

# II

## Payment Systems Oversight





## 1. Payment Systems Stability

The BOT oversees the Systemically Important Payment System (SIPS), namely the Bank of Thailand Automated High-value Transfer Network (BAHTNET). The BOT operates infrastructure for large value transfers and interbank settlement. By applying international standards on Principles for Financial Market Infrastructures (PFMI) of Bank for International Settlements (BIS), the BOT aims to ensure that the BAHTNET is efficient, reliable, secured, having adequate risk management, and that systemic risk is reduced, leading to payment systems stability and financial stability.

Furthermore, the BOT applies the PFMI in overseeing the Prominently Important Retail Payment Systems (PIRPS), namely the Imaged Cheque Clearing and Archive System (ICAS), operated by the BOT and the Interbank Transaction Management and Exchange (ITMX), operated by the NITMX.

In 2017, the overall payments in Thailand continued to grow. Both high-value funds transfer via BAHTNET and interbank retail funds transfer exhibited

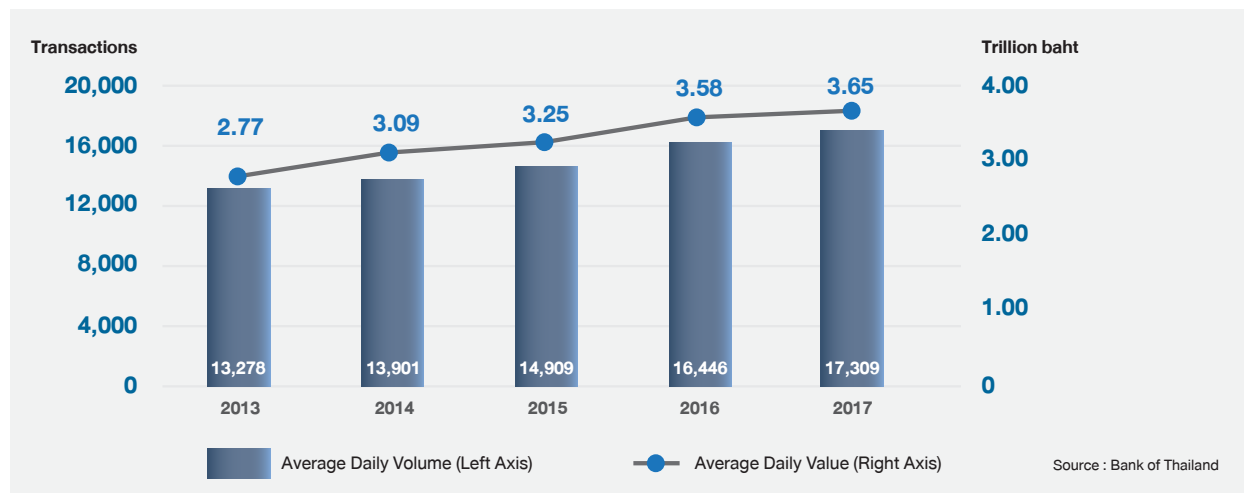
an increasing trend, due to growing electronic funds transfer transactions. Meanwhile, the volume and value of cheque transactions continued to decline. Key trends and risk management of the payment systems operated by the BOT can be summarized as follows:

### 1. Bank of Thailand Automated High-Value Transfer Network (BAHTNET)

#### 1.1 Key Trends

BAHTNET is a real-time gross settlement system that facilitates large value funds transfers between financial institutions. The volume and value of funds transfer through BAHTNET have increased steadily since 2013 consistent with the country's economic expansion. In 2017, funds transfers via BAHTNET totalled 890 trillion baht or 57.6 times of Thailand's gross domestic product (GDP). The volume of funds transfers through BAHTNET averaged at 17,309 transactions per day, increasing by 5.25 percent from 2016. The average daily funds transfer was 3.65 trillion baht in value, increasing by 1.83 percent from 2016.

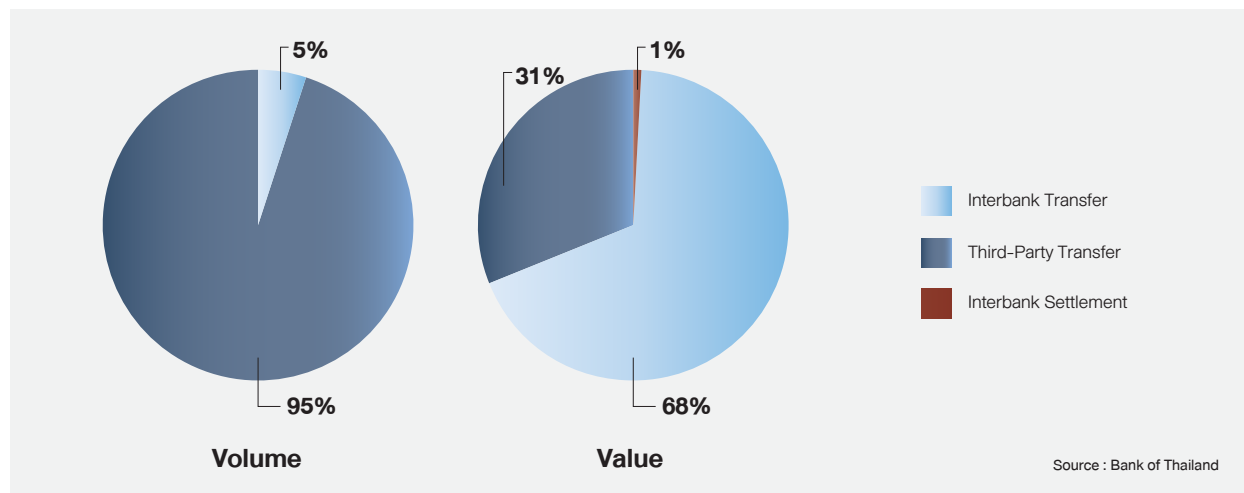
Figure 4: Volume and Value of Transfers via BAHTNET



Comparison of transfers volume by transaction types indicated that a majority (95 percent) of funds transfers via BAHTNET was third-party funds transfer (e.g., businesses, individuals, and non-residents), of which the average transaction value recorded at 67.28 million baht per transaction. The volume of third-party funds transfer has grown steadily over the past five years, with

most transactions worth less than 500,000 baht, representing 53 percent of total transactions. The main contributor to such growth was the increasing volume of non-resident funds transfers. In terms of transfer value, most BAHTNET transactions were interbank funds transfers, which accounted for 68 percent of total transfers and valued on average at 3,159.13 million baht per transaction.

Figure 5: BAHTNET Transfers by Transaction Types





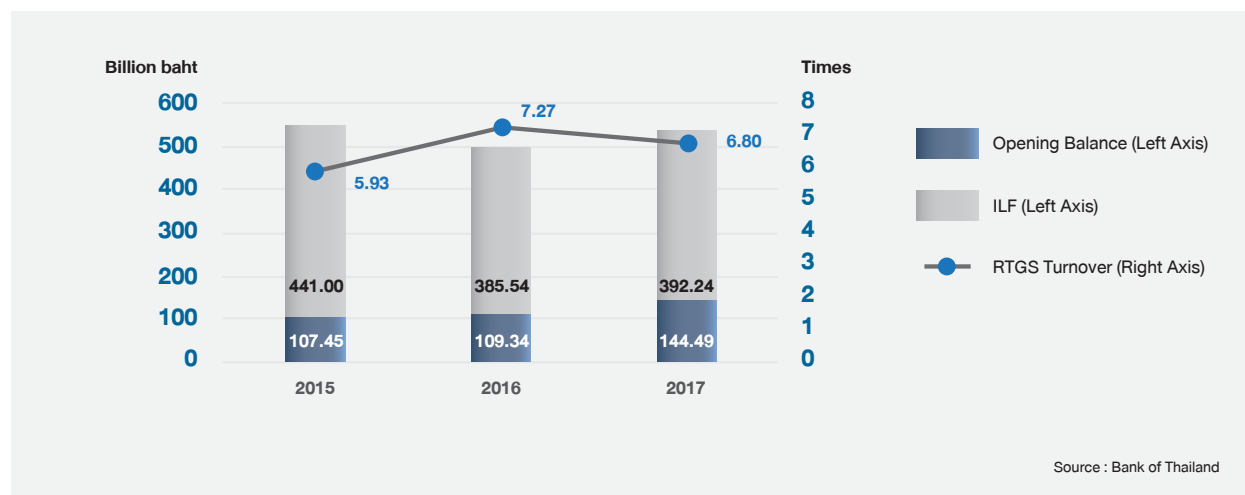
## 1.2 Management of Material Risks

BAHTNET facilitates high-value interbank transfers and settlement of interbank payment transactions occurred through retail payment systems such as ICAS and ITMX. Each day, these retail payment systems send out members' net settlement positions to be settled in BAHTNET. Liquidity risk and settlement risk, therefore, are crucial. All BAHTNET members are required to have sufficient liquidity for uninterrupted fund transfers and settlement as insufficient liquidity of a member can lead to systemic risk.

In 2017, members' intraday liquidity as provided in the Current Account (C/A) and Intraday

Liquidity Facility (ILF) averaged at 144.49 billion baht per day and 392.24 billion baht per day, respectively. The liquidity were sufficient for BAHTNET real-time funds transfer without incurring settlement risk. Queuing transactions, which were usually resolved in less than 5 minutes, accounted for 7 percent of total transactions. The RTGS Turnover, derived from the ratio of average transfer value per day to members' intraday liquidity per day, decreased from 7.27 times in 2016 to 6.80 times in 2017, due to a higher level of C/A and ILF balances maintained by BAHTNET members, thus resulting in lower liquidity turnover in the system.

Figure 6: Intraday Liquidity and RTGS Turnover



Throughout 2017, the BOT undertook several measures to strengthen risk management of the BAHTNET e.g., revising ILF collateral haircut, enacting the Payment Systems Act B.E. 2560 (2017) that includes payment finality of funds transfer or settlement transactions to be deemed completed, and establishing default management procedures in case a member is bankrupt or is under receivership. Further, the BOT improved regulations and guidelines in connection with securities settlement of the Thailand Securities Depository Co., Ltd. (TSD) by laying out default management procedures in case a member is bankrupt or is under receivership in order to prevent systemic risk.

In addition, operational risk is another important risk in the BAHTNET. Business continuity arrangement is therefore vital in supporting smooth functioning of the system. As the operator and the regulator of BAHTNET, the BOT established targeted system availability of 99.8% in 2017. At the end of 2017, the BAHTNET achieved system availability higher than the target. The BOT continually monitors BAHTNET's system availability and regularly reports the results to

concerned management and the PSC. Moreover, in 2017, the BOT also conducted a performance stress test on the BAHTNET. The results were satisfactory in all requirements to support future operations.

## 2. Imaged Cheque Clearing and Archive System: ICAS

### 2.1 Key Trends

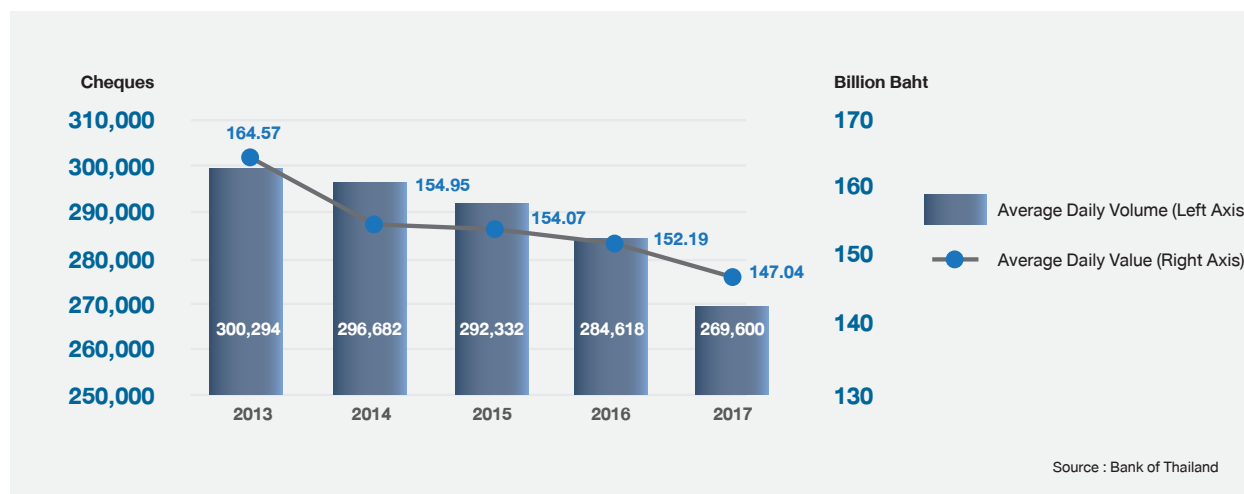
ICAS is an image-based cheque clearing system where cheque images are used in place of physical cheques in the collection process. In 2017, cheque transactions made up the highest proportion of total retail payment transactions<sup>10</sup>, amounting to 106.11 trillion baht or 81 percent of total transactions of 131 trillion baht. However, daily average volume and value of cheques transactions (both same-bank and interbank cheques) declined by 5.28 percent and 3.38 percent, respectively, compared to 2016. This is driven by growing popularity of electronic funds transfer and use of PromptPay for tax refunds instead of cheques. In 2017, volume of interbank cheques averaged at 269,600 cheques per day, equivalent to an average value of 147.04 billion baht per day.



<sup>10</sup> Retail Payment consists of cheque payment and interbank funds transfers.



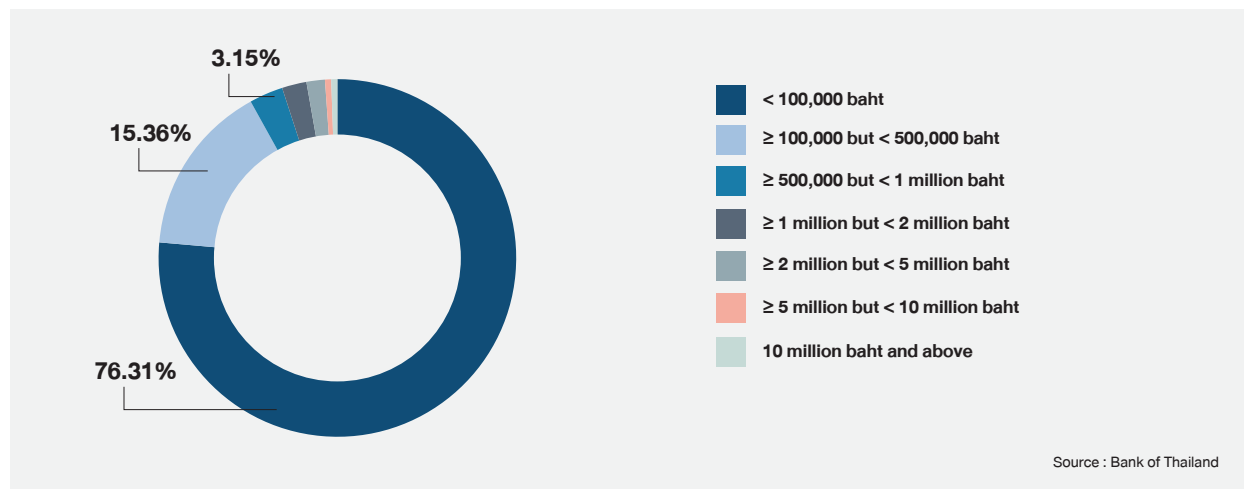
Figure 7: Volume and Value of Nationwide Interbank Cheques



Considering value of interbank cheques per transaction in 2017, a majority of interbank cheques were less than 100,000 baht in value, representing 76.31 percent of total interbank cheques. This was followed by interbank cheques of between 100,000 – 500,000 baht, equivalent to 15.36 percent of total interbank cheques. Interbank cheques of greater than 10 million baht merely accounted for 0.69 percent

of total interbank cheques. Note that, the declining trends in interbank cheques were noticeable among two categories, i.e., interbank cheques of less than 100,000 baht, whose volume decreased by 3.19 million cheques, and interbank cheques of between 100,000 – 500,000 baht, whose volume decreased roughly by 0.5 million cheques. These downward trends were attributed to increasing electronic funds transfer.

Figure 8: Proportion of Interbank Cheques by Values



### 2.2 Management of Material Risks

The BOT continuously manages operational risks and business continuity of ICAS, where the targeted system availability in 2017 was set at 99.8

percent. At the end of 2017, ICAS achieved system availability higher than the target. The BOT continually monitors ICAS system availability and reports results to concerned management and the PSC regularly.

## 2. Preparation for the Financial Sector Assessment Program (FSAP)

The BOT as a regulator of Systemically Important Payment Systems (SIPS) previously participated in the Financial Sector Assessment Program (FSAP)<sup>11</sup> conducted by the International Monetary Fund (IMF) and the World Bank in 2007. The assessment was based on the former international standards of Core Principles for Systemically Important Payment Systems (CPSIPS). The results indicated that the BAHTNET operated efficiently with adequate risk management measures. Nonetheless, the assessors pinpointed required improvements on legal foundation, and suggested a legislative amendment to reduce the risks that completed funds transfers or settlement transactions were subject to cancellation or revocation in case that a member is bankrupted or is subject to a court-ordered administration. In this regard, the BOT has continued to work on these improvements accordingly.

Later, in 2012, the Committee on Payment and Settlement Systems (CPSS), under the umbrella of the Bank for International Settlement (BIS), which is responsible for formulating international standards

on oversight of efficiency and stability of payment systems, together with the Technical Committee of the International Organization of Securities Commissions (IOSCO), which is responsible for formulating international standards on oversight of efficiency and stability of securities-related systems, combined related standards into a single international standard on oversight of efficiency and stability of financial market infrastructure payment, namely Principles for Financial Market Infrastructures (PFMI). During 2013 – 2017, the BOT conducted self-assessments in accordance with the PFMI on the BAHTNET, and continued to improve the BAHTNET to be in compliance with the international standards.

In 2017, the BOT improved the BAHTNET in terms of system operations and risk management (Principles for FMI) and the BOT's responsibilities as a regulator (Responsibilities of Authority) by using the 2016 BAHTNET assessment results as inputs to formulate improvement plans to be in accordance with the PFMI. The BOT constantly improved BAHTNET in various aspects. For instance, the BOT pushed enactment

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<sup>11</sup> Financial Sector Assessment Program (FSAP) is the collaborative efforts of the International Monetary Fund (MF) and the World Bank in conducting assessments on a country's financial stability and levels of financial development. The FSAP assessment consists of 2 parts: (1) Financial Stability Assessment, a mandatory assessment encompassing 3 aspects, i.e., Vulnerabilities and Financial System, Financial Stability Policy Framework, and Financial Safety Net; and (2) Financial Development Assessment.

of the Payment Systems Act B.E. 2560 (2017) that includes payment finality of completed funds transfer or settlement transactions from being revoked once it has been completed; established the Payment Systems risk management framework; set qualification guidelines for BAHTNET participants; and reviewed BAHTNET service costs and fee structure. Further, the BOT also enhanced supervisory efforts pertaining to payment systems, e.g., signing an Memorandum of Understanding (MOU) with the SEC on co-operative oversights of

interdependent FMIs, revising supervisory procedures for highly important payment systems operated by the BOT, and issuing notifications on the stipulation of designated payment systems required supervisions under the international standard PFMI.

Moreover, the BOT and related authorities plan to participate in the Financial Sector Assessment Program (FSAP) in the fourth quarter of 2018, during which the payment systems would be assessed against the Principles for Financial Market Infrastructures (PFMI).



### 3. Payment Systems Co-operative Oversight

The BOT as the regulator of the BAHTNET and the SEC as the regulator of the Central Securities Depositories (CSD), Securities Settlement Systems (SSS), and Central Counterparties (CCP), share responsibilities for the oversight of interconnected FMIs to ensure

safety, security, efficiency, sound risk management, and alignment with the international standards of Principles for Financial Market Infrastructures (PFMI) in order to properly prevent systemic risk in the payment systems.

In 2017, the BOT and the SEC have entered into MOU on co-operative oversights of interconnected FMs to strengthen cooperation between both parties in ensuring safety, security, adequate risk management, and alignment with the international standards of the interdependent FMs, and to efficiently support transactions in both money and capital markets. Scope for the co-operative oversight included formulation of policies and development plans for interconnected FMs, management of key risks, and formulation of

response and recovery plans for potential disruptions that could impact the linked FMs. In addition, the scope also involved arrangements for information and knowledge sharing, governance of confidential information, and designation of coordinators in both normal and emergency situations. The cooperation is in line with the international standards of PFMI with respect to the Responsibility E: Cooperation with other authorities, which emphasizes formal co-operative oversight among regulators of the interdependent FMs.

#### 4. The Oversight and Supervision of e-Payment Service Providers

The BOT oversees and supervises e-payment service providers to ensure proper risk management, trustworthiness, and security of e-Payment services. In 2017, the main oversight activities are as follows:

**1. The supervision activities under the Ministerial Notification of Ministry of Finance: Business for which permissions must be obtained according to Section 5 of the Notification of the Revolution Council No. 58 (e-Money business)**

The BOT supervised non-bank e-Money service providers that have been granted licenses under the Ministerial Notification of Ministry of Finance: Business for which permissions must be obtained according to Section 5 of the Notification of the Revolution Council No. 58 (e-Money business) dated 4 October 2004. At the end of 2017, there were 15 non-bank e-Money service providers, one of which was granted the license this year.

**2. The supervision activities under the Royal Decree on Regulating Electronic Payment Service Business, B.E. 2551 (2008) (the e-Payment Royal Decree) and the Royal Decree on Regulating Electronic Payment Services of Specialized Financial Institutions, B.E. 2559 (2016) (the e-Payment SFIs Royal Decree)**

The BOT supervised e-payment service providers by virtue of the Royal Decree on Regulating Electronic Payment Service Business, B.E. 2551 (2008) and the Royal Decree on Regulating Electronic Payment Services of Specialized Financial Institutions, B.E. 2559 (2016), both of which were issued under the Electronic Transaction Act, B.E. 2544 (2001). The regulated e-payment service providers under both laws are categorized into three levels: List A for businesses required to notify to the BOT prior to providing services, List B for businesses required to register with the BOT prior to providing services, and List C for businesses required to acquire



a license, prior to providing services. In 2017, the BOT oversight activities under both laws are as follows:

1) The BOT acknowledged the applications from List A and List B applicants, and proposed recommendations for List C applicants to the Electronic Transactions Commission (ETC). As of end-2017, there were one List A non-bank service provider, 10 List B non-bank service providers, and 104 List C service providers, comprising of 30 commercial banks, 6 specialized financial institutions, and 68 non-banks. In total, there were 185 licenses, given that 9 List C service providers repealed their licenses in 2017.

2) The BOT supervised and oversaw all e-payment service providers to ensure their compliance with the Royal Decrees and related Notifications, as well as reported supervisory results and findings of non-compliance to the ETC on a regular basis. In parallel, the BOT notified, enforced, and monitored all corrective actions of non-compliance service providers.

Further, the BOT in collaboration with the Ministry of Finance pushed for enactment of the new Payment Systems legislation. The meeting of National Legislative Assembly (NLA) approved the proposal of enacting the Payment Systems Act. The Secretariat of the Cabinet published and announced the Act in the Royal Thai Government Gazette on 18 October 2017. The Act came into effect on 16 April 2018.

All regulated payment service providers under the 3 existing laws who wished to continue their services under the Payment Systems Act B.E. 2560 (2016) would have to apply for licenses from the Ministry of Finance, or register with the BOT within 120 days as from the date of Minister's Notification. In this regard, the BOT had arranged a number of meetings to clarify and facilitate the service providers' preparations to comply with the new regulations. BOT also conducted public hearings among related stakeholders to solicit their viewpoints when drafting the notifications.

