



3 Payment Systems Oversight

3.1 Payment Systems Stability

The BOT has a responsibility in overseeing payment systems stability to ensure that operations are efficient with security measures, consumer protection, risk management and suitable operations as per the Principles for Financial Market Infrastructures (PFMI) of the Bank for International Settlements (BIS).

There are two categories of important payment systems under the BOT's oversight.

1) Systemically Important Payment Systems (SIPS): SIPS are infrastructures that support interbank high-value funds transfer and payment. There is only one SIPS in Thailand, that is, the Bank of Thailand Automated High-Value Transfer Network (BAHTNET), operated by the BOT.

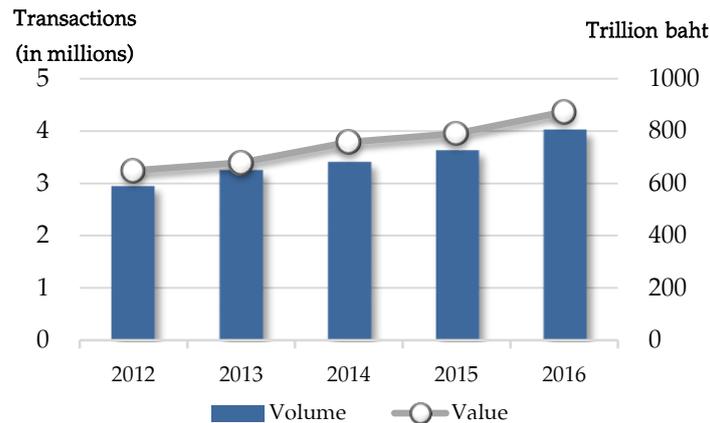
2) Prominently Important Retail Payment Systems (PIRPS): PIRPS include the Imaged Cheque Clearing and Archive System (ICAS), operated by the BOT, and interbank retail funds transfer systems such as ATM pool and interbank retail bulk payment systems, operated by National ITMX Co. Ltd. (NITMX).

3.1.1 Bank of Thailand Automated High-Value Transfer Network: BAHTNET

BAHTNET is an important high-value funds transfer system that caters for funds transfer between financial institutions with deposit accounts at the BOT, for example, interbank funds transfer, third-party funds transfer, funds transfer for securities settlement and multilateral funds transfer. The BOT, thus, needs to supervise BAHTNET's compliance with PFMI so that its operation and risk management are sound, thereby enabling services to be offered with no interruption in both normal and emergency circumstances.



Figure 1: Volume and Value of Funds Transfer through BAHTNET

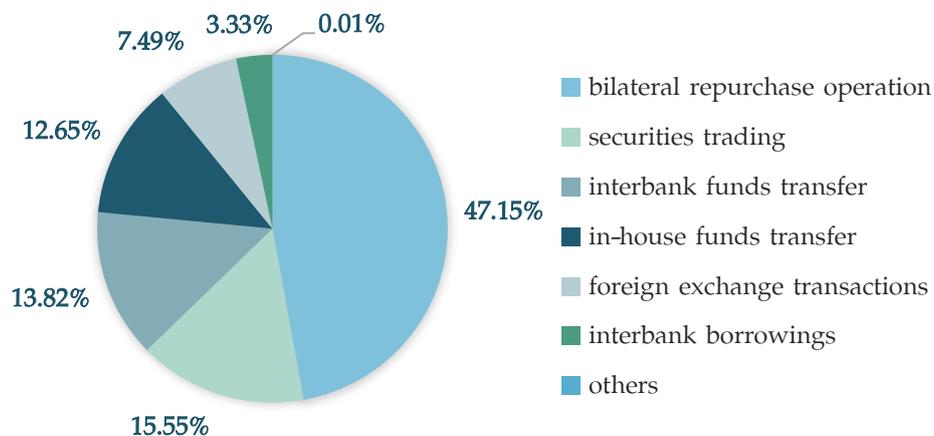


Source: Bank of Thailand

The volume and value of funds transfer through BAHTNET continued to grow steadily. In 2016, funds transfer through BAHTNET totalled at 4 million transactions, equivalent to 874 trillion baht or 60.86 times of GDP. From last year, the volume and value of transactions expanded by 10.76 percent and 10.52 percent, respectively. The average volume stood at 16,446 transactions per day while the average value recorded at 3.58 trillion baht per day.

Categorized by transaction types revealed that bilateral repurchase operations (bilateral RP) was the highest proportion, reaching 47.15 percent with 407.34 trillion baht, followed by securities trading at 15.55 percent, interbank funds transfer at 13.82 percent, in-house funds transfer at 12.65 percent, foreign exchange transactions at 7.49 percent, and interbank borrowings at 3.33 percent.

Figure 2: Proportion of Funds Transfer through BAHTNET Categorized by Transaction Types



Source: Bank of Thailand

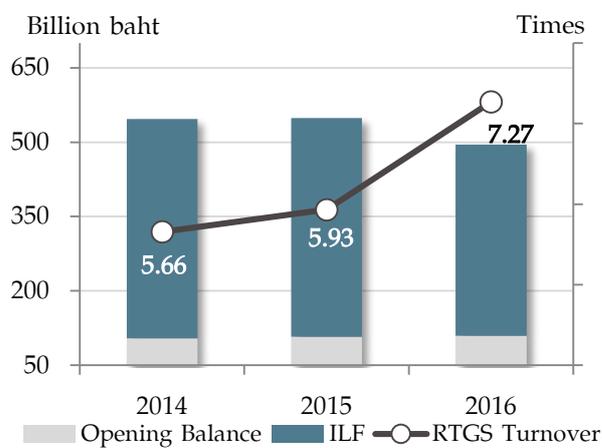


Management of Key Risks in BAHTNET

1) Liquidity Risk and Settlement Risk

The key objective is to ensure that BAHTNET members had adequate liquidity to support BAHTNET funds transfer without incurring settlement risk. In 2016, members' intraday liquidity consisted of opening balances and Intraday Liquidity Facility (ILF), averaging at 385.54 billion baht per day, which was sufficient to support BAHTNET funds transfer without incurring settlement risk and funds transfer was conducted

Figure 3: Daily Average of BAHTNET Intraday Liquidity



Source: Bank of Thailand

smoothly in real-time. Moreover, in terms of liquidity turnover, calculated from the proportion of average transfer value per day to members' intraday liquidity per day, it was observed that liquidity turnover had improved from 2015, increasing from 5.93 times to 7.27 times.

2) Operational Risk

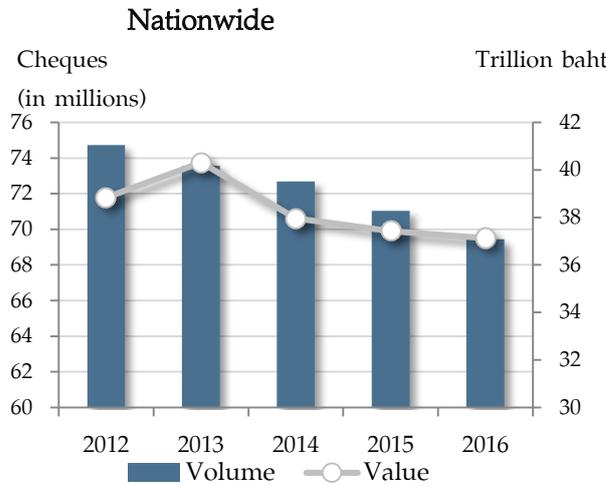
Operational risk is a key risk in BAHTNET. At the same time, management of systems continuity is

an important factor in supporting smooth-functioning of payment systems. Therefore, the BOT supervises payment systems to ensure that they can continue to operate with no interruption in both normal and emergency circumstances. The BOT, as operator of BAHTNET, prescribed target system availability at 99.80 percent in 2016. From previous operations, BAHTNET's system availability was at 100 percent, higher than the target set. In this regard, the BOT monitors BAHTNET's system availability continually and reports results to concerned management and the PSC every six months.



3.1.2 Imaged Cheque Clearing and Archive System: ICAS

Figure 4: Volume and Value of Interbank Cheques ICAS is an important retail funds



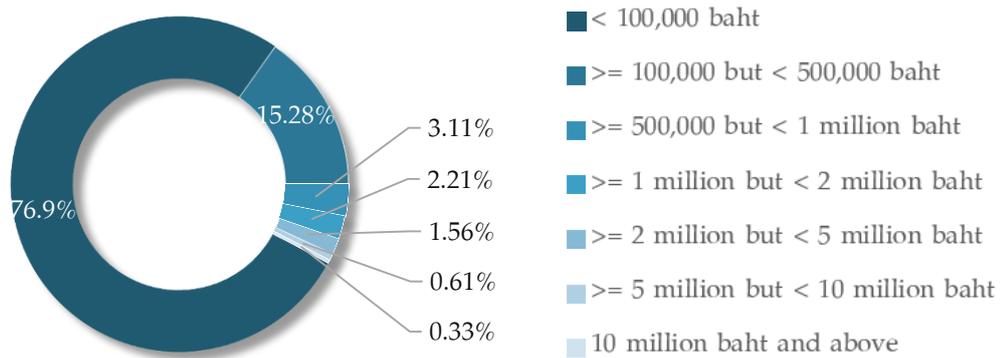
Source: Bank of Thailand

transfer system that caters for interbank imaged cheque clearing. The BOT oversees operation of ICAS according to PFMI³. In 2016, interbank cheques nationwide totalled at 69.44 million cheques, representing 37.13 trillion baht, declining in volume from 2015 by 2.23 percent and declining in value by 0.81 percent. The volume and value of interbank cheques averaged at 284,618

cheques and 152.19 billion baht per day, also trending downwards due to domestic economic condition coupled with notable increase in e-Payment during many previous years.

Most interbank cheques were less than 100,000 baht in value, representing 53.22 million cheques, equivalent to 76.9 percent of all interbank cheques. This was followed by interbank cheques of between 100,000 – 500,000 baht, representing 15.28 percent of all interbank cheques and decreasing by 1.89 percent from 2015.

Figure 5: Volume of Interbank Cheques Classified by Value in 2016



Source: Bank of Thailand

³ The PSC prescribes supervisory guidelines for Prominently Important Retail Payment Systems (PIRPS) by referring to certain areas of PFMI, including legal risk, good governance, policy and framework for risk management, settlement through the central bank account, criteria for administration of assets or bankruptcy, operational risk management, access and participation requirements, communication procedures and standards and disclosure of rules, key procedures and market data. Financial risk, investment risk, exchange of value settlement risk, risk management for tired participation are not included since PIRPS cater for retail funds transfer, transfer value is not high and settlement is sent to be cleared in the high-value funds transfer system (SIPS).



Management of Key Risks in ICAS

The BOT continuously managed operational risk and service continuity of ICAS whereby the target of system availability was set at 99.80 percent. In 2016, ICAS' system availability recorded at 99.99 percent, higher than the target set. The BOT monitors ICAS' system availability continually and reports results to concerned management and the PSC every six months.

3.1.3 Interbank Transaction Management and Exchange: ITMX

The BOT oversees NITMX which is a Prominently Important Retail Payment System (PIRPS) by virtue of the provisions of the Royal Decree on Regulating Electronic Payment Services B.E. 2551 (2008) and applies PFMI in the oversight of NITMX as relevant. Recommendations on risk management strengthening were provided by the BOT.

3.2 Preparation for the Financial Sector Assessment Program (FSAP)

In 2016, the BOT made preparation for the Financial Sector Assessment Program (FSAP) which is jointly conducted by the International Monetary Fund (IMF) and the World Bank in 2018. In this regard, the payment systems comprise one module to be assessed in accordance with the Principle for Financial Market Infrastructures (PFMI).

In this regard, the BOT completed a self-assessment for BAHTNET to ensure that its risk management complies with PFMI in two areas, namely BAHTNET's operation and risk management (Principles for FMI) and the BOT's oversight responsibility of BAHTNET (Responsibilities of Authority). The purpose of this exercise was to step up the oversight and ensure that payment systems to be in line with international standards e.g. legislations on payment finality, availability of a code of conduct and procedures on default management, and drafting of a risk management framework for BAHTNET. These executions will be completed in 2017.



Box 7: Getting to Know FSAP and benefits from Program Participation

The Financial Sector Assessment Program (FSAP) is a jointly development program of the International Monetary Fund (IMF) and the World Bank to assess a country's financial sector in two dimensions: (1) financial sector stability, in order to assess risks that can cultivate vulnerabilities in the country's financial sector and examine the financial sector supervisory and financial protection frameworks to ensure efficiency and align with international standards; and (2) financial sector development, in order to assess the capacity of the financial sector in supporting sustainable economic growth e.g. economic infrastructure, capital market development and financial access.

Participation in the FSAP will enhance confidence on the country's financial systems stability and drive financial sector supervisory authorities to step up supervisory practices to be better aligned with international standards.

Thailand participated in the first FSAP in 2007 where the assessment followed five areas of international standards on supervision, including (1) financial institution supervision; (2) capital market supervision; (3) important payment systems; (4) monetary policy transparency; and (5) AML/CFT. The overall assessment results were satisfactory. Some observations were noted although they have already been rectified.

However, the FSAP was revised in 2009 following the U.S. financial crisis in order to better reflect vulnerabilities and risks to financial system stability. International standards that are used as benchmarks have also been revised to enhance risk management and supervision in various dimensions. As for payment systems standards, the CPSS⁴ and the IOSCO⁵ have developed the Principle for Financial Market Infrastructures (PFMI) to be used in assessing Financial Market Infrastructures (FMIs), which for Thailand include the BAHTNET and the Securities Settlement System.

⁴ The Committee on Payment and Settlement Systems (CPSS) is responsible for formulating international standards on oversight of efficiency and stability of payment systems, under the umbrella of the Bank for International Settlements (BIS).

⁵ The Technical Committee of the International Organization of Securities Commissions (IOSCO) is responsible for formulating international standards on oversight of efficiency and stability of payment systems and securities related systems, under the Bank for International Settlements (BIS).



3.3 Cooperative Oversight

To foster cooperation on the oversight of FMIs in order to ensure cohesiveness, stability, security, efficiency, adequate risk management in accordance with PFMI and suitable prevention of systemic risk, the BOT, as overseer of the BAHTNET, along with the Securities and Exchange Commission (SEC), as supervisor of the Central Counterparties (CCP) operated by Thailand Clearing House (TCH); the Securities Settlement System (SSS); and Central Securities Depositories (CSD) operated by Thailand Securities Depository (TSD), agreed to conduct regular meetings for information and knowledge sharing to ensure the efficiency and effectiveness of interconnected FMIs. A Memorandum of Understanding (MOU) between the BOT and SEC was signed to ensure compliance with PFMI in relation to the principle of Responsibility E: Cooperation with other authorities, which requires a formal arrangement for cooperative oversight between overseer of interconnected FMIs. The scope for cooperative oversight was set to include development of policies and development plans for interconnected FMIs, management of key risks, plans for the potential recovery, wind-down, safety and soundness. These will together, ensure that oversight of the country's FMIs result in system stability, security and efficiency.

3.4 Supervision of e-Payment Service Providers

The BOT supervises e-Payment service providers to ensure sound risk management in the provision of financial transaction services and foster reliable and secure e-Payment services. In this regard, the BOT supervises key e-Payment service providers according to various legislations, including the Notification of the Revolution Council No. 58 (e-Money business), the Royal Decree on Regulating Electronic Payment Services B.E. 2551 (2008) and the Royal Decree on Regulating Electronic Payment Services of Specialized Financial Institutions B.E. 2559 (2016).



3.4.1 Supervision According to Notification of the Ministry of Finance on Business that Requires a Permit According to Section 5 of the Notification of the Revolution Council No. 58 (e-Money business)

The BOT supervises non-bank e-Money service providers as authorized by the Notification of the Ministry of Finance on Business that Requires a Permit According to Section 5 of the Notification of the Revolution Council No. 58 (e-Money business), dated 4 October 2004.

In 2016, the BOT approved and granted the licenses for more 3 e-Money service providers to offer e-Money services on mobile phone applications for payments of goods and services at participating retailers and via online channel. As the result, there were a total of 14 e-Money service providers licensed under the Notification of the Revolution Council No. 58 at the end of 2016.

3.4.2 Supervision According to the Royal Decree on Regulating Electronic Payment Services B.E. 2551 (2008) and the Royal Decree on Regulating Electronic Payment Services of Specialized Financial Institutions B.E. 2559 (2016)

The BOT has a legal mandate to supervise e-Payment service providers according to the Royal Decree on e-Payment and the Royal Decree on SFIs e-Payment, which are subordinate to the Electronic Transactions Act B.E. 2544 (2001). Accordingly, there are three categories of supervisory levels, namely, List A for businesses that are required to make notification to the BOT, List B for businesses that are required to apply for registration with the BOT, and List C for businesses that are required to acquire licenses before providing services. In 2016, the BOT supervised e-Payment service providers according to the Royal Decree on e-Payment and the Royal Decree on SFIs e-Payment as follows.

1) Registered for List B applications and licensing for List C applications to the ETC for approval. In 2016, according to the Royal Decree on e-Payment, there were 2 applications for registration, 15 applications for licensing and according to the Royal Decree on SFIs e-Payment, there were 6 applications for licensing, with totally 21 applications. From the application we received, most of them were internet payment gateway service providers, bill payment service providers and e-Money service

providers. However, there was one List B service provider and 5 List C service providers who cancelled the license.

At the end of 2016, there were one List A service provider, 10 List B service providers, and 103 List C service providers⁶ (consisting of 30 banks, 6 SFIs and 67 non-banks). The total number of licenses issued was 170.

Figure 6: e-Payment Service Providers

List A				List B				List C			
	Bank	SFIs	Non-bank		Bank	SFIs	Non-bank		Bank	SFIs	Non-bank
			1				10		30	6	67
	Bank	SFIs	Non-bank		Bank	SFIs	Non-bank		Bank	SFIs	Non-bank
A e-Money	-	-	1	B (1) Credit card network	-	-	-	C (1) Clearing	-	-	4
Total (Notifications)	-	-	1	B (2) EDC network	-	-	-	C (2) Settlement	3	-	-
Total (Operators)	-	-	1	B (3) Switching	-	-	3	C (3) e-Payment	30	6	53
				B (4) e-Money	-	-	7	C (4) Switching	-	-	4
				Total (Registrations)	-	-	10	C (5) Bill payment	21	4	23
				Total (Operators)	-	-	10	C (6) e-Money	8	-	14
								Total (Registrations)	62	10	98
								Total (Operators)	30	6	67

Source: Bank of Thailand

2) Supervised and conducted off-site monitoring in compliance with the Royal Decree on e-Payment and related notifications: The BOT monitored complaints to service providers, and followed up on the investigation to ensure legal compliance. In 2016, some non-compliance findings with prescribed legislations were found, but those were not material impact to the services. In this case, result of oversight activities and findings of non-compliance by service providers were reported to the ETC. The concerned service providers were also notified and the issues were promptly addressed.

3) Conducted on-site examination at offices of e-Payment service providers. In 2016, the BOT conducted on-site examination and observed operations of non-bank e-Payment service providers under List B and List C. Consideration was given to businesses that were widely used among users, extent of impact on users, financial

⁶ List of e-Payment service providers can be found on the BOT's website (<https://www.bot.or.th/English/PaymentSystems/OversightOfEmoney/ListOfEmoney/Pages/eMoneyProvider.aspx>)



soundness of service providers, and complaints from users. The BOT examined and assessed service providers' operations in terms of financial soundness, governance, business risk management and IT risk management. Findings were reported to service providers and follow-ups were conducted to ascertain that improvements were carried out as per the orders, thereby fostering payment systems stability and confidence in e-Payment services.