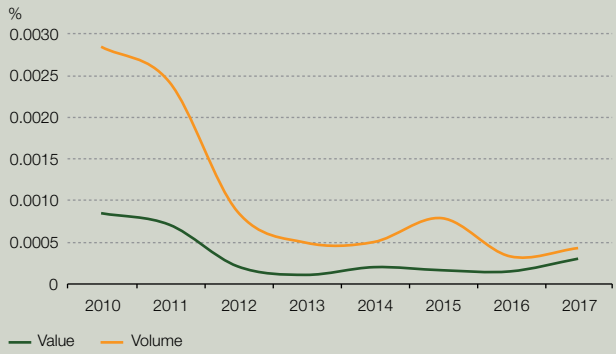
Fraud cases for retail transactions increased marginally to 0.0006% and 0.003% of total retail transaction volume and value, respectively (2016: 0.0004%, 0.002%). Phishing, where online banking users are lured into disclosing confidential banking information through phone calls, SMS or e-mails, continued to be a key *modus operandi*, accounting for 70.9% (2016: 86.4%) of total online banking fraud cases.

Retail fraud for online banking remained low in Malaysia at 0.0006% and 0.003% of total transaction volume and value, respectively

The Bank maintained regular engagements with the industry to ensure that consumer education

Chart 6.4: Online Banking Fraud as a % of Total Transactions

Online banking remained resilient against fraud



Source: Bank Negara Malaysia

and awareness measures remain effective and adequately address evolving modus operandi such as unauthorised online banking registration. An emphasis on the responsibility of online banking users to keep banking credentials safe and to be alert to scams continued to be a central theme of consumer education initiatives.

KEY TRENDS AND DEVELOPMENT IN RETAIL PAYMENT SYSTEMS

Continued progress in meeting e-payment targets

Progress continues to be made towards achieving the e-payment targets set out in the Financial Sector Blueprint 2011-2020. To foster an enabling environment for an accelerated migration, the Bank's efforts remain centred on correcting price signals to make e-payments more affordable, establishing market incentive structures to sustain continuous investments in e-payment infrastructure and services, and promoting greater awareness and confidence in the use of e-payments. This is anchored on a strategy of promoting credit transfers to displace cheques and encouraging the wider adoption of debit cards to displace cash. Looking ahead, mobile payments are also expected to play a key role in displacing cash and cheques, particularly for smaller merchants and transfers between individuals, due to advantages in terms of cost and convenience.

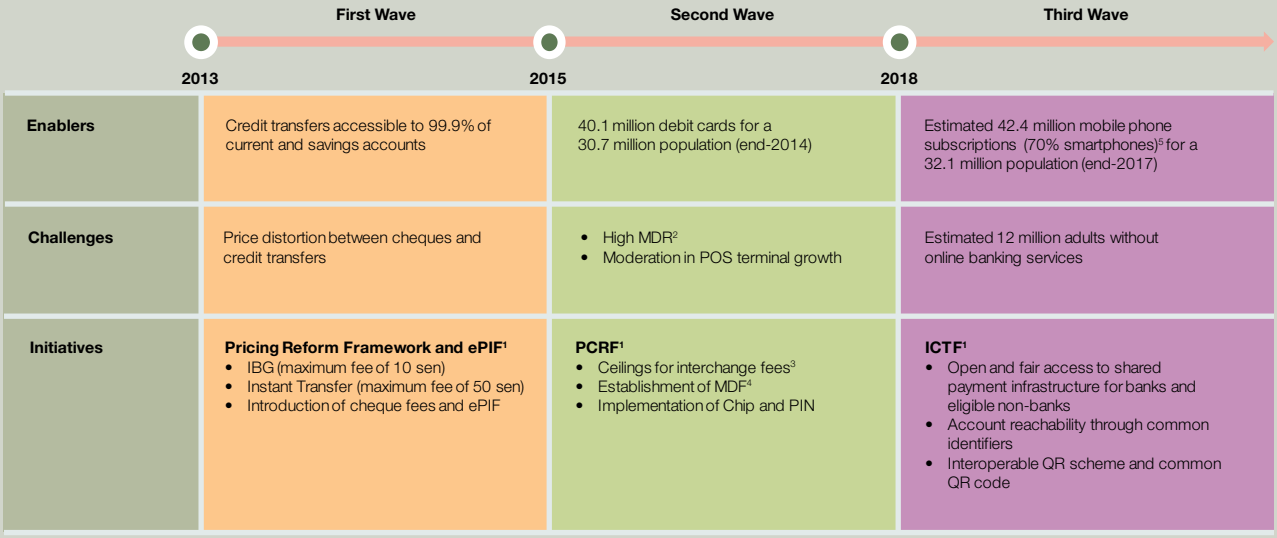
Mobile payments are expected to complement debit cards and credit transfers to accelerate the displacement of cash and cheques

The Bank has been gradually implementing reforms in three broad waves to enhance Malaysia's e-payment infrastructure (Diagram 6.1).

Since 2013, the Pricing Reform Framework has corrected price distortions between cheques and credit transfer services. The framework capped the costs of credit transfer services and introduced a cheque processing fee. This was supplemented by the ePIF, under which banks chanelled cheque fees back to their customers as incentives for the adoption of e-payments. These developments, coupled with the disclosure requirements introduced since 2014, have spurred competition among banks to improve their product offerings and attract customers to sign up as online banking users via various fee waivers

Diagram 6.1

Three Waves of e-Payment Transformation in Malaysia



[1] Refers to e-Payment Incentive Fund (ePIF), Payment Card Reform Framework (PCRF) and Interoperable Credit Transfer Framework (ICTF)
[2] Merchant Discount Rate (MDR) is a fee paid by a merchant to an acquirer for facilitating a payment card transaction
[3] Interchange fee is a fee payable by an acquirer to an issuer in a payment card transaction. Interchange fee is priced into the MDR charged by an acquirer to a merchant
[4] The Market Development Fund (MDF) was established by two major payment card schemes in 2015, which is expected to channel approximately RM455 million in funds from interchange fees towards expanding the POS terminal network over the period from July 2015 to 2020
[5] Based on a recent survey conducted in the third quarter of 2017 (Internet Users Survey 2017)

Source: Bank Negara Malaysia, Department of Statistics, Malaysia and Malaysian Communication and Multimedia Commission

and incentives. The number of active online banking users with at least one transaction per month correspondingly increased by 82.1% from 7.0 million users in 2013 to 12.7 million users in 2017.

The implementation of the PCRF in 2015 also addressed distortions in the payment card market. Notably, the framework curbed indiscriminate hikes in interchange fees and introduced measures to enhance transparency and competition, supported by the establishment of the MDF to accelerate the POS terminal network expansion. This has facilitated a continued decline in MDR, thereby making payment cards increasingly affordable for merchant segments that may have been priced out prior to the PCRF. At the same time, competition among banks has led to an expansion in the network of POS terminals with banks offering lower MDR to merchants.

These reforms have contributed to an upward trajectory for overall e-payment usage (Table 6.1). Since 2011, the number of e-payment transactions per capita has more than doubled to 111 transactions per capita in 2017, while cheque usage has declined by 41.9% to 119.0 million. Over the same period, the number of POS terminals increased by 96.2% to 407, 111 terminals or 13 POS terminals for every 1,000 inhabitants. Debit card transactions have also increased by more than six times to 162.3 million transactions or five transactions per capita.

The Bank anticipates some challenges in achieving the targets for POS terminals and debit card transactions by 2020. Although the continued decline of MDR has spurred the acceptance of debit cards, accelerating growth within the next three years is likely to be more challenging. Notably, the interchange fee ceiling for credit cards, which currently stands at between 0.94% to 1.04%, will only be lowered to the eligible cost level of 0.48% in 2021. As such, the average MDR remains relatively higher for credit cards (1.33%) compared to debit cards (0.56% for MyDebit; 0.89% for the international debit networks). For some merchants, this may continue to be a barrier to accepting payment cards. Additionally, certain market segments, such as lower-tier merchants who are more cost-sensitive, may continue to prefer to accept cash, which is often perceived to be cost-free despite the hidden economic costs.

Table 6.1

Progress Made in Achieving the Financial Sector Blueprint Targets

Payment indicators	2011	2017	2020 Target
E-payments per capita	49	111	200
Cheques cleared (million)	205	119	100
Payment card terminals (per 1,000 inhabitants)	7	13	25
Debit card transactions per capita	1	5	30

Source: Bank Negara Malaysia

Consequently, the third wave of the Bank's reforms will focus on mobile payments to complement debit cards in displacing cash in Malaysia. Of note, greater cost effectiveness may be achieved through QR payments, which reduce the need for POS terminals. In addition, mobile payments serve as a convenient channel for an estimated 12 million adults to adopt digital payments (of Malaysia's 24 million adults, 10 million are bankable, but are not online banking users and two million are unbanked). The issuance of the ICTF by the Bank in 2018 will serve as a catalyst to expand the reach of mobile payments by facilitating the interconnectivity between bank accounts and electronic money (e-money) accounts in Malaysia via a shared network (refer to 'Mobile payments to complement debit cards in displacing cash' in this Chapter for more details).

As payment technologies continue to evolve, the regulatory framework will remain technology-neutral and supportive of innovations that promote greater efficiency, security and reliability in Malaysia's e-payments landscape.

The regulatory framework continues to be supportive of innovations in Malaysia's e-payments landscape

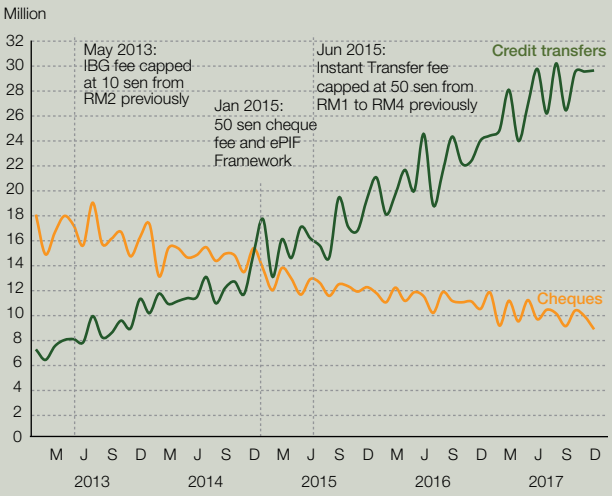
Increase in the adoption of credit transfers to displace cheques

In 2017, cheque usage continued to register a double-digit decline of 10.6% to 119.0 million cheques (2016: -10.0%; 133.1 million). IBG and Instant Transfer continued to gain traction in displacing cheques, with an annual growth of 27.9% to 328.6 million transactions in 2017 (2016: 31.2%; 256.9 million), surpassing the cheque volume by 2.8 times (Chart 6.5).

Cheques remain a costly payment instrument. The average unit cost incurred by banks for processing cheques had steadily increased from RM3.00 in 2011 to

Chart 6.5: Transaction Volume for Cheques and Credit Transfer

The volume of credit transfers surpassed cheques by 2.8 times in 2017



Source: Bank Negara Malaysia

RM4.00 in 2016. Businesses also incur an estimated cheque handling cost of RM6.80, based on a recent survey of 89 companies. These costs are expected to rise further going forward.

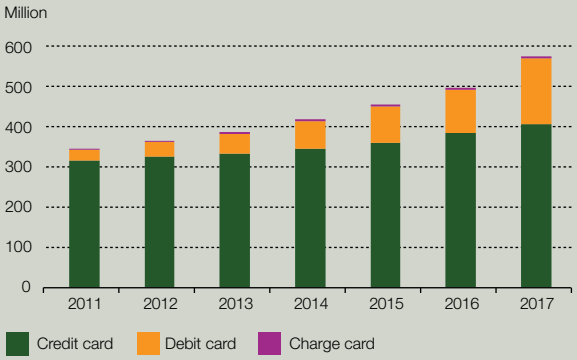
The Bank, in ensuring that such costs do not become an unnecessary burden to businesses and consumers, remains committed to encourage the adoption of less costly e-payment alternatives. The Instant Transfer fee will therefore be waived for transactions up to RM5,000 for individuals and SMEs beginning 1 July 2018. Such transactions account for about 79.6% of the annual cheque volume issued by individuals and SMEs from 2015 to 2017. The ePIF will also be enlarged from 2018 to 2020, with an estimated additional contribution of RM198 million from banks, insurance companies and takaful operators. To improve price signals, the Bank will also increase the fee for cheques issued from 50 sen to RM1.00 per cheque beginning 2 January 2021 in line with the higher cost of cheque processing.

Higher payment card usage to displace cash

Payment card usage continued to increase in 2017, growing at 15.7% and 10.3% in terms of transaction volume and value, respectively, to 573.5 million transactions valued at RM166.4 billion (2016: 495.5 million, RM150.8 billion) (Chart 6.6). Although credit cards remained the most widely used payment instrument, debit card transactions

Chart 6.6: Payment Card Transaction Volume by Card Type

Share of debit card transactions continued to increase



Source: Bank Negara Malaysia

registered a significant increase in 2017, growing at 50.9% and 32.1% in terms of transaction volume and value, respectively, to 162.3 million transactions valued at RM29.8 billion (2016: 107.6 million transactions, RM22.6 billion). Consequently, the share of debit card transactions of total payment card transaction volume increased from 21.7% in 2016 to 28.3% in 2017.

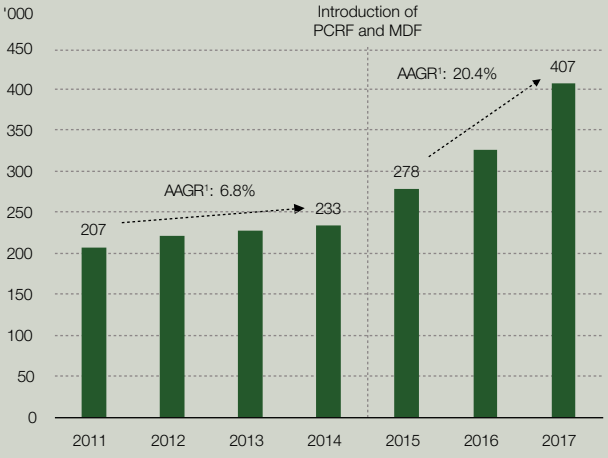
Debit cards have become increasingly popular with a significant growth of 50.9% and 32.1% in terms of transaction volume and value

There is also growing evidence of debit cards being used to displace cash. Debit cards are increasingly used for smaller ticket size items, with the average transaction size reducing from RM232 in 2013 to RM184 in 2017. The average growth in the volume of Automated Teller Machine (ATM) cash withdrawals per annum also moderated to 6.3% for the period 2013 to 2017, compared to 8.7% between 2008 and 2012. These trends may be attributable to three key factors:

- First, contactless card payments have gained momentum. Within the year, the ratio of contactless transactions to total debit card transactions increased significantly from 1.9% in 2016 to 7.8% in 2017. This was further supported by the continued expansion of contactless POS terminals from the 33,721 terminals in 2016 to 96,601 in 2017.
- Second, the wider network of POS terminals has enabled the greater use of debit cards. POS terminals continued to sustain a double-digit growth in 2017, increasing by 24.7% to 407,111 terminals (2016: 17.3%, 326,507 terminals) (Chart 6.7). This is driven by the MDF and the continued decline in

Chart 6.7: Number of POS Terminals

Sustained double-digit growth in POS terminals since 2015



¹Average annual growth rate

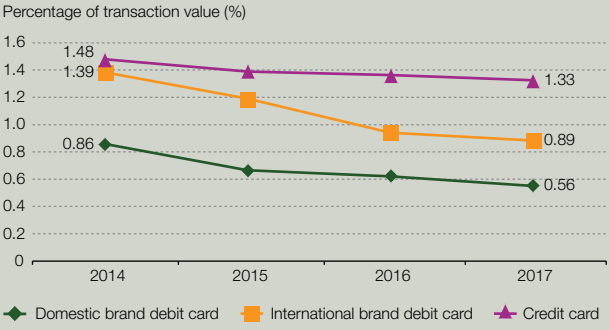
Source: Bank Negara Malaysia

the average MDR (Chart 6.8), which had resulted in an estimated annual cost savings to merchants of RM277.1 million in 2017 and a cumulative cost savings of RM507.6 million since the implementation of the PCRF in 2015.

- Third, public engagement efforts to create greater awareness and confidence in the usage of debit cards also played an important role. The Bank, in collaboration with industry players, continued to embark on nationwide roadshows, engagements with business associations, and other outreach and education initiatives through print and digital media. During the year, the National Cards Group (NCG) also organised a series of township campaigns across Malaysia to encourage businesses to accept payment cards by offering various incentives at 108 participating bank branches in 14 towns.

Chart 6.8: Average MDR by Type of Payment Card Transactions

Average MDR continued to decline



Source: Bank Negara Malaysia

Mobile payments to complement debit cards in displacing cash

The mobile payments landscape continues to show significant potential in accelerating the migration to e-payments. In Malaysia, key enablers include the widespread use of mobile phones, an increasing acceptance of mobile payments by consumers and merchants, and the growing presence of new entrants within the segment. Mobile penetration remained high with 42.4 million mobile phone subscriptions for a population of 32.1 million, of which 70% are smartphones. In 2017, financial transactions through the mobile banking channel grew by 90.1% to 106.1 million transactions valued at RM48.3 billion (2016: 74.3%, 55.8 million transactions, RM33.2 billion). The number of total non-bank e-money issuers had also increased to 37 issuers in 2017 (2016: 26 issuers). Increasingly, banks and non-bank e-money issuers are offering payment services through mobile applications which include QR codes and person-to-person (P2P) funds transfers. These trends are expected to intensify competition with the potential to lower costs and enhance the range of mobile payment offerings.

A key development to foster an enabling environment for the wider adoption of mobile payments is the issuance of the ICTF by the Bank in 2018. The ICTF promotes collaborative competition (co-opetition) between banks and non-bank e-money issuers. Issuers collaborate at the infrastructure level to expand network reach and lower costs through a shared payment infrastructure, while allowing competition at the product level to enhance service levels and deliver superior customer experience.

The ICTF builds on these three key pillars:

- Fair and open access to the shared payment infrastructure, which will be available to both banks and eligible non-bank e-money issuers. This is expected to expand network reach while reducing market fragmentation. Given the diverse profile of payment service providers, the ICTF applies proportionate risk management requirements commensurate with the nature, scale and complexity of the institutions' activities and risk profiles.
- Interoperability of credit transfer services, including mobile payments. Account holders will be able to transfer funds seamlessly by referencing the

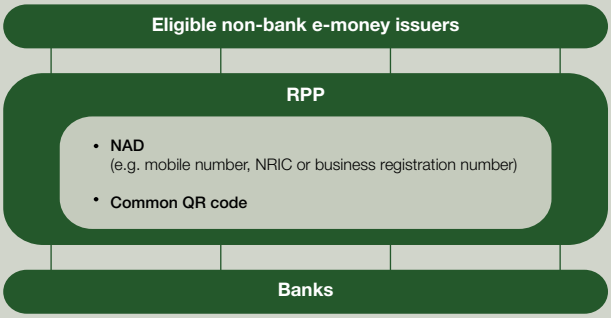
recipient's common identifier registered in the National Addressing Database (NAD) that will be established by the shared payment infrastructure operator. Such identifiers include the recipient's mobile number, National Registration Identity Card (NRIC) or business registration number, irrespective of where the recipient's account is maintained. The ICTF also requires the shared payment infrastructure operator to establish an interoperable QR scheme that enables consumers and merchants to make and receive payments through the use of a common QR code.

- Market conduct requirements and safeguards to protect consumers and merchants. These include the extension of the liability protection rule for electronic banking to users of credit transfer services, including mobile payments. In addition, banks and non-bank e-money issuers are required to provide users with instant transaction notifications and a convenient means to manage transaction limits and check account balances on a real-time basis. Banks and non-bank e-money issuers are also required to deploy robust controls for protecting customer data.

Collectively, these pillars are envisaged to mitigate risks of market fragmentation, while spurring greater competition and innovation between banks and non-bank e-money issuers. This will in turn encourage the development of value-added services which cater to the needs of different customer segments. As part of ongoing initiatives to encourage mobile payments among consumers and merchants, the Bank will collaborate closely with the industry to improve public awareness and education to address any issues in relation to the implementation of new payment methods such as QR code payments.

Diagram 6.2

Overview of the RPP Ecosystem



Source: Bank Negara Malaysia

On 1 August 2017, the Malaysian Electronic Clearing Corporation Sdn. Bhd. (MyClear), which operates Malaysia's large value payment system and develops key financial market infrastructures, and the Malaysian Electronic Payment System Sdn. Bhd. (MEPS), which provides shared ATM network services, merged to form PayNet. The merger marked an important development aimed at harnessing synergies and better aligning industry resources in developing Malaysia's payment systems. As the shared payment infrastructure operator, PayNet is envisaged to play an important role in supporting the effective implementation of the ICTF.

In addition, PayNet has been charged with the development of the Real-time Retail Payments Platform (RPP) as a catalyst for greater innovation in the domestic payments space. Work on the RPP continued to make good progress during the year and the RPP is targeted for implementation by the third quarter of 2018 (Diagram 6.2).