Monetary and Banking Research Institute
Central Bank of the Islamic Republic of Iran

Policy Abstract of the Eighth Annual Conference on Electronic Banking and Payment Systems

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Policy Abstract of the Eighth Annual Conference on Electronic Banking and Payment Systems

1. Latest Achievements, Challenges and the Future of E-Banking in Iran

The Islamic Republic of Iran is one of the countries with a significant growth in the area of electronic banking. Since the private sector entered the banking industry, which led to significant financial development, banks have shown great progress in e-banking. Although newly established private banks were pioneered in this route, older banks quickly adapted to the ongoing changes. The policy-making bodies, the government and the Central Bank, have taken great steps in such developments.

The most recent developments and achievements of the decision-making system is presented in this section.

It's definite that e-banking is one of the sectors of the economy, which has experienced significant transformations. Rapid growth, is always accompanied by challenges. Information and communications technologies are growing rapidly while dealing with unpredictable problems. For example, in the development of e-banking in Iran, illegal e-banking service charges have been a major issue for a long time. Among other challenges are security breaches and stolen usernames and passwords, which leads to fraud and abuse of users' information and assets. Other developments (be it positive or negative) are also emerging in the world and the task of policymakers is to deal with the challenges ahead in the best way. Among external problems, which call for proper responses, is the economic warfare against Iran and the Iranian people. The stance on Blockchain and cryptocurrency are also among issues raised independently of the development of electronic banking in Iran. After examining the current challenges, we now take a look at the future developments in the e-banking industry.

1. 1 Recent Development in the Government and the Central Bank

1. 1. 1 Release of the third version of the document about working regulations of Fintech companies

The Central Bank Policy on Financial Technology document was published in October 2016. In line with the implementation of the provisions of the document, the first revision of “Requirements, Criteria and Process for the Activity of Fintech Companies, and Recipients Supported in the Payment System of Iran” document published at the same time of the second revision that was in February 7, 2018. Its third revision is published in August 2018. This document is the result of the experts consulting the Central Bank, which is an important step in elimination of monopolies.

A Fintech company is a legal entity governed by a contract concluded with a payment service provider (PSP) and a memorandum of understanding (MoU) signed with Shaparak Company. The Fintech company receives cardless payments, including intra-pay, and sends them to Shaparak network.

1.1.2 Promoting banking monitoring and preventing illegal activities

The payment and settlement systems have helped the Central Bank in monitoring. The currency crisis that occurred following the US sanctions in the middle of 2018 and trembled the country's monetary and banking systems, was controlled by the proper supervision and modification of payment tools, and consequently the foreign exchange market once again became stable.

There are positive and negative outcomes in every affair. In the past, many gambling sites used banking payment portals. However, the Ministry of Information and Communications and the Central Bank took steps to suspend betting sites and remove the associated banking portals.

1.1.3 Direct withdrawal system

One of the most important measures taken by the Central Bank is to set up a direct withdrawal service. Currently, 18 banks provide direct withdrawal services. This service enables businesses to receive funds with low fees. This tool is considered as an important entry point for startups, because it reduces the concern to collect funds for their business activities.

There is a difference between the "credit transfer" and "direct withdrawal" schemes. Credit transfer has been in operation since 2009. In direct withdrawal, however, a license must be issued first through a licensing system. The beneficiary, then, sends a request to receive money from the customer, and then comes the third stage, which is the same process carried out in the transfer of credit. In fact, credit transfer is only part of the direct withdrawal process.

1.1.4 The Shahkar System

Identifying customers in the banking system is one of the key challenges in the development of electronic and digital banking. In this regard, the Shahkar System has been prepared by the Ministry of Information and Communications Technology for authentication and is made available to the Central Bank. The system, with the information of mobile operators and registry office, provides the Central Bank with an appropriate database for authentication.

1.2 Challenges

1.2.1. Monetary and banking infrastructure: the first embankment of the economic war

Iran is in the economic warfare; it's a soft war, and some governments are seeking to infiltrate and hurt the economic and cultural characteristics of the country. The main embankment of this soft war is the monetary, financial, and banking infrastructure, and efforts should be made to strengthen this vital infrastructures. The US government strategy over the past decade has been to threaten Iran's military and economic fronts, and constraint its strategic infrastructure. The US government also seeks to curtail Iran's economic and technical interactions with the world.

For example, one of the cloud computing and network services servers recently blocked Iranian companies under international sanctions for no apparent reason. Obviously, it is imperative that banking infrastructure be supported as one of the vital infrastructures of the country.

The private sector is the forerunner of the economic war, and it must be supported for the development and growth of the country. The government should provide opportunities for the private sector to grow. To do this, it is necessary to create new businesses by combining information technology and

the financial sector. Fortunately, today the growth of Fintechs as new businesses has been remarkable. Fintechs have changed the face of the money and banking market.

1.2.2 The e-banking service charges system

The problem with the payment system business models and service charges goes back to early 2000's. At that time, since payment service providers (PSP) were not separated from the financial institutes, banks offered free payment services to the customers. As many payment system experts admit, the current service charges system is facing difficulties. Some experts believe that service charges should be resumed to the original form and the recipient of the service should pay the charge. Others, however, argue that based on domestic and international experiences, customers should not be charged for free services they have received. Therefore, to pay service charges, customers should receive new services.

Since the beginning of the year 2011, banknotes and coins have been removed from trade, meaning that payment behavior has changed. The shift in the population's behavior has occurred independently from the regulator and the Central Bank should consider such changes when making decisions. Based on the calculations of the Central Bank, transactions under 200,000 Rials are not cost effective for the banking system. Therefore, to reduce expenses, some transactions should be executed offline. Of course, these transactions will ultimately be aggregated and that way transaction costs are reduced.

Certainly, the focus is not just on service fees, as there are other unfair and inefficient fees in the banking system. In general, the fixed service charges in the banking system is one of the major challenges in electronic banking.

1.2.3 The need to declare a policy for new technologies

The law cannot keep pace with technology, and for lawmakers to adopt laws on new technologies, red lines must be specified. Regulatory issues such as money laundering and retaining Rial as the only cryptocurrency are important for the Central Bank. In the open banking, the red line is "security" that should be paid special attention. Trust is the key subject in the financial system and if taken away the entire system collapses. For this reason, the Central Bank's policy is based on the continuous use of the Second Payment Service Directive (PSD2) rules, which still require banks to authenticate and authorize transactions.

The Central Bank has recently released a draft of requirements and rules on cryptocurrency or the so-called Central Bank policy regarding cryptocurrency. This is not a technical policy, and it is only an opportunity to know the sector. The cryptocurrency policy does not cover Blockchain technology. It merely answers questions in its domain. Since regulators approve the policy, their concerns over possible inflammation in the market should be cleared. The policy emphasizes that transactions must be made in accordance with currency regulations.

The theological and religious aspect of the cryptocurrency are also neglected and should be studied. To use any banking tool, its theological status should be approved, therefore there is no choice but to study the theological aspect of cryptocurrency and other new technologies as their prerequisite.

1.2.4 Social challenges

One of the most important challenges facing the e-banking industry is the social challenges of scam and fraud. In security issues, this example is known as a chain as weak as its weakest ring. If the knowledge of users of electronic banking services is not kept up to date with technological developments, it is possible to misuse their information by fraudsters. At the moment, one of the most important challenges is the huge number of fraudulent cases and Internet financial misconduct. Of course, by using of a one-time-use second password for online payments, this challenge will be greatly controlled. Nevertheless, the need for awareness continues to be observed.

1.3 The Future Horizon

1.3.1 Supporting emerging businesses and reducing focus on e-banking

Electronic banking and payment system are an interactive framework between the Central Bank and the Ministry of Information and Communications. In line with the proposal of the Ministry of Information and Communications, the government approved the policy to eliminate monopoly of PSPs in payment system which helps Fintech and other financial companies to grow. To do so, the CBI is drafting a guideline concerning the removal of monopolies from payment companies. By eliminating the monopoly of payment services from the current state, startups can enter the financial services space, and hence the Fintechs grow. Startups may offer services that have not been provided so far. Of course, payment discussions will be one of the most important influences on Fintechs, and it is anticipated that with the arrival of Fintechs, payments will be made at a very low cost in the future.

1.3.2 Transitions from magnetic cards to smart cards

The implementation of the EMV (Europay, MasterCard, and Visa) standard is the Central Bank's plan and part of the bank's roadmap for the year 2021. The low level security in Iran’s payment system has been a reason for transitioning to smart cards, which helps the banking system to improve security. In addition, the transition has been a factor in the development of payment sector while it helps boost some of the national programs such as tourism. Moreover, the implementation of the transition not only improves the security of the Iranian payment system, but helps policymakers and regulators to comply with the international payment systems. It also helps the development of new businesses in this area and in the mobile payments, and ultimately making offline transactions safe.

There are many problems in the transition to smart cards. With more than 80 million people in the country and more than 220 million active bank cards, 35 banks connected to the Shetab, 12 payment service companies, as well as more than 55 thousand ATMs and 6 million sales terminals, the transition to smart cards is difficult. To pull off the plan, the Central Bank must work alongside other banks and PSPs.

The CBI should have the following criteria in the transition plan: First and foremost, allocate sufficient budget, then observe stakeholder’s behavior, formulate rules and requirements for compliance with the EMV standard, devise risk management rules and security requirements, rules to improve network infrastructure, as well as administer and authenticate policies in the mobile field.

Banks and PSPs should also upgrade their infrastructure based on the Central Bank standards and increase compliance with laws and regulations. Of course, appropriate plan and budget for the

transition is also one of their priorities. In addition, banks and PSPs must specify the type, number, and cost of replacing or updating terminals to comply with EMV standards, as well as the number of magnetic cards for bank customers and related replacement costs. Finally, they should promote the transition to the EMV standard amongst customers and stakeholders.

The experience of countries moving towards the EMV standard shows that implementing the transition plan is time-consuming. Therefore, it is necessary that the Central Bank of Iran, with the cooperation of banks and PSPs, initiates the first steps of transition to the EMV standard and provides the necessary infrastructure.

2. Blockchain Revolution

These days, the word "Blockchain" is often heard in conjunction with Cryptocurrencies. The use of Blockchain is not limited to Cryptocurrencies, however. Bitcoin and other Cryptocurrencies are just one of the uses of Blockchain. To understand the future employment of Blockchain in banking, it's better to have a closer look at Blockchain itself. Blockchain is a technology that uses distributed databases, mathematics and cryptography to store transactions.

Imagine several large ledger books (for daily records) with exact same information on each one. Since all transaction data are logged in the same way on all databases, there is no way to hack them in practice, because all databases should be hacked too. Blockchain technology paves the way for strangers to agree on a database without third party involvement (such as banks) and services such as payments can be done based on Blockchain technology.

To generate wealth, components of a network, which generally have no faith in each other, must function in a coordinated manner. In such environment, wealth is generated by transfer of goods and data. In general, there are four basic conditions for the transfer of data in technology: easy data transfer, consensus among parties, ability to monitor transactions, and precision in retention of data. If these four terms are met and performed by any mechanism and technology, it creates a revolution in wealth production.

Blockchain has all these features and is therefore considered a revolutionary technology. The Blockchain revolution creates an environment where parties without a need to trust each other, have faith in the network. If this happens, the role of banks and financial institutions will be affected by changes in the market structure. In the current structure, there are certain trustworthy institutions that carry out settlements, each with its own ledger.

2.1 Blockchain Features

Blockchain creates attractive opportunities as well as sustainability, high security, acceptability, data distribution, predictability and intelligent ability.

From the distant past to the present day, one of the most important problems has been moving money twice and its re-registration. Blockchain made it possible to avoid re-registration of assets.

Over 50 percent of financial services, as one the industries enjoys Blockchain technology, are on Blockchain platform which in return provides a high level of safety and security in the exchange of data, information and money.

The key to Blockchain is that its high transparency of details, makes changes to the content of transactions impossible and thus prevents fraud. This is only one feature of this revolutionary technology. Independence and high distribution are other important features of Blockchain. There is also a consensus mechanism among the parties of Blockchain which determines if transactions are authorized or unauthorized.

Like any other new technology, Blockchain has positive or negative features. This technology is an important infrastructure beyond Bitcoin or other Cryptocurrencies. Blockchain technology is not designed exclusively for drug gangs, scams or dangerous and illegal activities.

2.2 Authentication in Blockchain

Registration, payment and transfer of assets are among the duties of governments. Blockchain, too, is a place for the registration and control and transfer of assets. A few issues, however, should be addressed here. One of the most important questions is the identity issue in Blockchain. On a Blockchain platform, are the identities of users revealed or they remain anonymous? If the identity of user is unknown on this platform, it will pose a series of challenges, and thus create grounds for criminal activities.

In situations where a person can transfer money using a few "cards" in different identities, false IDs will increase. One of the best things for criminals is to keep a fake identity on Blockchain. Therefore, identity issues in Blockchain technology create problems where legal institutions cannot enforce their authorities and laws. However, if Blockchain customers use their own identity, this problem will be resolved. Obviously, on a Blockchain, the known identity of a user increases transparency of the system. Here is also the issue of privacy on Blockchain platform that needs to be addressed.

2.3 Blockchain Application in the Banking Industry

Presently, the use of Blockchain technology in the banking industry has grown significantly. About 80 percent of major banks in North America and Western Europe by 2017 have had a project in Blockchain. In addition, the activities of central banks of the United Kingdom, the United States, China, Japan and France in the Cryptocurrencies and the activities of the Visa Inc. to create a swift alternative strategy are signs of the development and growth of the Blockchain technology in the banking industry.

Blockchain is important when financial institutions and banks could connect to each other on a shared platform to provide a value added service. Therefore, banks, as the most important pioneers in the Blockchain industry, play a significant role in this area. Blockchain is of great importance in digital evolution. Banks need to focus on Blockchain and its infrastructure including regulation, human capital, customer experience, digital culture, and acceptance and readiness of the technology. With numerous users in the industry and highly valued transactions, Blockchain is very helpful and ignoring it can be costly. Therefore, the first step prior to the development of products is to review the IT strategy in a business organization and lay plans based on current conditions.

Among the most useful applications of Blockchain are payment and financial markets. Credit and customer authentication are ranked next. The world's large banks employ Blockchain technology, in order of importance, to join the consortium, partner up, invest and develop domestic banking. Iranian banks, unlike the world's major banks, have chosen the domestic development of Blockchain.

2.4. Blockchain and Future Developments in Banking

2.4.1 Payment

In the decentralized method of payment (for example, Cryptocurrencies like Bitcoin) on Blockchain platform, payments are transferred faster and at lower cost. This feature of Blockchain, widely welcomed by Cryptocurrencies, is the future use of Blockchain in the banking industry. Currently, there are many intermediaries in the payment process. Blockchain blocks these intermediaries and, as a result, eliminates the time and cost of the intermediaries.

Blockchain is both, an opportunity and a threat to banks. On the one hand, the cost of processing and moving millions of dollars in cash is sharply reduced. On the other hand, Blockchain's low cost, attracts Fintech start-ups to the industry, which traditionally has been the territory of large banks. In the coming years, there will be a tough competition in financial services, and if banks do not pay attention to it, they would not be able to compete against emerging companies.

2.4.2 International Money Transfer

The most important upcoming application of Blockchain is the international transfer of money, which is currently monopolized by SWIFT and Western Union systems. These systems are both very costly and slow. While an email across the world is transmitted in fractions of a second, money transfers may take several days or even weeks. The reason for it is the fear of financial misconducts. Fraud and misconduct in the financial sector occur more than other sectors of the economy, and as a result, banks and financial institutions have to comply with more laws and regulations to prevent financial fraud. On the other hand, there are many intermediaries in this process. A Blockchain system, while boosts security, reduces the number of intermediaries and, as a result, lowers the time and cost. Many central and commercial banks are now trying to use Blockchain platform for money transfer.

2.4.3 Reducing Fraud

Statistics show that nearly half of the world's financial institutions have hit by fraud attack. Most banking systems in the world are based on centralized database systems that are highly vulnerable to hacker attacks as they have only one vulnerable spot. If a hacker finds access to the central system, he gains access to the entire data. However, in the Blockchain structure, any changes in the previous transaction is not feasible, and a new counterfeit transaction will not be accepted in the distributed database. Thus, use of Blockchain technology is expected to reduce fraud, abuse, and economic crimes.

2.4.4 Settlement Systems

Distributed ledgers can reduce operating costs and bring us closer to real transaction costs in financial institutions.

2.4.5 Securities Market

Blockchain technology can create more efficient capital market by dividing up traditional securities such as stocks, bonds, and alternative assets and placing them in public blocks. Currently, since there are many intermediaries in the security trading process, the transactions of this market are quite time

consuming. However, on the Blockchain platform, lack of licensing, third-party approval and repetition, greatly increases the operation speed.

2.4.6 Identifying Customers

Financial institutions are spending a lot of money on identifying customers to comply with anti-money laundering and anti-terrorist financing rules. The use of Blockchain technology allows banks to independently identify a client that is visible to other banks so that they do not need to go through the process of customer identification from the beginning. Thus, the costs of matching departments of banks will be greatly reduced.

2.4.7 Smart Contracts

A smart contract is a computer protocol intended to digitally facilitate, verify, or enforce the negotiation or performance of a contract. Smart contracts allow the performance of credible transactions without third parties. These transactions are trackable and irreversible. Smart contracts are one of the most important Blockchain potentials that makes the use of it way beyond other payment tools and Cryptocurrencies.

2.4.8 Validation

Blockchain facilitates screening of customers quickly and reliably, especially small companies that are difficult to verify their legitimacy. To do this, the inquirer of the data (the screening company) specifies the verification criteria and algorithm. Conditions and algorithms are executed on customer data in the form of a smart contract, and Blockchain returns the result. Here screening has been made without disclosure of the company's confidential information.

2.4.9. Loans and Credits

One of the most important future use of Blockchain is in the area of loans and credit. The most important activity of today's banks is providing credit based on customer’s eligibility, which relies on abundant data and in many cases it is a very time consuming process. Even much more data is required in syndicated loans. With the help of Blockchain technology, the most time consuming parts of the lending process is done quickly, because two very important stages in this process, identifying and screening customers, are completed very fast.

2.4.10 Business Finance

Blockchain also plays an important role in financing businesses. Even in today's world of technology, many commercial finance activities still include many paper files such as bills of lading, invoices, credentials, and etc. Of course, management systems allow these files to be executed online, but the administrative processes still take a lot of time. Trade finance using Blockchain can simplify the entire business process by eliminating routine work and bureaucracy.

For example, in a traditional trading financial system, all stakeholders should keep their database for all transaction-related documents. Each database must be permanently adjusted to the rest of the file, and a small error in a document is published on all databases. Blockchain eliminates the need for multiple copies of a document and consolidates all the necessary information in a digital document. This document is updated at any time and is accessible to all members of the network.

3. Open Banking

In response to developments, the banking industry was able to initially automate banking operations and process large information in a fraction of time by using technology. This period is referred to as "Electronic Banking". Perhaps, it was because of the financial crisis in the first decade of the 21st century that caused banks to revise their previous basic plans and experience new patterns of business, focusing on value creation and profitability in return. The decision, coupled with technology and more developed software, revealed the emergence of "Open Banking" as the concept of partnership with the ecosystem for development and synergy.

In other words, open banking is a platform that takes advantage of the concept of participatory economics trying to pass through the architecture of the leader-follower arrangement system into a new banking space. In this new framework, the bank provides a platform and allows production of its content by suppliers and stakeholders. In this platform, banks, as before, will not be the producers of similar traditional products. Instead, they provide platforms with the proper tools and facilities for the production of content.

International experiences also indicate that open banking has moved to a point where not only banks are producers of products, but also startups and Fintechs, using common platforms, can be producers of products.

Future banks will turn into such platforms, and Blockchain is used to make the platform possible. All technologies are getting into the banking industry, and some have gone beyond the delivery of services. After digitization of banks, Fintechs get in the process by using small chains of value and artificial intelligence, and consequently disrupting banks' chains. Customers in the future will face banks that are mere platforms for services and are provided by partners (like Fintechs). Each Fintech will be specialized in one area.

The three main challenges of open banking are cultural adoption, security and money making. In recent years, open banking has been able to provide a tangible product with a well-defined, specific and inclusive revenue structure. Some assume that in the competition in the open banking model, the financial institutes would not survive. However, this is not necessarily the case. The right environment can be created for attracting new customers to create value and be a source of profitability, if managed properly and provided a platform through intermediaries.

Legally, the relationship between banks and open banking, with particular rules on data ownership, is a relatively complex relationship. For example, the answer to who owns the transaction information, banks or customers, should be specified by the related authorities.

The advent of open banking has made it necessary to change the rules over access to bank payments. PSD2 is the main change in this regard. The role of the European Banking Authority (EBA) as regulatory agency is to promote the presence of PSPs, account information and telecom operators in the market, and to introduce new institutions to improve online services. These are the most significant changes in PSD2 compared to PSD1.

4. Cyber Security

4.1 Afta

Afta Strategic Management Center is a governing body that is set up to provide strategic management of security space for production and exchange of information. It is important to shift the narrow-minded thinking towards security systems and cyber-incidents in organizations to broad-minded thinking. Incidents must be recounted and communicated precisely while managing cybercrime events properly. It is recommended to develop the necessary standards and establish common language for the definition of incidents and communication protocols, as well as appropriate guidelines for the requirement and organization of dealing with cybercrimes. Afta Strategic Management Center has taken steps to develop policy and coordination guidelines for organizations to deal with cybercrime incidents.

4.2 Cyber Threat Intelligence

Given the payment revolution in the banking industry, financial institutions have always been the center of widespread cyber-attacks. Cyber-attacks are quite costly to banks and their customers. Hackers steal banking data, trick customers, steal their money, and ultimately carry out illegal activities. Therefore, to prevent cybercrimes, cyber threat intelligence (CTI) or threat intelligence are used to limit or eliminate access to banking data. The requirement for CTI is the cooperation of security centers and payment systems. Several types of cyber-threat intelligence platforms have been introduced in recent years that include data collection, processing, and maintenance and analysis of information.

4.3 Identify Suspicious Transactions

Transactions can be assessed from the point of fraud and money laundering. Therefore, the entities involved in identifying such transactions rely on two approaches.

The difference in the two views of traditional and data-driven, at identifying suspicious transactions, is that traceable cases are identified in the traditional way with strict rules for all customers (money laundering laws are also in line with this approach). For example, in the traditional transaction approach, if the transaction is higher than a certain amount (no matter who the person is or what profession he has), the transaction is reported as suspicious. For example, Shaparak Electronic Card Payment Network Company examines the infrequent large transactions and problems in transactions, for which transactions are created based on defined rules. The lawbreakers are treated according to the law.

While in the data-driven approach, to identify suspicious cases, regulatory bodies look at people’s behavior. If the volume of a person's transaction is higher, with regard to its history, the transaction is reported as suspicious. The methods of fraud in the payment system are being updated by fraudsters and profiteers, and in order to deal with these suspicious transactions, the usual behavior of customers in the banking system and payment companies has to be checked to detect suspicious behavior. Here, data is required. When identifying suspicious transactions in data-driven approach, one must first tell

apart normal behavior from suspicious behavior. Therefore, information pieces are needed for completion of the task.

Two major cases of fraud in this area are: getting a copy of bank cards, and phishing through fake Internet ports. According to statistics, it is possible to eliminate scams from copying a card and eliminate it in the banking system. The Central Bank has decided to transfer the infrastructure of bank cards from the magnetic environment to the smart environment. The smart payment card or EMV has a supervisory chip which has been an important and practical way in monitoring solution.

Regarding the problem of data limitation in the process of identifying suspicious transactions, in addition to aggregating data from the banking network, all institutions outside the banking system that deal with statistics in a certain way must collect and aggregate data so that banks as the user can employ them. So integrating databases of different areas will help here.

In the geographic data, there is a need for a specific administrator with complete information. Business data and business code are also required. For example, the geolocation control system is one of the technology that is used globally for the legitimacy of transactions. The geographic location of transactions in the banking branches and the electronic payment network is collectable. Analysis of such data stops transactions if there is a conflict.

Three years ago, when the fraud detection system was launched, there was no possibility to check the geographical locations of transactions, but today this information is available and with the directive a geographical location field has been added to the Paya and Satna in all banking and electronic transactions. Thus, the banking network merely collects information on its customers. However, in the data-driven approach on the issue of uncovering suspicious transactions, it is necessary to use all available information to complete customer's identification.

5. Strategic Alliances of Banks

Banks in non-competitive areas can get into strategic alliances and form a partnership. Eelectronic banking infrastructure is one of the least competitive areas in which banks alliance can be very useful and cost effective.

According to studies, eight forces and changing process have been identified as improving the performance of the banking network, with five forces being associated in some way with the strategic alliance of banks. These trends include: duplexing, outsourcing, customer information aggregation platform, information sharing between financial and non-financial corporations and infrastructures.

Strategic alliances, although a necessity for banks, is a completely voluntary approach and is pursued in different contexts and areas. Investment, outsourcing, marketing, and research and development are among the areas where strategic alliances can be achieved.

The alliance between banks is inevitable and necessary. Some experts believe that the solution to the banking system is either merger or liquidation. For this reason, banks must solve their problems through forming strategic alliance. Banks must be prepared and develop the culture for it. This will have significant benefits if done voluntarily. However, if the merger takes place, it is no longer optional, and everything should be divided between banks, which will have a far greater degree of risk.

In the study of the cooperation structure between organizations in 64 countries around the world, two factors have been emphasized: The degree of convergence between organizations, and organizational decision making and control power. The structures identified for cooperation between organizations according to degree of convergence are, respectively: informal partnerships, contractual agreements, non-financial alliances (strategic alliances), capital unions, joint ventures and mergers and acquisitions. In the banking system, we still have much to do on the contractual arrangements that precede the strategic alliance. There remains much to be done in this area.

Banks of the country have not yet been able to work well together. As an example, one of the most important unresolved issues in Iran's banking system is syndicated loans. Through unification and risk sharing, banks face lesser risk for financing a large plan. The lack of proper cooperation of banks in the form of syndicated loans creates greater problems for them in financing large projects.

There are four practical solutions to achieve alliance and more cooperation among banks.

• Establishing a strategic alliance between the Association of Private Banks and Credit Institutions, and the Council for the Coordination of State Banks and forming a common union

• The Central Bank continuous support for and guidance of strategic alliances, especially in the field of information technology, payment services and infrastructure

• Assign a board member of the banks to the issue of strategic alliance

• Reporting the activities of the Central Bank and other banks

6. Immovable Security Systems

Access to credit in developing countries is limited and the lack of collateral limits access to credit. While the major portion of the assets of the companies is made up of movable property, banks are more likely to accept real estate. The existence of appropriate laws on movable property is one of the indicators of ease of business. Matters such as the guarantee act, the modernized collateral registration system, the ability of credit suppliers, bank supervisory regulations, the management industry, and the electronic value chain financing platforms are among the prerequisites for expanding the use of movable property to access credit.

Based on the best of world experiences, the desirable features of the movable property registration system are: flexibility, centralization and reliability, assurance of priority, simplicity and ease, agility, open and comfortable access, custom search permission and cost-effectiveness.

In accordance with the Credit Institutions Income Identification Instructions regarding the timing and method of identification, the stopping time and the re-identification of the types of proceeds received in credit institutions dated May 22, 2018, the Money and Credit Council, banks and credit institutions are required to establish mechanisms for implementing the Income Identification Instructions. These include the creation of a security and guarantee information system related to granted facilities and created commitments.

Blockchain technology has emerged as one of the alternative technologies for setting up a movable security registration system. While in other countries an institution is defined as security brokerage, and this institution is responsible for both valuation and an appropriate response to seize the collaterals, in our country's banking system, unfortunately, such role and institution has not been

defined. In addition, due to legal ambiguity, the process is usually time-consuming and the result is uncertain and still unknown, and it is yet to be decided who will launch such a system.

There are some options for implementation of the cash register system, some of which are based on Blockchain technology. It is necessary to study further the best practices for launching such a system.

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