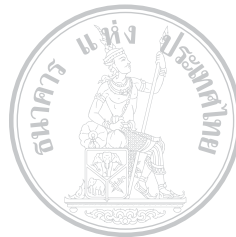




ธนาคารแห่งประเทศไทย

PAYMENT
SYSTEMS
REPORT



2009

PAYMENT SYSTEMS REPORT

PAYMENT SYSTEMS REPORT

2009



JUNE 2010



KEY PAYMENT STATISTICS IN 2009

Total population	63.5	million
Nominal gross domestic product (GDP)	9,047.6	billion baht

Technological Infrastructure

- Number of fixed-line phone subscribers per 100 people: 11
- Number of mobile phone subscribers per 100 people: 109



Payment Statistics

- Number of Thai commercial banks 17 with 5,791 branches
- Number of foreign commercial banks 15 with 15 branches
- Number of specialized financial institutions (Banks only) 6 with 2,055 branches
- Number of post office branches 1,254
- Number of automated teller machines (ATM) 39,454
- Number of EFTPOS machines 247,837
- Number of credit cards 13,489,422
- Number of debit cards 30,703,339
- Number of ATM cards 21,039,987
- Currency in circulation per capita as of 31 December 2009 13,286 baht
- Average cheque usage per capita¹ 2 cheques per year
- Monthly average value of credit card payments² 3,462 baht per credit card
- Monthly average value of cash withdrawals via ATM card 6,459 baht per ATM card
- Monthly average value of debit card payments³ 67 baht per debit card
- Monthly average value of cash withdrawals via debit card 8,618 baht per debit card

¹ Average cheque usage per capita includes both interbank and intrabank cheques.

² Refers only to payments for goods and services through EFTPOS within and outside Thailand using domestically issued credit cards.

³ Refers only to payments for goods and services through EFTPOS within and outside Thailand using domestically issued debit cards.

Message from the Chairman of the Payment Systems Committee

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In 2009, the Bank of Thailand (BOT) appointed new members to its Payment Systems Committee (PSC) in accordance with the enactment of the amended BOT Act B.E. 2551 (2008). This has established the task of maintaining payment systems stability as another central bank core mandate in addition to preserving monetary and financial institutions stability.

The new committee structure, which serves to create a cooperative forum for key stakeholders in the payment systems industry, now comprises of three internal members from the central bank and four external members, including the chairman of the Thai Bankers' Association, the vice chairman of the Thai Chamber of Commerce, the deputy director of the Comptroller General's Department and the commissioner of the Electronic Transactions Commission. With improved governance and transparency, the committee operates as a national payment systems policy-making platform that draws upon diverse views from qualified experts, making it more responsive to stakeholders' needs.

In the past year, the PSC defined key policies and development strategies for many payment infrastructure projects initiated by various working groups represented by commercial banks, government agencies, the private sector and academia. As this collaborative effort led to progressive and concrete results, it can be said that 2009 was a year of 'synergy in Thai payment systems'.

The Payment Systems Roadmap 2010, which commenced in 2007, provided the strategic framework for forming the above mentioned projects and working groups. Through the roadmap, the PSC seeks to make electronic payments more widespread, ensuring that services are efficient, safe, economical, and have strong legal foundations and effective enforcement. To achieve this vision, the PSC has given priority to developing infrastructures in several areas, the first of which is fees. This is a key factor which determines the consumer's choice of method of payment. Fees for electronic payments should, in principle, be lower than that of cash and cheque payments, in order to promote their use by the corporate sector and public as a more efficient and convenient means of payment for consumers, as well as offering cost-savings to businesses and financial institutions.

Payment service charges should be equitable to both customers and financial institutions and transparent in terms of the public being clearly notified on the commissions and conditions attached to the services.

The second area is to promote cash substitution with debit and credit card payments for goods and services. This is to improve customer convenience and reduce cash management costs incurred by merchants and financial institutions. The local switch project was endorsed by the PSC and aims to create a processing infrastructure for routing local debit and credit card transactions from cards that are issued by local card issuers. As a result, this would help reduce reliance on foreign networks, eliminate unnecessary fees paid in foreign currency to overseas service providers, and economize on merchant and financial institutions card acceptance costs, leading to greater card usage.

The local switching system will also enable card acquiring institutions to conveniently share their electronic data capture devices, reducing duplicative investments in card payment terminals, which can amount from five to ten terminals at each point of sale in many department stores, and ultimately, enhance the overall efficiency of the payment system.

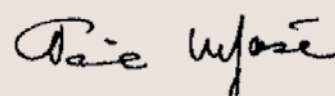
The third area is to further improve the efficient use of automated teller machines (ATMs). Their continued growth has raised the issue of over concentration, particularly in commercial centers and urban areas where ATM terminals from different banks stand close to one another, while in provincial locations, they remain sparsely distributed. Therefore, attempts to set up shared ATM terminals to reduce economic costs and to support their wider distribution and penetration into the provinces should be greatly encouraged.

The fourth area is to develop a national payment message standard. This is to enable financial institutions and the corporate sector to use a common message format, departing from current practices of adopting separate standards for data interchange by different institutions. Introducing such international standards, based on ISO 20022, would enhance the speed and convenience for data interchange, and reduce the systems development and maintenance tasks of financial institutions and the corporate sector.

The final area is to develop an Imaged Cheque Clearing and Archive System (ICAS). This is based on replacing the physical transport and handling of cheques at present with an exchange of their electronic images among financial institutions. Transport cost savings and an extension of the cheque deposit cut-off time are among the benefits passed on to financial institutions. Businesses also stand to gain from the improved services by obtaining funds within one business day nationwide. The ICAS service is expected to be available in the capital and metropolitan areas within 2010 and will cover the entire country by 2012.

I strongly believe that the above policies and work programs will modernize the Thai payment system. This will help lower payment costs, put the country on par with international best practices, and efficiently support the Thai economy.

As the progress and success of the projects have been made possible with the full support from both public and private sectors, I would like to extend my appreciation to the PSC, the various working groups, and relevant stakeholders for their dedicated co-operation and support in providing information and comments. As this will help drive the Thai payment system towards the goals of the roadmap, such continued and invaluable support is greatly welcomed going forward.



Mrs. Tarisa Watanagase

Chairperson of the Payment Systems Committee

July 2010

Payment Systems Committee (PSC)

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Chairman

Dr. Tarisa Watanagase
Governor

Responsibilities of the Payment Systems Committee (PSC)

Section 17 of the Bank of Thailand Act mandates the establishment of a Payment Systems Committee (PSC) for formulating the policies and monitoring the implementation of the policies on payment systems under the supervision of the BOT, and on interbank clearing and settlement systems.

Vice Chairman



1. Dr. Atchana Waiquamdee
Deputy Governor
Corporate Support Services



2. Mr. Krirk Vanikkul
Deputy Governor
Financial Institutions Stability

Committee Members



1. Mr. Apisak Tantivorawong
Chairman,
Thai Bankers' Association



2. Mr. Somkiat Anurath
Vice Chairman,
Thai Chamber of Commerce



3. Miss Suthirat Ratanachote
Deputy Director,
The Comptroller General's Department



4. Mrs. Saowanee Suwannacheep
Commissioner,
Electronic Transactions Commission

Secretary



5. Dr. Chim Tantiyaswasdikul
Assistant Governor
Information Technology Group



Responsibilities of the Payment Systems Committee (PSC)

08 Section 17 of the Bank of Thailand Act mandates the establishment of a Payment Systems Committee (PSC) for formulating the policies and monitoring the implementation of the policies on payment systems under the supervision of the BOT, and on interbank clearing and settlement systems.

In 2009, PSC approved a number of principal policies as summarized below.

Principal policies approved by PSC in 2009

- **Payment Fees Policy**

The PSC has endorsed the Payment Fees Policy which requires that “the setting of fees for payment services be transparent, fair, explainable and conducive to competition in order to drive payment systems efficiency” and has approved guidelines on the implementation of the Payment Fees Policy as following.

- (1) Guidelines for service providers to explicitly disclose fees information to customers before making decisions;
- (2) Restructuring payment fees for corporate users, such as fees of ITMX Bulk Payment, cheque, etc.
- (3) Restructuring payment fees for consumer users, such as fees of ATM/branch withdrawals and transfers, domestic card payment under local switching, etc.

- **Guideline on the development of Local Switching System for Domestic Card Transactions**

The PSC has acknowledged the Local Switching System development feasibility report produced by the working group on electronic payment systems for “consumer” users and has approved the principle of local switching system development to

accommodate domestic transactions of locally issued cards. The scheme is aimed at replacing the use of cash as well as reducing the overall payment-related costs and risks, especially fees payable to overseas switching centers, cash handling costs of all parties involved, banks and merchants, and the risks of cash usage.

- **National Payment Message Standard**

The PSC has endorsed the draft national payment message standard which would link the business sector to payment service providers, allowing every institution to use a standardized message format. The standard will enhance speed and efficiency as well as decrease the burden of duplicate data entry including the reduction of the business sector's system maintenance as financial institutions currently uses different message formats. In this connection, the BOT has commissioned the National Electronics and Computer Technology Center (NECTEC) to study and work together in planning and developing a draft message standard with emphasis on increasing electronic payment services efficiency. The PSC has also approved the approach to promotion of the national payment message standard which is expected to be implemented by all service providers, particularly commercial banks within 2011.

- **BAHTNET Intraday Liquidity Facilities**

The PSC has approved the regulations and conditions of the Intraday Liquidity Facilities (ILF) for BAHTNET pursuant to the Draft Bank of Thailand Regulation on Purchase of Debt Instruments under Repurchase Contract for Intraday Liquidity Facilities B.E. 2552 effective since October 2009.



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1.1 Payment Policy

The Payment Systems Roadmap 2010 has been devised by the BOT as a framework for the implementation of Thailand's payment systems policies over the course of 2007-2010. The aim of the Roadmap is to promote wider use of electronic payment systems based on secure and efficient services, fair pricing as well as effective laws and enforcement. To successfully implement the Roadmap, the BOT has formulated action plans and set up working parties comprising representatives of public and private bodies, such as the Thai Bankers' Association, Association of International Banks, National Electronics and Computer Technology Center (NECTEC), Board of Trade of Thailand, state agencies and the BOT.

The progress achieved by the working groups can be summarized below:

1) Implementation plan to promote attractive electronic payment systems for "consumer" users

The implementation plan to promote attractive electronic payment systems for "consumer" users is aimed at exploring the feasibility of developing electronic payment systems in different aspects. During the reporting period, major implementations have been delivered by the working groups as follows:

- (1) The Local Switching working group has concluded the feasibility study on the development of the local switching system to support the usage of the domestic card payment over the cash usage. The system is designed to reduce payment-related costs, particularly fees payable to overseas switching centers and cash handling costs of banks and merchants. The working group has assessed the various aspects of the system including business feasibility, business model, techniques and



design, security, implementation plan and fee structure. Meetings have also been held with financial institutions, merchants, system developers and state agencies to provide briefing on the new scheme and to discuss ideas on implementation and action plans.

- (2) The working group on e-Money has met with the Bangkok Mass Transit System PCL, the Bangkok Metro PCL and the Office of Transport and Traffic Policy and Planning to discuss the upgrading of e-Money in public transport systems to compatibility with other sectors in the future. The working group has also conferred with stakeholders to consider the policy on National Card Standard (NCS) and the Interoperable Security Access Module (InterOpSAM) and to discuss the approach to setting a fee structure for open-loop e-money services as well as establishing a Central Clearing House (CCH).
- (3) The working group on electronic payment services for e-Commerce has invited relevant organizations to provide the BOT with information and advice on electronic payment.
- (4) The working group on Electronic Bill Presentment and Payment (EBPP) has considered the approach to developing an EBPP system to support B2C and B2B transactions, on which the majority of the working group has recommended: (1) that a focal agency is set up to act as a consolidator of electronic bill presentment and payment service providers; (2) that national payment standards are established and the EBPP business model for B2C is considered.



1 Key Developments in Domestic Payment Systems

16 2) Implementation plan to promote attractive electronic payment systems for “corporate” user

The implementation plan for promoting attractive electronic payment systems for “corporate” user is aimed at reducing the limitations of electronic payments usage, driving for the legal acceptance of electronic documentation and establishing a common payment message format among corporates and financial institutions. The BOT has since commissioned the NECTEC to develop a national standard for electronic payment message which will enable businesses and banks to have easier data linkages while minimizing duplication of investment and improving transactional efficiency. Meetings with financial institutions, corporates and public agencies have also been held to communicate the planned changes and to invite their voluntary participation in piloting the new standard, which is expected to be fully operational in 2011.

3) Implementation plan to study and revise payment costs and fee structure

The objective of the implementation plan for studying and reviewing payment costs and fees is to ensure that payment charges are appropriate and fair to both service providers and users. Undertaken under this plan are the study of commercial banks’ service cost management efficiency and the study on the structure and competitive behavior in the interbank bulk payment system and money deposit, withdrawal, and transfer via ATM in Thailand. The findings of the projects would feed into the guidelines for service fee pricing that encourages competition and increases efficiency in payment systems.

The PSC has also outlined a payment fee policy framework aimed at ensuring that pricing of payment service fees is fair, transparent, accountable and conducive to competition, leading to promotion of efficient modes of payment such as electronic channels. The policy further calls for the BOT to revise and impose the guidelines that fees information is disclosed conveniently available to customers prior to their decision to use services and to review the payment fee structure for operators and consumers.



4) Implementation plan to establish standards and guidelines for the observance of local and international laws and regulations

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The implementation plan for establishing standards and practices compliant with local and international laws and regulations aims to institute a common set of standards or practices for electronic payment providers in line with applicable local and international laws and regulations. Over the reporting period, the working group has drawn up new guidelines for banks on rectification of customers' transfer errors to ensure uniform practices among financial institutions and speedier solutions to customer problems. These practices will include cases of either errors by customers instructing the transfers or errors on the part of bank staff processing the transactions. They will cover transactions of private credit transfers which consist of interbank transfers via bank branch, ATMs and the Internet; deposits through other banks' cash deposit machines (CDMs); and interbank transfers via ITMX Bulk Payment system.

5) Implementation plan to improve payment system oversight efficiency

The implementation plan for improving payment systems oversight efficiency is aimed at overseeing electronic payment providers' legal compliance and conformity to international standards. In this connection, the BOT is responsible for ensuring that such service providers comply with all statutory requirements including the Notification of the Ministry of Finance: Business that Requires a Permit According to Section 5 of the Notification of the Revolution Council No. 58 (Business of Electronic Money Card) and the Royal Decree Regulating Electronic Payment Service Business B.E. 2551. The BOT has worked to push for the enactment of the Royal Decree and for the drafting of related notifications and regulations while gearing itself for the oversight of statutory compliance by electronic payment providers.



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6) Implementation plan for BAHTNET risk management

The aim of the BAHTNET risk management implementation plan is to put in place risk prevention tools and measures in ensuring that all payment transactions meet international standards. During the reporting period, changes to BOT-related legislation have undergone consideration for submission to the Subcommittee on Amendments to Bankruptcy Act B.E. 2483. The changes proposed include the definition of “financial contract”, the addition of sections on payment finality and the revision to the ‘zero hour rule’ which determines that a transfer transaction among BAHTNET participants is considered completed even if the transaction is conducted after the participant is stated insolvent by the court.

In addition, the BOT has also devised the Securities Requirement for Settlement (SRS) measure to mitigate settlement risk and has communicated the relevant draft notifications to all BAHTNET users.

7) Implementation plan in preparation for cross-border linkage of the BAHTNET system

The aim of the BAHTNET cross-border linkages implementation plan is to establish cooperation between the BOT and financial institutions in exploring the benefits and impacts of BAHTNET cross-border linkages on a Payment-versus-Payment (PvP) basis with a view to minimizing foreign currency risk. The BOT has met with commercial banks to consider the signing of a letter of intent with CLS Bank to start the process of assessing Thailand’s readiness for joining the Continuous Linked Settlement (CLS) system under no legal obligations.





8) Implementation plan for linkage of retail payment systems among ASEAN and some Asian countries

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The implementation plan for retail payment linkages among ASEAN and selected Asian countries (the ASEANPay Project) sets out the development of cross-border retail payment infrastructure in ASEAN countries to accommodate the region's expanding trade and investment and improve its economic competitiveness in the global markets. During the reporting period, an ASEANPay Standards Framework has been defined, while the role of the Steering Committee (comprising representatives of member countries' central banks) has changed from an active facilitating one to a monitoring one that supports the network operator.

Furthermore, the BOT has coordinated with the National ITMX Company Limited (NITMX) and the Korea Financial Telecommunications and Clearings Institute (KFTC), South Korea's ATM network operator, on the international ATM linkage plan of South Korea.

9) Implementation plan for payment systems development, which related to trade and investment promotion, between Thailand and neighboring countries

The plan to develop payment systems for trade and investment between Thailand and neighbouring countries is aimed at promoting payment alternatives via commercial banking systems which will facilitate trade and investment between Thailand and neighbouring countries. An advisory group on payment systems development plan to support cross-border trade and investment, consisting of representatives of commercial banks and Board of Trade of Thailand, has been set up to provide advice and guidance to the BOT's related working group.

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During the year, the advisory group has identified and compiled the problems and barriers to Thailand's cross-border trade and investment in respect of payment issues. The BOT has also organized meetings with Thai commercial banks operating in Laos PDR to consider and discuss solutions to their problems.

1.2 Payment Infrastructures

1.2.1 BAHTNET Initiatives in 2009

- (1) **BAHTNET Enhancement:** The BOT has enhanced the BAHTNET system to accommodate the cover payment method for bank-to-bank transfer instructions (the MT202 COV) under the SWIFT's Standard Release Guide 2009. The new message format, which contains originator and beneficiary details thus providing financial institutions with information needed for anti-money laundering and anti-terrorist financing compliance requirements, has been introduced since November 2009.
- (2) **Intraday Liquidity Facilities in BAHTNET:** In 2009, the BOT annulled the Bank of Thailand Regulations and Notifications on Intraday Liquidity Facilities (ILF) B.E. 2549 and has issued new regulations by virtue of the Bank of Thailand Act B.E. 2485 as amended by the Bank of Thailand Act (No.4) B.E. 2551, to ensure conformity with its rules/notifications on money market liquidity facilities. The ILF criteria and conditions would remain the same except for the setting of haircut rates for securities repurchase which has been aligned with the new haircut-setting for liquidity facility transactions.

In addition, the BOT has revised the securities custody fees and calculation method by changing the cut-off point for calculation of ILF securities account balance, i.e. from at end of month to at end of day.



The adjustments, made in line with the new fee calculation method of the Thailand Securities Depository Company Limited and the Thailand Clearing House Company Limited, will be put into effect from 1 January 2010.

- (3) BAHTNET Risk Management: The BOT has developed systems and drafted notifications to support the design of measures to control risks in BAHTNET multilateral netting settlement. Under the new measures, BAHTNET users with net settlement transactions would be required to pledge BOT-prescribed debt instruments for settlement. Criteria and procedures have also been established for cases where users of BAHTNET have insufficient liquidity and securities for settlement.

1.2.2 Imaged Cheque Clearing and Archive System (ICAS) Project

The BOT has been implementing the project on the development of Imaged Cheque Clearing and Archive System (ICAS) which uses cheque images instead of physical cheques in the collection process. Designed to shorten nationwide collection period to 1 business day and reduce cheque transportation costs, the system is scheduled to be operational in Greater Bangkok in 2010 and will be extended across the country by 2012.



The ICAS consists of 2 sub-systems, i.e. the Imaged Cheque Clearing System (ICS) and the Image Archive System (IAS). Implementation progress to date includes the following:

- (1) The BOT has fully developed the ICAS and arranged user training for all member banks in November 2009. The first system test was conducted with member banks from 2 to 25 December 2009, while the second test is planned to be run with members around February 2010.

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- (2) The BOT has published the 2009 physical cheque standard and cheque image standard to accommodate the ICAS application. These standards have incorporated techniques for preventing cheque forgery and alterations, i.e. the requirements for every cheque to have a common watermark and to be printed on laser grade CBS1 paper.
- (3) The BOT has met with the working group on cheque clearing system enhancement and other member banks to communicate and discuss the design and details of the system, applicable rules and notifications, member banks' agreement as well as related legal issues.
- (4) Documents on ICAS have been issued by the BOT to ensure that member banks have their processes prepared and internal procedural rules established for the new system. These include interface specifications, data and image transmission procedures and ICAS User's Manual.
- (5) The BOT has publicized the ICAS to the business sector and general public by giving press conferences, publishing articles on the BOT website and in financial magazines, as well as exhibiting at the Money Expo.



1.2.3 Securities Requirements for Settlement (SRS)

The BOT gave its approval on 4 August 2008 for systemic risk management measure called Securities Requirement for Settlement (SRS). The measure will help reduce the likelihood of financial institutions failing to settle their debt positions due to the deferred net settlement transactions while minimizing the impact on other banks which rely on settlement liquidity to make payments or transfers in BAHTNET, thus ensuring more stability in the overall payment systems.

The scope and key principles of the SRS measure are as follows:

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- (1) BAHTNET member institutions with net settlement transactions are required to pledge their debt instruments in accordance with the BOT's criteria, which are set on the basis of past debit position.
- (2) The debt instruments pledged would be used for settlement purposes. In the event that, on any given day, any financial institution faces liquidity problems and fails to borrow from other sources to settle their net debit position in BAHTNET, then the BOT will consider loaning to that institution by purchasing the pledged securities to fund the adverse balance, on the condition that the financial institution must repurchase the securities at the end-of-day time set by the BOT.

During the reporting year, the BOT has developed the processes and systems for managing debt securities for the SRS. Consultations have also been held with the BAHTNET Advisory Group and BAHTNET users to discuss draft notifications, procedural rules, draft users' agreement and other related documents under the SRS measure, as well as the undertaking of industry-wide test (IWT). The measure is planned to be introduced in May 2010.

1.2.4 Executives' Meeting of East Asia-Pacific Central Banks (EMEAP⁴)

In 2009, the BOT took part in two meetings of the EMEAP Working Group on Payment and Settlement Systems (WGPSS), i.e. the 20th Meeting of the EMEAP WGPSS in Shanghai, China during 26-27 March 2009 and the 21st Meeting of the EMEAP WGPSS in Hong Kong Special Administrative Region, during 10-11 September 2009. Both meetings covered important issues on payment



⁴ EMEAP membership consists of 10 countries and territory, namely Australia, China, Hong Kong Special Administrative Region, Indonesia, Japan, South Korea, Malaysia, New Zealand, Philippines, Singapore, and Thailand.

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24 systems such as the impact on EMEAP members of the US financial crisis, the Lehman Brothers' collapse and the 2009 influenza pandemic. In conclusion, these incidents had no effect on most member countries' financial and payment systems.

The meetings also saw cooperation among member countries in strengthening risk management practices and working towards greater security in payment systems. This include such efforts as a payment risk seminar to share knowledge and information on risk management especially in regard to foreign exchange settlement risk, a survey of members' business continuity management during the epidemic situations, and the establishment of cooperation with the Belgian central bank in overseeing the providers of SWIFT - an international funds transfer system.

1.3 Payment Systems Oversight

1.3.1 Oversight of Electronic Payment Services Providers

By virtue of the Royal Decree on Regulating Electronic Payment Business B.E.2551 which came into force on 14 January 2009, BOT is vested with supervisory authority to govern and regulate electronic payment business. The decree classified three groups of electronic payment service providers which are related service providers is based on the severity of potential impacts. Whereas:

- List A is required to make notification to BOT.
- List B is required to make registration with BOT.
- List C is required to be licensed before providing services.

In 2009, under the jurisdiction, BOT implemented the following:

1. Drafting notifications, rules, standards and conditions of electronic payment business as well as policies and measures to ensure information system



security of electronic payment services. A total of 4 notifications have since been drafted and submitted for endorsement by the Electronic Transactions Commission and for further promulgation to all operators. These include one notification of the Electronic Transactions Commission and three Bank of Thailand notifications.

2. Issuing notification acknowledgements and registration acknowledgements to those willing to be service providers under List A and List B respectively. To date, no providers have fallen under the 'notification' category, while six operators were issued with registration acknowledgements in 2009.
3. Receiving applications for List C provider license and submitting to the Commission for approval. Currently, there are sixty-seven List C providers, comprising thirty-two commercial banks and thirty-five non-bank providers; total number of licenses applied for was 104.
4. Monitoring and checking compliance of service providers with the Royal Decree and all related notifications, and reporting its oversight performance to the Electronic Transactions Commission on a regular basis.
5. Publicizing, on a continuing basis, the enforcement of the Royal Decree to ensure that providers of electronic payment services notify, register or apply for a license as per statutory requirements.



1.3.2 Oversight of e-Money Operators

As a supervisory authority in charge of electronic payment business, BOT is responsible for the oversight of non-bank participants who provide electronic money services within the country. Presently, six non-bank agents are authorized to operate e-money services under the Ministry of Finance's ministerial notification governing authorization of business as prescribed by clause 5 of the Notification of the Revolutionary Council No. 58 dated 4th October, 2004.

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In 2009, all the six non-bank e-money service providers complied with the prescribed rules and regulation of the business. Most providers were fully compliant with the established rules, standards and conditions. Only one provider was discovered, on BOT's inspection, to have not complied with the central bank's notification requiring the maintenance at any given time of deposit reserves against customers' prepayment balances. The BOT has since taken legal action against the non-compliant provider.



1.4 Outlook for Payment Services

Over the past year, the development of Thailand payment systems has continuously kept pace along with information technology. Service providers, comprised banks and non-banks, have applied the internet and mobile phones technologies to improve speed and convenience, while users have become more familiar with the safety aspect and have had more confidence to using electronic services. As a result, there has been a steady rise in electronic payment transactions, especially online and mobile banking for consumer customers.

Thailand payment systems in the future are likely to be progressively developed both in terms of technology and business trends as a consequence of two main factors, i.e. driven from service providers and driven from regulator's policies.

1. Driven by Service Providers

Recently, payment service providers have been enthusiastic to developing service innovation, particularly with regard to the development of electronic payment services, such as electronic cards, the Internet, mobile phones. These innovations will be the primary goal of future service development for the following reasons:



1) **Increasing of competition among service providers:** Financial institutions - the major players in the payment services market have been competing more strongly to maintain their customer base and boost service revenues. Despite having a smaller market share due to orientation to specific customer groups, non-bank providers are also expected to play a bigger role in the future, especially in relation to the adoption of new technologies in their service provision, e.g. contactless technology in e-money services.

2) **Financial Institutions' fees revenue boost:** Financial institutions have always been dependent on loan interest as their main source of revenue. However, the impact of the global economic crisis on Thai economy has brought unpredictability to such interest income, necessitating banks to boost their fees revenue. The situation would prompt financial institutions to develop new products and services that offer added value to customers while earning them more fees.

3) **Providers' cost-cutting measure:** Cost-cutting is another factor which promotes greater use of electronic payment systems, since the cost to operators of providing electronic services is relatively lower than that of labour-intensive branch services. Increased transactions via electronic channels will also lead to economies of scale that bring down unit cost of service. In the future, providers are likely to develop new service channels and encourage their customers to use more of electronic means of service, such as promoting the use of ATMs, cash deposit machines as well as mobile and internet banking instead of branch services which bear higher costs.

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The above drivers will bring about changes to Thai payment systems, either in the form of technological innovations for creating new service channels and electronic payment media such as the adoption of contactless technology in debit/credit-card and e-money services, or the introduction of new services which give customers online and mobile access. Providers will also be launching new products that deliver greater value to customers, both in terms of convenience and extra benefit, for example, debit cards with accident coverage and credit cards entitling holders to varied benefits.

Heightened competition in prices or fees can be expected in the future. Although thus far price competition in the payment market has not been very intense because of customer behaviour of not tending to switch their banks as well as the practices of setting similar fees by most banks, today some financial institutions have started adopting more aggressive pricing practices. For example, some bankers do not charge for interbank ATM withdrawals, or charge the same fee nationwide without extra inter-provincial fees. Increased price competition will likely be seen, particularly among small and medium providers seeking to attract customers through differentiation which will, as a result, provide users with more benefits and greater choice of services.

2. Driven by Regulator's Policy

Another factor contributing to new payment services has been the regulators' payment systems policy, especially BOT's payment systems roadmap which sets the goal of achieving greater use of electronic payments instead of cash and cheque usage. In this connection, the BOT has been collaborating with the working groups comprising provider and user organizations, public and private, in the implementation of various payment infrastructural development programmes that will lead to a number of new services for consumers as follows.



1) **Enhancement of the utility of ATM cards to replace cash payments:**

Over the past year, there has been cooperation among financial institutions in establishing linkages between card issuers and account holders. The efforts are aimed at enabling customers to use their ATM cards to pay for goods or services as well as allowing domestic card payment transactions to be locally processed without the need for processing via overseas switching centers. The transactional cost saving to businesses and merchants would subsequently make card payments more widespread. As a result, ATM card holders would be given the convenience of not having to withdraw cash from ATMs in order to pay for goods and services. The new system could also help reduce the risk of holding cash.

2) **Broadening of e-Money services:** The scope of e-money services will be expanded to allow usability across different business sectors - an upgrade to the current applications which function only for the services provided by each operator in the retail and public transport sectors without interoperability among providers. It is expected that in the near future e-money in the retail business can be widely used in various shops and stores with only one card developed under the BOT-initiated National Payment Card Standard (NPCS). Enhancements are also under way for the public transport sector, as planned by the Office of Transport and Traffic Policy and Planning, Ministry of Transport. Passengers would be able to use one e-Money card to pay the fares of all systems, e.g. elevated trains (skytrain), subways, buses, etc. Once the e-money applications are completely connected and compatible within each business sector, then it is expected that link-ups would be achieved eventually between the retail sector and the transport sector.



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Local Switching System

Local switching is a domestic network system which handles domestic point-of-sale payment for goods or services using locally issued cards such as ATM cards, credit cards and debit cards.

In many countries, the system is operated by the private sector. For example, local switching in Singapore, Malaysia, Hong Kong and Japan are a system that supports debit-card payments; while in Belgium, South Korea and Taiwan are designed for both debit and credit cards.

Enhancement of local switching system can help reduce the country's overall payment costs and promote electronic forms of payment in place of cash as well as giving cardholders more payment options. Banks have been able to save their cash handling costs and fees payable to overseas switching centers, while merchants have benefited from the reduced charges.

1. Australia

Australia's EFTPOS⁵ was first brought into service in 1980. Using domestic networks for data transmission, the system handles payment for goods and services by PIN-based local debit cards⁶ where customers are required to enter their PIN numbers to confirm payment transactions. Local debit cards are branded differently from issuer to issuer, e.g. Keycard (Commonwealth Bank of Australia), Handycard (Westpac Banking Corporation), FlexiCard (National Australia Bank), Access card (Australia and New Zealand Banking Group) and Cashcard (Bendigo Bank). These local cards have proved more popular among the Australian public than scheme debit cards⁷, as shown from their 2009



⁵ EFTPOS or Electronic Funds Transfer at Point of Sale refers to a system that supports payments by cards issued and transacted within Australia.

⁶ Local debit cards are debit cards issued under domestic brands.

⁷ Scheme debit cards refer to debit cards issued under international brands such as VISA or MasterCard.

⁸ Source: Reserve Bank of Australia (RBA)

aggregate payment value⁸ making up of 1,425 million transactions or totaling 84.0 billion Australian dollars, compared with 334 million scheme-card transactions worth 29.0 billion Australian dollars. The types of business which have seen widespread use of the cards by consumers are petrol stations and supermarkets.

1.1 System Design and Operation

EFTPOS system caters for PIN-based local debit card payment transactions under a bilateral linkage between the issuer and the acquirer. The arrangements are set up between any two financial institutions through 'Telstra Argent', a domestic network, while the Australian Payments Clearing Association (APCA) is responsible for establishing rules and procedures applicable to participating members.

To make a payment transaction via EFTPOS, cardholders are required to put in their personal identification numbers (PINs) to verify identity for system access, while merchants need to enter the amount to be paid. In addition to local debit cards, EFTPOS system can be used with overseas scheme cards by pressing the "saving" or "cheque" key on the EDC terminal keypad to process EFTPOS transactions which can be carried out at any outlets displaying the 'FATE' logo. The cards further allow the holders to make cash-out transactions at merchants' counter terminals.

When payment is made by local debit card, the money is debited directly online from the customer's account and credited overnight to the merchant's account. The Australian Standard AS2805 is adopted as the payment message format, while the Reserve Bank of Australia (RBA) acts as the national collator in processing interbank settlement transactions through the Reserve Bank Information and Transfer System (RITS).



⁸ Source: Reserve Bank of Australia (RBA)

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1.2 Fees

The VISA scheme debit card was launched in Australia in 2005 and gained immense popularity among issuing banks owing to the benefits of interchange fees received from the acquirers, as opposed to the case of local debit cards where issuers have to pay interchange fees to acquirers. Consequently, in 2006 three sets of regulations were imposed by the RBA to establish fee benchmarks in promoting market efficiency and competition as follows:

- 1) The Access Regime for the EFTPOS System governs the setting of access charge benchmark for EFTPOS participation which is based on the lowest survey estimates. The benchmark will be reviewed every four years.
- 2) The Setting of Interchange Fee in the EFTPOS System governs the establishment of local debit card interchange fee benchmark which requires issuers pay interchange to acquirers not over the benchmark and no less than 80 percent of the benchmark for every transaction. The benchmark will be reviewed every three years.
- 3) The Setting of Interchange Fee in the VISA Debit Payment System requires that VISA report to the RBA on card payment services information to provide the basis for benchmarking which is reviewed every three years.

1.2.1 Interchange Fee

For local debit cards, the issuers are required to pay interchange fees to the acquirers, whereas in the case of VISA/MasterCard scheme debit cards the acquirers are the ones to pay interchange fees to the issuers. The RBA's regulations setting down the fee benchmarks have substantially driven down the interchange fees for both local debit and scheme debit cards.





Bank-to-Bank Interchange Fee

	2005	2006
Local Debit Card - EFTPOS	20 cents/trans. (6.00 baht/transaction)	5 cents/trans. (1.50 baht/transaction)
Scheme Debit Card - VISA	0.50% of value	12 cents/trans. (3.60 baht/transaction)

Note: Rate of exchange: 1 AUD = 30 baht (as of 30 Dec 2009)

1.2.2 Merchant Discount Rate (MDR)

In the local debit card regime, the acquiring institutions can charge the retailers a merchant discount rate (MDR), which in 2009 was fixed at 7.5 cents per transaction, while the merchants can also charge the cardholders a surcharge on debit-card transaction.

1.3 Risk Management

The APCA has set up an APCA Fraud Committee to oversee and monitor payment frauds. Each quarter, members would submit to the APCA a report on their fraud cases for inclusion in the Committee meeting so that preventive measures can be sought and implemented. The APCA also ensures that such information is forwarded to the Australian Federal Police and the Australian Crime Commission and is publicly disseminated.



The fraud information is obtained from two sources, i.e. reports by banks' clients and instances detected by bank's own internal control system. These frauds fall into four categories: 1) lost or stolen cards; 2) non-receipt of cards / lost-in-transit cards; 3) counterfeit cards; and 4) others.

The issuers are responsible for instances of errors or frauds and for dealing with complaints from cardholders who shall be informed of the investigation results within twenty-one days. The acquirers are required to conduct an enquiry into the causes of the errors within forty-five days of the date of the complaint and to retain the relevant findings for twelve months.

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1.4 Factors Promoting Card Spending

- 1) Customers have the convenience of accessible and user-friendly services, being able to use an ATM card to pay for goods and services at the point of sale.
- 2) Merchants prefer local debit card owing to its lower cost of accepting, comparing to those of scheme debit cards.
- 3) Supporting measures from public and private agencies, particularly the RBA's regulation to promote greater competition in card market, such as regulating interchange fees which lead to declining cost in accepting payment cards. APCA's Fraud prevention measures have also been clearly identified with implementation overseen by a Fraud Committee established under the APCA.
- 4) Appropriate rules and procedures applicable to the EFTPOS system, i.e. Consumer Electronic Clearing System manual (CECS), Standard and Minimum Requirements.



2. Republic of Korea (South Korea)

In South Korea, credit card payment services have started since 1969 while debit card facilities were introduced in 1996. Card payment transactions have grown rapidly especially after the 1997 economic crisis as a result of the government's stimulating tax measures designed to relieve the public and operators' burden as well as fees exemption and consumer-appealing promotional campaigns.

Domestic card spending is tremendously popular in South Korea. The number of local cards is the highest at 29.0 million (or 51%), compared to 21.3 million VISA cards (37%), 6.3 million MasterCard cards (11%), 700,000 China Union-Pay (CUP) cards (0.9%) and 60,000 JCB cards (0.1%). There are more than 2.6 million merchants/acquirers⁹.



⁹ Source: BC Card Internal Report, as of September 2009

2.1 Service Design and Operation

South Korea currently has two local switches serving card payments, i.e. the Korea Financial Telecommunications and Clearing Institute (KFTC), a nonprofit organization that processes PIN-based local debit card transactions, and the BC Card Company which handles all domestic and international debit and credit card transactions. The BC Card Company was incorporated in 1982 as a switching centre for merchants, banks and financial institutions. The Company has also served as the acquiring pool, investing on network infrastructure and procuring EDC terminals and other equipment for merchants/retailers while acting as the centre for authorization, settlement, chargeback and marketing services. Banks/financial institutions are the issuers of debit/credit cards, whereas retailers/merchants can use only one EDC terminal to accept any card issued by these members which now comprise a total of eleven banks and financial institutions.



Retailers in the KFTC network cater for PIN-based cards, while BC Card merchants accept only signature-based cards. Holders of debit and credit cards can also withdraw cash from store counters in the same way as in Australia.

The BC Card system can serve more than 9,000 types of cards such as credit cards, government subsidy cards, business cards, purchasing cards, corporate cards, prepaid cards, etc. Card payment limits are set at 500,000 won/transaction and 1.0 million won/day.

Interbank settlement in the KFTC system is operated by the KFTC through the Bank of Korea on a net basis at 11:30 on the next day, while settlement under BC Card system is carried out through the Settlement Bank which is selected from members.

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2.2 Fees

Merchant discount rate (MDR) is a charge that retailers are required to pay to the card issuers at the rate of 2-3% of the transaction value, whereas service fee is charged by the network operators to the card issuers at the rate of 15% of the MDR.

2.3 Risk Management

Regulations and procedures have been laid down to mitigate risks to both issuers and acquirers, with systems for monitoring online payments and setting offline payment authorization limits. Also established are rules and regulations concerning chargeback between issuers and acquirers as well as guidelines for preventing card fraud.

2.4 Factors Promoting Card Spending

1) The Republic of Korea government has introduced the policies and measures to encourage usages of electronic payment services as follows:

- 1.1) Requirements for all retailers in South Korea to accept card payments;
- 1.2) Eligibility for income tax rebate at 10% of card payment for amount over and above 10% of annual income;
- 1.3) Offering of 1% VAT rebate to retailers/businesses accepting card payments;
- 1.4) Launching of lottery promotion scheme for card purchases/spending.

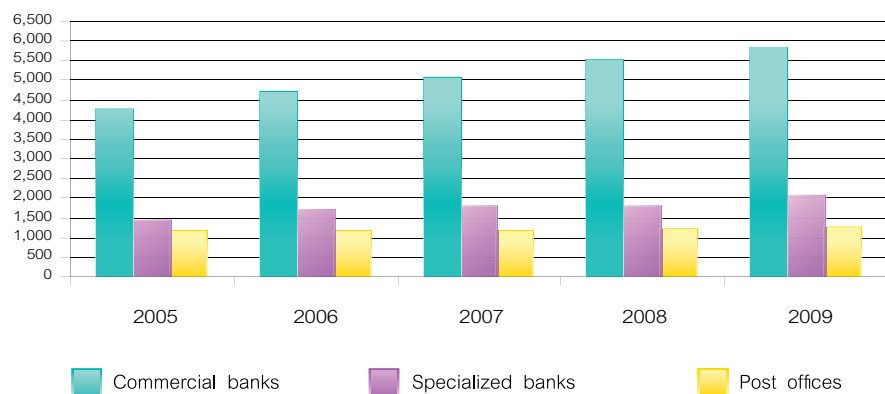
2) Measures have been adopted to set thresholds and control high-risk businesses. For example, shops/stores are allowed to provide cash advances of not more than 50% of card sales. There are also guidelines for financial institutions, with which non-compliance can lead to the revocation of issuer licenses.



3.1 Developments of Payment Infrastructure

3.1.1 Branches of Commercial Banks, Specialized Banks and Post Offices

Figure 1 : Number of Branches of Commercial Banks, Specialized Banks and Post Offices



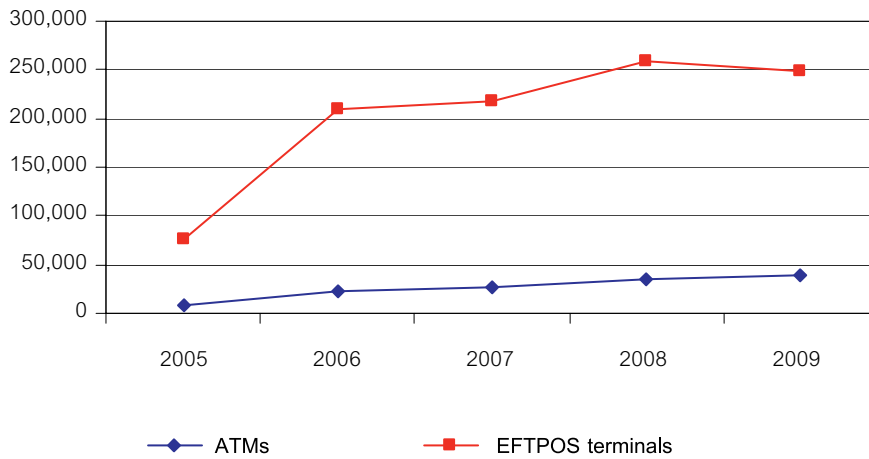
Source: Bank of Thailand

- In 2009 the number of commercial banks, specialized banks and post offices continued to increase at similar rates to those of the previous year. The total number of commercial bank branches rose by 5.7 percent from 5,493 in 2008 to 5,806 which consisted of 5,791 Thai bank branches while foreign bank branches decreased from 16 to 15.
- The number of specialized bank branches increased by 243 or 13.4 percent from 2008 to a total of 2,055.
- The postal network had 66 new branches or 5.6 percent expansion over 2008, bringing the total number of post offices to 1,254.
- Installation of ATMs proceeded at a steady pace compared to the previous year. Commercial banks continued to establish

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3.1.2 ATMs and EFTPOS Terminals

Figure 2 : Number of ATMs and EFTPOS Terminals



Source : Bank of Thailand

new branches and set up new ATMs as part of their marketing approach to expanding customer base. The total number of ATMs rose from 34,796 units in 2008 to 39,454 units, an increase of 13.4 percent. The proportion of debit and ATM cards to ATM machines in respect of commercial banks only was 1,314 cards per machine in 2009, decreased from 1,410 cards per machine in 2008. With specialized banks included, the card-to-machine ratio was 1,311 cards per machine.

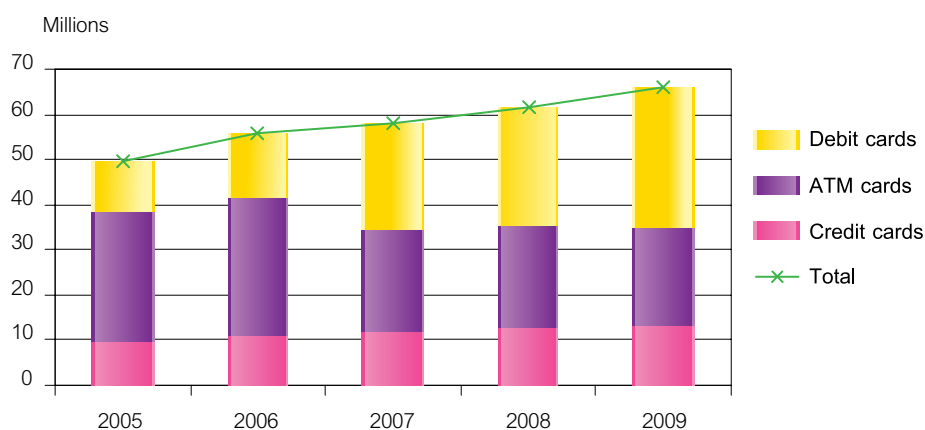
- The number of EFTPOS terminals dropped 4.5 percent from 259,567 units in 2008 to 247,837 units, result in the ratio of debit/credit cards to EFTPOS terminals up to 178 cards per terminal from 151 cards per terminal in 2008.

3.1.3 ATM, Debit and Credit Cards

- The total number of ATM cards fell by 6.2 percent to 21.0 million from 22.4 million in 2008.
- The total number of debit cards increased 16.9 percent to 30.7 million from 26.3 million in the previous year.

For the third consecutive year, debit cards accounted for the highest proportion of plastic cards in use. ATM cards made up the next highest and the number was trending downwards as a result of commercial banks' focus on debit card marketing, both through issuance of new cards as well as replacement of ATM cards. The number of debit cards constituted the highest proportion of all plastic, i.e. 47.1 percent, increased from 42.6 percent in 2008. They were followed by ATM cards which represented 32.3 percent of all cards, compared to 36.4 percent in the previous year, while the number of credit cards was comparable to that of 2008, i.e. 20.7 percent.

Figure 3: Number of Credit Cards, ATM Cards and Debit Cards



Source : Bank of Thailand

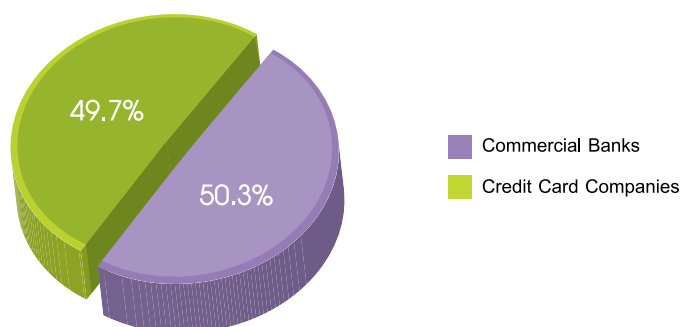
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- The total number of credit cards went up 4.0 percent from 13.0 million in 2008 to 13.5 million. They were composed of 6.8 million bank cards and 6.7 million non-bank¹⁰ cards, accounting for 50.3 percent and 49.7 percent respectively.

The year-on-year increase in the number of credit cards in use at end of 2009 was the result of expansion of credit card base and promotional campaigns.

Figure 4 : Composition of Credit Cards issued by Issuer



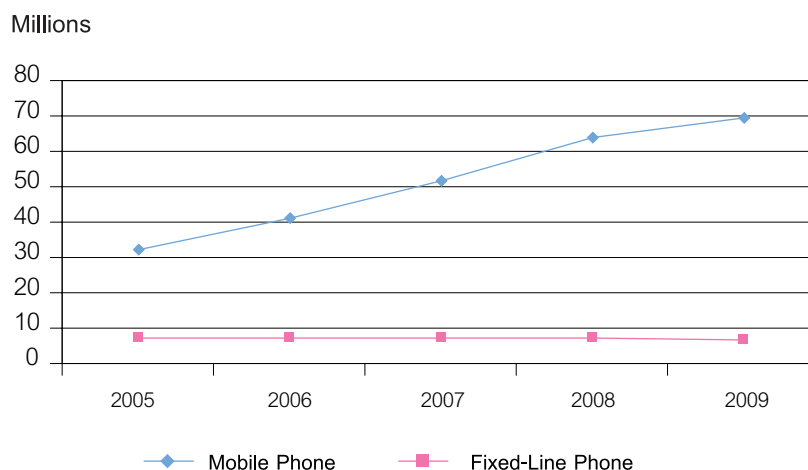
Source : Bank of Thailand

3.1.4 Subscribers to Fixed-Line and Mobile Telephones

Fixed-line telephone services continued to be provided by three operators. TOT Public Company Limited operated the Bangkok and regional networks, while True Corporation Public Company Limited served only the Bangkok area and TT&T Public Company Limited operated only in other provinces. In 2009, 10.8 percent of the country's population was subscribed to fixed-line telephone services, with a total of 6.85 million telephone lines or decreased by 1.7 percent from 6.97 million lines in the previous year.

¹⁰ These non-bank institutions or credit card companies were Krungthai Card Company Limited, Krungsri-ayudhya Card Company Limited, General Card Services Company Limited, Cetelem (Thailand) Company Limited, Diners Club (Thailand) Company Limited, Tesco Card Services Company Limited, American Express (Thai) Company Limited, AEON Thana Sinsap (Thailand) Public Company Limited, AIG Card (Thailand) Company Limited, GE Capital (Thailand) Limited, EASY BUY Public Company Limited and Capital OK Company Limited.

Figure 5 : Number of Fixed-Line and Mobile Phone Subscribers



Source: Bank of Thailand

There were six providers in the cellular phone sector, namely Advance Info Service Public Company Limited, Total Access Communication Public Company Limited, Thai Mobile Company Limited, Hutchison CAT Wireless Multimedia Company Limited, True Move Company Limited and Digital Phone Company Limited (DPC). In 2009, the number of mobile phone subscribers went up by 5.8 million to 69.5 million, representing a year-on-year rise of 9.1 percent - a lower growth by comparison to the 2008 rate of 23.4 percent. Like the previous years, the majority of subscribers were users of prepaid system.

3.2 Major Channels and Mediums of Payment

3.2.1 Use of Cash

Currency in circulation per capita has been trending upwards in line with economic growth and gross domestic product (GDP). It went up from 11,889 baht in 2008 to 13,286 baht in 2009, while GDP per capita dropped slightly from 143,170 baht to 142,426 baht (Table 1).

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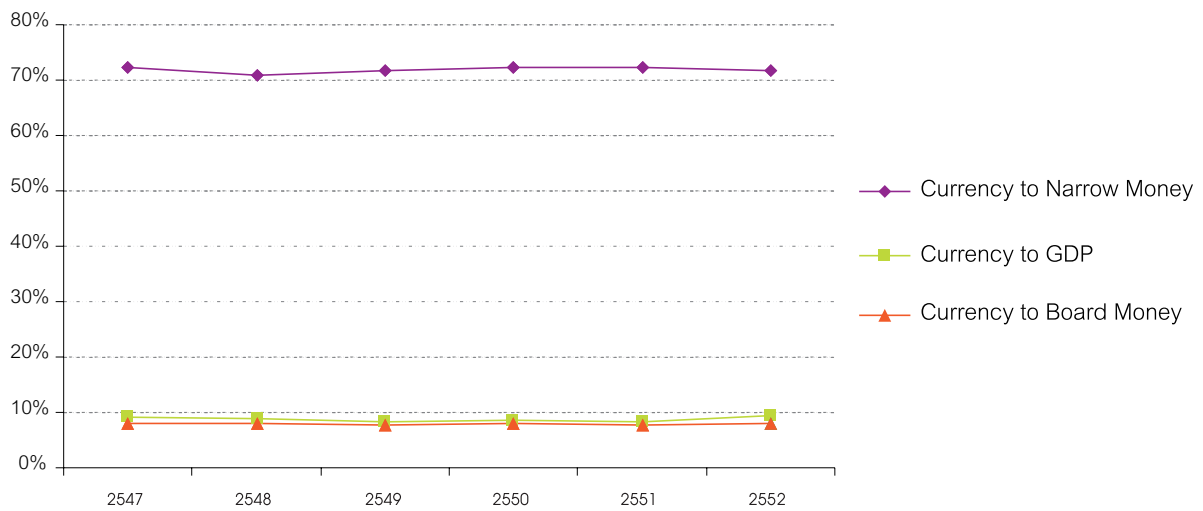
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Table 1: Currency in circulation per capita and GDP per capita

	2004	2005	2006	2007	2008	2009
Currency in circulation per capita (baht)	9,662	10,123	10,411	11,443	11,889	13,286
GDP per capita at current prices (baht)	104,720	113,632	124,804	134,733	143,170	142,426

Source : Bank of Thailand

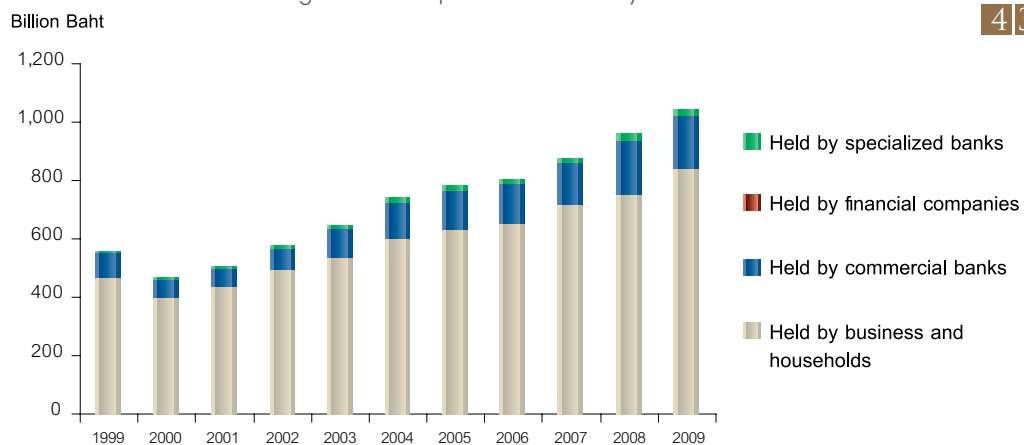
Figure 6 : Ratios of Currency to GDP, Narrow Money and Broad Money



Source : Bank of Thailand

Figure 6 shows that the ratios of currency to GDP, to narrow money, and to broad money have stayed at a relatively constant level over the years. The currency-to-GDP ratio has remained unchanged at 8 percent since 2005. It can also be seen from the overall composition of currency that there has been a continuous increase in currency held by the public, with year-on-year growth of 4.5 percent in 2008 (Figure 7).

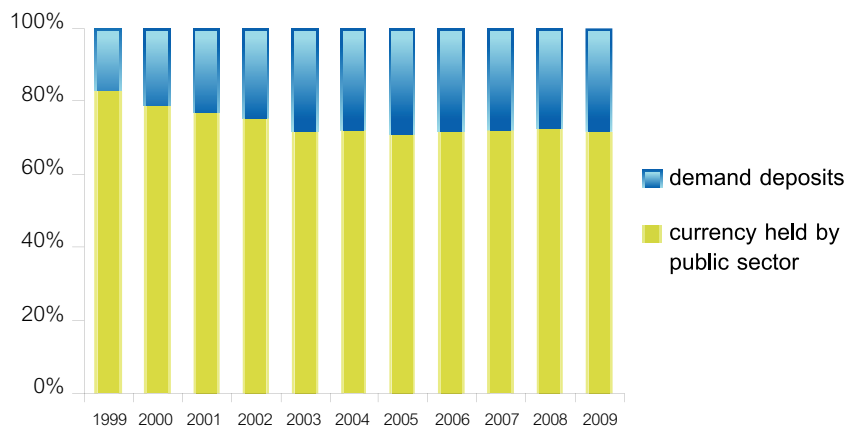
Figure 7 : Components of Currency



Source : Bank of Thailand

Moreover, when considering cash usage trends from the proportion of currency to narrow money (Figure 8), one will find that the proportion has remained stable at 71-72 percent since 2004.

Figure 8 : Composition of Narrow Money



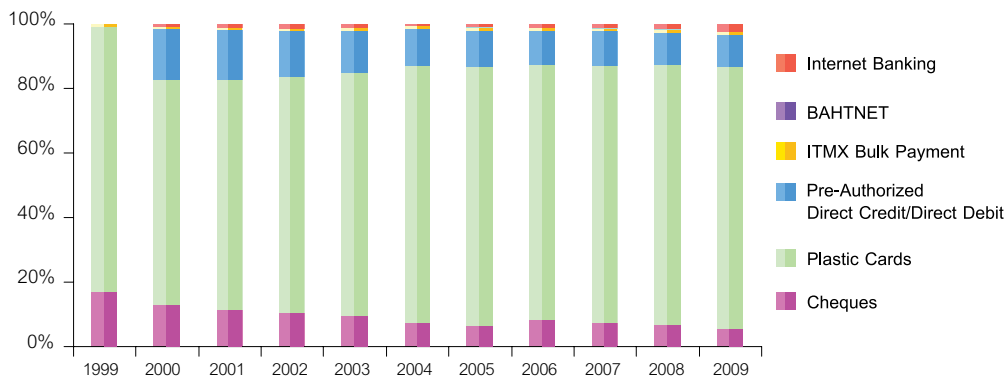
Source : Bank of Thailand

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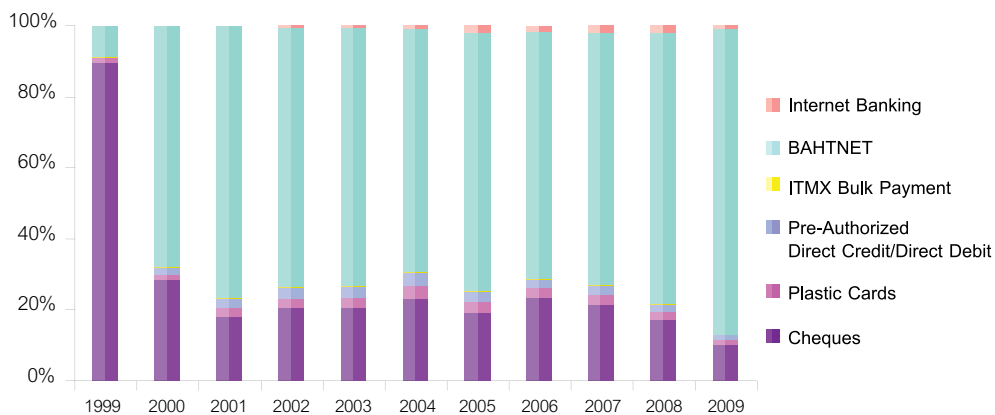
The main payment systems and instruments in Thailand consist of the large-value fund transfer or BAHTNET and the retail funds transfer systems such as cheque clearing system, ITMX Bulk Payment, banks' pre-authorized direct credit/direct debit, plastic cards, i.e. ATM cards, debit and credit cards, as well as Internet banking.

Figure 9: Comparison of Various Payment Instruments in Volume of transaction



Source : Bank of Thailand

Figure 10 : Comparison of Various Payment Instruments in Value



Source : Bank of Thailand

In terms of transactional value (Figure 10), BAHTNET transfers continued to account for the largest proportion or 85.8 percent of the total, followed by cheque payments at 10.0 percent.

3.2.2 High-Value Funds Transfer System

Fund transfer via BAHTNET (Bank of Thailand Automated High-Value Transfer NETwork) includes various types of funds transfers such as interbank funds transfer, foreign exchange (FX) trading, interbank loans, internal funds transfer, securities/equity trading, public-sector securities settlement and other transactions.

As of end of 2009, BAHTNET had 65 institutions participating as its members, comprising 17 Thai commercial banks, 15 foreign commercial banks, 12 finance and securities companies, 13 specialized Financial Institutions, government agencies and other institutions, and 8 departments of BOT. The number of BAHTNET transactions was 2,002,052 in total, rising from 1,928,920 transactions in the previous year, or a 3.8 percent increase. Whereas, the aggregate value was 481.0 trillion baht, up from 277.5 trillion baht in 2008, or a 73.3 percent increase, due chiefly to bilateral repurchase operation (bilateral RP) transactions conducted with the BOT. The transactions can be categorized as follows.

1) Interbank funds transfers

totaled 149,186 transactions, and amounted to 361.8 trillion baht. The volume decreased by 1.2 percent year on year, whereas the aggregate value was 2.7 times higher than 2008, due to the result of bond trading activities among primary dealers under bilateral repurchase agreements which has soared since the close-down of the BOT's Repo Market on 13 February 2008.

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The number of the foreign exchange transactions in 2009 declined by 19.1 percent, year-on-year, fall in value of 12.3 percent.

2) Third-party funds transfers

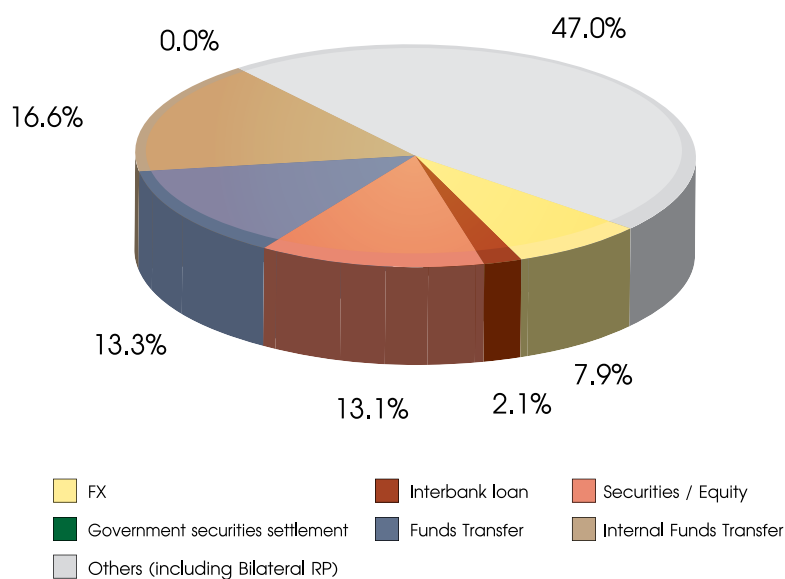
totaled 1,852,866 transactions and amounted to 119.2 trillion baht. The volume and value of third-party transfers went up 14.8 percent and 38.7 percent respectively. The currency exchanges transacted by residents increased in both volume and value terms by 15.7 percent and 18.5 percent respectively, while non-residents' transactions were down 14.9 percent in volume terms but rose slightly by 4.1 percent in value.

3) Multilateral funds transfers

can also be described as the settlement of net clearing balance between participating members. In 2009, the volume of multilateral funds transfers totaled 2,902 transactions worth 8.6 trillion baht. The volume and value of the multilateral funds transfers increased from the previous year by 10.8 percent and 3.2 percent respectively, as a result primarily of the rise in the bulk payment transactions processed by NITMX.

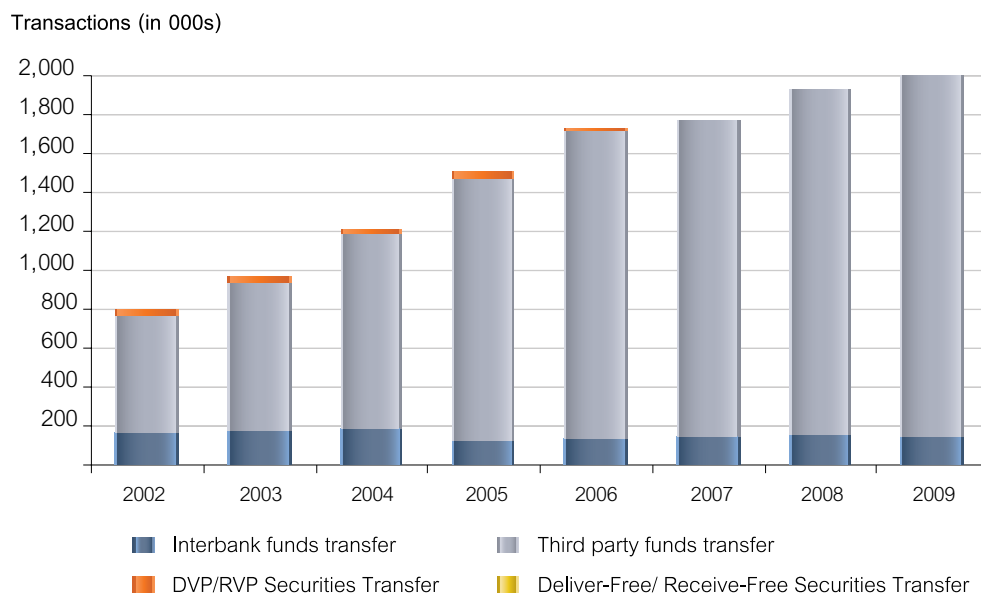
In 2009, classified by business type, bilateral RP recorded the highest level of BAHTNET transaction value or 47.0 percent of the overall value. Internal funds transfer had the second largest share with 16.6 percent, while interbank funds transfer and securities/equity trading accounted for 13.3 percent and 13.1 percent respectively of the total value (Figure 11).

Figure 11 : Value of BAHTNET Transfers by Business Type, 2009



Source : Bank of Thailand

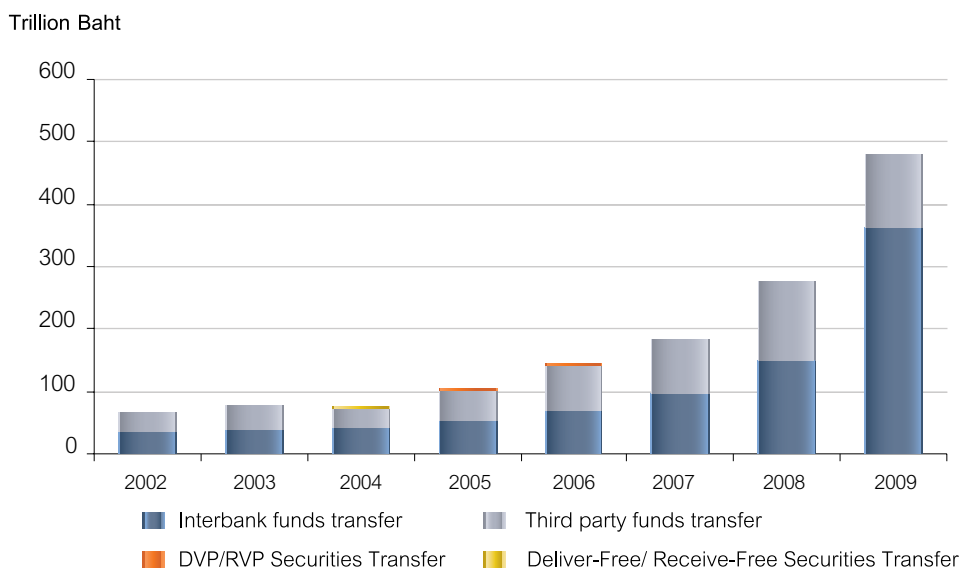
Figure 12 : Volume of BAHTNET Funds and Securities Transfers



Source : Bank of Thailand

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Figure 13 : Value of BAHTNET Funds and Securities Transfers



Source : Bank of Thailand

3.2.3 Cheque Clearing System

In 2009, the volume of cheque usage (including interbank and intra-bank transactions) totaled 123.2 million, representing a 4.6 percent drop from the previous year. The aggregate value of cheque transactions was 56.1 trillion baht, a year-on-year decrease of 9.4 percent. The average cheque usage per capita was 1.9 cheques per year, while the value per collected cheque fell by 5.4 percent from 0.5 million baht to 0.4 million baht.

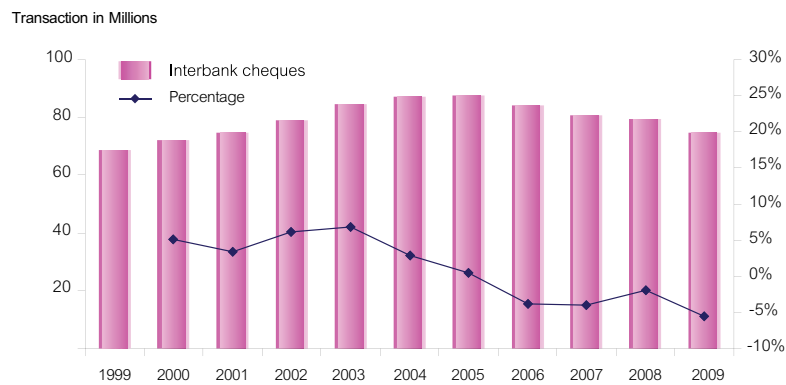
The number of returned cheques in 2009 was 1.8 million, amounting to 244.6 billion baht in aggregate. Of these, 1.2 million cheques worth 138.6 billion baht were returned on grounds of insufficient funds. The ratios of dishonoured cheques to collected cheques in terms of volume and value were 1.0 percent and 0.3 percent respectively.

Interbank Cheque Clearing System

Interbank cheque clearing systems consists of the Electronic Cheque Clearing System (ECS), the Provincial Cheque Clearing System and the inter-provincial cheque clearing system or Bill for Collection (B/C).

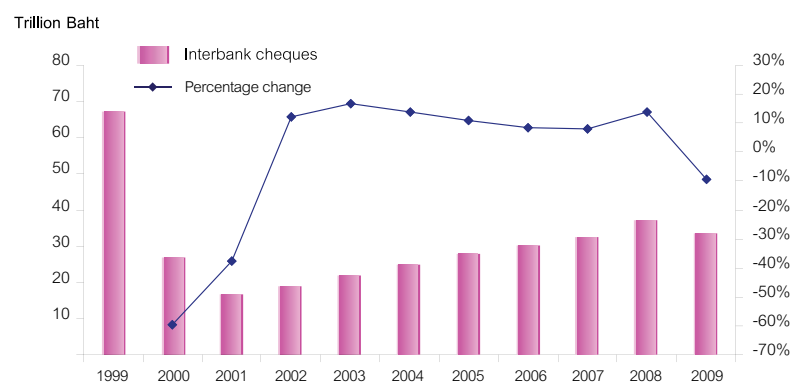
In 2009, the total number of interbank cheques was 74.9 million with an aggregate value of 33,593.03 billion baht. By comparison to 2008, the volume of interbank cheques decreased 5.5 percent, whereas the total value dropped 9.4 percent.

Figure 14 : Volume of Interbank Cheque



Source : Bank of Thailand

Figure 15 : Value of Interbank Cheque



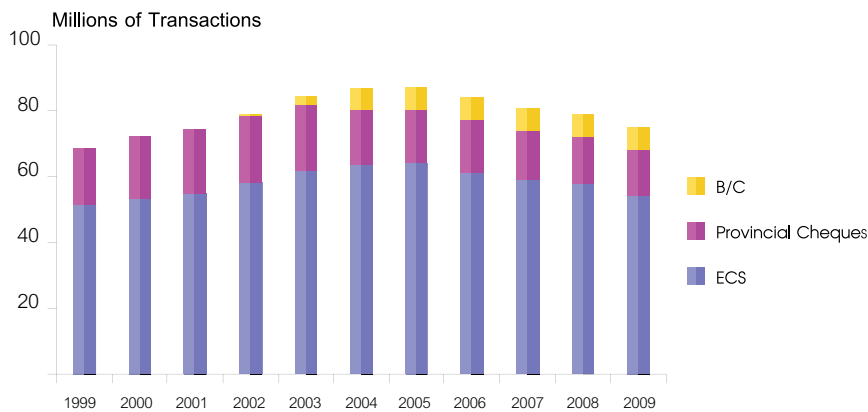
Source : Bank of Thailand

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Returned cheques in 2009 totalled 1.4 million, amounting to 187.9 billion baht in aggregate. The ratios of returned cheques to collected cheques in volume and value terms were 1.9 percent and 0.6 percent respectively.

Figure 16 : Volume of Interbank Cheque Classified by Clearing Systems



Source : Bank of Thailand

ECS cheques or cheques processed within Bangkok and vicinity in 2009 remained at a similar level to the previous years in both volume and value terms, i.e. 72.0 percent and 90.7 percent respectively of all interbank cheque clearing transactions. Cheques processed through Provincial Cheque Clearing System had the second largest proportion of 19.2 percent and 8.2 percent in volume and value respectively, while B/C or inter-provincial cheques continued to account for only 8.8 percent and 1.1 percent of all clearing transactions in terms of volume and value respectively.

Intrabank Cheque Clearing System

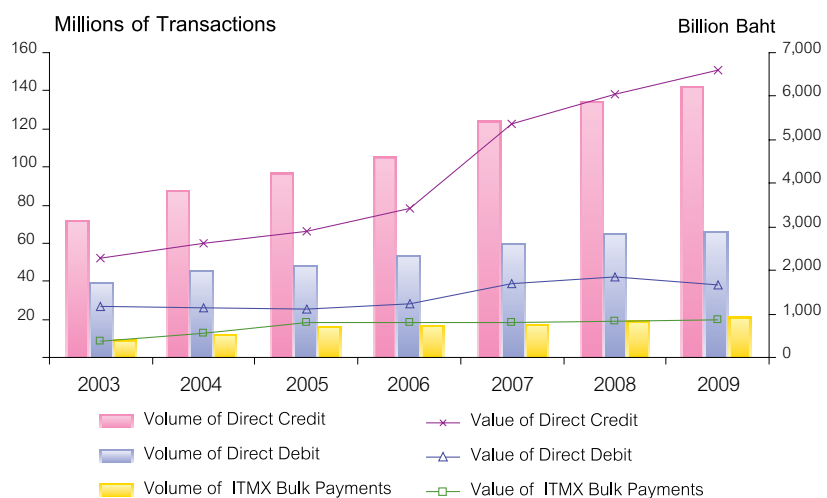
The BOT has since 2006 collected in-house cheque clearing data from commercial banks and some specialized financial institutions. The data includes the volume and value of intrabank cheques cleared within Bangkok and vicinity areas as well as intrabank cheques cleared within provincially and inter-provincially.

In 2009 the volume of intrabank cheques cleared was 48.3 million, or 39.2 percent of overall cheque volume. The total value of these cheques was 22,462 billion baht or 40.1 percent of the aggregate value of all cheques.

3.2.4 Pre-Authorized Funds Transfer

Pre-authorized funds transfer is a system designed for retail funds transfers of regular payments and/or multiple transfer transactions under prior arrangements with the banks. It can be classified into: in-house pre-authorized transactions which include direct credit transactions such as transfers of salaries, wages, dividends, tax refunds, as well as direct debit transactions such as payment of utility bills, insurance premiums, credit card payments, etc; and interbank pre-authorized transfers or the ITMX Bulk Payment System which is operated by the National ITMX Company Limited and provides only credit funds transfer services.

Figure 17 : Volume and value of Pre-Authorized Funds Transfer

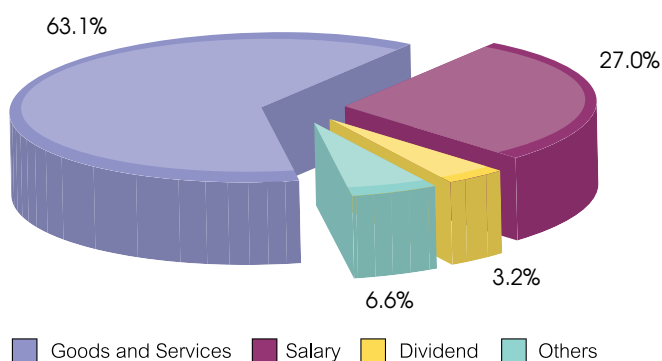


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The total value of pre-authorized funds transfers in 2009 was approximately 9.2 trillion baht, a year-on-year increase of 6.0 percent, with an aggregate volume of 235.6 million transactions or a rise of 8.0 percent. Direct credit represented the largest category in terms of volume and value at 62.0 percent and 72.5 percent respectively. It was followed by direct debit which accounted for 29.1 percent of overall volume and 18.1 percent of total value, while ITMX Bulk Payment constituted 8.9 percent and 9.4 percent in volume and value terms respectively.

Figure 18 : Proportion of Value of Funds Transfer via ITMX Bulk Payment system



Source : Bank of Thailand

Interbank retail funds transfers via the ITMX Bulk Payment in 2009 totalled 20.9 million transactions and amounted to 868.1 billion baht in aggregate or year-on-year increases of 8.8 percent and 4.8 percent respectively. In volume terms, payments for goods and services constituted the highest proportion of interbank retail transfers or 42.9 percent, followed by payments of salary and wage at 38.1 percent. In terms of value, however, payments for goods/services accounted for the largest share of 63.1 percent, followed by salary and wage transfers at 27.0 percent.

Direct credit transactions totaled 146.2 million in volume and 6,698.0 billion baht in value increased by 9.1 percent and 10.8 percent respectively. The majority of these transactions were salary and wage payments which represented the largest proportion in both value and volume terms at 58.4 percent and 89.8 percent respectively.

As regards direct debit transfers, there were a total of 68.6 million transactions, or 5.5 percent growth over 2008. The transactions amounted to 1,676.0 billion baht overall, a year-on-year fall of 9.3 percent. Almost all transactions were payments for goods and services which accounted for 99.4 percent and 97.7 percent in value and volume terms respectively.

3.2.5 Bank Counter Services

Bill Payment

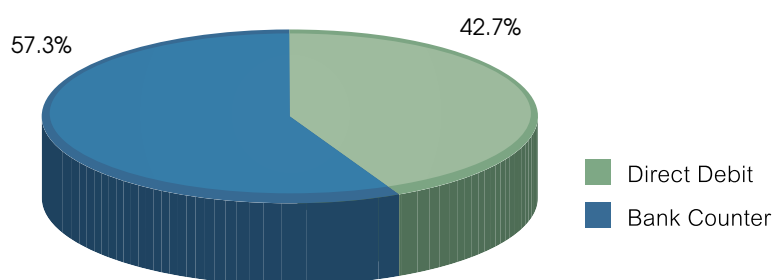
In 2009 payments at bank counters - for utility bills and for goods and services - continued to be preferred over direct debit services offered by banks. They added up to 84.8 million transactions worth 5,201.2 billion baht overall, compared to direct debit payments totaling 63.2 million transactions worth 1,493.9 billion baht. By comparison with 2008, bill payments via bank counter continued to show steady growth at 8.8 percent in terms of volume, although the aggregate value was down by 23.0 percent.

Cash remained the most popular medium of payment methods for bills at bank counters, making up 93.3 percent of the overall volume of transactions compared with only 4.4 percent accounted for by cheque. However, in terms of value, cheque was still to be the form of payment with the highest proportion of 47.3 percent in comparison with cash which constituted 31.7 percent of the aggregate value of all transactions.

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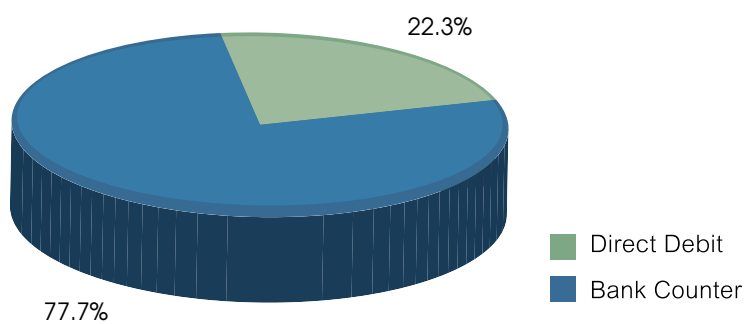
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Figure 19 : Volume of Bill Payment via Direct Debit and Bank Counter, 2009



Source : Bank of Thailand

Figure 20 : Value of Bill Payments via Direct Debit and Bank Counter, 2009



Source : Bank of Thailand

Interbank Online Retail Funds Transfer (ORFT)

Online Retail Funds Transfer (ORFT) or interbank funds transfers at bank counters totalled 8.1 million transactions, a decrease of 1.5 percent from 2008, although their aggregate value rose 1.8 percent to 130.0 billion baht.

3.2.6 Plastic Cards

Plastic cards range from credit cards, debit cards to ATM cards. They have continued to play vital role in replacing cash as the means of payment at retail outlets with the property of increasing consumer convenience and reducing cash handling costs of merchants and banks. During the past year, there remained a strong rise in the number of debit cards at a much higher rate than credit cards. The growth was the result of ongoing efforts by issuing banks to persuade their customers to shift away from ATM card towards debit card, by publicizing the enhanced benefits and safety from holding debit card instead of ATM card.

Credit Card

Credit-card spending in 2009 amounted to approximately 937.1 billion baht in total, up from 921.1 billion baht in the previous year. The growth in credit-card use continued to slow down to 1.7 percent from 9.6 percent in 2008 due to the impact of the 2009 global economic crisis on Thai economy, coupled with the domestic political turmoil during early 2009. Local consumer purchasing power has consequently dropped, causing credit-card spending to grow at a relatively weak pace¹¹. EFTPOS

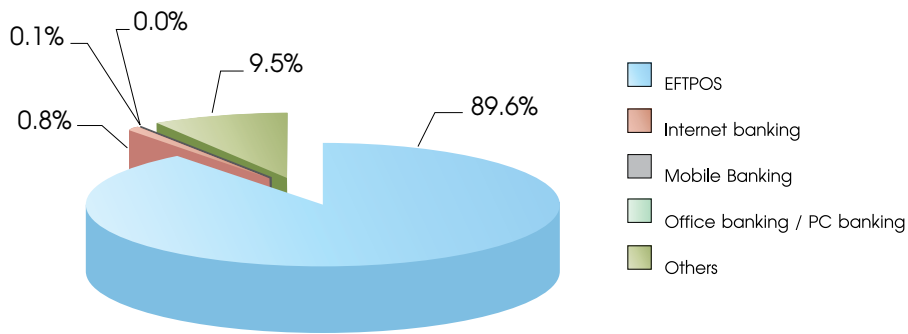
¹¹ Source : Kasikorn Research Center

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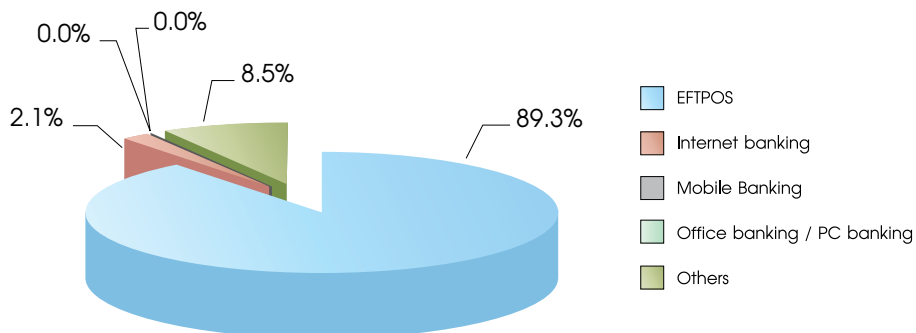
remained most popular channel for cardholders, accounting for 89.6 percent of total transaction volume and 89.3 percent of total transaction value. Like the previous years, Internet and mobile channels still had a far smaller share of overall transactions in both volume and value terms.

Figure 21 : Volume of Credit Card Transactions Classified by Channel, 2009



Source : Bank of Thailand

Figure 22 : Value of Credit Card Transactions Classified by Channel, 2009



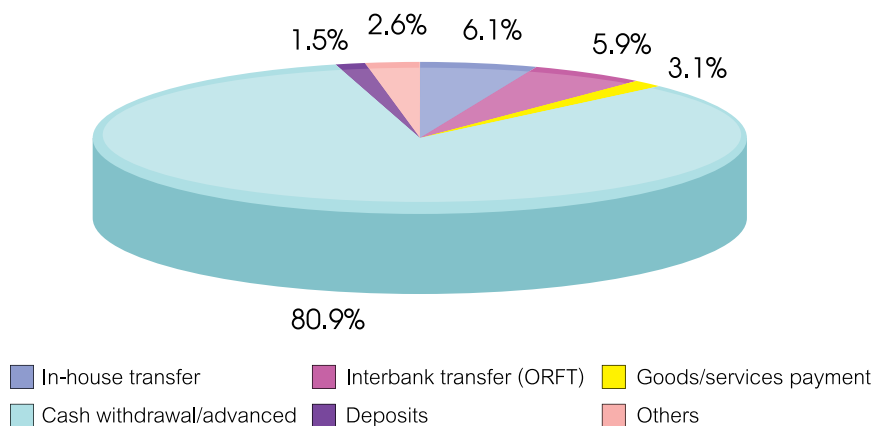
Source : Bank of Thailand

Debit Card

The majority of debit cards were still used mainly to perform the function of an ATM card, i.e. to withdraw cash. Funds transfers and payments for goods and services accounted for a comparatively small proportion of all transactions. Of the total transactions of 724.6 million in 2009, 80.9 percent were for cash withdrawals. In-house and interbank funds transfers made up similar proportions as in 2008 at only 6.1 percent and 5.9 percent respectively, while payments for goods and services constituted 3.1 percent of all debit-card transactions.

It is expected that in the future the volume and value of debit-card payments for goods and services will increase as a result of the launch of the Local Switching Project endorsed by the PSC. The project will be able to accommodate domestic payment transactions by debit cards, while helping to reduce duplication of investment as well as payment costs of financial institutions and businesses.

Figure 23 : Volume of Debit Cards Transaction, 2009



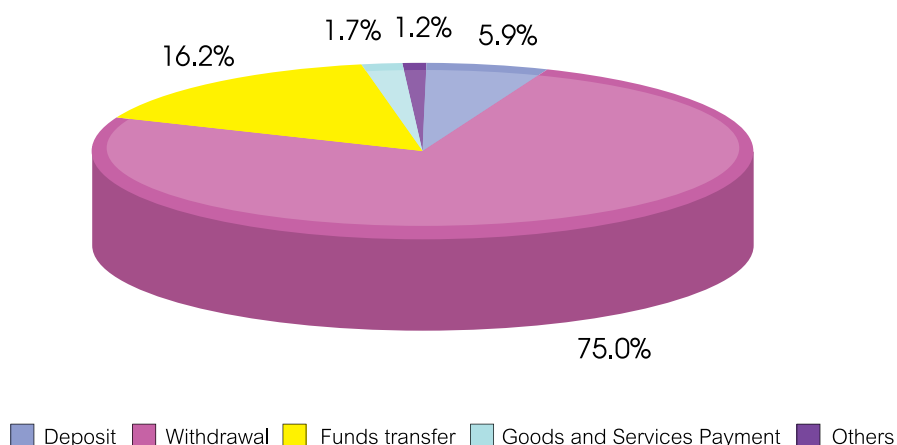
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ATM Card

ATM card usage¹² in 2009 declined in line with the dwindling number of cards, from 531.8 million transactions in 2008 to 516.3 million transactions. The largest decrease was in cash withdrawals which fell by as much as 7.7 percent. ATM deposits rose dramatically by 110.0 percent, while there was a year-on-year steady growth of 3.7 percent in funds transfers. The figures demonstrate consumers' changing behaviour in the use of ATM card, especially their increased acceptance of cash deposit machines.

The overall value of ATM transactions went up 0.9 percent from 2,466.5 billion baht in 2008 to 2,487.8 billion baht.

Figure 24 : Composition of ATM Card Transactions, 2009



Source : Bank of Thailand

¹² Refers only to ATM transactions of commercial banks, excluding those of specialized financial institutions.

	Volume		Value	
	Transaction (in millions)	Percentage	Billion Baht	Percentage
ATM Cards				
- Withdrawals	387.2	75.0%	1,498.4	60.2%
- Funds transfers	83.7	16.2%	647.7	26.0%
- Payments for goods and services	8.9	1.7%	33.9	1.4%
- Deposits	30.5	5.9%	306.7	12.3%
- Others	6.1	1.2%	1.1	0.0%
Total	516.3	100.0%	2,487.8	100%
Debit Cards				
- Withdrawals	724.6	80.9%	3,095.5	63.5%
- Funds transfers	106.9	11.9%	1,574.5	32.3%
- Payments for goods and services	27.7	3.1%	71.8	1.5%
- Deposits	13.2	1.5%	134.4	2.8%
- Others	23.3	2.6%	0.0	0.0%
Total	895.7	100%	4,876.2	100.0%

3.2.7 Internet Banking

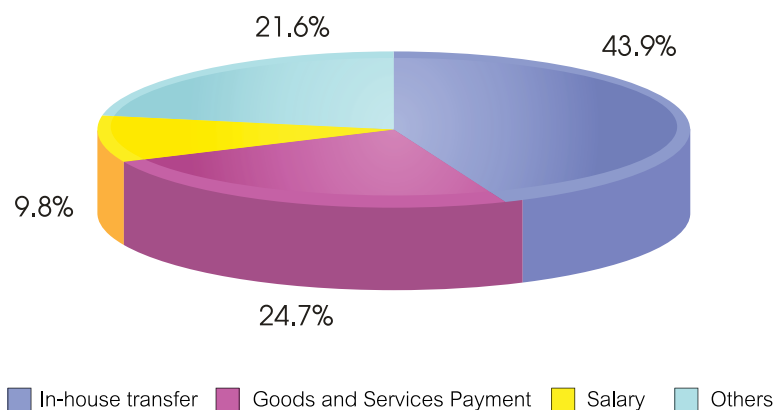
Internet banking services has become popular among banks' client and expanded rapidly along user confidence in the enhanced reliability of their safety system. The volume of internet banking transactions in 2009 rose 57.3 percent from 31.4 million to 49.4 million, while overall value of the services dropped by 16.5 percent from 6.8 trillion baht in 2008 to 5.7 trillion baht.

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Internet banking transactions during the year can be categorized into: in-house funds transfer accounting for 43.9 percent, payment for goods and services 24.7 percent, salary and wage payment 9.8 percent, and intrabank transfer 9.2 percent.

Figure 25 : Volume of Internet Banking Transactions, 2009



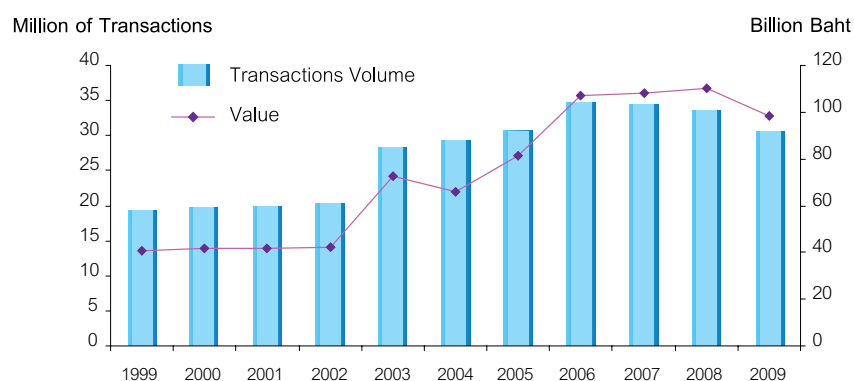
Source : Bank of Thailand

3.2.8 Electronic Money

Electronic money can be classified into two different formats, which are cash value stored in e-money cards and cash value stored in the service providers' computer network. There are 9 companies and commercial banks in Thailand which are authorized to provide e-money services, which are Thai Smart Card Company Limited, Payment Solution Company Limited, True Money Company Limited, PaySbuy Company Limited, Advanced mPay Company Limited, Advanced Magic Card Company Limited, Siam Commercial Bank Public Company Limited, Kasikorn Bank Public Company Limited, and TISCO Bank Public Company Limited.

In 2009, the usage of e-money services rose 32.1 percent to 103.0 million transactions, while the total value went up 25.8 percent to 10.5 billion baht. The growth was due largely to providers' promotional approaches and increased public acceptance of electronic payment channels. At end of 2009, there were a total of 7.7 million e-Money cards/accounts¹³.

Figure 26 : Volume and Value of Funds Transfer via Pay at Post



Source: Thailand Post Company Limited

3.3 Postal Transfer and Payment

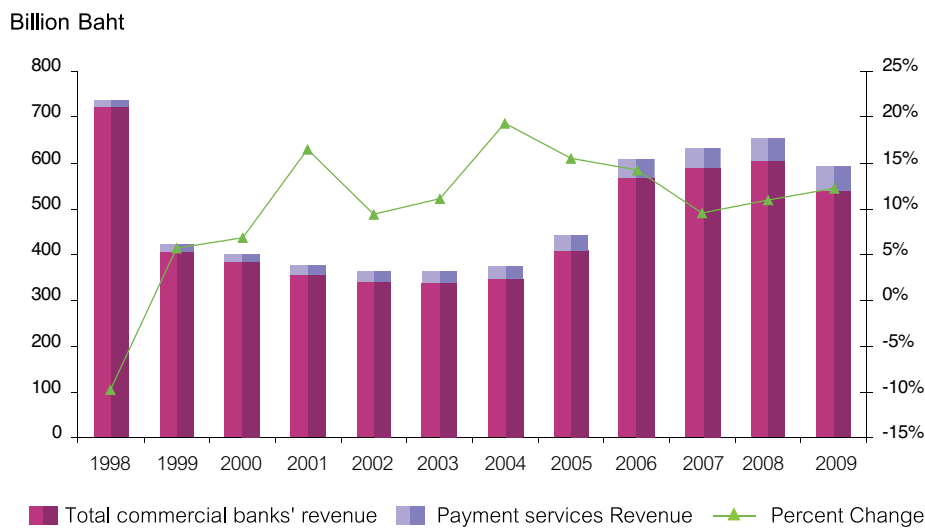
The volume of postal transfers and payments in 2009 dropped in both volume and value to 30.6 million transactions totaling 98.5 billion baht or decreases of 9.1 percent and 10.5 percent respectively from 2008, due to escalating competition among transfer/payment agents. The majority of the transactions were bill payments, for which Thailand Post Company Limited acts as agent. Transactions of postal draft and international money order decreased during the year, following Thailand Post's expanded provision of diverse and streamlined services, such as

¹³ The volume and value of transactions as well as the number of cards/accounts given above represent only those electronic money services which can be used in place of cash to pay for goods or services for an unlimited amount and number of times, and where the cards/accounts can be topped up.

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Figure 27 : Revenue from Payment Services



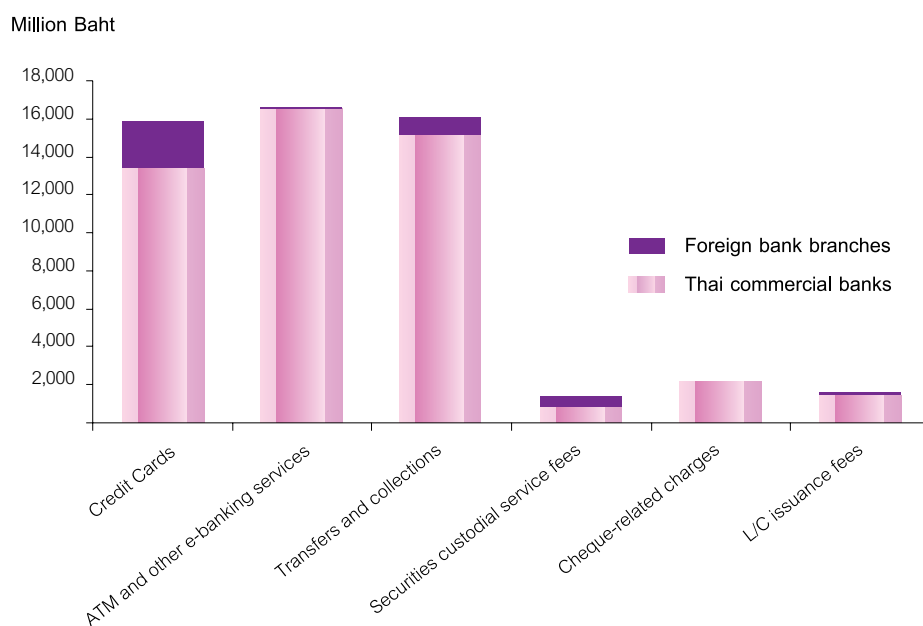
Source : Bank of Thailand

online money order and express money transfer via Western Union for which the company is an agent. These new services are similar to and compete with the operator's existing services.

3.4 Revenue from Payment Services

The total payment revenues of all commercial banks continued to grow, at a rate higher than that of 2008, by 12.2 percent to 53.6 billion baht in total (Figure 28). The main source of income was ATM and e-banking service fees, constituting 31.0 percent of total payment services revenue. Fees from transfers and collections, once been the biggest earning segment in banking operations, now dropped to the second place with

Figure 28 : Categorized Revenue from Payment Services, 2009



Source : Bank of Thailand

29.9 percent. Payment services income of domestic banks was largely generated from ATM and other e-banking services which recorded a substantial growth rate of 33.1 percent over the previous year and accounted for one-third of the overall payment revenue.

4

Glossary and Abbreviations

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PSC	Payment Systems Committee
BOT	Bank of Thailand
OTP	Office of Transport and Traffic Policy and Planning, Ministry of Transport
APN	Asian Payment Network Forum
ATM	Automated Teller Machine
CDM	Cash Deposit Machine
B/C	Bill for Collection
BAHTNET	Bank of Thailand Automated High-value Transfer Network
ECS	Electronic Cheque Clearing System or the system for clearing cheques in Greater Bangkok
EFTPOS	Electronic Funds Transfer at Point of Sale
EMEAP	The Executives' Meeting of East Asia-Pacific Central Banks
e-Money	Electronic money
GDP	Gross Domestic Product
ICAS	Imaged Cheque Clearing and Archive System
ILF	Intraday Liquidity Facilities
ITMX	Interbank Transaction Management and Exchange
NECTEC	National Electronics and Computer Technology Center
NITMX	National ITMX Company Limited
ORFT	Online Retail Funds Transfer
PvP	Payment versus Payment
SMART	System for Managing Automated Retail Funds Transfer
SRS	Securities Requirement for Settlement
WGPSS	Working Group on Payment and Settlement Systems

5

References

Bank of Thailand, "Payment Systems Roadmap 2010", September 2007.

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TABLE 1 : Basic statistical data

	2004	2005	2006	2007	2008	2009 ^P
Population (millions) ¹	61.97	62.42	62.83	63.04	63.39	63.53
GDP current price (billion baht) ²	6,489.5	7,092.9	7,841.3	8,493.3	9,075.5	9,047.6
GDP per capita (baht) ²	96,053.74	103,671.01	114,748.03	123,673.45	131,140.43	12,916,483.57
Exchange rate vis-à-vis US\$ (at year-end)	39.20	41.17	36.04	33.75	34.93	33.36

Sources: Bank of Thailand, Department of Provincial Administration, National Economic & Social Development Board

¹ Department of Provincial Administration adjusted figures of year 2004

² National Economic & Social Development Board adjusted figures from year 2003-2005

^P Preliminary Data

TABLE 2 : Technological infrastructure

	2004	2005	2006	2007	2008	2009
Total fixed network telephone subscribers (millions)	6.79	7.00	7.04	7.02	6.97	6.85
Total mobile telephone subscribers (millions)	27.37	32.00	41.30	51.60	63.69	69.50
Postpaid	4.99	5.25	6.32	5.60	6.54	7.39
Prepaid	22.38	26.75	34.98	46.00	57.15	62.11
Total Internet users (millions)	6.97	9.91	11.41	13.42	16.10	18.30
Penetration rates						
Fixed network telephone (%)	10.96	11.21	11.21	11.14	10.99	10.78
Mobile telephone (%)	44.17	51.27	65.73	81.86	100.48	109.40
Internet (%)	11.25	15.87	18.17	21.28	25.40	28.81

Sources: CAT Telecom Public Company Limited, TOT Public Company Limited, National Electronics and Computer Technology Center

TABLE 3 : Narrow Money¹ (at year-end, billion baht)

	2004	2005	2006	2007	2008	2009 ^P
Currency	742.27	781.70	806.37	878.33	962.63	1,045.17
Held by business and household sector	598.74	631.89	654.14	721.38	753.64	844.01
Held by commercial banks	126.99	132.65	135.11	140.24	184.76	178.97
Held by finance companies	0.00	0.00	0.00	0.00	0.00	0.00
Held by specialized banks	16.54	17.16	17.13	16.71	24.23	22.18
Demand deposits	232.71	259.51	258.57	279.85	288.90	330.61
Demand deposits at Bank of Thailand	6.86	3.30	3.67	3.85	15.11	3.13
Demand deposits at commercial banks	222.86	252.03	252.06	271.41	269.77	321.33
Demand deposit at specialized banks	2.99	4.18	2.84	4.59	4.02	6.16
Narrow Money	829.88	890.22	911.47	999.90	1,041.22	1,174.60
Currency held by business and household sector as % of Narrow money	72.1%	71.0%	71.8%	72.1%	72.4%	71.9%
Demand deposits held by business and household sector as % of Narrow money	28.0%	29.2%	28.4%	28.0%	27.7%	28.1%

Source: Bank of Thailand

¹ Currency in circulation and demand deposits at commercial banks and specialized banks

^P Preliminary data

TABLE 4 : Settlement media used by non-banks (at year-end, billion baht)

	2004	2005	2006	2007	2008	2009 ^P
Banknotes and coins ¹	598.74	631.89	654.14	721.38	753.64	844.01
Demand deposits	232.71	259.51	258.57	279.85	288.90	330.61
Narrow money ²	829.88	890.22	911.47	999.90	1,041.22	1,174.60
Broad money ³	7,471	7,927	8,573	9,109	9,942	10,597

Source: Bank of Thailand

¹ Banknotes outside depository corporations and coins issued by central government

² Currency in circulation and demand deposits at commercial banks and specialized banks

³ Currency in circulation and all kinds of deposits at commercial banks, specialized banks, and PN issued by financial companies

^P Preliminary data

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TABLE 5 : Settlement media used by banks (at year-end, billion baht)

	2004	2005	2006	2007	2008	2009
Balances held at central bank	46.0	57.0	56.8	51.5	58.5	48
Required reserves	347.0	375.0	404.8	408.2	426.7	426
Free reserves	822.0	648.0	743.2	921.2	1,382.2	1,800
Transferable deposits at other banks	4.0	6.0	5.1	6.7	5.0	4
Memorandum item:						
Institutions borrowing from central bank	63.0	113.0	80.1	75.8	19.2	15

Source: Bank of Thailand

TABLE 6 : Indicators of the use of various cashless payment instruments.
Volume of transactions (in thousands)

	2004	2005	2006	2007	2008	2009 ^P
Paper-based ¹ :	86,926	87,365	127,774	130,235	129,126	123,202
In-house cheque	nav.	nav.	43,681	49,503	49,900	48,310
Interbank cheque	86,926	87,365	84,093	80,732	79,227	74,892
Payment cards :	919,211	1,029,713	1,225,961	1,402,398	1,601,273	1,747,320
ATM card ²	506,791	535,298	646,304	592,653	555,826	556,613
Debit card ³	210,934	262,484	326,105	538,288	761,142	895,708
Credit card ⁴	201,486	231,931	253,551	271,457	284,305	294,999
Automated :	146,404	161,885	177,801	203,536	220,128	237,627
Direct credit ⁵	87,977	96,828	105,731	124,236	134,010	146,151
Direct debit ⁶	45,356	47,825	53,277	59,967	64,985	68,583
ITMX Bulk Payment (SMART)	11,862	15,728	17,072	17,568	19,205	20,891
BAHTNET ⁷	1,209	1,504	1,721	1,766	1,929	2,002

Source: Bank of Thailand

¹ Since 2006, Data include in-house cheque from banks, however, some banks do not report in-house provincial and B/C cheque. Data from some Specialized Financial Institutions are not included.

² Include data from two Special Financial Institutions. Since 2004, debit card data was taken out from ATM card.

³ Data include cash withdrawal transactions from ATM

⁴ Data collected since 2004 and included bank cards/affinity cards, non-bank cards/affinity cards and foreign credit cards used in Thailand.

⁵ Intra-bank pre-authorized direct credit

⁶ Intra-bank pre-authorized direct debit

⁷ Since 2002, data include interbank funds transfer, third party funds transfer, DVP/RVP for securities and Multilateral Funds Transfer.

^P Preliminary data

**TABLE 7 : Indicators of the use of various cashless payment instruments.
 Value of transactions (billion baht)**

	2004	2005	2006	2007	2008	2009 ^P
Paper-based¹ :	24,969	27,737	48,200	55,637	62,147	56,066
In-house cheque	nav.	nav.	18,080	23,099	25,061	22,473
Interbank cheque	24,969	27,737	30,121	32,537	37,086	33,593
Payment cards :	4,084	4,752	5,854	6,652	7,919	8,457
ATM card ²	2,112	2,360	2,859	2,607	2,645	2,643
Debit card ³	1,436	1,766	2,240	3,205	4,354	4,876
Credit card ⁴	536	626	755	840	921	937
Automated :	77,829	110,457	148,778	190,210	286,191	490,246
Direct credit ⁵	2,636	2,907	3,436	5,351	6,044	6,698
Direct debit ⁶	1,146	1,111	1,238	1,699	1,847	1,676
ITMX Bulk Payment (SMART)	553	806	802	793	828	868
BAHTNET ⁷	73,494	105,634	143,302	182,368	277,472	481,004

Source: Bank of Thailand

¹ Since 2006, Data include in-house cheque from banks, however, some banks do not report in-house provincial and B/C cheque. Data from some Specialized Financial Institutions are not included.

² Include data from two Special Financial Institutions. Since 2004, debit card data was taken out from ATM card.

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⁵ Intra-bank pre-authorized direct credit

⁶ Intra-bank pre-authorized direct debit

⁷ Since 2002, data include interbank funds transfer, third party funds transfer, DVP/RVP for securities and Multilateral Funds Transfer.

^P Preliminary data

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TABLE 8 : Notes and coins (at year-end, million baht)

	2004	2005	2006	2007	2008	2009
Notes and coins	742,269	781,698	806,380	878,331	993,148	1,093,148
Notes:	714,650	753,256	773,848	842,624	954,484	1,054,484
500,000 baht	118	118	118	117	117	117
1,000 baht	510,434	552,606	571,739	628,175	701,711	774,058
500 baht	105,639	99,488	94,712	98,497	119,283	140,972
100 baht	69,042	70,768	74,843	82,435	97,484	98,605
60 baht	452	458	1,154	1,157	1,161	1,163
50 baht	8,132	8,264	8,787	7,819	9,377	13,062
20 baht	17,350	18,087	19,038	20,741	21,674	22,835
10 baht	3,244	3,228	3,218	3,357	3,351	3,346
5 baht	123	123	123	196	196	196
1 baht	107	107	107	121	121	121
50 satang	9	9	9	9	9	9
Coins:	27,619	28,442	32,532	35,707	38,664	38,664

Source: Bank of Thailand

TABLE 9 : Institutional infrastructure¹

	2004	2005	2006	2007	2008	2009
Central Bank						
Number of Institutions	1	1	1	1	1	1
Number of Branches ²	3	3	3	3	3	3
Number of Accounts ³	1,169	992	366	287	260	226
Value of Accounts (million baht) ³	335,662	117,607	174,639	151,137	159,678	250,262
Thai Commercial Banks						
Number of Institutions	12	16	15	18	18	17
Number of Branches	3,925	4,228	4,701	5,070	5,477	5,791
Number of Accounts	56,780,840	62,416,191	68,154,739	73,108,528	75,259,745	76,078,336
Value of Accounts (million baht)	5,298,553	5,684,676	5,925,451	5,843,995	6,535,094	6,557,653

TABLE 9 : Institutional infrastructure¹

	2004	2005	2006	2007	2008	2009
Specialized Financial Institutions:						
Government Savings Bank						
Number of Institutions	1	1	1	1	1	1
Number of Branches	588	588	591	598	596	809
Number of Accounts ⁴	30,214,359	27,078,642	25,884,639	16,448,269	20,883,860	20,064,408
Value of Accounts (million baht)	580,131	583,281	614,234	403,001	702,479	921,541
Government Housing Bank						
Number of Institutions	1	1	1	1	1	1
Number of Branches	109	118	108	135	128	140
Number of Accounts	366,348	419,658	597,719	837,958	849,405	657,055
Value of Accounts (million baht)	331,299	351,019	447,527	409,482	515,149	548,032
Bank for Agriculture and Agricultural Cooperatives						
Number of Institutions	1	1	1	1	1	1
Number of Branches ⁵	595	596	880	931	953	967
Number of Accounts	12,131,460	13,376,015	18,989,152	19,257,527	20,860,275	20,751,677
Value of Accounts (million baht)	341,879	415,817	467,393	498,491	542,751	622,757
Export-Import Bank of Thailand						
Number of Institutions	1	1	1	1	1	1
Number of Branches	7	11	10	10	10	16
Number of Accounts	3,071	3,640	3,795	5,747	4,879	6,516
Value of Accounts (million baht)	3,928	8,862	6,216	4,655	6,095	8,089
Small and Medium Enterprise Development Bank of Thailand						
Number of Institutions	1	1	1	1	1	1
Number of Branches	80	80	98	99	99	95
Number of Accounts	nav.	9	40	52	77	195
Value of Accounts (million baht)	nav.	10,476	5,913	12,889	23,106	34,173

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TABLE 9 : Institutional infrastructure¹

	2004	2005	2006	2007	2008	2009
Islamic Bank of Thailand						
Number of Institutions	1	1	1	1	1	1
Number of Branches	9	27	27	26	26	28
Number of Accounts	25,553	86,003	nav.	101,544	115,373	138,686
Value of Accounts (million baht)	1,654	4,644	8,215	12,964	20,073	41,314
Foreign Bank Branches						
Number of Institutions	18	17	17	16	16	15
Number of Branches	18	17	17	16	16	15
Number of Accounts	90,877	79,034	83,180	219,789	90,115	89,866
Value of Accounts (million baht)	361,147	558,619	595,896	673,490	507,009	466,418
Post Office						
Number of Institutions	1	1	1	1	1	1
Number of Branches	1,146	1,146	1,158	1,176	1,188	1,254
Number of Accounts	-	-	-	-	-	-
Value of Accounts (million baht)	-	-	-	-	-	-

Sources: Bank of Thailand and Thailand Post Co.,Ltd.

¹ Data collected since 2000

² Since 2004, Lampang office was merged with Chaing Mai office

³ Exclude regional offices

⁴ Data as of 30 November 2006

⁵ Upgrade Service Units to Sub Branches

**TABLE 10 : Payment instructions handled by selected interbank settlement systems.
 Volume of transactions (in thousands)**

	2004	2005	2006	2007	2008	2009
Paper-based:	86,926	87,365	84,093	80,732	79,227	74,892
ECS	63,845	64,065	61,445	59,026	57,833	53,926
Provincial Cheques	16,476	16,473	15,935	15,056	14,666	14,353
B/C ¹	6,605	6,827	6,714	6,649	6,728	6,613
Automated:	32,142	45,228	59,872	75,300	100,181	99,107
BAHTNET ²	1,209	1,504	1,721	1,766	1,929	2,002
ITMX Bulk Payment (SMART)	11,862	15,728	17,072	17,568	19,149	20,891
ORFT-ATM (Online Retail Funds Transfer) ³	19,071	27,996	41,079	55,966	79,047	76,214

Sources: Bank of Thailand and National ITMX Co., Ltd.

¹ Inter-provincial cheques exchanged at the Electronic Clearing House

² Since 2002, data include interbank funds transfer, third party funds transfer, DVP/RVP for securities and Multilateral Funds Transfer.

³ Data collected since 2000

**TABLE 11 : Payment instructions handled by selected inter-bank settlement systems.
 Value of transactions (billion baht)**

	2004	2005	2006	2007	2008	2009
Paper-based:	24,969	27,737	30,121	32,537	37,086	33,593
ECS	22,653	25,063	27,175	29,524	33,912	30,473
Provincial Cheques	2,039	2,371	2,617	2,667	2,798	2,761
B/C ¹	277	303	329	346	376	359
Automated:	74,161	106,626	144,374	183,509	278,773	482,325
BAHTNET ²	73,494	105,634	143,302	182,368	277,472	481,004
ITMX Bulk Payment (SMART)	553	806	802	793	823	868
ORFT-ATM (Online Retail Funds Transfer) ³	114	187	270	349	478	453

Sources: Bank of Thailand and National ITMX Co., Ltd.

¹ Inter-provincial cheques exchanged at the Electronic Clearing House

² Since 2002, data include inter-bank funds transfer, third party funds transfer, DVP/RVP for securities and multilateral funds transfer.

³ Data collected since 2000

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**TABLE 12 : Securities transfer instructions handled by securities settlement systems.
Volume of transactions (in millions)**

	2004	2005	2006	2007	2008	2009
Bond registry system:						
Equity securities	-	-	-	-	-	-
Government securities	neg.	neg.	0.01	0.01	0.01	0.01
Book-entry system:						
Equity securities	2.11	2.47	2.45	2.36	2.41	3.80
Government securities	0.05	0.08	0.06	0.05	0.09	0.09

Sources: Bank of Thailand and Thailand Securities Depository Co., Ltd.

**TABLE 13 : Securities transfer instructions handled by securities settlement systems.
Value of transactions (billion baht)**

	2004	2005	2006	2007	2008	2009
Bond registry system:						
Equity securities	-	-	-	-	-	-
Government securities	8	8	35	23	33	42
Book-entry system:						
Equity securities	722.0	623.0	694.0	713.6	625.8	539
Government securities	4,558	6,167	10,666	27,002	58,647	51,071

Sources: Bank of Thailand and Thailand Securities Depository Co., Ltd.

TABLE 14 : Number of participants in selected payment and settlement systems

	2004	2005	2006	2007	2008	2009
BAHTNET	69	68	65	67	69	65
ECS	37	38	40	40	40	38
Provincial Cheque Clearing	17	18	21	22	23	21
B/C ¹	35	37	39	39	39	37
ITMX Bulk Payment (SMART)	27	26	29	33	33	33
Bond registry system:						
Equity securities	-	-	-	-	-	-
Government securities	200,000	235,380	247,700	296,867	308,188	633,708
Book-entry system:						
Equity securities	50	73	74	77	91	87
Government securities ²	3,200	5,124	79	77	91	87

Sources: Bank of Thailand and Thailand Securities Depository Co., Ltd.

¹ Inter-provincial cheques exchanged at the Electronic Clearing House

² Government securities depository services was transferred from Bank of Thailand to Thailand Securities Depository Co., Ltd. since 2006.

TABLE 15 : Number of ATMs

	2004	2005	2006	2007	2008	2009
Total	10,602	15,784	21,988	25,943	34,796	39,454
Bangkok	4,314	6,373	8,675	9,883	12,624	13,586
Central	3,381	5,059	6,951	8,818	11,871	13,951
Northeast	954	1,375	2,069	2,491	3,673	4,370
North	941	1,367	2,072	2,274	3,230	3,707
South	1,012	1,610	2,221	2,477	3,398	3,840

Source: Bank of Thailand

 TABLE 16 : Number of EFTPOS terminals¹

	2004 ^P	2005 ^P	2006 ^P	2007 ^P	2008 ^P	2009 ^P
Total	84,000	102,000	208,942	218,829	259,567	247,837

Source: Bank of Thailand

¹ Since 2006, data has been collected from banks and some credit card companies.

^P Preliminary data

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TABLE 17 : Number of payment cards

	2004	2005	2006	2007	2008	2009 ^P
Total	42,457,150	49,754,883	55,698,708	57,929,150	61,661,578	65,232,748
Credit card ¹	8,648,100	9,958,571	10,900,566	12,003,369	12,971,694	13,489,422
ATM card ²	25,384,027	28,752,512	30,845,358	22,632,173	22,423,525	21,039,687
Debit Card	8,425,023	11,043,800	13,952,784	23,293,608	26,266,359	30,703,339

Source: Bank of Thailand

¹ Since 2002, data include non-bank

² Some banks revised the data in 2004. Data include Government Saving Bank and Government Housing Bank.

^P Preliminary data

TABLE 18 : Use of postal payment instruments. Volume of transactions (in millions)

	2004	2005	2006	2007	2008	2009
Postal payments total	29.15	30.63	34.69	34.45	33.69	30.62
Domestic money order total ¹	27.97	29.66	33.77	33.83	33.19	30.21
Domestic postal order	1.12	0.93	0.86	0.58	0.46	0.38
Postcheque ²	-	-	-	-	-	-
International money order	0.06	0.04	0.03	0.02	0.02	0.02
Incoming	0.06	0.04	0.03	0.02	0.02	0.02
Outgoing	0.00	0.00	neg.	neg.	0.00	0.00

Source: Thailand Post Co.,Ltd.

¹ Include domestic money order and Pay at Post

² Postcheque was terminated since 2002

TABLE 19 : Use of postal payment instruments. Value of transactions (billion baht)

	2004	2005	2006	2007	2008	2009
Postal payments total	65.82	81.17	107.06	107.91	110.04	98.52
Domestic money order total ¹	64.37	80.19	105.61	106.71	108.86	97.52
Domestic postal order	0.29	0.21	0.19	0.14	0.12	0.10
Postcheque ²	-	-	-	-	-	-
International money order	1.16	0.77	0.63	0.53	0.53	0.45
Incoming	1.10	0.76	0.62	0.52	0.53	0.44
Outgoing	0.06	0.01	0.01	0.01	0.01	0.00

Source: Thailand Post Co.,Ltd.

¹ Include domestic money order and Pay at Post

² Postcheque was terminated since 2002

TABLE 20 : Sources of payment revenues of Thai commercial banks (million baht)

	2004	2005	2006	2007	2008	2009
Total	26,994	31,431	36,291	39,858	44,720	49,566
Credit card	7,246	8,007	9,792	11,202	12,934	13,447
ATM card and e-banking	7,593	9,107	9,976	10,710	12,430	16,541
Money transfer and collection	8,420	10,520	11,711	12,977	14,310	15,148
Securities custodian	414	548	756	820	856	815
Cheque-related fee	1,239	1,100	1,965	2,269	2,365	2,128
Letter of credit	2,082	2,149	2,091	1,880	1,825	1,487

Source: Bank of Thailand

TABLE 21 : Sources of payment revenues of foreign bank branches (million baht)

	2004	2005	2006	2007	2008	2009
Total	2,767	2,936	2,955	3,146	2,990	3,990
Credit card	633	717	873	1,083	1,218	2,369
ATM card and e-banking	92	60	59	59	57	45
Money transfer and collection	810	788	763	772	919	874
Securities custodian	865	808	732	753	611	578
Cheque-related fee	61	206	244	239	19	15
Letter of credit	306	357	284	240	166	109

Source: Bank of Thailand

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TABLE 22 : Daily averages of BOT payment services. Volume of transactions (transactions)

	2004	2005	2006	2007	2008	2009
BAHTNET ¹	4,957	6,138	6,997	7,206	7,716	8,239
ECS	260,592	261,492	252,858	240,924	231,334	221,919
Provincial Cheque Clearing	67,212	67,236	65,574	61,453	58,663	59,065
B/C ²	26,959	27,865	27,630	27,141	26,911	27,216
SMART	48,415	64,198	70,255	71,704	76,598	85,972

Source: Bank of Thailand

¹ Since 2002, data include interbank funds transfer, third party funds transfer, DVP/RVP for securities and Multilateral Funds Transfer.

² Inter-provincial cheques exchanged at the Electronic Clearing House

TABLE 23 : Daily averages of BOT payment services. Value of transactions (billion baht)

	2004	2005	2006	2007	2008	2009
BAHTNET ¹	302	431	583	744	1,110	1,979
ECS	92	102	112	121	136	125
Provincial Cheque Clearing	8.3	9.7	10.8	10.9	11.2	11.4
B/C ²	1.1	1.2	1.4	1.4	1.5	1.5
SMART	2.3	3.3	3.3	3.2	3.3	3.6

Source: Bank of Thailand

¹ Since 2002, data include interbank funds transfer, third party funds transfer, DVP/RVP for securities and Multilateral Funds Transfer.

² Inter-provincial cheques exchanged at the Electronic Clearing House

TABLE 24 : Peak day figures of BOT payment services. Volume of transactions (transactions)

	2004	2005	2006	2007	2008	2009
BAHTNET ¹	7,372	10,165	13,421	11,488	11,969	12,898
ECS	539,013	597,938	590,830	514,286	495,463	473,362
Provincial Cheque Clearing	124,743	144,682	141,274	129,731	115,119	111,561
B/C ²	127,845	128,748	124,162	120,434	125,038	122,138
SMART	226,030	234,684	300,353	322,497	361,746	312,649

Source: Bank of Thailand

¹ Since 2002, data include interbank funds transfer, third party funds transfer, DVP/RVP for securities and Multilateral Funds Transfer.

² Inter-provincial cheques exchanged at the Electronic Clearing House

TABLE 25 : Peak day figures of BOT payment services. Value of transactions (billion baht)

	2004	2005	2006	2007	2008	2009
BAHTNET ¹	509.0	723.1	1,378.4	1,236.6	1,820.6	2,829.3
ECS	178.0	209.3	217.2	247.4	296.3	252.4
Provincial Cheque Clearing	14.2	16.4	18.3	20.3	20.9	19.1
B/C ²	4.1	4.6	4.7	4.9	5.7	5.3
SMART	10.1	16.6	25.5	14.6	15.0	16.4

Source: Bank of Thailand

¹ Since 2002, data include interbank funds transfer, third party funds transfer, DVP/RVP for securities and Multilateral Funds Transfer.

² Inter-provincial cheques exchanged at the Electronic Clearing House

**TABLE 26 : Use of credit cards and debit cards via EFTPOS¹
 (Monthly average per card, baht)**

	2004	2005	2006	2007	2008	2009 ^P
Credit card	3,203	3,248	3,263	3,331	3,395	3,462
Debit Card	nav.	nav.	73	73	75	67

Source: Bank of Thailand

¹ Domestic and oversea spending of Thai credit cards and Thai debit cards via EFTPOS.

^P Preliminary data.

TABLE 27 : Cash withdrawal via ATM (Monthly average per card, baht)

	2004	2005	2006	2007	2008	2009 ^P
ATM card	nav.	nav.	6,063	7,018	6,056	6,459
Debit Card	nav.	nav.	7,328	7,051	7,640	8,618

Source: Bank of Thailand

^P Preliminary data.

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TABLE 28 : Use of mobile banking¹

	2004	2005	2006	2007	2008	2009 ^P
No. of agreements	18,312	85,565	133,419	168,434	232,758	257,677
Volume of transactions	22,704	329,769	355,048	359,407	4,670,377	11,246,192
Value of transactions (million baht)	745	622	392	336	25,218	63,603

Source: Bank of Thailand

¹ Data collected since 2004

Since 2005, data include mobile banking transactions using credit cards, debit cards and account numbers.

^P Preliminary data.

TABLE 29 : Use of internet banking¹

	2004	2005	2006	2007	2008	2009 ^P
No. of agreements	1,581,877	1,852,007	2,139,325	3,135,502	4,009,907	3,165,663
Volume of transactions ²	4,872,407	11,099,729	15,488,741	21,220,469	31,391,638	49,368,820
Value of transactions (billion baht)	1,139.2	2,722.4	3,584.0	4,896.5	6,818.6	5,692.6

Source: Bank of Thailand

¹ Data collected since 2000

² Since 2004, enquiry transactions were excluded

^P Preliminary data

TABLE 30 : Use of ORFT via ATM and counter. Volume of transactions (in thousands)

	2004	2005	2006	2007	2008	2009
Total ORFT	19,071	27,996	43,279	61,234	87,225	84,265
ATM	19,071	27,996	41,079	55,966	79,047	76,214
Counter ¹	nav.	nav.	2,200	5,267	8,177	8,051

Source: National ITMX Co., Ltd.

¹ Data collected since 2006

TABLE 31 : Use of ORFT via ATM and counter. Value of transactions (billion baht)

	2004	2005	2006	2007	2008	2009
Total ORFT	114	187	293	427	606	583
ATM	114	187	270	349	478	453
Counter ¹	nav.	nav.	23	78	128	130

Source: National ITMX Co., Ltd.

¹ Data collected since 2006.

TABLE 32 : Bill payment at bank counters. Volume of transactions (in thousands)

	2004	2005	2006	2007	2008	2009 ^P
Total bill payment ¹	nav.	nav.	66,889	72,471	77,896	84,772
Cash	nav.	nav.	58,806	69,135	74,011	79,117
Cheque	nav.	nav.	1,457	1,889	2,417	3,751
Others	nav.	nav.	6,626	1,446	1,468	1,905

Source: Bank of Thailand

¹ Data collected from banks since 2006.

^P Preliminary data

TABLE 33 : Bill payment at bank counters. Value of transactions (billion baht)

	2004	2005	2006	2007	2008	2009 ^P
Total bill payment ¹	nav.	nav.	3,909	5,182	6,758	5,201
Cash	nav.	nav.	898	1,362	2,586	1,650
Cheque	nav.	nav.	1,904	2,241	3,249	2,460
Others	nav.	nav.	1,107	1,578	923	1,092

Source: Bank of Thailand

¹ Data collected from banks since 2006.

^P Preliminary data

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TABLE 34 : Use of e-Money¹

	2004	2005	2006	2007	2008	2009
No. of cards/accounts	nav.	nav.	3,190,135	3,689,484	5,477,324	7,667,215
Volume of transactions	nav.	nav.	23,644,155	75,642,216	77,953,841	103,007,328
Value of transactions (million baht)	nav.	nav.	5,532.4	8,660.9	8,383.1	10,549.0

Source: Bank of Thailand

¹ Data collected since 2006 and excluded top-up cards.

TABLE 35 : Fraud through specific payment channels and payment instruments¹
(million baht)

	2004	2005	2006	2007	2008	2009 ^P
Total fraud	nav.	nav.	345	620	519	793
Payment channels ²	nav.	nav.	90	389	315	561
Payment instruments ³	nav.	nav.	254	231	204	232

Source: Bank of Thailand

¹ Data collected from banks, some special financial institutions and some credit card companies since 2006.

² Banks report only final result. Fraud through specific payment channels include telephone banking, mobile banking, internet banking, pass book and other channels.

³ Banks report only final result. Fraud via specific payment instruments include cheque, credit card, ATM card, Debit card, prepaid card and other cards.

^P Preliminary data

Symbols Used in Tables	Meaning
"_"	No data
"nav."	Data not available
"neg."	Negligible in value compared to all other data in the same table
"0"	Zero or near zero in value

- Table 1 - Gross domestic product expressed in current prices
- Average foreign exchange rate
- Tables 6-7 - Data on cheque transactions since 2006 includes both in-house and intrabank cheques and has been compiled from all commercial banks as well as the three state-owned specialized banks.
- Credit transfer data refers to intrabank funds transfers under pre-authorized direct credit.
- Debit transfer data refers to intrabank funds transfers under pre-authorized direct debit.
- BAHTNET data since 2002 consists of data relating to interbank funds transfers, third-party funds transfers, DVP/RVP securities transfers and multilateral funds transfers.
- Data on credit-card spending since 2003 also includes information on non-bank credit cards according to the new reporting format introduced on 12 November 2002 (as per Circular Letter: SorNorSor (21) Wor. 207/2545).
- Data on volume and value of debit-card spending since 2004 is recorded separately from the data on volume and value of ATM-card spending.
- Data on volume of credit-card transactions since 2004 includes transactions of bank cards, affinity cards, non-bank cards/affinity cards and foreign credit cards used in Thailand.

7 Notes on Statistical Tables

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- Table 9 - Excludes data on the number of accounts and outstanding amounts held by Bank of Thailand's regional offices.
- Tables 10-11 - ORFT-ATM data has been collected since 2000.
- Data on bills for collection (B/C) refers only to bills for collection submitted to the Electronic Clearing House in Bangkok.
 - BAHTNET data since 2002 includes data relating to interbank funds transfers, third-party funds transfers, DVP/RVP securities transfers and multilateral funds transfers.
- Tables 12-13 - Equity securities settlements are processed via scripless book-entry system only.
- Table 16 - Data on the number of EFTPOS terminals since 2006 represents information consolidated from a number of commercial banks and credit card companies.
- Table 17 - Data on the number of credit cards since 2002 also includes non-bank credit cards according to the new reporting format introduced on 12 November 2002 (as per Circular Letter: SorNorSor (21) Wor. 207/2545).
- Tables 18-19 - Data on domestic money orders includes all domestic postal orders and Pay at Post transactions.
- Tables 22-25 - Data on bills for collection (B/C) refers only to bills for collection delivered to the Electronic Clearing House in Bangkok.
- BAHTNET data since 2002 consists of data relating to interbank funds transfers, third-party funds transfers, DVP/RVP securities transfers and multilateral funds transfers.
- Table 26 - Average monthly spending via EFTPOS within and outside Thailand using domestically issued debit and credit cards.
- Table 29 - Data on Internet banking transactions since 2004 does not include enquiry transactions.
- Table 33 - Electronic money data does not include data on prepaid mobile cards.
- Table 35 - Data collected from certain commercial banks and credit card companies.

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