Payment and Settlement Systems

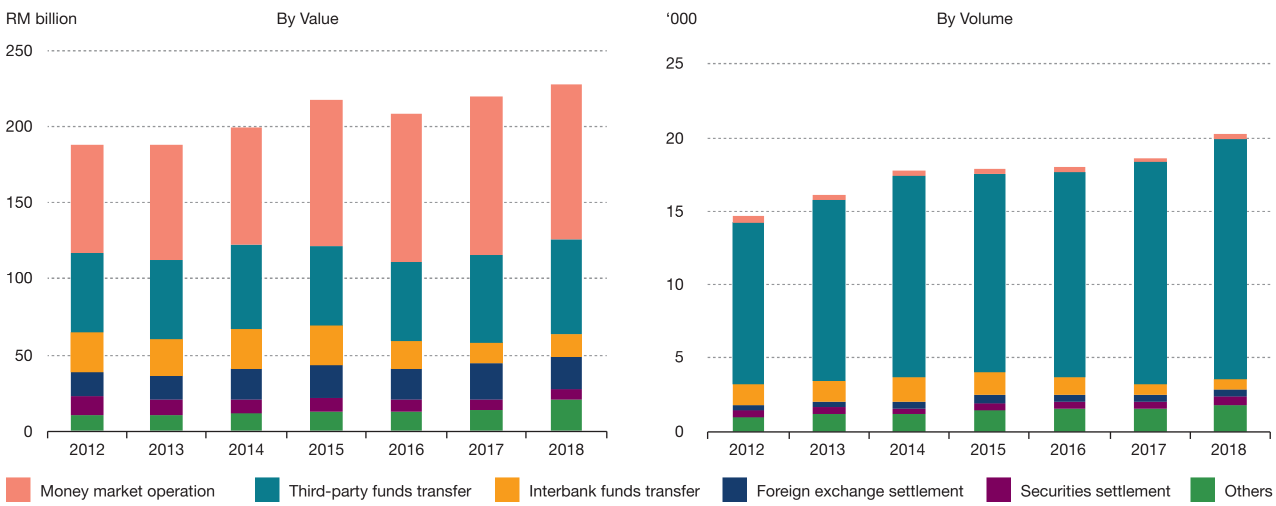
PROMOTING THE STABILITY OF PAYMENT AND SETTLEMENT SYSTEMS

Continued resilience and reliability in RENTAS operations

The Real-time Electronic Transfer of Funds and Securities System (RENTAS) facilitates the real-time gross settlement of large value funds transfers and securities transactions. A total of 4.9 million transactions amounting to RM55.2 trillion were settled in RENTAS in 2018, representing an annual growth of 8.1% in total volume, 2.7% in total value and 39 times of Malaysia's gross domestic product (GDP). The daily average transaction volume increased by 8.5% to 20,240 (2017: 18,651) while the daily average transaction value increased by 3.1% to RM227.1 billion (2017: RM220.3 billion) (Chart 5.1). These increases were largely due to third-party funds transfers such as government and corporate payments which grew by 8.5% in value and 7.2% in volume; and securities transactions which grew by 8.4% in value and 42.9% in volume. The introduction of segregated securities accounts in May 2018 enabled a more granular capture of securities transactions and ownership of securities within RENTAS, which largely contributed towards the higher number of securities transactions captured in RENTAS. RENTAS also facilitates interbank foreign exchange transactions on a Payment-versus-Payment (PvP) settlement basis, primarily for US dollar against ringgit, which eliminates settlement risk. Since the introduction of the RENTAS-USD CHATS PvP link in 2006, the daily average value transacted via the PvP link had increased by an average of 14.2% annually from RM5.2 billion in 2007 to RM15.5 billion. In 2018, the total US dollar-ringgit interbank transactions settled via the PvP link was RM3.8 trillion which accounted for 69.4% of the total interbank foreign exchange transactions conducted against ringgit.

Chart 5.1: RENTAS: Daily Average by Value and Volume

Marginal increase recorded in RENTAS daily average value and volume



Source: Bank Negara Malaysia

In terms of operational reliability, the RENTAS host system and its main access channels achieved an uptime of 100% in 2018, above the target level of 99.9%. The Bank continued to maintain a strong focus on ensuring the resilience of the large value payment system infrastructure against cyber threats, within its own environment and that of the operator and participants of RENTAS. The Bank achieved full compliance with all mandatory and advisory Society for Worldwide Interbank Financial Telecommunication (SWIFT) security controls, which was confirmed through an independent review undertaken by an external audit firm. To strengthen cyber resilience amongst industry players, the Bank has similarly required financial institutions to ensure continuous compliance with the SWIFT mandatory security controls and strongly encouraged compliance with the advisory controls. As at end-2018, Payments Network Malaysia Sdn. Bhd. (PayNet), the operator of RENTAS, and all but two[1] financial institutions have complied with all of the relevant SWIFT mandatory security controls while 81.5% of the financial institutions including PayNet, have implemented the relevant advisory security controls. Given the increasing sophistication and complexity of cyberattacks, financial institutions are progressively deploying control measures that would be effective in an 'assumed breached' environment to complement existing defences to counter cyberattacks. This includes the means to detect out-of-policy or suspicious payment messages and to stop fraudulent in-flight transactions. Financial institutions were also required to regularly review and rationalise dormant SWIFT Relationship Management Applications (RMAs)[2] in order to minimise vulnerabilities.

Enhanced risk management amidst growth in retail payments

Retail electronic payments[3] continued to record double-digit growth in 2018 at 13.3% and 21.5% in volume and value respectively (2017: 15.7% in volume, 25.3% in value). Credit transfers such as Interbank GIRO (IBG) and Instant Transfer remained the bulk of retail electronic payments, representing 64.1% and 17.0% of total retail electronic payments value respectively in 2018.

Given the growth in end-users' demand for immediate payments and the increasing net debit exposures in real-time retail payment systems, financial institutions have been required to improve the monitoring and management of their intraday liquidity positions and exposures, and minimise the risk of gridlock. Financial institutions may use intraday liquidity indicators in line with those prescribed by the Basel Committee on Banking Supervision (BCBS) and the Liquidity Optimisation Settlement Facility (LOSF) which can deliver liquidity savings and greater efficiency in liquidity management.

Financial institutions have been required to improve the monitoring and management of their intraday liquidity positions and exposures

The Bank approved 10 new non-bank e-money issuers in 2018, bringing the total to 47 issuers (2017: 37). In assessing the admission of new entrants, the Bank considers the applicant's capability to operate the proposed e-money scheme in a safe and sound manner, based on several criteria such as experience, sufficiency of financial resources and risk management capabilities including adequacy of security measures. While desirous of encouraging competition and innovation in payment services which will benefit users and promote greater financial inclusion, the Bank is mindful of the costs associated with a highly fragmented retail payment market arising from the proliferation of e-money issuers. This would ultimately reduce the benefits to users. To address this, the Bank has implemented the Interoperable Credit Transfer Framework (ICTF) in 2018 which would facilitate interoperability between banks and non-bank e-money issuers via a shared payment infrastructure. E-money transactions which account for 0.7% of the total value of retail electronic payments in 2018, recorded a growth of 3.2% in volume and 20.6% in value to 1.92 billion transactions valued at RM11.0 billion (2017: 1.86 billion, RM9.1 billion). In order to ensure that appropriate risk management and consumer protection measures are implemented, the Bank conducted on-site reviews on four e-money issuers which represent a sizeable market presence. Generally, the control measures implemented by these issuers were found to be satisfactory. Improvement measures were identified for some issuers to further strengthen their oversight function and operational arrangements such as refund management and fraud reporting. With effect from 2019, all e-money issuers have also been

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1 The two financial institutions are expected to fully comply with SWIFT mandatory security controls by June 2019.
2 RMA defines the counterparties that an institution can send SWIFT messages to or receive messages from.
3 Consist of Interbank GIRO (IBG), Instant Transfer, Financial Process Exchange (FPX), Direct Debit (DD), the National Electronic Bill Payment Scheme (JomPAY), payment cards and e-money.

required to provide an annual independent assessment by their external auditors on the adequacy of controls over the management of customers' funds.

Payment card transactions which account for 11.5% of total retail electronic payments value in 2018, had increased by 21.7% in volume and 13.0% in value to 698.0 million transactions valued at RM188.0 billion in 2018 (2017: 573.4 million, RM166.3 billion). To assure continuity in reliable payment card services, the Bank has required payment card network operators to undertake an annual assessment of their resilience against operational disruptions, which must take into account changes in the cyber threat landscape, as well as identify and address potential vulnerabilities against evolving threats. The result of the assessment will be used to identify potential measures or action plans to further strengthen the reliability of payment card services.

Payments fraud remained low

The overall payment card[4] fraud losses increased marginally to 0.026% of total transaction volume (2017: 0.020%) and 0.044% of total transaction value (2017: 0.037%) (Chart 5.2). The majority of payment card fraud cases involved credit cards, which accounted for 92.1% of total fraud losses, followed by debit cards and charge cards at 7.3% and 0.6%, respectively. Payment card fraud was predominantly contributed by card-not-present (CNP) fraud such as unauthorised online transactions which accounted for 95.5% of the total fraud cases and 91.8% of the total fraud losses. Notwithstanding this, losses to cardholders continued to be minimal at 0.3% of total fraud losses (2017: 0.4%). The bulk of fraud losses (89.3%) continued to be borne by foreign entities under the international payment card networks' liability shift rules due to stronger authentication methods[5] adopted in Malaysia. Since the implementation of Personal Identification Number (PIN) verification for card-present transactions in July 2017, lost and stolen fraud losses continued to decline in 2018 to 0.001% of transaction value (1H 2017: 0.003%; 2H 2017: 0.002%). Lost and stolen fraud losses involving contactless transactions were contained at negligible levels (0.0003% and 0.0001% of transaction volume and value, respectively).

[4] Payment cards consist of credit cards, debit cards and charge cards.
[5] One-time password (OTP) required for online transactions made using payment cards.

Chart 5.2: Payment Card Fraud as a Percentage of Total Transactions

Payment card fraud remained low

Source: Bank Negara Malaysia

Online banking fraud losses increased marginally to 0.0006% of total transaction volume (2017: 0.0004%) but was stable as a percentage of total transaction value at 0.0003% (2017: 0.0003%) (Chart 5.3). Retail online banking fraud, which accounted for 97% of total online banking fraud losses, increased marginally to 0.0008% and 0.0034% of total retail transaction volume and value, respectively (2017: 0.0006%, 0.0032%). Most of the online banking fraud losses (90.2%) were attributed to social engineering fraud.[6]

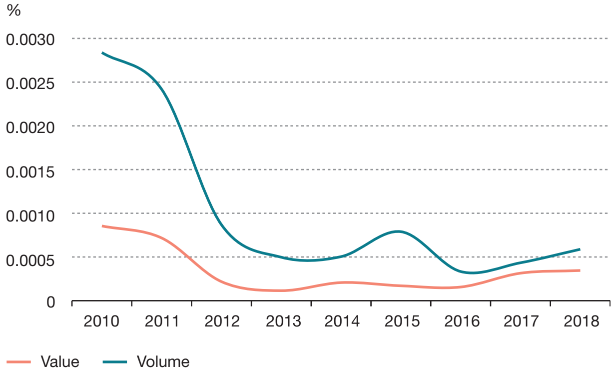
Financial scam losses increased in 2018, but remained low at 0.0006% of total transaction value (2017: 0.0003% of transaction value). In financial scam cases, customers were deceived into transferring funds to accounts under the control of the fraudsters via electronic channels, namely Internet banking, mobile banking and Automated Teller Machine (ATM).

As part of continuing measures to further strengthen safeguards against fraud attempts, the Bank required financial institutions to enhance procedures for the registration of mobile phone numbers used to receive the transaction authorisation code (TAC). The registration of mobile phone numbers for this purpose should only be made in person at branches of financial institutions. Financial institutions are also required to validate a customer's request to change the registered mobile phone number via ATM or call centres, and upon detection of any suspicious fraud activity. This aims to further protect customers from falling victim to social engineering fraud. Customer education initiatives also

[6] Customers were deceived into divulging their banking credentials to fraudsters which are then used to make unauthorised transactions.

Chart 5.3: Online Banking Fraud as a Percentage of Total Transactions

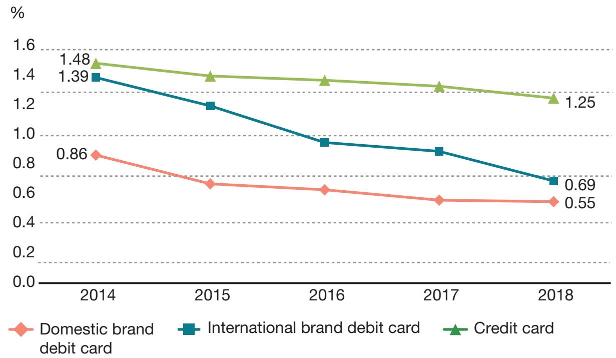
Online banking remained resilient against fraud



Source: Bank Negara Malaysia

Chart 5.4: Average MDR by Type of Payment Card Transactions

Average MDR continued to decline across all payment card types



Source: Bank Negara Malaysia

continued to be emphasised, including security tips in using Internet banking and the timely dissemination of common online banking fraud methods and financial scams through various media platforms.

Customer education initiatives also continued to be emphasised, including security tips in using Internet banking and the timely dissemination of common online banking fraud methods and financial scams through various media platforms

KEY TRENDS AND DEVELOPMENT IN RETAIL PAYMENT SYSTEMS

Continued progress in fostering migration to e-payments

One of the key priorities for the Bank is to accelerate the migration to e-payments, as encapsulated in the Financial Sector Blueprint 2011 - 2020 (FSBP). Since 2013, the Bank has implemented a series of reform measures[7] to foster greater adoption of e-payments. These measures are focused primarily on removing market distortions and strengthening market incentives and competition to promote the adoption of cost-effective e-payment services as an alternative to cheques and cash.

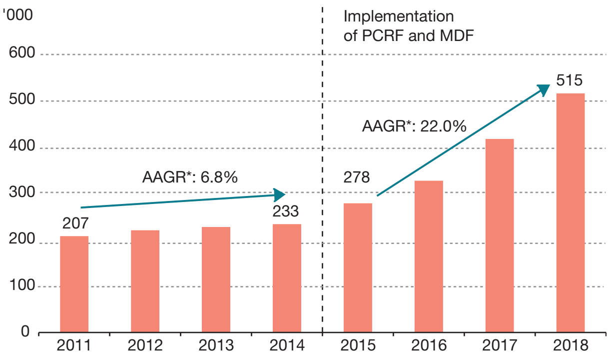
Significant progress has been observed in reducing the use of cheques in Malaysia with more transactions facilitated through credit transfer services (e.g. IBG and Instant Transfer). A key catalyst in this development was the Pricing Reform Framework implemented in 2013, which served to correct the price distortion between cheques and credit transfer services. This was complemented by the e-Payment Incentive Fund (ePIF) Framework introduced in 2015 which channelled cheque fees collected by banks back to their customers mainly through the introduction of fee waivers and incentives to encourage the adoption of e-payments. Consequently, the volume of cheques had reduced by more than half from 204.9 million (seven cheques per capita) in 2011 to 101.4 million (three cheques per capita) in 2018.

Meanwhile, cash usage remains prevalent in Malaysia for retail transactions. Nevertheless, promising progress has been made since 2015 to expand the network of e-payment acceptance points among retail merchants. The implementation of the Payment Card Reform Framework (PCRF) in 2015 removed distortions in the payment card market and contributed to a continued downward trend in the Merchant Discount Rate (MDR) (Chart 5.4). With the resulting lower cost of accepting card payments coupled with the establishment of the Market Development Fund (MDF) to fund the deployment of point-of-sale (POS) terminals, the number of POS terminals had more than doubled from 233,248 terminals (eight terminals per 1,000 inhabitants) in 2014 to 514,818 terminals in 2018 (16 terminals per 1,000 inhabitants) (Chart 5.5). The number of merchants that accept mobile payments also saw an increase over this period with over 65,000 registrations recorded as at end-2018.

[7] Pricing Reform Framework (2013), e-Payment Incentive Fund Framework (2015), Payment Card Reform Framework (2015) and Interoperable Credit Transfer Framework (2018).

Chart 5.5: Number of POS Terminals

Sustained double-digit growth in POS terminals



* Average Annual Growth Rate

Source: Bank Negara Malaysia

Table 5.1

Cheque Usage by Main User Categories

Main user categories (Share of total volume in 2018)	Transaction Volume (Million)		Average Annual Growth Rate (2013-2018)
	2013	2018	
Corporate (48%)	81.8	48.2	-10%
Sole proprietorship and partnership (25%)	49.9	25.7	-12%
Individual (16%)	41.3	15.6	-18%
Government agencies (2%)	4.8	2.3	-14%
Others (9%)	19.3	9.6	-13%
Total	**197.1**	**101.4**	**-12%**

Source: Bank Negara Malaysia

In addition, the wider network of POS terminals supported by the industry-wide implementation of PIN and contactless functionalities for payment cards (completed in 2017) further contributed to higher usage of payment cards. Debit card transactions continued to grow at a strong pace, increasing by 51.5% to 245.7 million transactions in 2018 (2017: 50.8%, 162.2 million). Notably, mobile payments adoption for purchase transactions also gained further traction in 2018 with the transaction volume increasing to 23.7 million (2017: 1.2 million).

The growing adoption of e-payments has contributed to a moderation in the use of cash

The growing adoption of e-payments in Malaysia has contributed to a moderation in the use of cash, with the ratio of cash-in-circulation to GDP (CIC/GDP) declining by 0.3 percentage points between 2016 and 2018 (2013 to 2015: +0.4 percentage points).

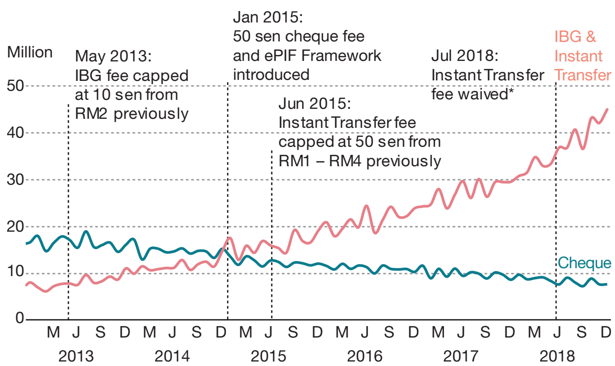
Sustained momentum of credit transfers displacing cheques

Cheque usage continued to register a double-digit decline in 2018 by 14.8% to 101.4 million cheques (2017: -10.6%, 119.0 million cheques), with the reduction recorded across all main user categories (Table 5.1).

Alongside this trend, the adoption of credit transfer services (IBG and Instant Transfer) continued to gain traction, increasing by 35.5% to 445.4 million transactions in 2018 (2017: 27.9%, 328.6 million), surpassing the cheque volume by 4.4 times (2017: 2.8 times) (Chart 5.6). Notably, the volume of Instant Transfer transactions exceeded the volume of IBG transactions for the first time. In 2018, Instant Transfer grew by 80.8% to 238.6 million transactions while IBG grew by 5.1% to 206.8 million transactions. The average monthly Instant Transfer transaction volume saw a significant acceleration in the second half of 2018, increasing by 100.8% compared to 55.9% in the first half of the year. This was largely attributed to the waiver of the 50 sen transaction fee for Instant Transfer by banks since 1 July 2018, for transactions of RM5,000 and below made by individuals and Small and Medium Enterprises. 14 banks have gone further to waive the Instant Transfer transaction fee for all customer groups irrespective of transaction size.

Chart 5.6: Transaction Volume for Cheques, IBG and Instant Transfer

The volume of IBG and Instant Transfer transactions surpassed cheques by 4.4 times in 2018



* Instant Transfer fee waived for transactions of RM5,000 and below made by individuals and Small and Medium Enterprises (SMEs)

Source: Bank Negara Malaysia

Transactions made via the Financial Process Exchange (FPX) also contributed significantly to the growing adoption of credit transfers. FPX is a payment system that allows customers to initiate online payments from their bank accounts at the web portal or mobile applications of merchants, which include online retailers, e-commerce marketplaces and government agencies. In tandem with the increasing adoption of e-commerce and online transactions in Malaysia, FPX transaction volume had more than doubled to 89.9 million transactions in 2018 (2017: 33.2 million).

An important enhancement to the credit transfer landscape is PayNet's Real-time Retail Payments Platform (RPP), which went live in December 2018. As at end-January 2019, 20 major banks have participated in the RPP, accounting for over 70% of total current and savings accounts in Malaysia. Notably, 6.8 million users have been successfully registered on the RPP's DuitNow service, which enables users to make and accept payments conveniently by referencing the recipient's National Registration Identity Card (NRIC), mobile phone or business registration number.

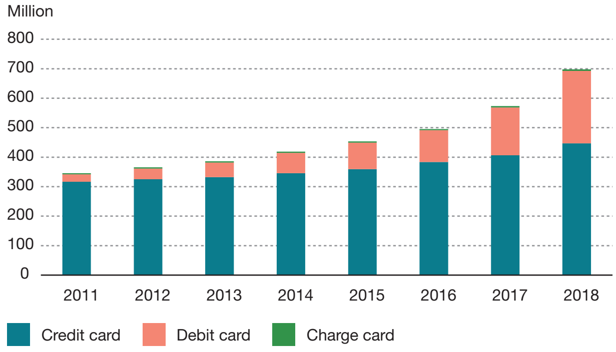
Higher usage of debit cards to displace cash

Although credit cards remained the most widely used payment card, the share of debit card transactions as a proportion of total payment card transaction volume had continued to increase from 28.3% in 2017 to 35.2% in 2018 (Chart 5.7). The share of active debit cards with at least one transaction per month out of total debit cards in circulation had also increased to 48.8% in 2018 (2017: 43.8%).

The upward trend in the use of debit cards was further supported by the greater adoption of contactless payments. As part of the Malaysian Chip Card Specification (MCCS) initiative, all debit cards in Malaysia have been upgraded to support the contactless functionality by 1 January 2018. In tandem with this development, the number of contactless POS terminals correspondingly increased by 90.3% to 207,562 terminals, accounting for 40.3% of the total number of POS terminals. This had spurred the usage of contactless debit cards which grew by 287.4% in volume to 49.7 million transactions in 2018 (2017: 12.8 million). Consequently, the share of contactless transactions out of total debit card transactions had more than doubled to 26.0% in 2018 (2017: 9.9%).

Chart 5.7: Payment Card Transaction Volume by Card Type

Share of debit card transactions had increased by almost five times from 7.3% in 2011 to 35.2% in 2018



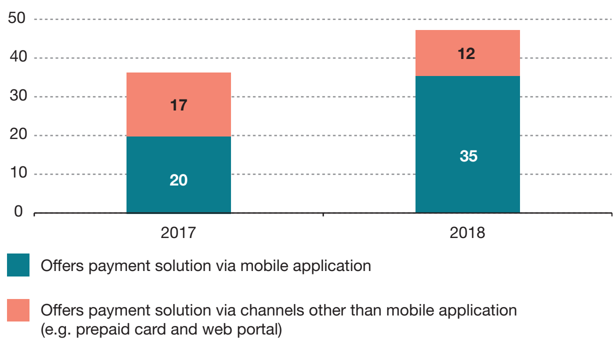
Source: Bank Negara Malaysia

Mobile payments as an alternative to cash

Financial transactions made via the mobile channel continued to gain traction during the year, leveraging on the high mobile phone penetration among the Malaysian population. In 2018, financial transactions conducted via the mobile banking channel had more than doubled to 257.4 million transactions valued at RM100.1 billion (2017: 107.7 million, RM50.7 billion). This was supported by a continued increase in subscribers to mobile banking services to 6.6 million subscribers in 2018 (2017: 4.4 million). Non-banks are also making headway in this segment. Of the 47 non-bank e-money issuers in Malaysia, three in four offer mobile payment solutions (Chart 5.8). The number of subscriptions to non-bank mobile payment services increased significantly from 0.8 million in 2017

Chart 5.8: Number of Approved Non-bank E-money Issuers in Malaysia

The number of non-bank e-money issuers offering mobile payment solutions had almost doubled

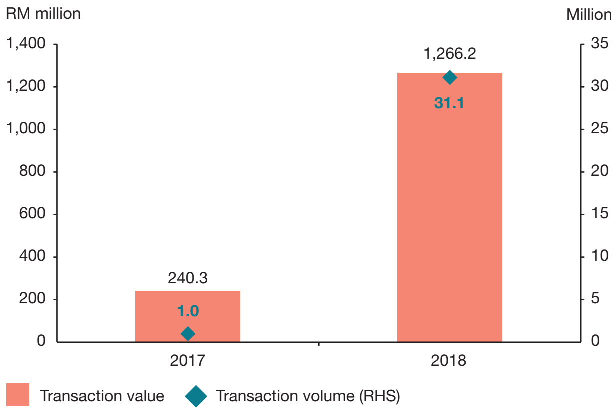


Source: Bank Negara Malaysia

Payment and Settlement Systems

Chart 5.9: Non-bank Mobile Payment Transaction Volume and Value

Significant increase in non-bank mobile payment transactions recorded in 2018



Source: Bank Negara Malaysia

to 10.4 million in 2018. Non-banks processed a total of 31.1 million mobile payment transactions during the year valued at RM1.3 billion (2017: 1.0 million, RM240.3 million) (Chart 5.9).

Although at a nascent stage, mobile payments are increasingly being used in day-to-day purchase transactions that are traditionally transacted in cash

Although still at a nascent stage, mobile payments are increasingly displacing cash in day-to-day purchase transactions. Of significance, total mobile payments made for purchase transactions increased by 20 times to 23.7 million transactions (2017: 1.2 million) with an average transaction value of RM23.80. Non-banks have played a key role in driving this trend, accounting for 88.4% of these transactions. Key contributing factors include intensified merchant acquisition and more aggressive marketing initiatives to attract new users. As at end-2018, more than 65,000 registrations were recorded among merchants for the acceptance of mobile payments, of which more than half were facilitated by non-bank e-money issuers. Although 18 banks offer mobile banking services to date which account for 89.2% of the total current and savings accounts, only two banks have introduced Quick Response (QR) code payment services so far. At this stage, the banks' focus are mostly centred on completing the development efforts to introduce an interoperable QR code payment solution under PayNet's interoperable QR scheme, which is expected to be rolled out in 2019. Complementing these developments, the Bank continues to be focused on enabling interoperability between banks and non-bank e-money issuers via a shared payment infrastructure, as envisioned under the ICTF.

Under the ICTF, the Bank continues to be focused on enabling interoperability between banks and non-bank e-money issuers via a shared payment infrastructure

Going forward, the mobile payments landscape is expected to be more vibrant as competition heightens among banks and non-banks. This necessitates the players to undertake efforts to strengthen their value proposition for users by providing a seamless on-boarding experience to consumers and merchants, while enhancing the value-added features on their mobile applications. There will also be a need for more targeted offerings to cater to the demands of the unserved or underserved segments, such as micro-financing, micro-insurance and remittance services. At the same time, strategic partnerships between banks and non-banks are expected to capture a broader customer base and realise potential synergies.