

ELECTRONIC PAYMENT AND SETTLEMENT SYSTEM IN IRAN

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Abstract

Payment systems are one of the primary elements of every country's financial systems that play a determining role in fast, efficient, and secure transfer of funds between markets and different parties of financial systems. They are also an effective factor in improving efficiency of country's financial systems. Besides, development of payment systems contributes to financial and economic development of country, because it facilitates economic exchanges and provides a good basis for implementing monetary policies. In recent years, electronic payment and settlement systems of funds have experienced dramatic improvements in country by introducing **country's comprehensive payment system plan**. The procedure of these improvements is specifically distinguishable since 2001. Comprehensive payment system plan is a national project which provides the main basis for electronic transfer of funds.

Key Words: Payment system, economic exchanges, and electronic payment

Introduction

Many economists and experts believe that a revolution similar to industrial revolution has taken place in recent years which has led the world to information era and has changed many economical, social and cultural aspects of human life dramatically. One of the change dimensions is fundamental changes that have happened in economic relations between individuals, companies, and government. Business exchanges between different individuals, between different companies and between individuals with companies and governments are rapidly changing from its traditional way- which is mostly based on paper documentations- and they are moving towards doing exchanges through utilizing systems which are based on electronic information. With globalization of electronic trade as the approach for exchanging goods and services in today's communities, providers of goods and services do not need direct connection with customers or their physical presence. In fact, Internet enterprise in each business firm works as an independent business firm. This modern approach is a great opportunity for companies' owners to change their activities from local domain to international expansion. Payment system is a mechanism which transfers funds from an account in one bank to an account in another one. Therefore, the role of payment system in economy is like vessels which carry money to different economic enterprises. Hence, guiding and controlling proper and perfect performance of payment system in the country's monetary sector is considered as one of the main duties of central banking in today's world. In recent years, with respect to decrease in ratio of real value to nominal value of currency note and coin in Iran, the portion of mentioned tools in currency volume has decreased considerably and has given its place to payments which are based on different type of cheques, especially traveler cheques and guaranteed cheques. With respect to all recent changes in the area of payment systems and future changes, it seems that basic infrastructures for electronic payment and settlement of funds have been provided in the country's banking system in a desirable level. The combination of these conditions create a basis for banks and other providers of

payment services to develop and expand new equipments, tools and innovations in the area of payment and settlement systems in the country(5).

Payment in Business and Industrial Exchanges

The act of payment, its legal concept means: paying debt, discharging a duty or responsibility. In physical world, buyer pays the price of goods either as face to face and by cash, cheques, credit card, prepayment or he goes to a bank and pays it to seller via bank draft, whereas if you want to buy something electronically in virtual world, some equivalent approaches will be used for Internet payment. Meanwhile, security measures will be employed to identify it by the individual and to prevent its denial by sender and receiver. The purpose of establishing an electronic payment system on public network is to access electronic goods or to get guarantee for delivery of physical goods. It means that electronic payments play a crucial role in supplying the needs of a big sector of electronic exchanges system, i.e. transfer of funds and credit instruments. Without it, the extent of electronic exchanges will encounter a fundamental defect. These systems will be designed on Internet in different ways or will be developed in a way to be applicable in physical world without the presence of individuals or in unilateral presence of them in payment and receipt of money and documents (4).

Electronic Payment

Banks and financial institutions which bring up different payment approaches, grant efficient credit, transfer funds and supply finance in an advanced, efficient and modern manner are one of the main characteristics of developed economies and pioneering developing countries. Usually, countries which have a good performance in the area of macro economy enjoy an efficient payment system, too (4). Electronic finance or payment is defined as online presentation of financial services to economic enterprises via wireless or fixed Internet networks and other computer networks. Electronic payment comprises of-line use of electronic vehicles for payments transactions in distant areas, of course. Electronic finance includes stockbrokerage, banking, financial markets and electronic insurance, financial supply of electronic trade, financial information services and so on. Electronic finance is one of the best applications of electronic trade, because financial services require information and in the most cases it doesn't need physical delivery (4). Electronic payment has changed the structure and nature of financial services. Reduced costs (low ultimate costs), more speed, more different services and access to more expanded networks are some advantages of electronic finance. Furthermore, likely entrance of new competitors (even out of finance sector) and stiffer competition between service providers in financial sector have increased the level of competition (4).

Electronic Payment approaches

In the following paragraph we will refer to some available forms of electronic payment.

1. Electronic money

Different terms such as electronic money, digital money, digital coin, and virtual money are used for giving orders, changing an account into a debit or credit account, or as a reason for executing contracts which are concluded for the purpose of granting credit. Publisher of electronic money which may be a bank or someone else will issue electronic money by using his private key (signature or encoding). In order to spend electronic money, customer sends electronic money's message (including publisher's identity, his Email address, sum of money, its serial number, and expiration date) to trader (3).

2. Electronic cheques

Electronic cheque's message contains the same information which is on paper cheques and will be signed and sent digitally.

3. Smart cards

A smart card contains a microchip which can save information. These cards are used for credit payments and transfer of accounts' balance. However, they can be in the form of chips which have specific value, their price be prepaid, and be saved as information in them. Its value may be transferred between users of these systems.

4. Electronic documentary credits

A regular documentary credit transaction comprises at least three related contracts which are basically independent at the same time.

1. A contract between credit demand ants and opening bank; under this contract the importer asks the opening bank to open a credit in favor of the exporter based on determined conditions.
2. A contract between opening bank and recommended bank which is located in exporter's country.
3. A contract between recommended bank and exporter in order to provide a situation that documentary credits act electronically. It is necessary that formation, dispatch and exchange of documents in this different contract be applicable and in circulation electronically.

Payment System Changes

Generally, three periods of time are taken into account in relation to payment system changes: First period is known as cash period which reached its peak by creation of metallic currency. Second period is related to paper payment systems which took form by emergence and use of cheque for the purpose of transferring a property from someone to another one. In this case, instead of transferring from an individual's coin, currency note or sometimes his property, some money will be deducted from his account and will be credited to cheque owner's account. Gradually, other instructions were developed in relation to paper payment. These include bank drafts, traveler's cheques and etc.

The third period is related to electronic payment systems. Since the beginning of the 1960s, another type of services was offered to public which was called credit cards. After a short time, both cheques and credit cards became gradually automatic. But, however, a large amount of paper documents was produced in that period of time and complicated telecommunications technology was employed as a solution to this problem. As a result, using different payment approaches and automated teller machines grew rapidly. On the other hand, money changed to electronic money, but also cheques changed to electronic cheques, too. In fact, electronic exchange of information was used instead of paper processing (5).

Electronic Payment and Electronic Trade in Iran

Development of electronic trade in Iran is not possible without development of electronic payment system. Our electronic payment system is in preparation phase right now. This system should be designed in a manner to not only do electronic banking operations, but also support development of electronic trade introducing and propagating utilization of credit cards, electronic cheques, electronic

wallet and digital cash, developing electronic banking and electronic payment systems based on mobile, allowing Internet access to ATM and POS services, creating an online center for controlling and communicating credit cards' information, initiating shopping we sites specialized for each bank via credit cards of the same bank and capability of integrating them are the first new steps in the country's payment system. Supporting security of electronic payments, training and culture education, facilitating simple approaches, arousing motivation for control and communication of information, and codifying electronic banking laws and regulations are some of the main steps which should be considered in development of electronic payment (4).

Electronic Banking Services

Rapid development of Internet and electronic trade in financial and banking sectors encourages customers towards online banking and banks can offer better services to their customers and provide them with the feasibility of doing banking transactions in an interactive manner (2).

We can divide electronic banking services into different groups:

- Banking on the net
- Banking via mobile
- ATMs
- Smart cards
- Electronic payment systems
- Electronic transfer of funds and so on.

Instant Gross Settlement System

Instant gross settlement system (IGSS) is a system that allows a bank's customers to deposit every bank draft to every account in every bank *in the same day*. Customers can do this by going to different branches of their bank. This system is a perfect substitute for inter banking coded cheques and uses inter banking electronic communications instead of traditional paper tools. It can be effective in reduction of Iran cheque and currency note volume which are used for transferring funds from a bank to another (1). Instant gross settlement system has been initiated in two different banks since November 2006. This system follows two aims: settlement of exchanges between banks and instant transfer of funds between customers' accounts. Based on theses aims, the above mentioned system started to work. By clearing house settlement of banking documentations in 2006, the scope of SHETAB activities expanded in 2007 and its center extended to substantial inter banking payments. In 2008, based on serving banks' customers approach, presenting instant electronic services for transferring funds between customers became a pervasive service in this system and got feasible for all banks' customers with different kinds of account, whether centralized or traditional ones. Also, with respect to the fact that adopting an incentive policy is necessary for encouraging the public to use these services, the minimum amount of transactions and fees were removed. Since 2008, this chance was provided for customers to be able to demand electronic bank drafts based on their own accounts without any amount limitation or paying any fee. The combination of these factors led the country's payment system to extensive changes in terms of security and speed in banking transactions. Public welcome to this system has caused that the volume of exchanges which are done in this way, increase every year (3).

Electronic Clearing House

Micro payments are not generally an emergency concern and in the case of emerging disruptions to services, they do not create a serious risk. But, with respect to high volume of transactions,

efficiency and processing capabilities of computer systems and their corresponding communications system should be set at a high level (2). In addition to *instant gross settlement system* that processes individual payments instantly, launching of *electronic clearing system* was on the agenda of Central Bank since the beginning of 2008, and has been considered as a part of comprehensive payment system plan. Electronic clearing system which executes mass payments in two forms of direct withdrawal and remittance has started to work since 2010. Electronic clearing system is considered as the main infrastructure of mass inter banking financial transactions and is designed in a way that can receive and process different payment orders from banks, and send them to destination banks for implementation. Electronic clearing system is considered as the spine of bank drafts and inter banking transfer of funds in the country. Correspondingly, banks can receive their customers' payment order individually or collectively and send them to "electronic clearing house" for clearing and implementing in destination banks. Electronic clearing system has two separate cores in itself, i.e. "transfer of funds" and "direct withdrawal" which make it possible for banks to present added value services.

Payments by Cards

With initiation of IIEN (*Inter banking Information Exchange Network*) activities as the switch of national card, bank cards network started to work in an integrated way in Islamic Republic of Iran since 2002. At present, all bank cards are accepted in all installed terminals through the country. The center of Inter banking Information Exchange Network is under direction of *payment systems department*. After clearing items which are related to bank cards transactions till next noon, this organ settles sum of money which are related to inter banking settlement in instant gross settlement system (1). With initiation of comprehensive payment system plan in 2001, distance payments are done (it doesn't require to go to a bank) via electronic equipments which are installed in sales centers and service providing ones. Card payment systems usually work round the clock and are not dependant to banks' work time. Card payments are intended for natural persons. Banks try to transfer this kind of payments –which are done traditionally via cash or cheque- to the background of cards. This action has three main advantages for banks: card payments result to transfer of funds between two accounts in two commercial banks. Exchange of commercial bank's money to Central bank's money does not happen in card payments (it happens in cash payments) and as a result the volume of banks resources (their ability to grant facilities) does not change in this kind of payments. Card payments will require payment of fee by the card acceptors to the banks which have provided them (card acceptors) with their own equipments or have issued credit card. These fees comprise between 1 to 5 percent of every transaction's sum, and make considerable money for banks. The cost of each card transaction is very minimal. On the contrary, the cost of processing substitute tools like cheque may be several times more than the cost of processing card transactions. Employing cards is an effective approach for doing operational payments, reducing congestion in banks' branches, and decreasing the size of organization. The growth trend in the number of cards is much more than the growth trend in the number of ATMs and if this trend continues in long term, the growth trend of using electronic payment vehicles may be disrupted as a reason of decrease in individuals' access to ATMs. But, meanwhile, POSs have had a considerable growth in comparison to other vehicles. With regard to significant growth of our deprived provinces in terms of using electronic payment vehicles, we can say that they are moving towards rich provinces and this fact promises electronic banking development around the country (1).

Table 1

	Number of cards per ATM			Number of cards per POS			Ratio of cards to population	Ratio of population to ATM	Ratio of population to POS
	Tehera n	Province s	Tota l	Tehera n	Province s	Tota l			
Aug 2006	3389	2533	2799	355	203	170	0/24	11520	699
Aug 2011	8043	6291	6746	281	84	85	2	3369	43

Automated Teller Machines (ATMs)

One of the primary approaches of e-banking that emerged in early stages of development was ATMs. As the first glimmers of e-banking development, these machines appeared since the late 1960s. These machines perform many of the bank services round the clock. ATM is the best channel of electronic distribution that allows customers to do their bank transfers round the clock. In fact, ATM is designed for daily bank operations and generally includes receipt and payment of funds and daily bank transactions. It comes into operation by a plastic card (credit card) which has a specific design and in fact, this plastic card is a cheque. In ATM system all receipts and payments are feasible and customer can access to all information of his bank account (6).

Banking via Mobile

This approach is the best channel of electronic distribution and allows customers to do their bank transfers round the clock. Nowadays, mobile phone is presented as a channel for using a high potential service; it expands an important part of customers' needs and some planes which need connection to Internet. For example, now mobile banking allows customers to ask some information in relation to their bank accounts. These include: the balance of their account, the most recent transactions of their account, transfer of funds between their accounts for buying and selling with the purpose of exchanging the balance, received interest and price information. Mobile business is something beyond commercial transactions and includes creation of a convergent network for the purpose of establishing communications and cooperation (7). Mobile phone is one of the prerequisites of mobile trade and customer will employ his/her mobile phone for doing transactions through mobile communication network. The server of mobile banking will get into communication with the bank's central banking system to detect transaction's processing, get permission and do other procedures (6). In telephone banking approach, whether via fixed phone or mobile phone, the phone is a communication means between bank and its customers, and banking services will be presented in this way.

Conclusion

With respect to all recent changes in the area of payment systems and future changes, it seems that basic infrastructures for electronic payment and settlement of funds have been provided in the country's banking system in a desirable level. The combination of these conditions create a basis for banks and other providers of payment services to develop and expand new equipments, tools and innovations in the area of payment and settlement systems in the country. Developing inter banking electronic settlement system is one of the most important recent changes which have provided a

basis for electronic payments between banks and between customers. It also has provided necessary basis for more development of SHETAB network, initiation of electronic clearing house, and electronic stocks settlement system. It is hoped that by complete initiation of electronic payment and settlement systems in the country, we would observe more facility and higher improvement in relation to economic transactions and enhancement of economic and financial system's efficiency. Expanding culture education and information, propagating utilization of electronic payment and settlement services via media and banking system of the country, propagating credit cards and prepaid ones along with continuous and precise control over banks' performance in this area are some of the actions which can contribute to more efficient and faster development of the country's payment and settlement systems.

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