

# Electronic Payment Services in Yemen

## Challenges and Opportunities for Success



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## Central Bank Governor's Speech

The development in the information technology sector during the past years has revolutionized the provision of financial and banking services through the creation of electronic financial tools, means, and products that covered the functions of storing value, trading, transferring, lending, and investing money with new electronic means.

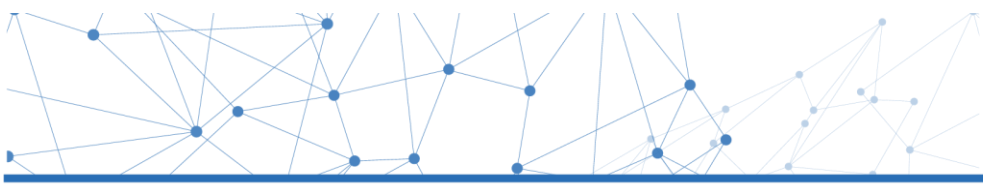
On the other hand, over the course of five years of aggression, our country was working to address the effects of the decline in traditional financial services, which necessitated the start of the process of transformation towards financial inclusion by adopting a comprehensive strategy aimed at encouraging digital payments and financial technology, according to a legal system for electronic financial transactions under the umbrella of the Central Bank, and within regulatory frameworks that take into account the merging of the requirements of both information and communication technology as well as the financial sector, which will enhance and regulate the efficient and effective provision of financial services, and ensure their delivery to various segments of society in various regions of Yemen.

Realizing the importance of this matter, the Central Bank of Yemen has sought at a very early stage to encourage the financial and banking sector to shift towards electronic banking services, as the Payment Systems, Financial and Electronic Banking Operations Act No. (40) was issued in 2006, which organized the legislative framework for electronic financial and banking transactions. Then the Central Bank of Yemen issued the circular No. 11 of 2014 regarding the regulatory rules for providing electronic money services via mobile phone, which allowed banks to provide electronic money wallets via mobile phone in order to contribute to enhancing financial inclusion and providing financial services to segments of individuals not served by the banking sector with electronic tools that meet the needs of individuals easily and away from the restrictions and complexities of banking products. Recently the Central Bank issued regulations for financial institutions that provide electronic payment services through the Central Bank Governor Resolution No. (1) of 2020, which allowed non-bank financial institutions to provide electronic payment services in order to achieve a greater spread of financial and banking services between segments of society that are not appropriately served financially.

Despite these efforts of the Central Bank of Yemen, the achieved results are still below the level of ambition and aspirations. Therefore, the Central Bank of Yemen encourages creativity and innovation in designing and providing electronic financial products and services that contribute to meeting the needs of various segments of society and expanding the scope of benefiting from financial and banking services with a view to promote economic development and achieve financial inclusion.

In conclusion, we thank the Institute of Banking Studies for preparing this study, which highlighted the experience of providing electronic payment services in Yemen, particularly electronic money services via mobile phone, and the study provided many figures and statistics that we hope will help all interested parties to conduct research, studies, and Resolutions aimed at developing and expanding the reach of electronic financial and banking services.

**Mr. Hashem Ismail Ali**  
**Governor of the Central Bank**  
**Chairman of the Institute's Board of Directors**





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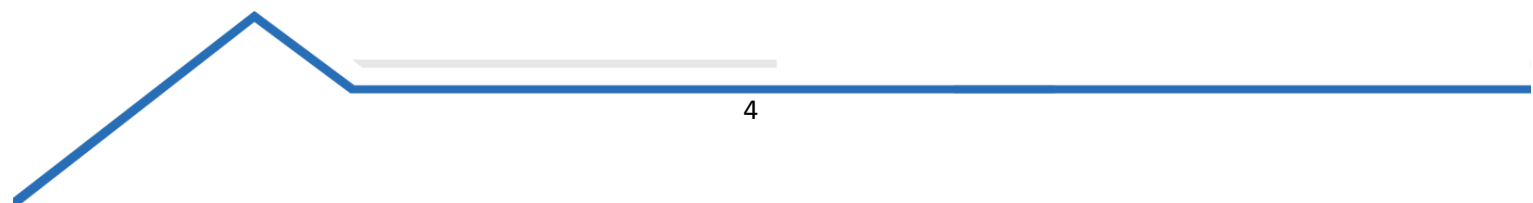
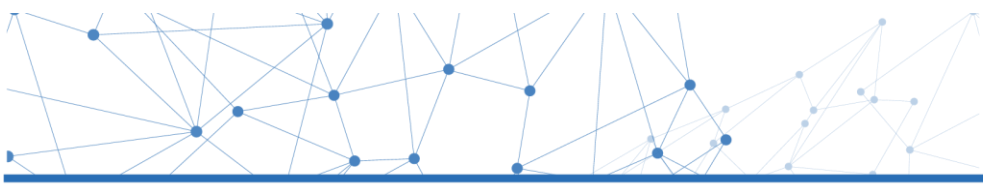
## Institute's General Director Speech

Technological development plays a vital role in contemporary life, its effects extend to all aspects of economic, social, cultural, and legal life. This effect was evident in the financial and economic aspects, as banks were among the first institutions that benefited from technology in developing and expanding their services and working mechanisms. During the past years, the development of banking services using technology rapidly, at first the customer was forced to go to the bank and wait in a queue to carry out any banking operation, and then there was the automated teller machine (ATM) that serves the customer 24 hours without the need to deal with the bank employee, and then came the role of smart applications that serve the customer through his mobile phone at any time and from anywhere.

Technological development has not stopped there, but every day we are facing a new development in financial and banking services, and during the past few years the term financial technology has emerged: the use of its companies for technical innovations in the provision of financial services, including mobile e-money, digital currencies, and other financial services, has emerged. The provision of electronic money services in Yemen began in the year 2015 after the Central Bank issued Circular No. 11 of 2014 regarding the regulations for providing electronic money services via mobile phone. Yemen's experience in providing electronic money services is still in its early stages, and for the purpose of shedding light on the experience, evaluating it, and knowing the opportunities and challenges it faces, the Institute of Banking Studies, in cooperation with the Banking Supervision Sector of the Central Bank, prepared this study, which lasted about 6 months, during which statistical data were collected from banks, reviewing them, ensuring their accuracy, then analyzing them and inferring their implications.

The study consists of six chapters that combined the descriptive and quantitative analysis of the statistics collected from the Yemeni banking sector on the indicators of payment services, especially electronic money services. Here, I would like to extend my thanks and appreciation to Mr. Hashem Ismail Ali Ahmed, Governor of the Central Bank of Yemen, Chairman of the Board of Directors of the Institute, and his predecessor Dr. Rasheed About Abu Luhoum for their support and encouragement for us to complete this study. Special thanks to the study team who made tremendous efforts to produce this study, which is the first of its kind in terms of relying on data and statistics collected from the banking sector, and they are Miss. Bilquis Ahmed Alfosail, Assistant deputy governor of Banking Supervision Sector, and Miss. Amal Ahmed Al-Dubaili, Assistant General-Director of the Supervision Department on the banks, and Mr. Saleh Zaid Al-Hada, Director of Studies at the Institute, and I would like to point out the distinguished effort and valuable remarks made by Mr. Nabil Mansour Al-Montaser, the Governor's advisor during his review of the study and the coordination and linguistic review efforts made by Miss. Yusra Mutahhar Ishaq, and I do not forget the cooperation of the managers and electronic service specialists and electronic wallets in the Yemeni banking sector.

**Abdulghani Mohamed Al-Samawi**  
**General Director of the Institute of Banking**  
**Studies - Head of the study team**





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## Objective of the study

The study aims to collect statistical data for payment systems and services for the banking sector and to evaluate and document Yemen's experience in providing electronic payment services in general and electronic money service via mobile phone in particular in order to create a documented database from which researchers, official and international bodies can benefit. It also aims to study the challenges and opportunities facing the spread of electronic banking services and providing recommendations that would help overcome challenges and enhance the opportunities for success.

### **The study objectives are focused on the following:**

- Collecting and analyzing statistical data on payment systems and services in the Yemeni banking sector in general.
- Collecting and analyzing statistical data on the electronic money service via mobile phone in the Yemeni banking sector in particular.
- Assessing the societal and official need to spread electronic payment services, especially via mobile phone, to achieve financial inclusion.
- Knowing the reasons for the lack of widespread electronic payment services via mobile phone.
- Draw the attention of the official authorities to the importance of spreading electronic services.
- Access to the experiences of some countries through previous studies to know the reasons for the success of some models and the failure of others, and try to benefit from




## Executive Summary

The banking sector plays an important role in the economic activity in the Republic of Yemen, as it is considered one of the most important sectors in the structure of the Yemeni economy. The Yemeni banking sector consists of eighteen banks, which vary between government banks, traditional and Islamic private sector banks, and microfinance banks, and the size of the banking sectors assets represents the rate of (57.8%) of gross domestic product (GDP) at the end of the year 2019. The banking sector is also characterized by credit-focused since most of the banks' investments are concentrated in government treasury bills, which are used to finance the state budget deficit as a debt owed to the government. It should be noted that the scourge of war, the liquidity crisis, and weak confidence in the national currency have weakened the performance of the Yemeni banking sector, despite this, the indicators of capital, assets, and deposits ratios for the banking sector for the year 2019 showed an improvement in the performance of the banking sector compared to previous years, and this improvement is expected to continue in the coming years.

Payment systems play a major role in developing banking services and achieving financial stability because they represent the channels through which funds are transferred between institutions, activities, and economic, financial, and banking activities. Although Yemen has issued Law No. 40 of 2006 regarding payment systems and electronic financial and banking operations, the payment function has not received the required attention. Therefore, the indicators of payment systems in Yemen are considered the lowest at the Arab and regional level, as the statistics collected in this study indicate that only about 10 % of Yemenis have accounts, including electronic money accounts, at the end of 2019. The impact of the unjust war waged on our country and the blockade has been disastrous on the banking sector, as the volume of payments in various payment instruments decreased by about 30% in 2015 compared to 2014 and decreased to its lowest level in 2017 and by a decrease of about 50% compared to 2016. Then, it gradually improved in 2018 and 2019, with an increase of 17% and 41%, respectively, compared to the previous year.

As the Central Bank realizes the importance of electronic money services via mobile phone, which is considered one of the most innovative ways to solve cash problems and deliver financial services to many underprivileged groups, and to provide better services at lower prices in a faster time, and within the framework of the Central Bank's endeavor to enhance financial inclusion, it issued at the end of 2014 Circular No. 11 of 2014 regarding the regulatory rules for electronic money services via mobile phone to regulate the issuance and management of electronic money, which was limited to banks, as five wallets were licensed through banks from the date of the publication. For the purpose of expanding the spread of financial services and the fact that banks did not achieve the required spread, as the number of electronic money accounts reached about 808 thousand accounts at the end of 2019 for the five licensed wallets. That is why the Central Bank recently issued Resolution No. 1 of 2020 regarding the regulatory rules for the provision of electronic money services by financial institutions, according to which non-bank financial institutions established for this purpose are allowed to provide electronic money services to contribute to the spread and development of electronic payment services on a wider scale.

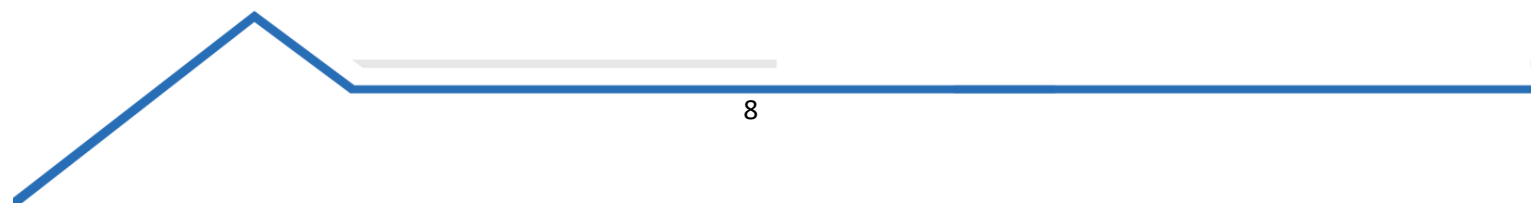
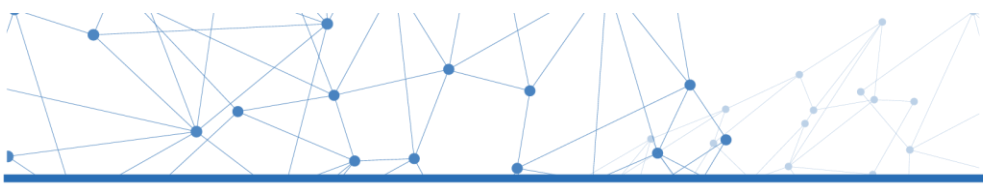


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It is worth noting that electronic money services are still concentrated in cities, although one of the most important uses and advantages of electronic money is access to the deprived groups of financial services, which are usually concentrated in the countryside, and the percentage of women who use electronic money services is still very low, as it reached 13 % of the number of service users.

This study also included a statistical survey of electronic money service users in Yemen for a number of 611 users , who were randomly selected to know the level of customer interaction with electronic money services, how the service reached them, the degree of awareness of its benefits, measuring the extent of satisfaction and confidence in the service provided and the problems they faced, in addition to knowing the extent of the effectiveness of this service for users and the degree of their dependence on it in meeting their needs in financial dealings and measuring the number of transactions covered by the service as an indicator that helps predict the future of this service.

Hence, we can conclude that electronic money services in Yemen are still in their infancy and they need concerted efforts by the Central Bank and the government, in particular, the Ministries of Finance, Communications, Information Technology, Education, universities, and other government institutions, and the private sector which is represented in the banking sector, companies and commercial institutions for cooperation and integration in order for these services to succeed and raise the level of awareness among citizens of the importance, benefits, and reliability of this service, knowing that investing in the provision of electronic payment services is a promising investment as the percentage of citizens who can access financial services is still limited and therefore the market needs many investors to work in the field of providing financial services with innovative technological means.







# **Chapter 1**

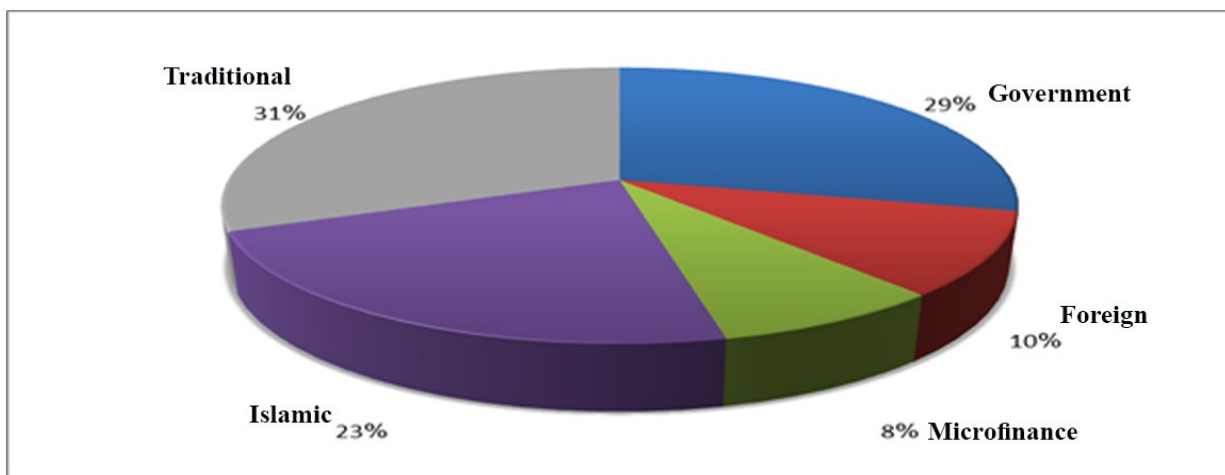
## **An Overview of the Banking Sector**



### An Overview of the Banking Sector

The Yemeni banking sector is considered one of the most important sectors in the Yemeni economy, and the number of banks operating in Yemen until the end of December 2019 reached eighteen, including four Islamic banks, four government banks, and eight local traditional banks that include four branches of foreign banks, in addition to two microfinance banks. The rating of banks according to total assets in the banking sector forms the percentage of 23% Islamic banks, 10% foreign banks, 29% government banks, 31% conventional banks, and 8% microfinance banks, as shown in the figure below, and the banking sector provides its various services to the public through 357 branches, and 76 offices spread throughout the country, the number of open accounts of all kinds reached (4,655,732). Banking services are concentrated in the main cities, while rural and remote areas lack these services except for the financial transfers service that takes place through branches of some banks, exchange companies, and post offices.

**Figure No. (1) shows the structure of the assets of the banking sector at the end of 2019**



The banking sector is characterized by concentration in credit, as most of the banks' investments are focused on treasury bills to finance the deficit in the state's general budget as a debt owed to the government and due to the circumstances of aggression and blockade the banking sector was affected accordingly, and banks were unable to monetize their investments in treasury bills to meet the withdrawal requirements by depositors, this resulted in a severe liquidity crisis, and this negatively affected confidence in the banking sector, the public's reluctance to deposit its cash resources with banks, and the loss of confidence in checks and using them. However, the continuation of the aggression and the length of the war forced individuals to adapt to the exceptional situation, the restoration of commercial activities, and the partial return of confidence in the banking sector, which led to an improvement in some indicators of the banking sector until the end of 2019, which can be summarized as follows:

### Capital development

According to the statistical data collected from banks on December 31, 2019, the total paid-up capital and legal reserve of the banking sector amounted to (215.3) billion Rials distributed over the banking sector (Government Banks at a rate of (30%), Private Sector Banks at a rate of (21%), Islamic Banks at a rate of (20%), Foreign Bank branches at rate of (17%), as well as (12%) for Microfinance Banks).

It is noted from the table below that the growth rate of the paid-up capital and statutory reserve for the banking sector for the year 2019 increased by (4%) than it was in 2018, which is considered an indicator for the start of improvement in the performance of the banking sector<sup>1</sup>, after the negative impact on the performance of banks during the war period of 2015 until today, especially in the 2017 indicators, which are considered the worst indicators in the performance of the banking sector.

**Comparative table No. (1) showing the paid-up capital and statutory reserve in the banking sector for the years 2018 & 2019**

In millions Rials

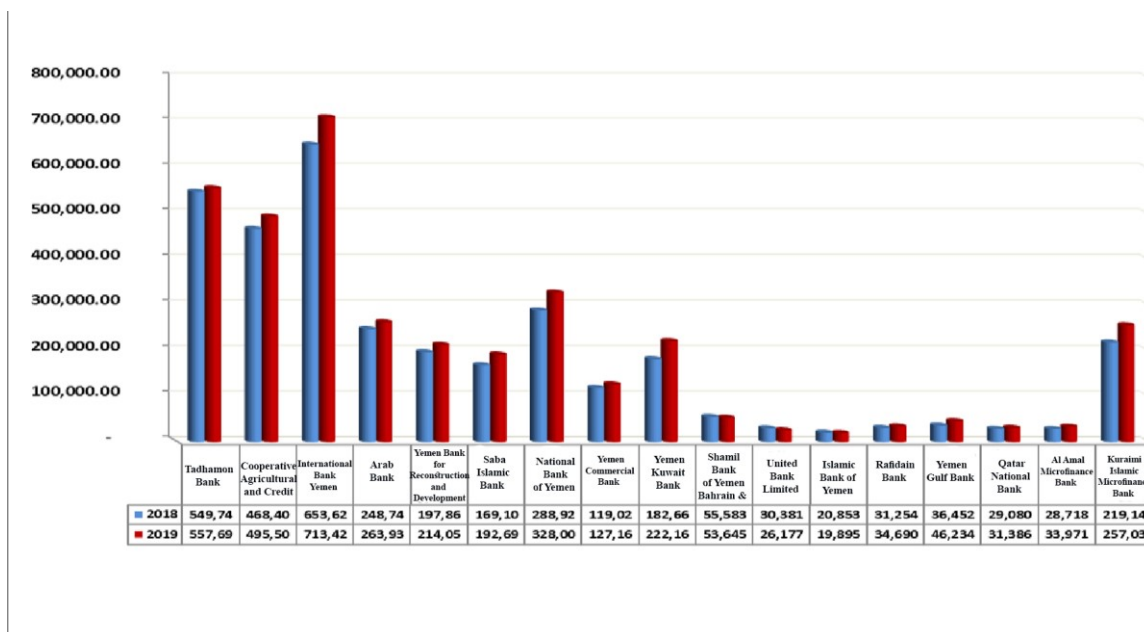
Bank	2018	2019	Change
Tadhamon Bank	23,263.60	23,260.90	2.70 -
Cooperative Agricultural and Credit	23,093.50	23,093.50	-
International Bank Yemen	28,157.60	28,157.60	
Arab Bank	10,864.00	11,221.70	357.70
Yemen Bank for Reconstruction and Development	21,035.30	26,375.40	5,340.10
Saba Islamic Bank	9,824.20	9,824.20	-
National Bank of Yemen	13,700.20	14,349.60	649.40
Yemen Commercial Bank	9,335.60	9,335.60	-
Yemen Kuwait Bank	7,054.70	7,054.70	-
Shamil Bank of Yemen & Bahrain	6,208.30	6,209.60	1.30
United Bank Limited	8,499.90	8,499.90	-
Islamic Bank of Yemen	4,536.70	4,536.70	-
Rafidain Bank	8,452.50	9,265.10	812.60
Yemen Gulf Bank	1,250.00	1,250.00	-
Qatar National Bank	7,004.00	7,127.50	123.50
Al Amal Microfinance Bank	4,521.20	4,882.40	361.20
Kuraimi Islamic Microfinance Bank	20,543.80	20,843.50	299.70
<b>Total</b>	<b>207,345.10</b>	<b>215,287.90</b>	<b>7,942.80</b>

<sup>1</sup> The reason for the improvement in the performance of the banking sector is due to the partial restoration of confidence in the banking sector, the adaptation of individuals and economic sectors to the exceptional situation, and the partial restoration of commercial activities.

## Assets development

The total assets of the banking sector in the Republic of Yemen reached (3,618) billion Rials by the end of 2019, representing (57.8%) of the gross domestic product (GDP)<sup>2</sup>, with a growth rate of (9%) compared to the end of 2018, and the growth rate of assets is considered insignificant compared to what was the case before the war, which negatively affected the performance of the banking sector. Banks retain the bulk of their assets in the form of investments in government securities to finance the deficit in the general budget as they represent safe investments, while the ratio of loans and financing to the total assets of the banking sector was (13%) at the end of December 2019.

Figure No. (2) shows a comparison of banking sector assets during the period 2018-2019



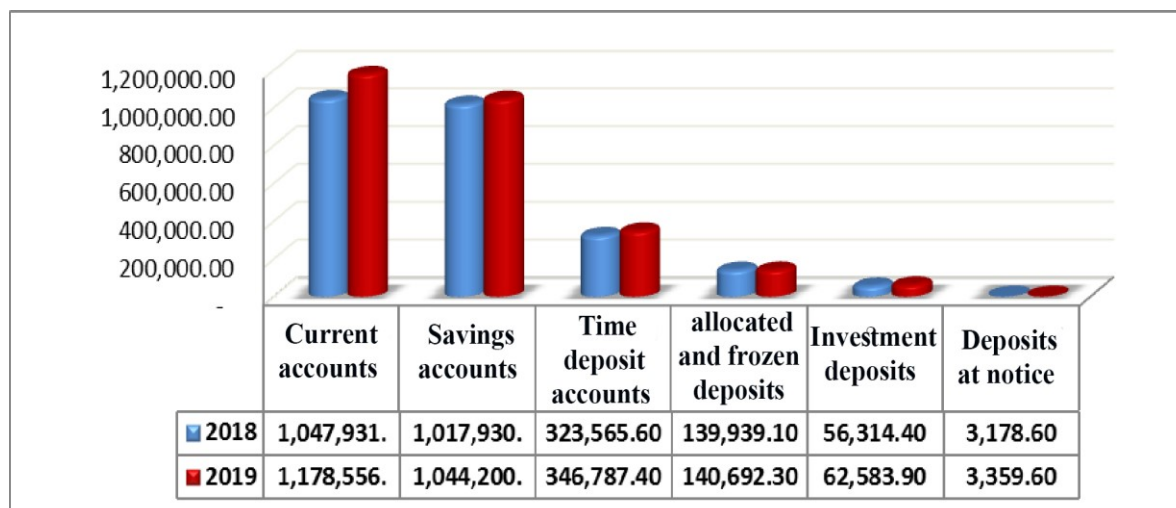
## Deposit development

The volume of deposits in the banking sector at the end of 2019 amounted to (2,776.2 billion Rials), which represents (44%) of the GDP, distributed by (42%) current accounts, (13%) savings accounts, (40%) time deposit accounts, (5%) allocated and frozen deposits with a growth rate of (7%) compared to the previous year, and a slight increase in the growth rate is observed in the context of the improvement in the performance of the banking sector after suffering as a result of the aggression and the blockade, as mentioned earlier.

<sup>2</sup> The size of the gross domestic product (GDP) at the end of 2019 reached (6.259.320) million riyals, according to estimates by the Economic Forecasting Team at the Ministry of Finance



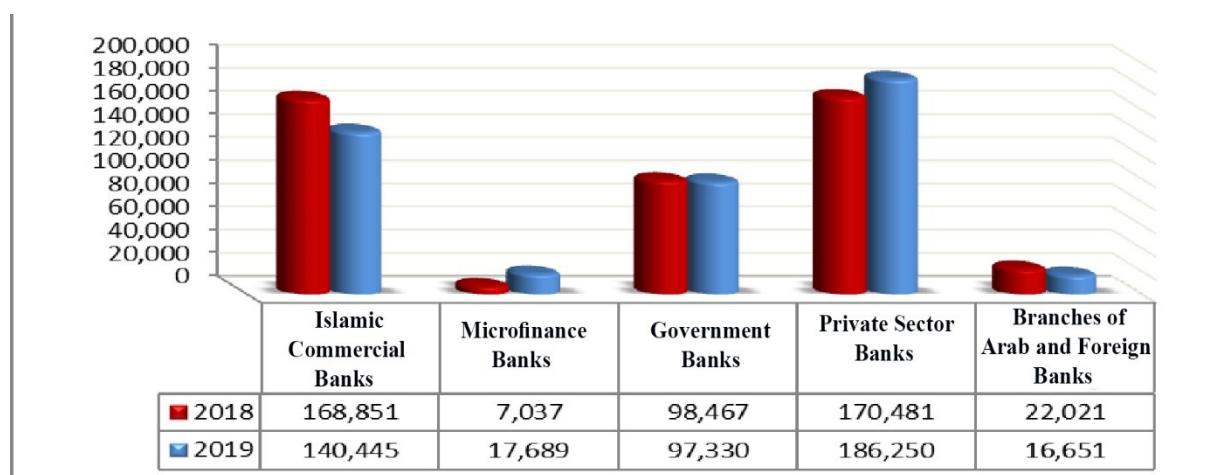
**Figure No. (3) shows the deposits of the banking sector in millions during the period 2018-2019**



### Loans development

The balances of loans, advances, and financing provided by banks to various economic sectors decreased to (458.4) billion Rials at the end of December 2019 compared to (466.9) billion Rials at the end of December 2018, with a decrease of (8.5) billion Rials and a decline rate of (2%). The percentage of loans granted has reached (approximately 7%) of the GDP, which is a very small percentage indicating the limited participation of the banking sector in development, as a result of current crises and the political crisis that the country is going through, as banks were unable to adopt an expansionary policy in granting credit and attracting deposits and its negative impact on the performance of The Yemeni banking sector.

**Figure No. (4) shows the development of the balances of loans, advances, and financing at banks in millions during the period 2018-2019**

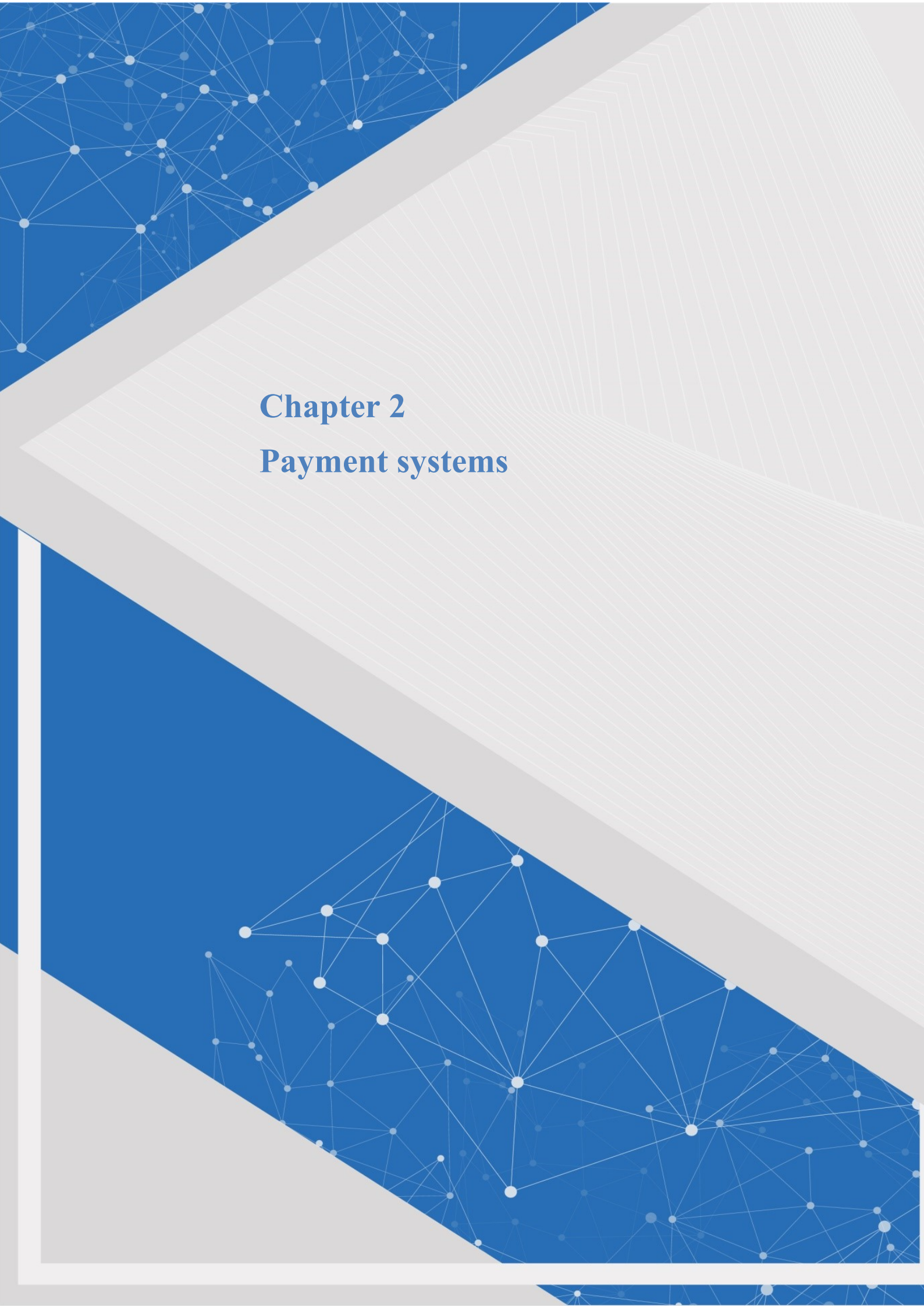


In addition to the problems prevailing in the Yemeni banking environment, and perhaps the most important of them are the following:

1. The political conditions and the war the country is going through.
2. The existence of two central banks, both of which seek to impose financial and monetary control on banks.
3. The scarcity of liquidity in the banking sector despite the increase in the volume of cash issuance in the money market during the past years, the Yemeni banking system has faced difficulty in meeting the needs of the market and cash dealers, due to the leakage of cash outside the formal banking sector in addition to the nature of the prevailing political and economic situation which limited the freedom of financial movement between the provinces and the dispersal of the monetary supply in more than one region.
4. Confidence in the national currency has been undermined by citizens and merchants due to the conditions of aggression and the blockade that led to instability and thus the demand for foreign currency purchases and the high exchange rate.

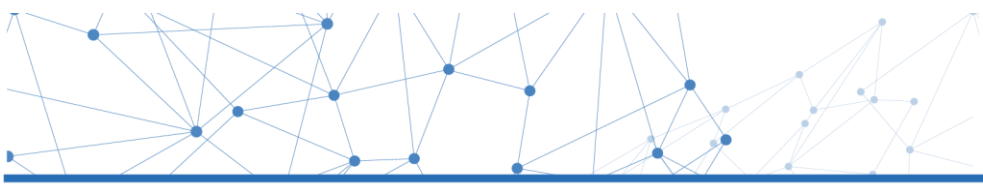






## Chapter 2

### Payment systems



### Payment systems

Payment systems represent the channels through which funds are transferred between institutions, activities, and economic, financial, and banking activities. The importance of these systems lies in their ability to settle financial obligations arising from economic and financial activities efficiently and securely and thus contribute to financial stability. Payment systems are one of the basic pillars of achieving monetary stability, through which monetary policy activities are implemented and its tools are activated.

Payment systems are considered one of the three basic pillars on which the functions of central banks are based, according to the definition of the Bank for International Settlements, and those pillars are represented in the implementation of monetary policy, supervising and monitoring of banks, and supervising of payment systems. Therefore, central banks constantly seek to enhance the safety and efficiency Payment systems to keep pace with the successive developments in payment services and tools, in order to ensure the provision of highly efficient and secure payment services that satisfactorily and continuously meet the needs of its users through an integrated and safe infrastructure.

#### The concept of payment systems

Payment systems are defined as the infrastructure (consisting of institutions, tools, rules, procedures, standards, means, and technical platforms) for the process of transferring funds between members participating in the system (banks and financial institutions) in accordance with the agreements concluded between members and the system operator. Payment systems constitute the channel through which funds transfer between various economic activities to facilitate commercial operations and deals. These systems are indispensable for banks and financial institutions. These systems are efficient, fast, and safe.

#### Classification of payment systems

Payment systems are generally categorized into Large-Value Payment Systems (LVPSs) and Retail Payment Systems (RPSs).

- Large-value payment systems (LVPS) are money transfer systems that typically handle low-volume, high-value, high-priority payments.
- Retail Payment Systems (RPS) are money transfer systems that handle a large volume of a large number of relatively low-value payments in multiple forms such as checks, direct debits, cards, mobile phone, internet banking, and other retail payments.

Central banks have devoted their efforts to developing infrastructure for high-value payments systems to transfer funds due to the high risks involved in these transactions and for the purpose of enhancing financial stability.

Recently, the interest of central banks in retail payment systems has increased due to the emergence of modern methods and technologies such as mobile phones, which are widely spread, which have helped expand the spread of financial services and their delivery to various segments of society. Studies show that the shift from traditional paper-based payment tools to modern (digital) payment can result in annual savings to the country's economy in the range of one percentage point of gross domestic product (GDP) or more.<sup>3</sup>

### **Historical development of payment systems and tools and financial services in Yemen**

The Central Bank of Yemen made efforts to develop the infrastructure for payment systems, and the most important stages for developing payment systems in the Central Bank were as follows:

- In the year 2004, a technical committee for payment systems was established by Administrative Resolution No. (130) for the year 2004, with a team from the Central Bank and Yemeni banks, and the membership of both the Ministry of Finance and the Post Authority, and the committee's role was limited to the advisory knowledge role only.
- In the year 2006, the following was accomplished:
  - The issuance of the Electronic Payment Systems, Financial and Banking Operations Law No. 40 of 2006 by the Parliament, which established many issues related to payment systems, such as giving the central bank regulatory, supervisory and overseeing powers to regulate payments and the recognition of electronic data, bonds and electronic transfer, and their authority to prove in Yemeni courts.
  - The establishment of a financial services company by 11 banks operating in Yemen for the purpose of carrying out the tasks of interconnecting ATMs, points of sale, and other financial services.
  - Establishing a Payment Systems Department by Administrative Resolution No. (70) of 2006.
- During the years 2007 to 2010, a USD check clearinghouse was established. Procedures related to check clearing were also updated and a department was introduced to implement interbank payments through the SWIFT network and settle them on the same day in the accounting and computer sector.
- The efforts of the Central Bank to develop payment systems were halted due to the events that Yemen witnessed during the year 2011.

<sup>3</sup> ITU- Focus Group Digital Financial Services: Payment System Oversight and Interoperability, 11/2016 T

- In the year 2013, the Central Bank signed with the International Development Association an ambitious program to develop the infrastructure of the Yemeni banking sector, with an amount of about \$ 20 million as a grant, and the program consists of three projects:

- A project to develop the internal basic systems of the Central Bank, Core Banking, ERP, Data warehouse. This project includes updating the general internal systems and procedures of the Central Bank in dealing with its basic functions, specifically in the areas of banking supervision, statistics and treasury operations, and managing foreign reserves and their operations, including accounting and financial management, and human resources management. This project also includes developing a data warehouse, which will enable the central bank to import data from banks databases and various systems for the purpose of obtaining analytical information, and this will enable the central bank to provide more services to the banking sector and improve the function of supervision and monitoring.
- Infrastructure Development Project for the National Payment System. This project includes implementing the infrastructure for the payment system in one integrated system. It Includes real or instantaneous gross settlement (RTGS) functionality to settle all high-value and systemic payment transactions, an automated clearing system (ACH) to process retail payments between banks and other institutions such as payroll, bill payments, tax payments, etc., and the Central Securities Depository Center (CSD) which will enable the electronic registration of securities ownership and thus the development of the stock market and enable the smooth operation of securities transfers resulting from transactions in the secondary market.
- The third project: Creating a Public Credit Registry: this project aims to create a robust and reliable credit registry (PCR) in which banks and microfinance institutions participate.
- Technical assistance to modernize the institutional and legal infrastructure in the Central Bank.

All technical specification documents for the systems subject of the project have been completed and the National payment system tender and Credit registry system announced. A draft of the Credit Registry Law has also been reviewed and prepared, a draft amendment to the Payment Systems Law No. 40 of 2006, the administrative structure for Payment system department has been prepared, and the tasks and functions of the departments and sections subordinate to it have been defined: however, because of the war and aggression, the project was stopped by the World Bank.

- At the end of the year 2014 Circular No. 11 of 2014 regarding the regulatory rules for providing electronic money services via mobile phone was issued.



- In 2019, the Central Bank Board of Directors Resolution No. (1) of 2019 was issued to establish the General Administration of Payment Systems, define its terms of reference and its administrative structure, which is an important step in developing and supervising payment systems.
- In 2020, specifically on March 8, the Central Bank Governor Resolution No. (1) for the year 2020 was issued regarding the instructions regulating the provision of financial institutions to electronic payment services via mobile phone, which is considered an advanced step in allowing financial institutions to provide electronic money services via mobile phone, which will open the way for Finance and Communications' companies to enter the field of providing electronic payment services and contribute to the spread and development of electronic payment services.

In addition, the Central Bank Governor Resolution No. 24 of 2020 was issued to appoint a General Director for the Newly Established Payment Systems General Administration.

### **The legislative and legal framework to oversee payment systems**

Central banks play a central role in developing and supervising payment systems. Therefore, they are working to develop the technical, administrative, and legal infrastructure with the aim of developing, modernizing, and expanding the spread of financial and banking services. The supervision, development, and modernization of payment systems and tools at the national level are considered one of the most important objectives of central banks, and the Central Bank of Yemen is not isolated from what these banks do. It was stated in its Law No. 14 of 2000, Article (5), clause (2), among the tasks and functions of the Central Bank, item C - licensing banks and financial institutions and overseeing their work, and item E - Encouraging and simplifying payment system procedures.

The Law of Payment Systems, Financial and Electronic Banking Operations No. (40) of 2006 aims to enhance the role of the Central Bank in managing and updating payment systems and supervising and controlling them. The most important provisions of the laws and Resolutions regulating payment systems will be reviewed as follows:

#### **First: Law No. (14) of 2000 regarding the Central Bank:**

In Chapter Two, the objectives, terms of reference, and powers of the Central Bank are stated in Article (5) paragraph 1- The main objective of the bank is to achieve price stability and maintain that stability and to provide appropriate and convenient liquidity in a sound manner to create a stable financial system based on the market mechanism.

Paragraph 2- Without prejudice to the main objective mentioned in Paragraph 1 of this Article, the bank exercises its operations within the framework of the government's economic policy, and in order to achieve this it has the right to exercise the following tasks and functions:

- Put, adopt and implement monetary policy that is consistent with its main objective of achieving and maintaining price stability and maintaining that stability.

- Determining the foreign exchange rate system, in consultation with the government, and then putting, adopting, and implementing the foreign exchange rate.
- Licensing banks and financial institutions and monitoring their activities.
- Possession and management of its official foreign reserves.
- Encouraging and simplifying payment system procedures.

Here we note that the Central Bank Law affirmed directly that the Central Bank is the authority that licenses banks and financial institutions and monitors their work. Undoubtedly, among the most important financial institutions besides banks are those that work in the field of providing and managing payment tools and systems.

The law also affirmed that the general objective of the central bank is to achieve financial stability and regulate the provision of banking services. Payment systems and tools are considered among the basic tools that help achieve financial stability, as they are the channels through which monetary policy is managed. Many modern payment tools have recently appeared, including the issuance of electronic money, which is the equivalent of paper money, so it is subject to the control and supervision of the Central Bank.

### **Second: Law No. (40) of 2006 regarding payment systems, and electronic financial and banking operations:**

One of the most important provisions of the law is the recognition of electronic transactions and electronic data and their validity as evidence for financial transactions that take place electronically. Where Article (9) Paragraph (1) affirmed that proof may be permissible in banking cases by all methods of proof, including electronic data or data issued by computers or correspondence with telex or fax machines or other similar devices. In addition, Article (10) confirmed that electronic transactions and signatures have the same effects as a signature and written transactions, as it stipulates the following: The electronic record, electronic contract, data message, electronic information, and electronic signature have the same legal effects of documents, papers, and handwritten signatures, in terms of its obligation to its parties or its authority in proof.

The law also clearly defined the role of the central bank in organizing and supervising the systems and means of payment and electronic transfer, as Article (7) mandates the central bank to set up banking systems that adopt modern electronic technology in banking and financial activity with the aim of:

- Developing and modernizing banking payment systems for the exchange of voice, image, and information.
- Developing and modernizing payment methods, including cash transfers.
- Establish a clearing system to meet technological developments in banking activity.

For the purpose of achieving what was mentioned in the previous paragraph of this article, the bank exercises the following powers:

- The regulatory and supervisory powers for electronic operations and the power to impose fines in a manner that does not conflict with the provisions of the laws and regulations in force.
- Coordinating with the Ministry of Finance in order to implement its payment systems and the relevant government agencies.
- Establishing the necessary department or departments within the structure of the bank to carry out the functions of supervision and control over the development and activation of payment systems.
- Participation in bodies and institutions related to payment systems.

In addition, Law No. (40) of 2006 regarding payment systems has empowered the Central Bank with regulatory and supervisory powers for electronic operations and granted the Central Bank the authority to issue instructions governing the electronic transfer of funds, including the adoption of electronic payment methods, as stated in Article 30 the following:

The bank has the necessary instructions to regulate the electronic transfer of funds in accordance with the provisions of this law, including adopting electronic payment methods, determining the position of funds resulting from an illegal transfer, procedures for correcting errors, disclosure of information, and any other matters related to electronic banking, including information that banks and financial institutions are obligated to provide.

And based on the Central Bank Law and the Payment Systems Law and within the framework of the Central Bank's endeavor to enhance financial inclusion and access to banking services to the largest segment of citizens and to overcome the obstacles to banking proliferation in reaching all geographical areas in the Republic, and realizing the importance of providing electronic money services via mobile phone, it issued at the end of the year 2014 Circular No. 11 of 2014 regarding the regulatory rules for electronic money services via mobile phone.

In this part, we will summarize the supervisory and regulatory functions of the Central Bank regarding electronic money services via mobile phone, which the circular has organized as follows:

### **Circular No. 11 of 2014 regarding the regulatory rules for electronic money services via mobile phone:**

The circular addressed many of the regulatory and supervisory aspects of providing electronic money services via mobile phone through the bank, which are as follows:

- Determining licensing requirements for banks to provide electronic money service via mobile phone.
- Defining the rules, regulatory and supervisory frameworks, and technical and service requirements for providing electronic money services via mobile phone.



- Determine the responsibilities and duties that govern all parties involved in providing the service (banks, telecommunications companies, agents, clients).
- Enhancing consumer protection and defining a mechanism for handling complaints of electronic money users via mobile phone.
- Confirming the requirements for compliance with the Anti-Money Laundering and Terrorism Financing Law and the instructions issued by the Central Bank.

We will review the most important instructions in the paragraphs of the circular that cover the above-mentioned aspects as follows:

### **A. General controls for service provision:**

These controls have identified the most important issues related to those who are allowed to provide the service, although the circular has limited the permission to provide electronic money services through licensed banks only, but the licensed bank is allowed to contract or outsource this service to telecommunications companies and agents without prejudice to the bank's responsibility for all service provision responsibilities, and it must cover these responsibilities contractually with telecommunications companies and agents. The following are the most important paragraphs of the circular:

1. No one is allowed to provide electronic money service via mobile phone except through a licensed bank.
2. The licensed bank is permitted to contract with another party such as telecommunications companies and agents to provide electronic money service via mobile phone.
3. The licensed bank is not entitled to issue electronic money that exceeds 15% of the paid-up capital and the legal reserve without the prior approval of the Central Bank.
4. At all times, the value of the Pool account must equal 100% of the value of the total due obligations for the issued electronic money, and the immediate (immediate) effect on the accounts must be made, provided that these accounts are matched by the authorized bank and the telecommunications company on a daily basis with adjustments made required for any spreads or suspensions within one working day.

The rest of the paragraphs also addressed the aspects related to the organizational aspects, such as the documents required to open electronic money accounts, the ceilings of operations and financial services that are permitted to be provided through electronic money services, and the activities that agents are allowed to practice and which are prohibited from them.

### B. Licensing requirements:

This item deals with the requirements and licensing mechanism for banks wishing to provide the service. These requirements have focused on the bank having financial and administrative capabilities capable of fulfilling obligations to electronic money customers. The most important things mentioned in this clause are the following:

1. Requirements for initial approval to obtain a license to provide electronic money via mobile phone:
  - The capital adequacy of the bank requesting the license is not less than 10% according to the latest inspection report by the Central Bank.
  - The bank must have a rating of (3) at least according to the risk assessment system (CAMEL) contained in the last inspection report.
  - The bank is not subject to any fines or penalties imposed on it by the Central Bank at the time of requesting the license.
  - The bank must meet the minimum capital requirement according to the requirements of the Central Bank.
  - The senior management of the licensed bank and the board of directors should establish an effective department to oversee the risks arising from providing mobile banking services.
  - The rest of the paragraphs dealt with the technical requirements, documents and data that the bank requesting the license must submit to obtain the license.
2. The responsibilities and roles of the parties involved in providing the service.

The circular also emphasized the responsibility of the licensed bank for the actions resulting from the provision of electronic money service and for any failure to harm the customer by the parties involved in providing electronic money services, including the telecommunications company and the agent, and the bank must cover the liability of the parties involved in providing the service contractually.

### C. General liability:

The licensed bank bears full responsibility for the actions resulting from the provision of electronic money service via mobile phone and for any failure that may harm the customer, whether by the telecommunications company or the agent, and the licensed bank shall cover the contractual liability of both the telecommunications company and the agents.

The rest of the provisions of this paragraph also dealt with the procedures and conditions that the bank must fulfill during dealing with other parties while providing electronic money services, including the responsibilities that the licensed bank must contractually cover with the telecommunications company and agents.

### D. Combating money laundering and terrorist financing:

This paragraph dealt with the requirements that the bank must fulfill in relation to compliance with the money laundering and terrorist financing law and the instructions issued by the Central Bank in this regard, including the exercise of due diligence in identifying the customer. Then the rest of the paragraphs talked about the responsibility of the licensed bank for training the agent, document preservation, risk management, and consumer protection, which the circular gave importance in terms of the need to establish an effective call center to communicate with customers, receive their complaints and issue notifications via text messages for all operations so that the customer is aware of the status of successful and failed operations. Finally, the circular listed the client's responsibilities for the business that he undertakes through the electronic money system.

### **Third: Governor's Resolution No. (1) for 2020 regarding regulatory rules for financial institutions providing electronic payment services via mobile phone:**

Electronic money services are considered an important means of payment to keep pace with the requirements of the age in terms of providing fast services, more efficient and able to spread, not to mention that they target an important and large segment of society, which is the segment that does not deal with the banking sector, similar to many countries of the world that have licensed the non-bank model in order to allow the formation of companies specialized in providing electronic money services with the aim of expanding the deployment of electronic services. The Governor of the Central Bank issued Resolution No. 1 of 2020 regarding regulations for the provision of electronic payment services to financial institutions via mobile phone, according to which financial companies were permitted to license the provision of electronic money services via mobile phone, the most important thing in the resolution was the following:

#### - Resolution Objectives:

1. Promote financial inclusion and the efficient and safe delivery of financial services to the largest number of consumers.
2. Encouraging the spread of financial services through innovative channels that use financial technology tools, such as mobile phone channels, the Internet, and other communication channels.
3. Defining licensing requirements for companies to provide electronic payment services.
4. Setting the rules, regulatory and supervisory frameworks, governance requirements, and technical and service requirements for providing electronic payment services.
5. Defining the responsibilities and duties that govern all parties involved in providing electronic payment services (service providers, banks, telecommunications companies, agents, customers).

6. Enhancing consumer protection for the electronic payment service and ensuring that service customers are subject to fair treatment and high transparency.

7. Confirming compliance with the Anti-Money Laundering and Terrorism Financing Law and instructions issued by the Central Bank.

- The resolution has touched on:
  - Allowing financial companies to provide electronic payment services (electronic money) via mobile phone. The resolution set the minimum capital for companies wishing to license at 2 billion Rials.
  - The resolution indicated the duties of the licensed company with regard to the pool account and that it is owned by the owners of electronic money accounts and that the service provider cannot withdraw from this account or use it for purposes other than the settlement of electronic money operations, in order to preserve the rights of customers and not expose their savings to risk.
  - The resolution specified the conditions for obtaining the initial and final license as follows:

### **A. Conditions for obtaining the initial license:**

1. A company wishing to provide electronic payment services must submit an application to obtain a license to the General Administration of Payment Systems at the Central Bank.

2. The application to obtain the initial approval of the company shall be attached to the form prepared for this purpose at the Central Bank, indicating the following:

- The name of the company, its type, and the amount of its capital.
- The full name of each founder, his nationality, the percentage of his direct or indirect ownership of the company's capital, and his CV.
- The name and address of the company's auditor.
- Approval of the board of directors of the company requesting the license.
- Memorandum of Association.
- Organizational Chart.
- List of electronic payment services that the company wishes to license.

- The final financial statements of the company certified by an auditor for the last three years or for the period of conducting its business if it is less than that, or the economic feasibility study and the proposed estimated budgets for the first three years of the company's work and the principles that have been adopted in preparing them in case the company is under incorporation.
  - Any additional information or data that the Central Bank deems necessary to make its Resolution on the approval request.
3. The application shall be studied within 60 days from the date of completing the required data, and the application shall be decided upon with approval or rejection during that period. The Central Bank has the right to extend the period if additional data is required, and for no more than 30 days.
  4. In the event of rejection, the response shall be attached to an official letter stating the justifications and reasons for rejection.
  5. The applicant has the right to file a grievance that will be answered within 30 days.
  6. The company whose application was rejected has the right to submit the request again in the event that the requirements are fulfilled later.
  7. The initial approval is considered canceled if the applicant does not fulfill within six months from the date of obtaining it all the requirements and conditions necessary to obtain the final approval unless the Central Bank agrees to extend the time limit based on acceptable reasons and justifications, so that the extension period does not exceed another 6 months.
  8. In the initial approval, the Central Bank specifies the requirements and conditions necessary to obtain the final approval, which are listed below among the requirements for final approval.

### **B. Conditions for obtaining the final license:**

The final approval of the company requesting the license to provide electronic payment services will not be granted until the following requirements are met:

1. Paying the full capital to a bank determined by the Central Bank in advance according to the type of licensed services.
2. Payment of licensing fees.
3. Determine the settlement bank that will be dealt with.
4. Complete all procedures for establishing the company.
5. The company requesting the license must attach the following data and documents:
  - Submit the proposed names and CVs for the position of the General Manager, the centers of senior management, and the main shareholders in the company and those related to them.

- A statement of the equipment, machinery, programs, tools, and real estate necessary for its work.
  - A copy of the work procedures manual for providing electronic payment services.
  - A description of the technology that will be used to provide the service and the procedures that will be taken to ensure the integrity of all data and funds.
  - Fulfilling all technical and substantive requirements and governance instructions issued by the Central Bank in this regard.
  - Description of the data and information management procedures taken to ensure the confidentiality and protection of customer operations and data.
  - Conducting technical penetration tests and ensuring that there are no security holes that may affect the integrity and confidentiality of system operations or customer data, and submitting confirmed certificates for this from a specialized company approved by the Central Bank.
  - Mechanism for managing service accounts to ensure that the company's responsibilities are covered.
  - Consumer protection policy and procedures.
  - Risk management procedures, internal control procedures, and internal control.
  - A business continuity plan, a data recovery and disaster recovery plan, to reduce risks and to ensure the continuity of service provision at all times.
  - Agents training plan.
  - Measures to combat money laundering and terrorist financing.
  - A detailed description of all outsourcing arrangements.
  - A list of the fees and costs imposed by the company and a description of how these fees are shared between the company and all the participating parties (the telecom company, the agents, the settlement bank).
  - A list of the services that the company will provide with an explanation of each type of services.
  - A copy of the contract signed between the company and both (the settlement bank, the telecommunications company, agents, and the payment and settlement system operator, if any).
  - Any other data that the Central Bank considers necessary.
6. The final approval of the company licensed to provide electronic payment services will only be granted after conducting a pilot project and verifying the readiness of the system by the Central Bank.



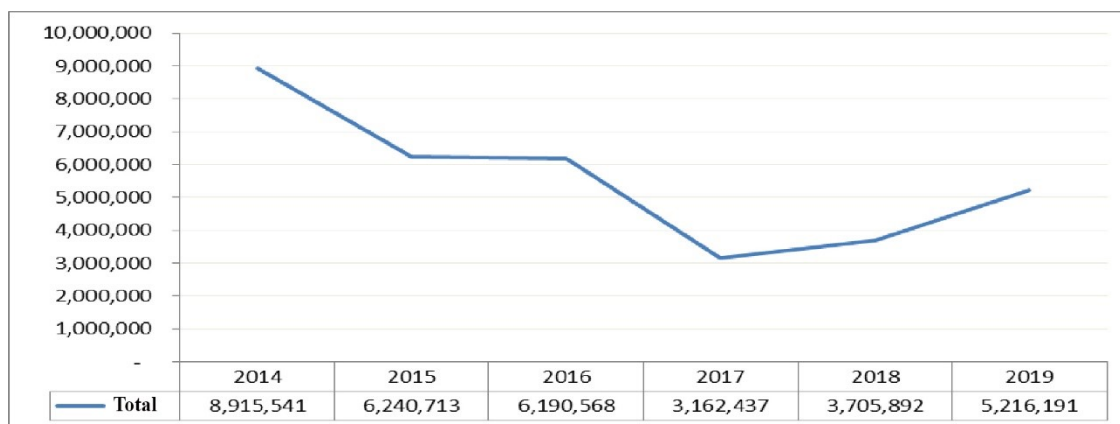
7. The company must deposit the required security amount before granting the final approval.
8. If the requirements and conditions of the final approval and all the general and special requirements for providing the electronic payment service stipulated above are met, the Central Bank shall issue the final license for the company within 90 days from the date of submitting the application.
9. The Central Bank publishes on its website the names of licensed electronic payment services providers.
10. The granted license shall not be transferred or bequeathed to any person or transferred in any of the conducting ownership transfers without the approval of the Central Bank.

The rest of the articles also emphasized the issues related to the conditions for canceling the license, the responsibility of the relevant parties, the commitment to combating money laundering, terrorist financing, consumer protection, risk management, and control procedures, and for the first time a clause was included to regulate development and innovation for the purpose of encouraging experimentation to create new services and products and experiments are not subject to the provisions of this resolution unless they harm customers. This is an important step in encouraging innovation in the field of financial technology.

### **Statistical indicators of payment systems during 2014-2019**

The statistics below, which were collected from the Yemeni banking sector, indicate that despite the limited developments in the provision of electronic banking services, the crises taking place in the country have cast a shadow on the spread of banking services in general, and the movement of payments has been greatly affected by the war and the destruction of the infrastructure. The volume of payments in various payment instruments decreased by about 30% in the year 2015 compared to the year 2014 from about 9 trillion Rials to 6 trillion Rials and stabilized in this case in the year 2016 and decreased to its lowest level in the year 2017 to reach about 3 trillion Rials, with a decrease of about 50 % for the year 2016 and about 65% for the year 2014, and the worst performance of the banking sector was in the year 2017, and then it returned to gradual improvement, as the volume of payments reached about 3.7 trillion Rials in the year 2018 and about 5 trillion Rials in the year 2019, with a growth rate of 17% and 41% respectively. The numbers and values of payment instruments will be reviewed in detail as follows:

**Figure No. (5) shows the total payments in millions during the period 2014-2019**



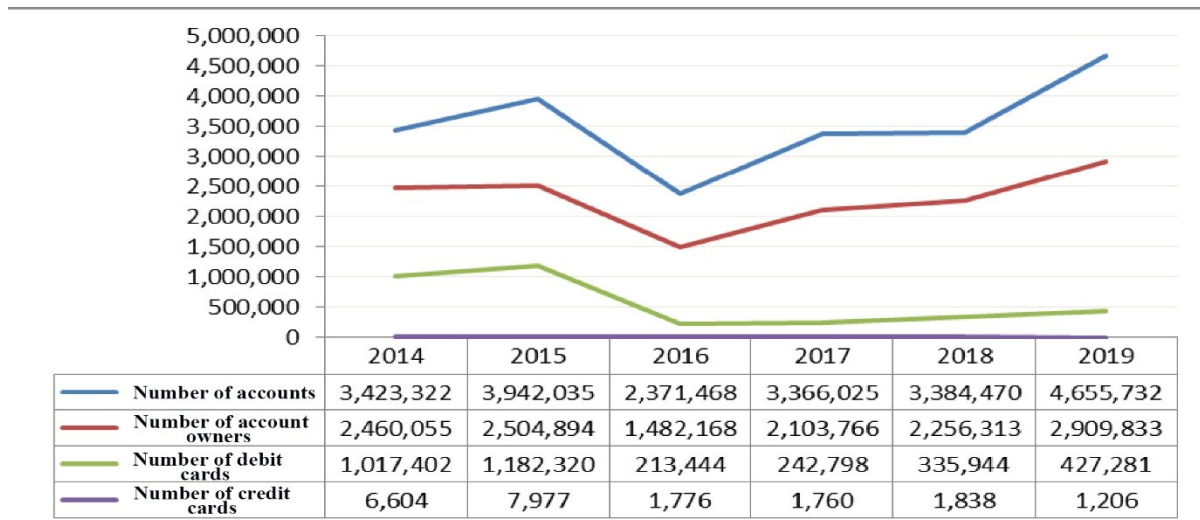
### **First: Number of accounts, debit and credit cards in circulation:**

Statistics as in the table below indicate that the number of current and savings accounts in all currencies approached five million accounts by the end of 2019, and that about 3 million citizens have at least one bank account (current and savings accounts), including accounts opened with microfinance banks and electronic money accounts, which means that approximately 10% of the population owns at least one account, and this indicator is considered the lowest in the world, as the global index of the number of adults who have at least a bank account according to the 2018 Financial Inclusion Report issued by the World Bank reached 68.5% worldwide and 43.5% in the Middle East region and 34.9% for the lowest-income countries.

We note that during the year 2016, Yemeni banks went through the worst effects of the crisis, as the number of accounts decreased by 40%, reaching 2.4 million accounts owned by about 1.5 million citizens, and the number of debit cards decreased significantly from more than one million cards during the years 2014 and 2015 to reach about 200 thousand cards in the year 2016, and these cards are mostly cards for cash withdrawals from ATMs. They were used by bank customers, most of them are employees, to withdraw their salaries. The number decreased due to the disruption of employee salaries and the severe liquidity crisis that the banking sector has suffered from. Cards returned to the limited gradual increase, as it reached about 400,000 cards at the end of the year 2019, as for credit cards, their number is still very limited and used by the business segment, and the statistics indicate a decrease from 6604 cards in 2014 to 1206 cards in 2019.



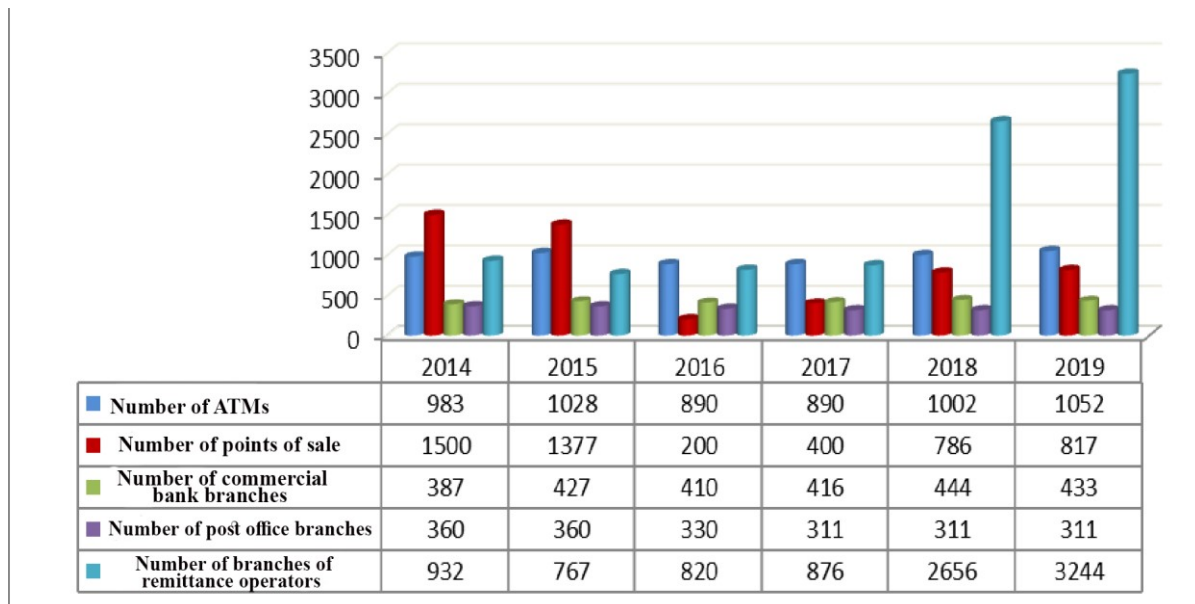
**Figure No. (6) shows the development of the number of accounts, their owners, and payment cards during the period 2014-2019**



**Second: the number of points and branches that provide financial services:**

We notice from the figure below that the number of points of providing financial services to clients has decreased significantly during the years 2016 and 2017 by about 32% compared to what it was during the years 2014 and 2015, as the number of points of sale decreased from about 1500 and 1377 points in the years 2014 and 2015 respectively, to 200 and 400 points of sale in 2016 and 2017, respectively, despite the severe liquidity crisis, in which the number of points of sale was supposed to increase, because the points of sale were used for cash withdrawal and not for payment as is the case in most countries of the world. The number of service provision points has gradually increased in 2018 and 2019, by 80% and 13%, and this increase is mainly due to the increase in the number of branches of companies and exchange houses, whose number increased from 876 in 2017 to 2,656 in 2018 and 3,244 in the year 2019, with a growth rate of 203% and 22%, respectively, and the number of points of sale increased from 200 and 400 points of sale in the years 2016 and 2017 to 786 and 817 points of sale during the years 2018 and 2019, respectively, due to the fact that some banks have installed points of sale in some stores to allow their customers to use them in paying for purchases.

Figure (7) shows the development of the number of points of providing financial services during the period 2014-2019



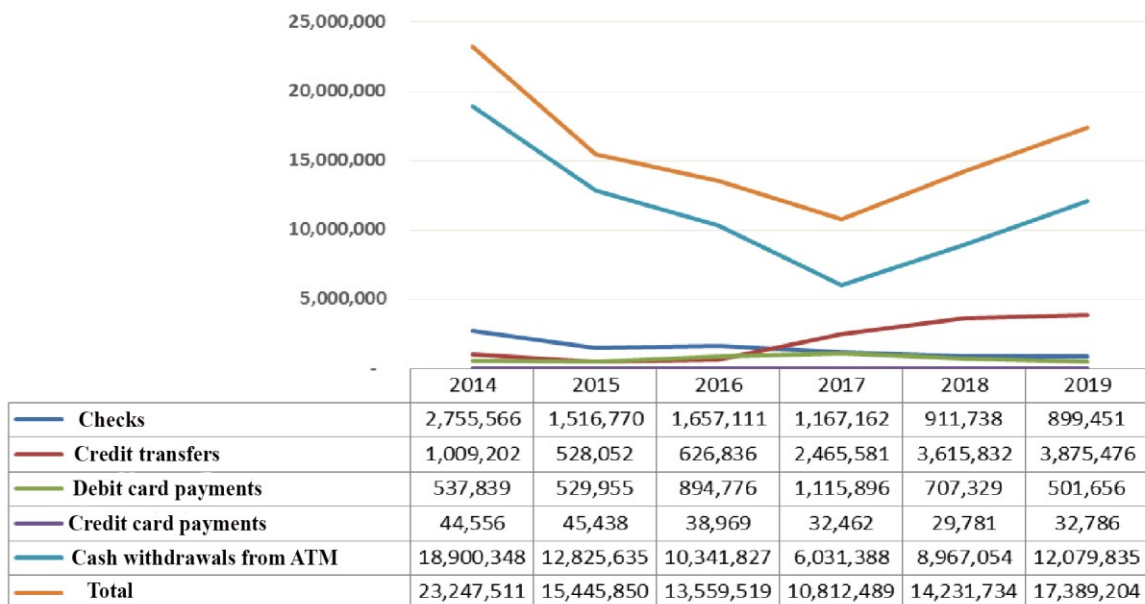
Knowing that the number of service points and branches is still at the lowest level in the world compared to international standards according to the statistics of the World Bank<sup>4</sup>, as there are 1.4 bank branches per 100,000 people in Yemen compared to 12.73 bank branches per 100,000 people worldwide, 11.9 in the Arab world and 3.3 ATMs per 100,000 people in Yemen compared to 41.64 ATMs per 100,000 globally and 34.74 in the Arab countries, knowing that the interoperability service is still weak and almost non-existent for the network of points of sale, ATMs, and interbank operations in general, financial services are still concentrated in the main cities and scarce in the countryside.

<sup>4</sup> [https://data.albankaldawli.org/indicator/fb.atm.totl.p5?most\\_recent\\_year\\_desc=true](https://data.albankaldawli.org/indicator/fb.atm.totl.p5?most_recent_year_desc=true)

### Third: Number of payments by tools:

We notice from the figure below that the number of payments in various payment instruments decreased dramatically during the years from 2014 to 2019, at a cumulative rate of 12%, and the decline reached 34%, 12%, 20%, during the years 2015 to 2017, respectively, then it gradually increased at a rate of 32%., 22% during 2018 and 2019, respectively. It is noticeable that the use of debit cards is still largely limited to withdrawing cash from ATMs, and it is used in a limited way to transfer via the Internet, bank, pay bills and pay for purchases, as the statistics in the table below indicate that for every payment made through points of sale using payment credit cards there is about 22 ATM cash withdrawals. Also, the number of transactions using credit card payments is still very limited and it is used only for major customers and for the purpose of use outside Yemen.

**Figure No. (8) shows the number of payments operations in various payment instruments during the period 2014-2019**



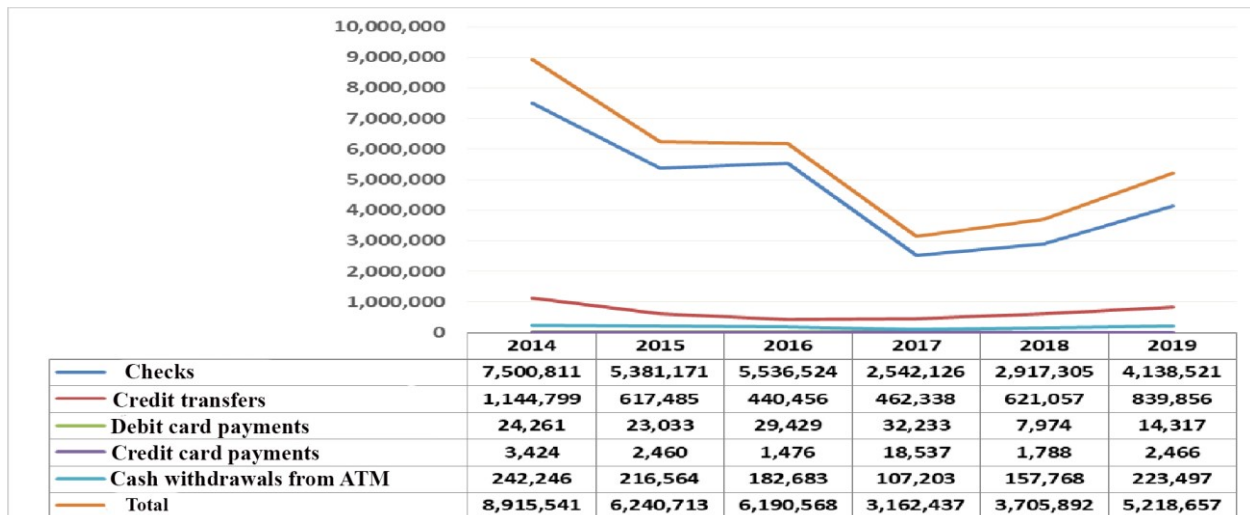
### Fourth: Value of Payments by Type:

The check is still the most used tool for payment, especially for large amounts, and the check is used to pay more than 80% of non-cash payments, while the rest of the payment tools are used to pay the remaining 20%, including transfers using the SWIFT network, debit and credit cards, and paper transfers, as shown in the figure below.

It is worth noting that the value of payments for all instruments decreased by a cumulative rate of about 22%, and that this decrease reached its peak in 2017, as the value of checks drawn on banks with the exception of the Central Bank decreased from 7.5 trillion Rials in 2014 to 2.5 trillion Rials in 2017 by 66%, then it gradually improved in 2018, to reach 4 trillion Rials at the end of 2019, but it is still low compared to what it was before the crisis.

As for the rest of the tools, their value constitutes 20% of the total value of payments made through banks, and all this confirms that the economy still depends mainly on cash in conducting financial transactions and that we need great efforts, whether in modernizing the infrastructure, raising awareness, and creating an efficient national payment system that will be the basis to enable the central bank to manage monetary policy and activate its tools.

**Figure No. (9) shows the values of payments operations in various payment instruments in millions during the period 2014-2019**



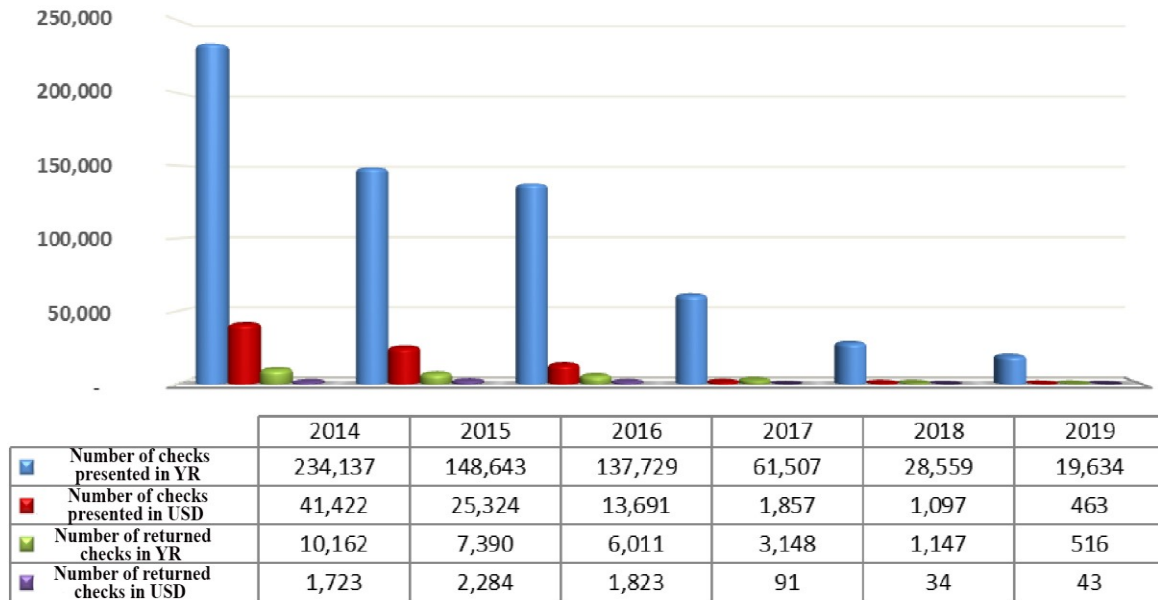
### **Clearinghouse transactions:**

Since the check is still the most used non-cash payment method and since the clearinghouse plays a fundamental role in settling checks drawn between banks, and by following the movement of the clearinghouse in the central bank, we find the following:

#### **First: Number of checks submitted:**

We note that the effects of the crisis on the clearinghouse movement were clear, as the number of checks submitted to the clearinghouse in Rials decreased significantly from 234 thousand checks in the year 2014 until it reached about 20 thousand checks in the year 2019, at a decreasing rate of 37%, 7%, 55%, and 54 and 31% during the years from 2014 to 2019, respectively, and the cumulative rate of decrease in the number of checks during the years from 2014 to the year 2019 reached 184%. Likewise, the number of clearing checks presented in USD decreased from 41 thousand checks in the year 2014 to 463 checks in the year 2019, with a decreasing rate of 39%, 46%, 86%, 41%, and 58% respectively from the year 2014 to the year 2019.

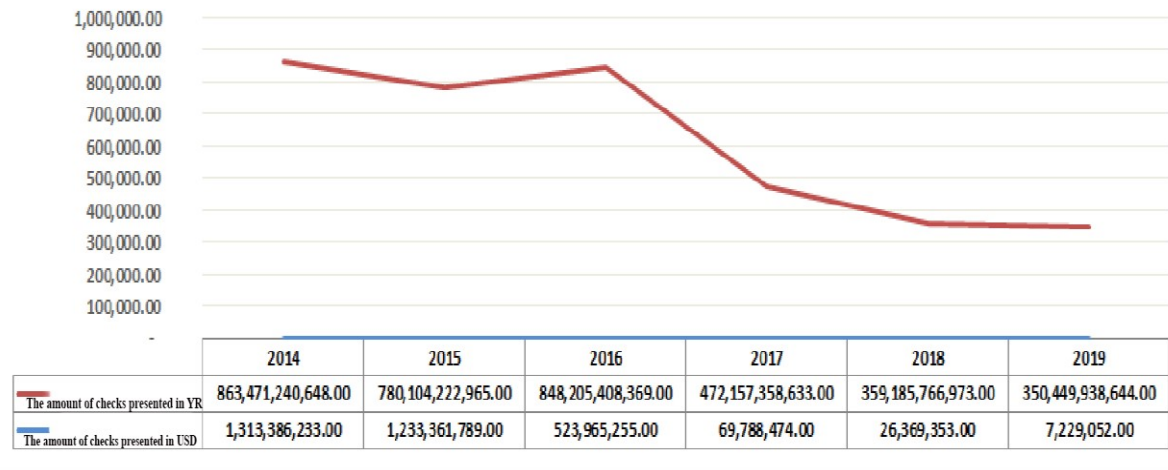
**Figure No. (10) shows the number of checks presented and returned in Rials and USD during the period 2014-2019**



**Second: the value of clearance checks, riyal and dollar:**

The value of clearing checks submitted to the clearinghouse in Rials and USD in general decreased, as the rate of decline in the value of checks in Rials amounted to 10% in the year 2015 compared to it in the year 2014, then it increased by 9%, during the year 2016 and then declining to the lowest level by 44% during the year 2017. The decline continued by 24% and 2% during the years 2018 and 2019, respectively.

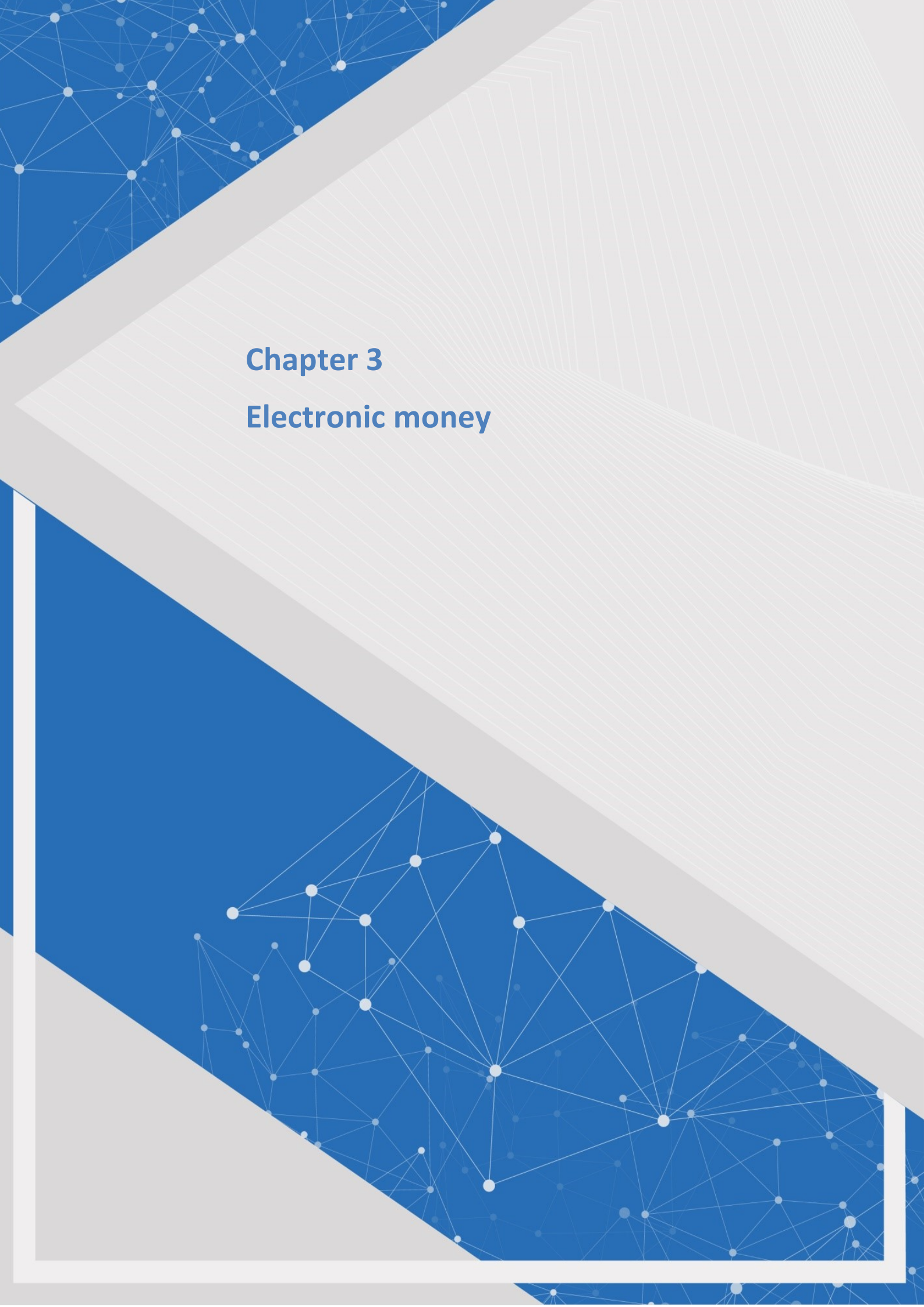
**Figure No. (11) shows the value of checks presented to the clearinghouse, riyal and dollar, during the period 2014-2019**



Likewise, the value of dollar checks decreased, as the percentage of decline reached respectively 6%, 58%, 87%, 62%, and 73% during the period from 2014 to 2019 and the year 2017 was the worst in the decrease in the value of checks submitted to the clearinghouse in USD, as it decreased from 524 million USD in the year 2016 to about 70 million USD in the year 2017 the decline rate was 87%.

From the previous figures and statistics, we note that the state of war and instability has led to the collapse of the Yemeni economy, and this was clearly demonstrated through the payment indicators, as the statistics collected in this study indicate a decrease in the volume of payments in various payment instruments by about a third in the year 2015 compared to the year 2014 , and it declined to the lowest level in the year 2017, by a decrease of about half compared to the year 2016 , and then it returned to a gradual improvement in 2018 and 2019 , at an increase of 17% and 41%, respectively, compared to the previous year, and all statistics confirm the limited use of electronic payment tools in conducting financial transactions, where reliance on cash is still prevalent, but we believe that the opportunity now may be more appropriate to spread electronic financial services if the efforts of the state and the public and private sectors combine to advance using electronic payment services.

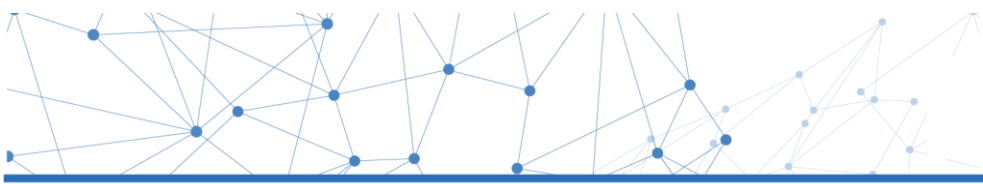




## Chapter 3

### Electronic money





### Electronic money

Electronic money services are considered one of the most innovative ways to solve cash problems and deliver financial services to many underprivileged groups, in addition to the added value they provide in providing better services at lower prices and in a faster time, especially with the widespread of mobile phones through which services can be provided Electronic money.

Electronic money services have become widespread in many poor countries in Africa, especially Kenya, Uganda, Tanzania, and Somalia, as mobile financial services have become an increasingly viable option for providing financial services to those who do not have bank accounts.

### The concept of electronic money

There is no unified definition of electronic money, but all definitions agreed that it is a value stored in an electronic means and used as a payment tool, we will list here the most important definitions cited by some regional and international institutions:

**Definition of the European Commission:** It is a monetary value stored on an electronic means, such as a card or computer memory, and accepted as a means of payment by contractors other than the institution that issued it, and it is placed within the reach of users to use as an alternative to monetary currencies, with the aim of creating electronic transfers of payments of a specific value.

**Definition of the European Central Bank:** It is an electronic stock of cash value on an electronic means such as a plastic card that may be used in cash withdrawals or settlement of payments to other economic units other than those that issued the card without the need for a bank account when making the payment and used as a prepaid portable tool.

**Definition of Bank for International Settlements:** It is a monetary value in the form of credit units stored in electronic form or on an electronic tool possessed by the consumer.

### The definition of electronic money cited in Circular No. 11 of 2014 regarding the regulatory rules for the electronic money service via mobile phone:

They are the money values that are stored electronically with the service provider and are exchanged electronically and are characterized by the following:

1. It was issued against receiving amounts with the same value in the local currency.
2. Accepted as a method of payment between the parties dealing with it.
3. Its value is transferable between the various parties dealing with it, and it can be converted into cash with the same value.

Here, we will review the basic characteristics in defining electronic money as follows:

### - Cash value

It includes monetary units that have a monetary value that is able to purchase goods and services. This distinguishes it from other units that carry an in-kind value and cannot be considered electronic money because it is only able to purchase a specific type of commodity, such as phone calling cards or ration cards.

### - Stored on an electronic medium

This characteristic is an important element in defining electronic money, as the monetary value is charged electronically on a plastic card or on the consumer's personal computer hard disk or mobile phone chip, and this feature distinguishes electronic money from legal money and credit cards, and in fact, the cost of these cards are prepaid and purchased from the bank or the authority that issued them. For this reason, they are called prepaid cards.

### - Acceptance in dealings

Electronic money must be widely accepted in dealings by people and institutions other than the ones that issued it, and its use should not be limited to a specific group of individuals for a specific period of time. Electronic money, in order to be considered money, must have the confidence of individuals and institutions and gain their acceptance as a valid tool for payment and a medium of exchange.

### - A means for Payment

This electronic money must be valid to fulfill obligations such as purchasing goods and services, paying bills, etc. But if its function is limited to achieving only one purpose, such as buying a certain type of goods without others, or for telephone communication, then, in this case, it cannot be described as electronic money, but rather it is called electronic cards with a single purpose.

## Advantages of electronic money

Electronic money has many advantages, the most important of which are the following:

1. The cost of its circulation is low: Some studies indicate that the cost of electronic payment methods may reach 2% of the cost of traditional payment methods, as well as the ease of circulation due to the absence of the need to open branches and contract with employees and other operational costs, as electronic money services are provided using technical means through mobile phones and computers. Also, agents from stores and financial service providers that already exist are used to provide electronic money services.
2. Providing electronic money services over the electronic network is not subject to time and place limits: electronic money can be transferred from anywhere and at any time because they depend on the Internet or on other networks.

3. Providing the sums that are used for counting, storing, and transporting paper money, which are large sums that can be used in implementing development projects.
4. It helps in accelerating the monetary cycle and transferring a lot of savings from the informal sector to the formal sector, thus doubling the cash savings in the banking sector, which can be used to move the development wheel by re-lending it to investors.
5. Simple and easy to use: Electronic money facilitates banking transactions to a large extent, as it replaces the filling out of forms and conducting banking inquiries over the phone. The process is completely automatic and very simple. The buyer can pay the value of purchases by simply issuing an order to his automated account or mobile phone.
6. The speed of the payment process, in contrast to the traditional methods.
7. Encouraging safe payment processes: through the existence of a banking system prepared for the purpose of dealing with electronic money, and electronic money service providers use high-precision security methods, which makes electronic money payments safer and more confidential.
8. An effective and excellent way to deliver financial services to many unbanked groups, especially in rural areas and far from the city center, and thus help in promoting financial inclusiveness and integration, which is an important goal of development goals.

### **Models of providing electronic money services via mobile phone:**

There are several models for providing, managing, and dealing with electronic money services. However, the following four models are considered to be the central models around which the different models of the mobile payment system revolve as follows:

#### **1. Bank Led Model**

In this model, electronic money services are provided through banks only, and this model is appropriate in the case of a conservative banking sector in terms of risk management, as the banking sector tends to manage the system because it falls within the scope of national payment systems, given that the activity of opening accounts and receiving deposits is a purely banking activity, as the banking sector tends to manage the system and provide the service.

Although managing the electronic money system by banks is usually more expensive compared to managing it by mobile phone companies, the main advantage, in this case, is the presence of opportunities to provide additional banking services to bank customers on the one hand and owners of electronic money accounts and link them to other banking services provided by banks on the other hand. The banks' management of the entire system allows them to assume responsibility for all parties involved in the service.

### 2. Mobile Network Operators (MNO) led Model

Mobile phone companies have a lot of experience in managing components of electronic payment systems in terms of access to customers, and they also have extensive distribution networks, which are known as agents that can be used to spread electronic money services and provide deposits, withdrawal, and transfer services. Telecommunications companies also have delivery channels of electronic payment services to customers such as text messages, USSD, and internet packages. Therefore, all of these factors have a significant impact on providing system services at a lower cost compared to the previous model of providing service through banks.

### 3. Bank & MNO led Model

This model is based on the partnership between banks and mobile phone companies by making use of each party's capabilities and expertise, and the bank is responsible for opening the account and receiving deposits, while the mobile company is responsible for managing agents and providing the system infrastructure. It is suitable for some countries whose laws restrict the receipt of deposits only from banks.

### 4. PSP (payment service provider) Led Model

This model relies on providing electronic money services through financial services companies established for this purpose and possessing the ability to manage, develop, and use information technology in the provision of financial services. This model appeared recently and many financial services and information technology companies operate in this model alone or in partnership with banks or telecommunications companies which are called providing payment services. Central banks have developed their laws and have issued licenses to companies in the name of a payment service provider. These companies are subject to the supervision and control of central banks in accordance with the laws of their establishment.

Each of the aforementioned models has its advantages and disadvantages, but it is noticeable that any service begins conservatively so that people know it and it spreads, and then these services are made available more widely, and this applies to electronic money services, as many countries have reservations about giving licenses to provide electronic money services except through banks for fear of risks involved in this service, but after the passage of time, many conservative countries have amended their laws and allowed telecommunications companies, financial services, and information technology to provide these services under certain conditions that preserve the rights of users of these services; the closest example is India, Jordan, and other countries.

According to many studies, most of the successful examples of electronic money services were those provided by telecommunications companies, as is the case in Kenya through Safaricom (m-pesa service) and in Guinea and Somalia.

### The role of electronic money service via mobile phone in promoting financial inclusion

After the financial crisis in 2008, the interest of various financial and economic policymakers in many countries of the world began to focus on achieving financial inclusion and the extent of access to financial services for various segments of society, especially the disadvantaged and targeted groups of the financial system, as the financial inclusion reports issued by the World Bank indicate at the end of 2018, about 31% of the world adult population does not have bank accounts, while the percentage in Arab countries reached about 63%<sup>5</sup>, which will deprive society of benefiting from the savings of the financially excluded group and deprive a large segment of citizens of opportunities obtaining financing and banking financial services.

#### Financial inclusion

It means providing access to financial services such as lending, savings, payment, and insurance services provided by formal financial institutions for all adults at working age in a comfortable, responsible, and affordable cost while sustaining the work of institutions that provide financial services in a way that helps to make financial services available to excluded and disenfranchised clients of these services.

Expanding financial inclusion contributes positively to creating new job opportunities, thus achieving sustainable economic and social growth, thus reducing unemployment and poverty rates, improving income distribution, and raising the standard of living. Whereas, access to finance and financial services to various groups of society and business sectors has an effective role in addressing unemployment problems in the short and medium-term and achieving the most comprehensive economic growth, which will positively affect the stability of the financial and banking sector.

Governments support financial inclusion in three main areas, as follows:

**First:** It sets the rules and organizes the environment for financial inclusion appropriately, and works to create a balance between the desire to provide financial services to the poorest segments and measures to protect consumers.

**Second:** Encouraging the establishment of infrastructure and stimulating private sector investments to support the expansion of financial services provision. This infrastructure may include, for example, mobile payment systems, point of sale networks, or credit registries.

<sup>5</sup> The Little data Book On Financial Inclusion -2018 - World bank

**Third:** Supporting financial inclusion by increasing the volume of transactions through electronic deposits of payments from the government to the public (for example, social security payments, wages, or pensions), and with these three methods, governments can play a very important role in supporting financial inclusion.

Thus, electronic money plays an important and central role in supporting financial inclusion by working to reach banking services to the largest segment of individuals and to cover all geographical areas easily, conveniently, at an appropriate cost and high quality, and to spread banking awareness among those financially excluded from the official sector through the arrival of part of the financial services that open the way for them to switch from an electronic money service customer to a bank customer who can obtain all banking services that have an impact on the individual and society and work to reduce poverty and unemployment rates.





## **Chapter 4**

# **Analyzing Electronic Money Service Data**



### Analyzing Electronic Money Service Data

In light of the Central Bank of Yemen's interest in electronic money services, Circular No. 11 of 2014, which organizes the provision of electronic money services via mobile phone, was issued in December 2014, as well as the instructions governing financial companies that provide electronic money services in March 2020. The Central Bank has licensed five banks during the years 2015-2019, these banks are: Al-Kuraimi Islamic Microfinance Bank which was licensed as the first bank to provide this service in 2015, but the bank did not launch the service in 2015, it started to provide the electronic money service in 2016, followed by Tadhamon Bank, which was licensed in 2017 and started to launch the electronic money service for the public in 2018, then Al-Amal Microfinance Bank 2017, Yemen Kuwait Bank, and the Cooperative and Agricultural Credit Bank in 2018.

The statistics collected indicate that a small percentage, not exceeding 10% of the population, which is estimated at 29.6 million<sup>6</sup> people, own bank accounts, and that the majority of the population does not have the possibility to conduct safe financial transactions through the formal banking system. People without bank accounts used to send money through money transfer systems through exchange and post companies and through intermediaries.

The use of cell phones is considered one of the fundamental changes in conducting financial transactions in the last decade and with the availability of cheap, available and low-priced phones provided by mobile phone companies, according to an official report issued by the Ministry of Communications and Information Technology and posted on September Net website showed that the number of mobile phone users in the Republic Of Yemen reached about 18 million and 597 thousand and 333 users in the year of 2019<sup>7</sup>, which means that about 63% of the Yemeni population owns a mobile phone, and the phone's access to this segment of the population can be used to deliver financial services easily and at a lower cost.

In this chapter, the researchers collected comprehensive historical data for all electronic money services in Yemen and analyzed the data for each service using Excel formulas and pivot tables for all five banks licensed by the Central Bank, starting with Al-Kuraimi Islamic Microfinance Bank as the first bank that was licensed in the year of 2015 and ending with the Cooperative and Agricultural Credit Bank, which was granted the license in 2018.

It was also evident through the study that the growth rate of the Electronic Financial Services activity by using the phone is constantly increasing, especially in the year of 2019, but these numbers did not live up to the expected or comparative statistics with countries similar in their conditions to the conditions of Yemen, where there are many obstacles that limit the spread of the service, for example, illiteracy, large fees and obstacles imposed by telecommunications companies, in addition to the conditions the country is going through, the impact of the current crisis on the banking sector and banking services in general, and salary cuts on most government sector employees, as well as the dismissal of many private sector companies for a large number of employees, all of that reflected negatively on the spread of Electronic Financial Services.

<sup>6</sup> <http://pubdocs.worldbank.org/en/166151587214549959/AR-MPO-AP20-Yemen.pdf> (Population 29.6)

<sup>7</sup> [https://www.26sept.com/news\\_details.php?sid=166226](https://www.26sept.com/news_details.php?sid=166226)

**An overview of the banks licensed to provide electronic money service**

Five banks in the Republic of Yemen have been licensed to provide electronic money services via mobile phone, whose share of the total assets of the banking sector represents 43% and the total capital is about 49%, these banks are listed below:

**Table (2) shows the size of the assets of banks providing electronic money service for the years of 2018 and 2019 in millions of Rials**

N	Bank name	2018	2019	growth rate
1	Al-Kuraimi Islamic Microfinance Bank	219.145	257.038	17.3%
2	Tadhamon Bank	549.747	557.698	1.4%
3	Al-Amal Microfinance Bank	28.718	33.971	18.3%
4	Yemen Kuwait Bank	182.660	222.168	21.6%
5	The Cooperative and Agricultural Credit Bank	468.401	495.503	5.8%

**Figure (12) shows the size of the assets of banks provided for the electronic money service via mobile phone**

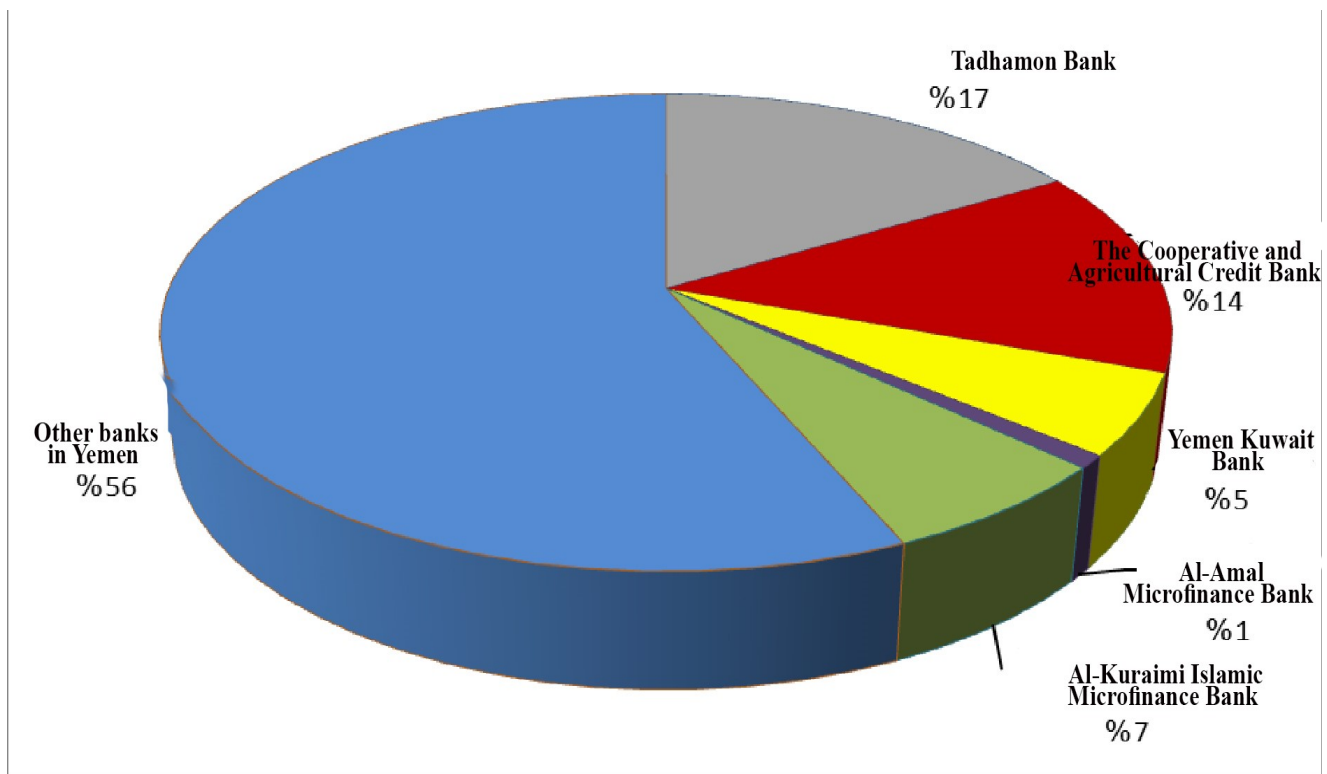
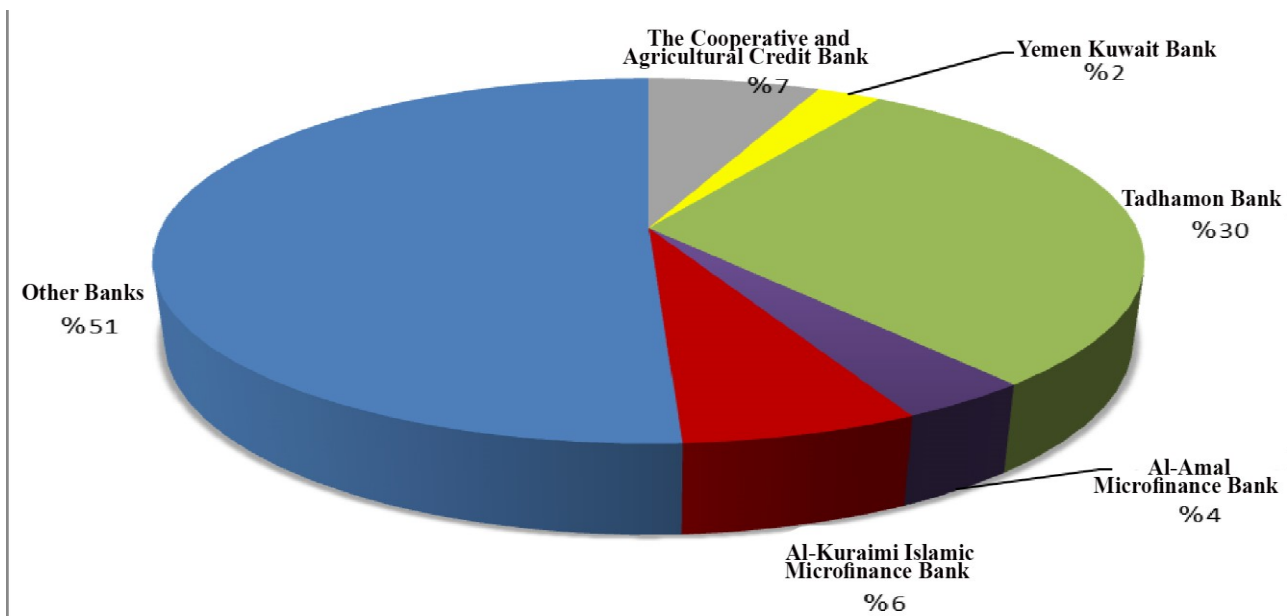


Figure (13) shows the capital of banks providing electronic money services



**Al-Kuraimi Islamic Microfinance Bank**

Al-Kuraimi Islamic Microfinance Bank (a closed Yemeni joint stock company) was established in accordance with the provisions of Commercial Companies Law No. 22 of 1997 and its amendments and Law No. 15 of 2009 regarding microfinance. Al-Kuraimi Islamic Microfinance Bank commenced its commercial activity in July 2010. The bank carries out its banking activities in the Republic of Yemen from its head office in Sana'a city and its 132 branches and its 2,450 agents and its 6000 points of sale distributed throughout the republic (cities and countryside).

Al-Kuraimi Bank obtained the license to provide electronic money service at the end of 2015, and the service actually started on (June 2016) with the product called (MFlous) and the number of active accounts at the end of 2019 reached (646,211) and the total balance of electronic accounts was about (1,019,884,194.04).

The service is provided by 2,626 agents and 7,620 points of sale spread across the state.





### Al-Amal Microfinance Bank

The bank carried out its activities according to the Bank's Establishment Law No. 23 of 2002 and the Micro Finance Banks Law No. 15 of 2010. Al-Amal Microfinance Bank is a non-governmental institution with an independent financial liability. The bank commenced its activities on August 23, 2008.

The bank carries out its banking activities in the Republic of Yemen through its head office in the city of Sana'a and its branches located in the cities of Sana'a (Baghdad st. - Al Thawrah Directorate - Al-Wehda Directorate - Al-Tahrir Zone -Al-Matar Zone) Al-Hadidiya (Al-Hodeidah Bajil) Aden (Crater and Sheikh Othman) Taiz (22 May and 14 October regions) Hajjah (Hajjah Directorate and the Abs branch) Al-Mukalla - Dhamar - Ibb.

The bank was licensed to provide electronic money service on 1/1/2017, under the name of "Pyes product". The total number of electronic money clients reached (102,989) at the end of December 2019 and the balance of those accounts was about (262,631,912). The system was developed internally.

The service is provided through 15 branches, 238 agents, and 1547 points of sale spread across the state.



### Tadhamon Bank

Tadhamon Bank was established in 1995. The bank undertakes financing, investment and banking services in accordance with the text of Article No. (4) of the bank's articles of association, which stipulates that the bank, in all its purposes and business, shall abide by the provisions of Islamic Sharia.

The bank began its activities on July 20, 1996 and is currently operating through its head office in Sana'a city and through its (23) branches spread throughout the Republic of Yemen.

The bank was licensed to provide electronic money service on 2/1/2017 under the name of "Mahfathati". The total number of electronic money service's clients reached 17649 at the end of December 2019.

The service is provided through 28 branches, 90 agents, and 116 points of sale spread across the state.





### Yemen Kuwait Bank

Yemen Kuwait Bank for Trade and Investment was established as a Yemeni joint stock company on January 1977, according to the Leadership Council Resolution No. (58) of 1977. The bank carries out its banking activities in the Republic of Yemen through its head office in the city of Sana'a and its branches (14 branches and 3 offices) located in the cities of Sana'a, Aden, Hodeidah, Taiz, Mukalla, Ibb and Dhamar.

The bank provides conventional and Islamic banking services through the Yemen Kuwait Bank for Trade and Investment Branch for Islamic transactions under the provisions of Islamic Sharia and under the supervision of the Sharia Supervisory Board after obtaining the approval of the Central Bank on December 27, 2010.

The bank was licensed to provide electronic money service on January 2018 under the name of "Floosak". The total number of electronic money service's clients reached 18,608, at the end of December 2019, the number of agents is about 391, and the number of points of sale is 5071.



### The Cooperative and Agricultural Credit Bank

The Cooperative and Agricultural Credit Bank (CAC Bank) was established in Sana'a in accordance with Law No. (39) of the year of 1982 as an outcome of the merger of the Agricultural Credit Bank which was (established in 1975) and the National Cooperation Bank for Development which was (established in 1979) and the bank is registered with the Ministry of Industry and Trade under Commercial Registry No. (5391).

The bank also provides Islamic banking services through the Cooperative and Agricultural Credit Bank branch for Islamic transactions in accordance with the provisions of Islamic Sharia and under the supervision of the Fatwa and Sharia Supervisory Board after obtaining the approval of the Central Bank on April 16, 2011. The bank practices all banking activities through the General Administration in Sana'a and the number of 43 branches distributed in all governorates of the Republic of Yemen.

The bank was licensed to provide electronic money service on 20/12/2018, under the name "Mobile Money", and the total number of electronic service's clients amounted to 22,462 until the end of 2019.

The service is provided through 32 branches, 18 offices, 11 main agents, 15 sub-agents, and 2222 points of sale spread throughout the Republic.



**Analyzing electronic money services data in the banking sector**

**Number of electronic money accounts**

The electronic account is the virtual account for the client and is linked to the client's mobile phone number and is saved in the data platform.

Through the analysis of the statistical data for the five E-wallets during the period from January 2016 to December 2019, the number of electronic money accounts in the five wallets in December 2019 reached (807,919), and the number of electronic money clients increased during the previous period, but in 2019 the number of electronic money accounts achieved a significant growth rate of 199% compared to what it was in 2018, the reason for this is that the government encourages the service and the process of replacing the new currency with the old currency through the use of electronic money service, bearing in mind that some of these accounts are used by clients for one time only or when it imposes on them for one reason or another. The average percentage of dormant or inactive accounts in 2019 was 23% of the total electronic accounts, which is deemed a large percentage and is expected to increase after 6 months of the exchanging process. Accounts opened for the purpose of exchanging currency, or a large percentage of them, will turn into dormant accounts unless the banks took advantage of that opportunity and marketed their products and encouraged clients to continue dealing with electronic money services and persuade them of the efficiency, security and ease of the use of these services, and confirming that one of the service providers' goals is consumer protection from any harm that may be caused to him as a result of using these services.

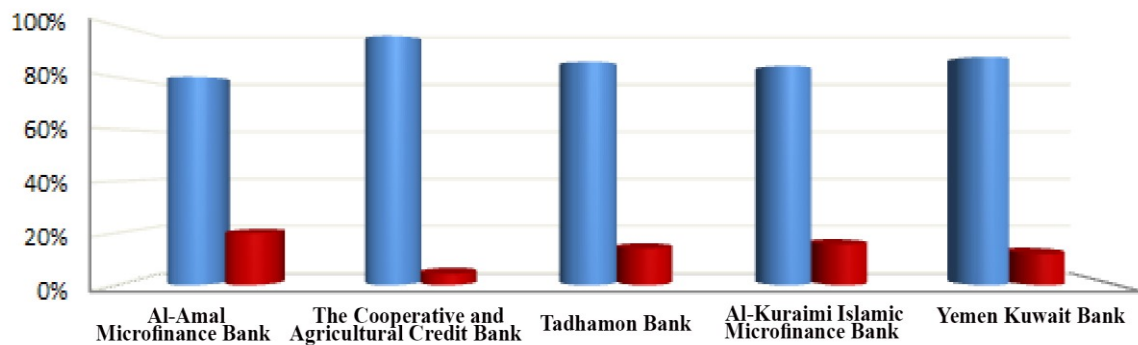
**Table (3) shows the number of electronic money accounts during the period 2016-2019**

Bank	2016	2017	2018	2019
Al-Kuraimi Islamic Microfinance Bank	3,626	71,471	250,291	646,211
Tadhamon Bank	343	9,582	12,305	17,649
Al-Amal Microfinance Bank		1,053	5,174	102,989
Yemen Kuwait Bank			1,274	18,608
The Cooperative and Agricultural Credit Bank			1,577	22,462
<b>Total number of accounts</b>	<b>3,969</b>	<b>82,106</b>	<b>270,621</b>	<b>807,919</b>

By looking at the above table, we note that the growth rate of the number of electronic money accounts in the last two years 2018 and 2019 and at the level of each bank varied according to the marketing activity as well as the opportunities available to the bank to distribute the aids of organizations, salaries, social insurance and any transactions related to electronic money, where the growth rate reached for the banks that started providing electronic money services in 2018 (Yemen Kuwait Bank and the Cooperative and Agricultural Credit Bank) (1361% and 1324%) respectively, while the growth rate of accounts for banks that had a client base since 2016 and 2017, namely (Al-Kuraimi Islamic Microfinance Bank, Al-Amal Microfinance Bank and Tadhamon Bank) (158%, 1891%, 43%) respectively. In general, there is an increasing growth from year to year, but the year of 2019 witnessed a very large growth rate, especially in the banks that participated in the replacement of the new banknote edition.

Based on an analysis of the data of the number of electronic money accounts during the four years (2016-2019), it becomes clear that the percentage of males exceeds the percentage of females, as it has been observed that males are considered the most use of the service and the average percentage of males during the four years was about 87% and the average percentage of females is about 13%. On the one hand, this is due to the nature of society that gives privacy to women in terms of the inability to display their personal ID cards that contain their photos, and on the other hand, the segment of non-working women does not have any access to this service.

**Figure (14) shows the average percentage of female and male service users during the period 2016-2019**



	Al-Amal Microfinance Bank	The Cooperative and Agricultural Credit Bank	Tadamon Bank	Al-Kuraimi Islamic Microfinance Bank	Yemen Kuwait Bank
Male	80%	96%	86%	84%	88%
Female	20%	4%	14%	16%	12%

Based on the analysis of the accounts during the study period on the level of the distribution of e-wallets accounts at the level of the Republic of Yemen (cities and countryside), the average concentration ratio for those accounts in cities reached 93.8% during the comparison years, and the average percentage of services provided in the countryside was 6% distributed over the years (2016 & 2017 & 2018 & 2019), respectively, at a rate of (4%, 5%, 7%, 9%) and provided by Al-Amal Bank for Microfinance and Al-Kuraimi Bank for Islamic Microfinance, while the rest of the banks are limited to provide electronic money services in major cities.

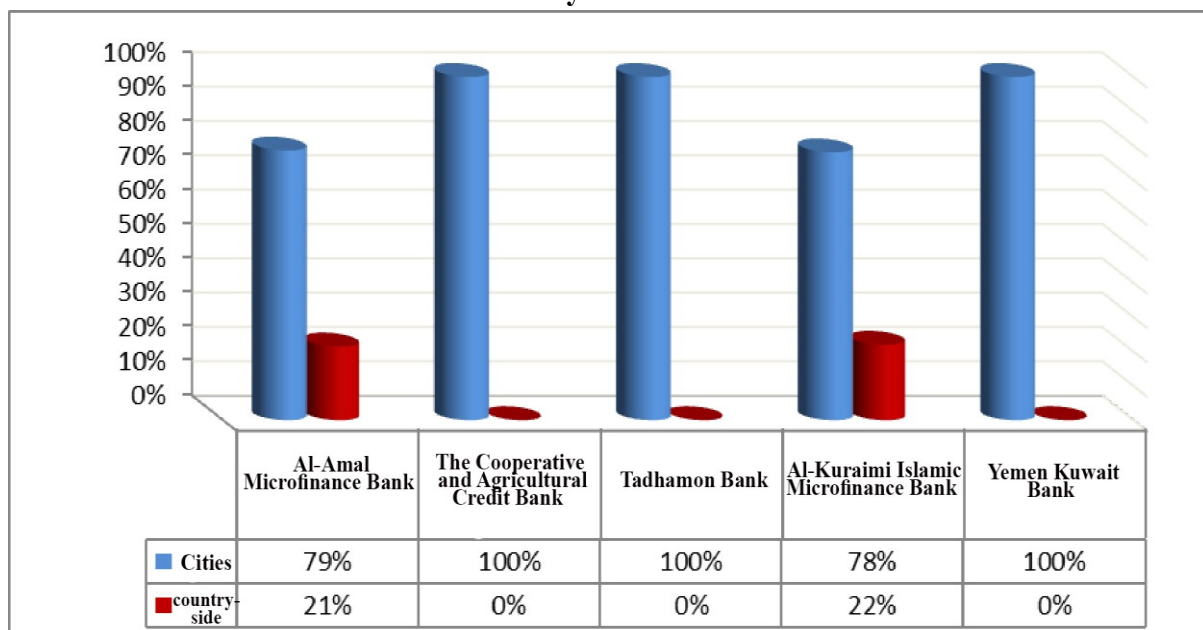
Although one of the goals of using technology and one of the goals of licensing electronic money services is spreading in remote areas to which the branches of official financial institutions do not reach, the percentage is considered very small after four years have passed since the first bank was licensed to provide electronic money services.

Banks must work hard to expand, spread, and provide their services to rural areas and use banking agents, similar to other countries that have exploited mobile phone services to reach remote areas, which has affected the lives of people in those areas and helped to raise the standard of living and education as well as on health aspects.

**Table (4) shows the percentage of users of electronic money accounts in (city and countryside) during the period 2016-2019**

Bank	2016		2017		2018		2019	
	city	country	city	country	city	country	city	country
Al-Kuraimi Islamic Microfinance Bank	89%	11%	85%	15%	68%	32%	78%	22%
Tadhamon Bank	100%	0%	100%	0%	100%	0%	100%	0%
Al-Amal Microfinance Bank	100%	0%	99%	1%	99%	1%	79%	21%
Yemen Kuwait Bank					100%	0%	100%	0%
The Cooperative and Agricultural Credit Bank					100%	0%	100%	0%
<b>percentage</b>	<b>96%</b>	<b>4%</b>	<b>95%</b>	<b>5%</b>	<b>93%</b>	<b>7%</b>	<b>91%</b>	<b>9%</b>

**Figure (15) shows the ratio of the number of electronic accounts in city to the countryside in 2019**

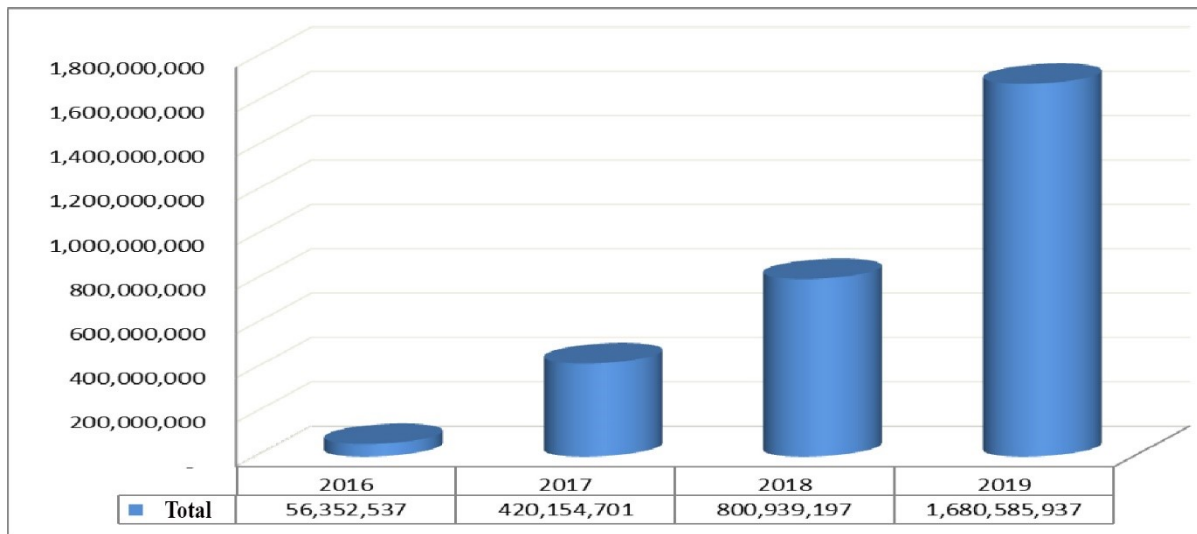


**E-wallets balance**

E-wallet balance (trust account) is the sums in a pool account with the settlement bank, and this account is owned by holders of electronic money via the mobile phone and not to the service provider and it includes all amounts collected from clients in exchange for electronic money issued at the level of each electronic account linked to the mobile phone.

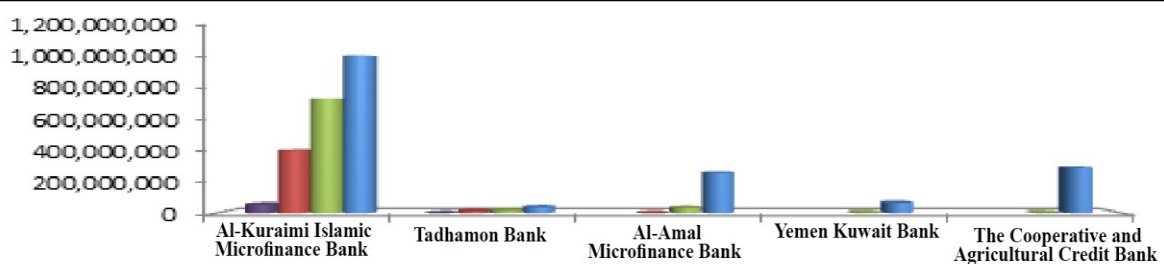
According to the instructions of the Central Bank of Yemen in Circular No. 11 of 2014 and Resolution No. 1 of 2020 at all times, the value of the pool account (E-wallet balance) must equal 100% of the value of the total obligations due for the issued electronic money, and the instant (immediate) effect on the accounts must take place provided that these accounts are matched by a licensed bank and financial services companies on a daily basis with the necessary adjustments for any differences or suspensions made within one working day.

Figure (16) shows the total balance of E-wallets in banks during the period 2016-2019



Through the analysis of E-wallet balances during the past four years, a noticeable increase in balances was observed on a monthly basis, but this increase did not go up to the level comparable to other countries. The total E-wallet balances at the end of December 2019 reached (1,680,585,937) Yemeni Rials, with a growth rate of 110% compared to the end of 2018, distributed among the five wallets according to the listed table, and it is also noticed that this balance in the year 2019 is 61% of the total balance of the money wallet. This is due to the fact that Al-Kuraimi Bank is the first bank licensed to provide electronic money services, on the one hand and on the other hand because Al-Kuraimi Bank participates in the distribution of aid and assistance for organizations, retirement salaries and social security by using this service, as well as its participation in the process of replacing the new cash with the old at the end of 2019 by mediating electronic money accounts, which led to an expansion of the segment of users of these services and for specific purposes, as well as increasing the balances of electronic money during that period.

Figure (17) shows the balances of E-wallets in banks during the period 2016-2019



	Al-Kuraimi Islamic Microfinance Bank	Tadamon Bank	Al-Amal Microfinance Bank	Yemen Kuwait Bank	The Cooperative and Agricultural Credit Bank
2016	55,915,566	436,971			
2017	406,448,358	13,005,634	700,709		
2018	740,588,542	17,976,370	33,350,860	5,088,040	3,935,385
2019	1,019,884,194	38,579,038	262,631,913	67,159,028	292,331,765



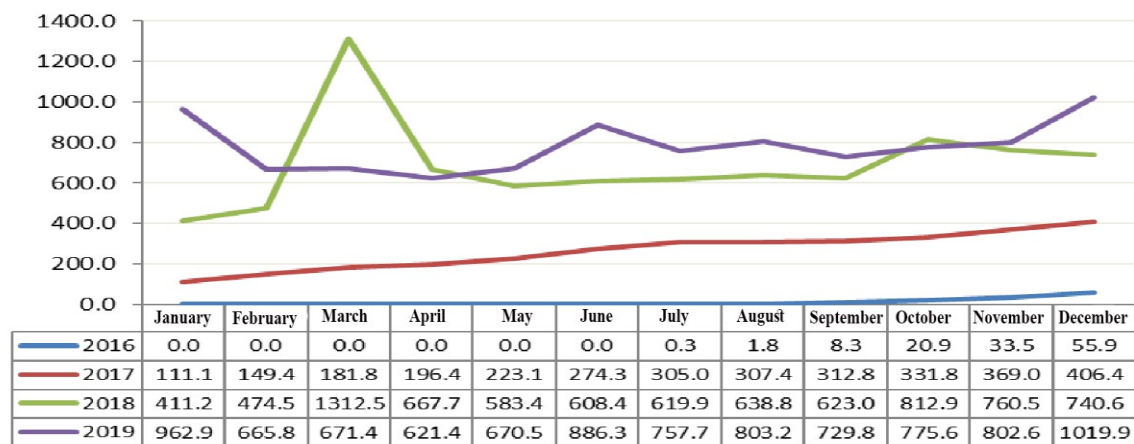
In all cases, the size of electronic money balances indicates that the electronic money activity is still limited.

### Development of E-wallet balances

By tracking the monthly wallet balances at the level of each bank, the following was observed:

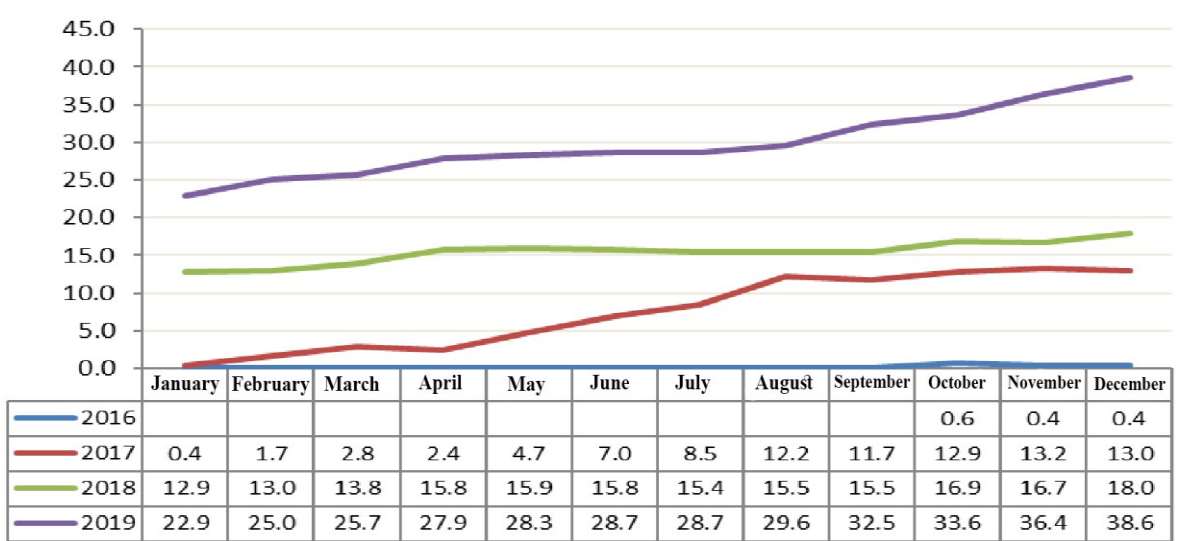
- There is an increasing growth in the balance of the electronic money wallet at Al-Kuraimi Bank during the four years. The growth rate during the years 2016-2019 was (627%, 82% and 38%) respectively, and the reason for that high growth rate in 2017 is that the activity was limited in 2016, this reflected on the growth rate in 2017 when the bank started working in the service and participated in distributing aid for organizations by using this service.
- The wallet balances at Tadhamon Bank are growing slowly, regularly and semi-stable, and there is no fluctuation over the three years, but the activity of the wallet is still very limited and represents only 2% of the volume of E-wallet balances.
- The percentage of Al-Amal Bank's wallet balance for microfinance out of the total balances in 2019 was 16%. There is a remarkable growth in the balances of Al-Amal Bank in the years 2018-2019 due to the participation of Al-Amal Bank during those years in distributing aid of organizations.
- The wallet balances at Yemen Kuwait Bank grow significantly gradually during the months of the year of 2019, but the end of the year witnessed a significant increase compared to the rest of the months due to the bank's participation in replacing the new money.
- The balance of the wallet in the Cooperative and Agricultural Credit Bank witnessed an irregular growth during the year of 2019, as there is a significant increase in some months compared to the rest of the months (May, August, October, November, December) due to the bank's participation in the distribution of salaries in the months of May and August and the bank participation in exchanging cash in the last three months of the year of 2019.

**Figure (18) Development of the electronic money wallet balances of Al-Kuraimi Bank in millions**

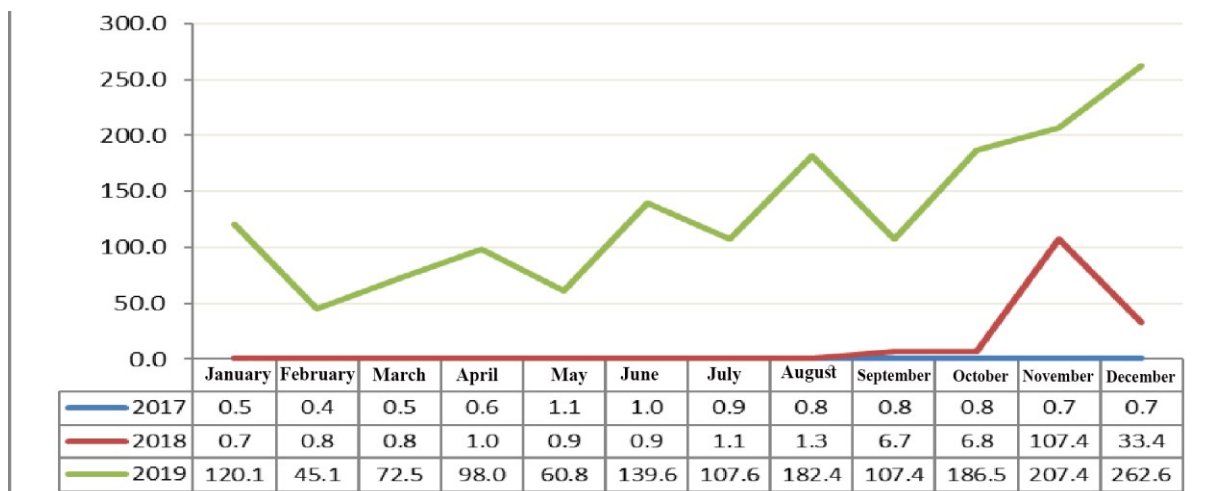




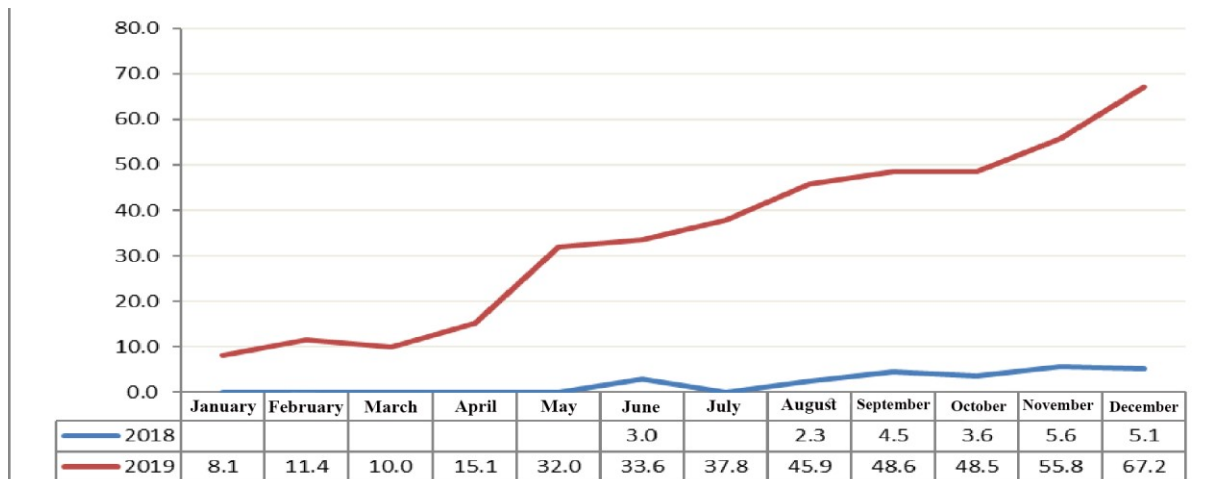
**Figure (19) Development of the electronic money wallet balances of Tadhamon Bank in millions**



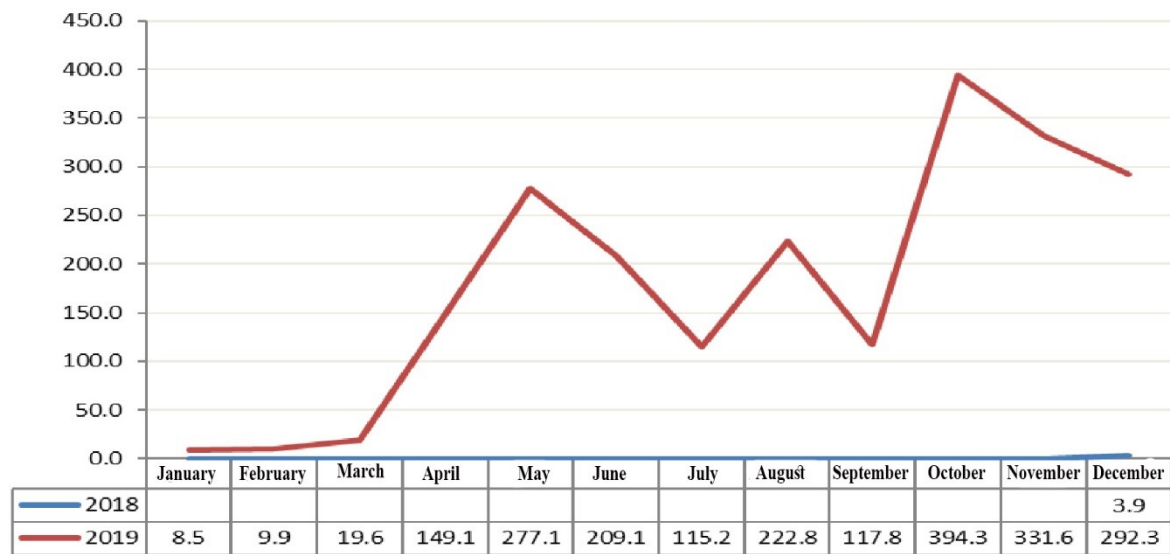
**Figure (20) Development of the electronic money wallet balances of Al-Amal Microfinance Bank in millions**



**Figure (21) Development of the electronic money wallet balances of Yemen Kuwait Bank in millions**



**Figure (22) Development of the electronic money wallet balances of The Cooperative and Agricultural Credit Bank in millions**



**Issuances of electronic money**

The issuance of electronic money must be in exchange for real cash and according to the controls specified for this process in the instructions of the Central Bank, which states (at all times, the value of the pool account must equal 100% of the value of the total obligations due for the issued electronic money).

The total amounts of electronic money issued during the years (2016-2019) amounted to 115 billion Rials, the total amounts of electronic money issued in 2019 only amounted to 75 billion, that is a large amount and is not comparable to what was issued during the previous years, due to the development of services and the encouragement of the official authorities in addition to the use of banks that provide electronic money service to replace the new currency, Al-Kuraimi Islamic Microfinance Bank tops the list.

The growth rate of the amounts issued during the year 2019 was about 157% more than in 2018, and the exported sums are largely concentrated in the Al-Kuraimi Islamic Microfinance Bank by 44% in 2019, followed by the Cooperative and Agricultural Credit Bank 33% although the Cooperative and Agricultural Credit Bank is still in its first year to provide the service, but it achieved the second place in terms of issuing electronic money and providing electronic money services, this is due to the bank’s policy of expanding the activity of electronic services in general and the presence of support from government agencies as a government bank that participates in the distribution of salaries. Al-Amal Microfinance Bank has a growth rate of 21%, and it occupies the third place, Yemen Kuwait Bank is in the fourth place with a rate of 9%, and Tadhamon Bank is in the last place with a very slight rate of 0.02%.

Figure (23) shows the total amounts issued from electronic money during the period 2016-2019

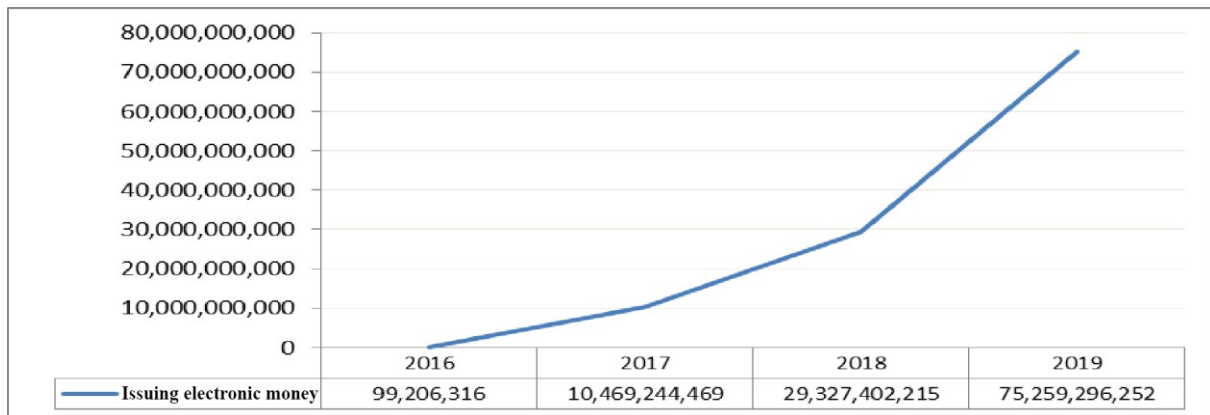
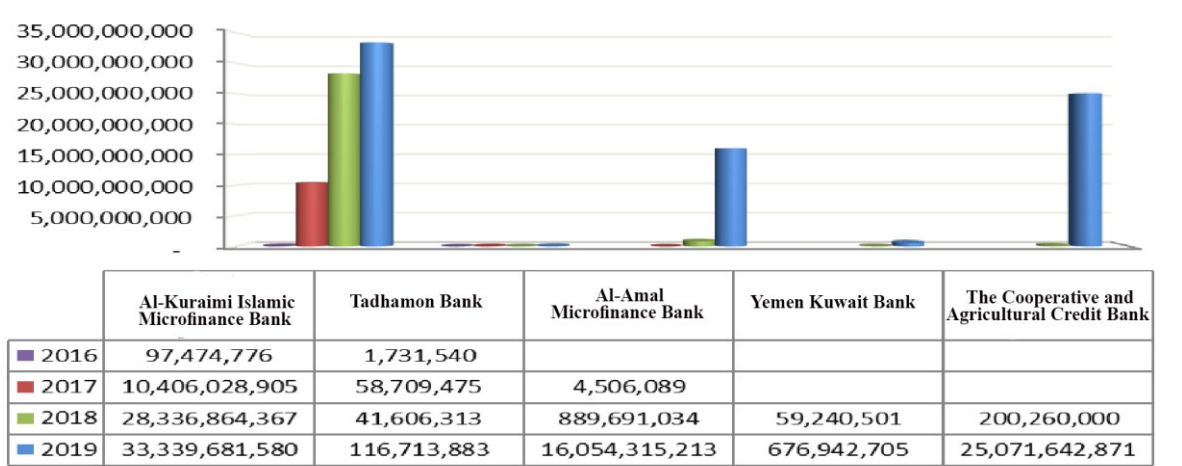
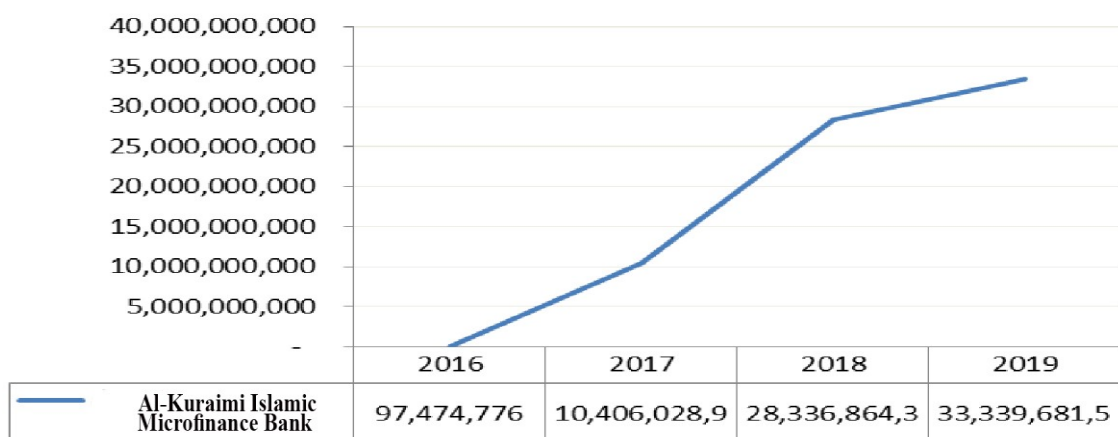


Figure (24) shows the total amounts issued from electronic money in banks during the period 2016-2019



Total amounts of electronic money issued at the level of each bank:

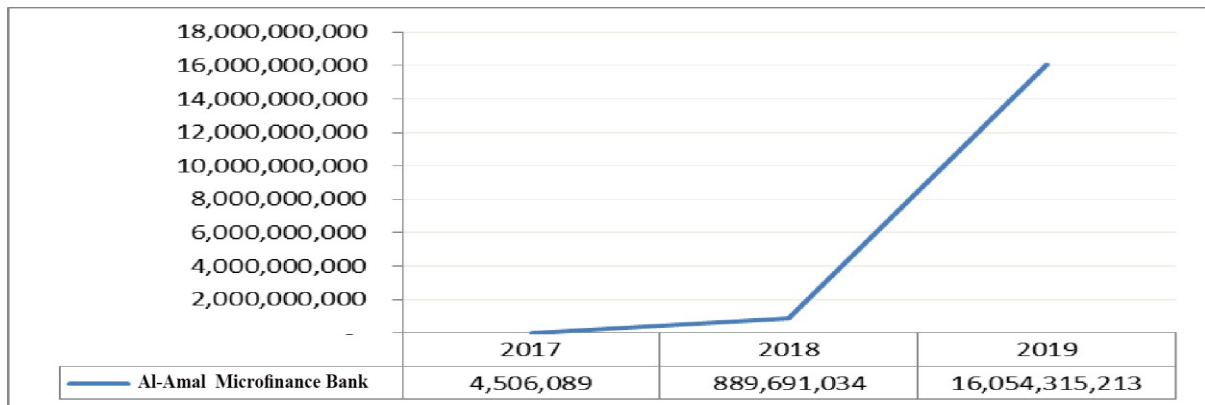
Figure (25) shows the total amounts issued from electronic money in Al-Kuraimi Islamic Microfinance Bank during the period 2016-2019



**Figure (26) shows the total amounts issued from electronic money in Tadhamon Bank during the period 2016-2019**



**Figure (27) shows the total amounts issued from electronic money in Al-Amal Microfinance Bank during the period 2017-2019**



**Figure (28) shows the total amounts issued from electronic money in Yemen Kuwait Bank during the period 2018-2019**

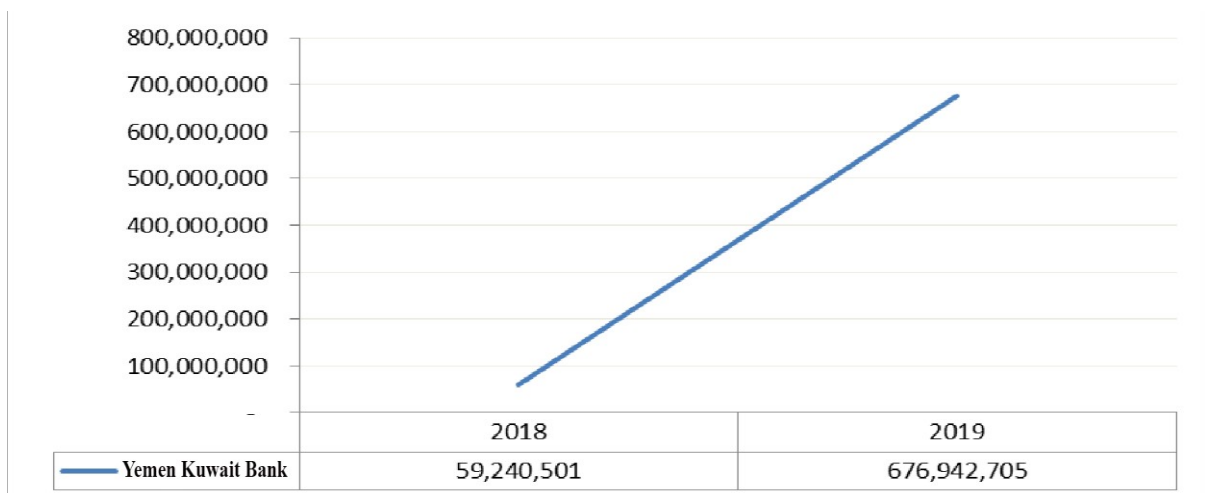
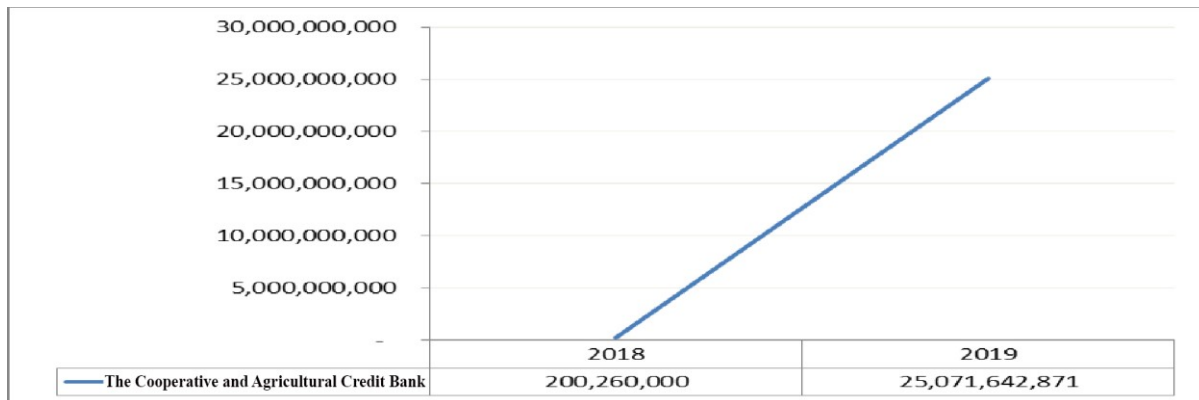


Figure (29) shows the total amounts issued from electronic money in The Cooperative and Agricultural Credit Bank during the period 2018-2019



By analyzing electronic money issuances during the four years and at the level of the banking sector, it is noticed that the issuance growth rates for all banks are increasing, except for Tadhamon Bank, which achieved negative growth in 2018. This may be due to political events that affected the bank’s management resolutions. However, competition and improved financial indicators at the level of the banking sector has pushed the bank to resume work in this field in general and at the level of analyzing the total indicators of electronic money services for Tadhamon Bank, which deemed very small compared to the competing banks in the field.

**Agents of electronic money service providers**

Banks' contracting policies with points of sale (retail stores and exchange) as agents of financial services have proven great success in improving the wheel of financial inclusion, as bank branches alone are not economically feasible to spread the service.

It is important to know that one of the most important factors assisting the success of electronic money services via mobile phone are the agents. Banking agents vary to include retail outlets, exchange houses and post offices that work on behalf of the bank or financial institution, and clients can deposit, withdraw, transfer money or pay bills through the agents. Among other services. Agents can process financial transactions through point of sale devices, mobile phones or barcode scanners, as is prevalent now in most countries of the world, including the Philippines, China, and some African countries. In some cases, agents can also open accounts, and this is what we hope to be followed by electronic money service providers in Yemen in the near future.

The circular specified the basic requirements for vacancy of an agent job, as a minimum, as follows:

- He must be Yemeni and hold an identity card in the case of a natural person and possess a commercial register in the case of a legal person.
- His criminal record must be clean.

- To have a good reputation.
- He must not have been blacklisted (the defaulting debtors notice list) during the previous three years.
- To be owner of a fixed location.
- To have an account in the licensed bank for which he acts as an agent.
- He must also have financial liquidity through which he can cover the withdrawal needs of the customers without any delay in order to preserve the reputation of the service and the reputation of the bank providing the service.

The structure of agents providing electronic money services has been distributed to a main agent and sub-agent in some banks such as the Cooperative and Agricultural Credit Bank and the Yemen Kuwait Bank, while some banks do not have this distribution and all agents are listed under the same classification and the same conditions such as Al-Kuraimi Bank, Tadamon Bank and Al-Amal Bank.

The number of bank agents that provide electronic money services via phone is about 3371 agents at the end of 2019, and these are direct communication channels with the clients in addition to banks branches, and it is a number that is still limited compared to the size of the demographic distribution of the population in Yemen.

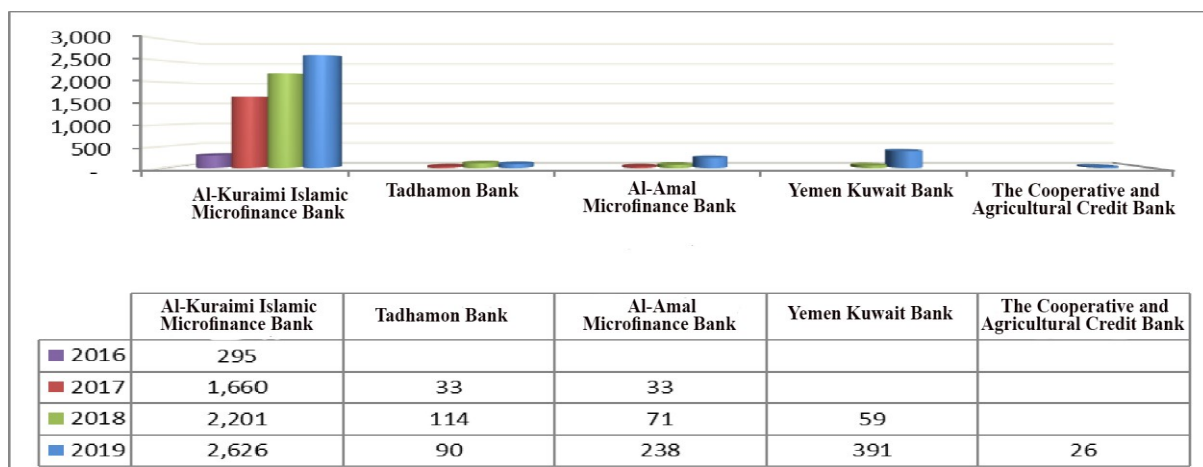
It is noticeable that there is a clear fluctuation in the growth rate of agents. The number of agents in 2017 reached 1726 agents, with a growth rate of 485% compared to what it was in 2016, due to the fact that 2016 is the year of establishment of the service and the service was provided through Al-Kuraimi Islamic Microfinance Bank the only bank that had 295 agents and was still at the beginning of the activity, while the number of agents in 2017 reached 1726 agents working for Al-Kuraimi Bank, Al-Amal Microfinance Bank and Tadamon Bank as shown in the table below, and the growth rate in the years 2018 and 2019 was 42%, 38% consecutively, and the number of agents in these two years reached (2445,3371), which means that the growth rate is simple and is not comparable to the growth rate in the year 2017, and the reason for this may be that the banks have accommodated this number of agents to provide electronic money services in the targeted areas, or it may be due to the policy of some banks providing electronic money services, which is a cautious expansionary policy during this period due to the difficulties faced by the banking sector.



**Table (5) shows the number of agents of electronic money service providers in banks during the period 2016-2019**

Statement	2016	2017	2018	2019
Al-Kuraimi Islamic Microfinance Bank	295	1,660	2,201	2,626
Tadhamon Bank	-	33	114	90
Al-Amal Microfinance Bank		33	71	238
Yemen Kuwait Bank			59	391
The Cooperative and Agricultural Credit Bank			-	26
<b>Total</b>	<b>295</b>	<b>1726</b>	<b>2445</b>	<b>3371</b>

**Figure (30) shows the number of agents during the period 2016-2019**



The number of electronic money services transactions provided to clients during the year 2019 reached (8,779,014), distributed between (5,202,517) credit process and the number of (3,576,497) debts.

**Table (6) shows the total number of debit and credit transactions to clients during the period 2016-2019**

Year	The total number of debit transactions to clients	The total number of credit transactions to clients
2016	18,434	7,097
2017	976,016	524,147
2018	2,748,631	3,229,667
2019	3,576,497	5,202,517
<b>Total</b>	<b>7,319,578</b>	<b>8,963,428</b>

**Number of points of sale (stores)**

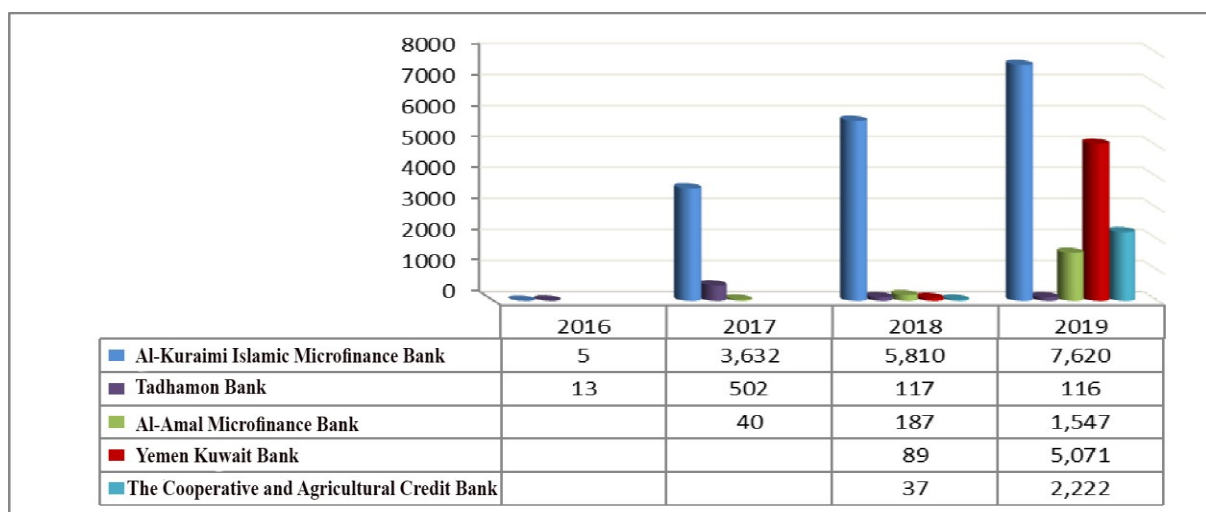
Points of Sale: are all the commercial activities that accept payment for goods and services provided to clients by means of electronic money service via mobile phone or points of sale (POS) and include shops, grocery stores, service offices and other commercial services. The number of points of sale that were used in providing electronic money services via mobile phone during the year of 2019 reached 16576 points are distributed throughout the Republic and are concentrated in cities.

It is noticeable that the points of sale that are dealt with in the provision of electronic money services are increasing from year to year at a significant growth rate, as the number of points of sale in the year 2019 reached 16576 points of sale, and at a growth rate of 166% compared to what was in 2018. Al-Kuraimi Bank has 7620 points of sale in 2019, which is 46% of the total points of sale for the banks that provide electronic money service, followed by Yemen Kuwait Bank with a 5071 points of sale, which is 31%, followed by the Cooperative and Agricultural Credit Bank with 2222 points of sale, which represents a percentage of 13% of the total points of sale, then Al-Amal Bank for Microfinance, with the number of 1547 points, and by 9%, while Tadhamon Bank comes in last place with a percentage of 1% of the total points of sale, and this confirms the limited activity of Tadhamon Bank in providing electronic money services through points of sale.

**Table (7) shows the points of sale at banks that provide electronic money services during the period 2016-2019**

Year	2016	2017	2018	2019
Al-Kuraimi Islamic Microfinance Bank	5	3,632	5,810	7,620
Tadhamon Bank	13	502	117	116
Al-Amal Microfinance Bank		40	187	1,547
Yemen Kuwait Bank			89	5,071
The Cooperative and Agricultural Credit Bank			37	2,222
<b>Total</b>	<b>18</b>	<b>4,174</b>	<b>6,240</b>	<b>16,576</b>

**Figure (31) shows the growth of points of sale during the period 2016-2019**



It is noticeable that the points of sale increased gradually during the comparison period, as it started with 4,174 points of sale in 2017 to reach 16,576 points of sale in 2019, with a growth rate of 49% and 166% during the years 2018 and 2019 respectively, and it is expected that the number of points of sale will increase during the coming years due to their importance in providing electronic money services. Knowing that the Al-Kuraimi Islamic Microfinance Bank acquired the highest number of points of sale during the four years.

### **Types of services provided**

Through a survey of the data provided by banks, it was noticed that the services listed in the circular are provided by all banks, which are as follows:

1. Cash Deposit
2. Cash Out
3. Pay bills (electricity - water - telephone)
4. Pay bills (mobile - net)
5. Purchases
6. Transfer transactions between electronic and bank money accounts.

**Table (8) shows the total amounts of transactions that took place through the electronic money service during the period 2016-2019**

Statement	2016	2017	2018	2019
Transactions transferred from a client subscribed to the service to an agent		2,000	5,150	49,517,750
Transactions transferred from an electronic account to a bank account	12,266,820	2,367,595,795	11,011,658,124	32,586,575,900
Transactions transferred from a bank account to an electronic account	8,983,526	830,535,058	2,955,985,483	3,051,863,030
Transactions transferred from a client subscribed to a client not subscribed		1,531,828	14,100,223	5,454,097,013
Transactions transferred from a client subscribed to the service to a client subscribed to the service	9,234	19,267,537	23,641,542	6,895,261,545
Transactions transferred from an agent to a client subscribed to the service		156,396	313,276	77,277,374
Transactions transferred from agent to agent				116,687,257
Cash Deposit	67,588,390	6,367,260,579	13,734,499,201	54,143,211,251
Cash Out	8,626,806	920,894,198	2,078,478,827	13,666,262,438
Pay bills (electricity - water - landline phone)	424,042	9,133,714	61,897,639	69,910,231
Pay bills (mobile - internet)	3,786,845	844,384,107	903,412,939	1,441,637,772
Purchases	-	32,362,054	459,787,543	1,352,719,606
<b>Total</b>	<b>101,685,663</b>	<b>11,393,123,266</b>	<b>31,243,779,947</b>	<b>118,905,021,167</b>

**Table (9) shows the total amounts of transactions that took place through the electronic money service at the level of each bank during the period 2016-2019**

Statement	2016	2017	2018	2019
Al-Kuraimi Islamic Microfinance Bank	101,685,663	11,262,793,680	29,680,044,506	35,052,746,422
Tadhamon Bank		121,736,890	162,769,178	361,597,091
Al-Amal Microfinance Bank		8,592,696	1,107,360,393	26,234,932,321
Yemen Kuwait Bank			77,736,749	2,769,978,150
The Cooperative and Agricultural Credit Bank			215,869,121	54,485,767,184
<b>Total</b>	<b>101,685,663</b>	<b>11,393,123,266</b>	<b>31,243,779,947</b>	<b>118,905,021,167</b>

### Requirements for combating money laundering and terrorism financing

The term "money laundering" refers to the ways in which illegally obtained funds are hidden and reprocessed in the formal financial system. The laundering process aims to make it difficult for authorities to track the movement and proceeds of illicit funds and tie them to the origin with criminal activity. Anti-money laundering regulations work to combat the transfer of illicit funds into legitimate funds by bringing them into the financial sector. There is a direct connection between anti-money laundering and combating the financing of terrorism (CFT), because laundered funds are often associated with terrorist organizations and activities.

The money laundering process is related to banking and transactions that take place through banks, and therefore the circular on the regulatory rules for providing electronic money service emphasized the necessity of applying the Anti-Money Laundering and Terrorism Financing Law No. (1) of 2010, as amended by Law No. (17) of 2013.

It emphasized the need to adhere to the following procedures to reduce money laundering operations through electronic money services:

- The licensed entity must comply with the Central Bank's instructions related to combating money laundering and terrorist financing and all relevant laws.
- Establishing procedures to combat money laundering and terrorist financing, and the system must be able to track suspected transactions.
- Exercising due professional care to limit the use of electronic money service via mobile phone for money laundering and terrorist financing purposes.
- Adherence to Know Your Client (KYC) instructions, taking into consideration Customer Due Diligence.

- Report any suspected case to the Financial Information Collection Unit according to the reporting guide issued by the Financial Information Collection Unit.

By analyzing the data of the banks under study, banks are obligated to apply money laundering and terrorism financing instructions according to the law and instructions, but there is no suspicious case reported to the Information Collection and Combating Money Laundering and Terrorism Financing Unit in the five wallets during the previous years.

### **Interoperability**

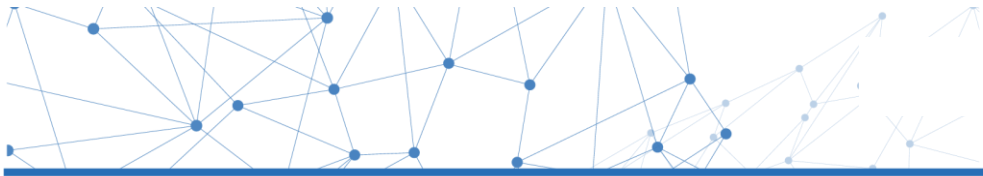
Interoperability is the possibility of physical interconnection between different communication networks so that it is allowed to provide electronic money services via mobile phone to two clients in two different banks, regardless of the operator of the mobile phone networks. The instructions stipulated that the systems should be interconnected with each other in the future. Currently, there is no Interoperability between companies that provide electronic money services, and it is planned that the interoperability process will take place between all companies during the coming period and under the supervision and control of the Central Bank.





## Chapter 5

# A Field Study on users of E-money Services in Yemen



## A Field Study on users of E-money Services in Yemen

A field and statistical study were conducted for users of E-money services in Yemen to understand the level of their interaction with E-money services and the degree of awareness towards the benefits of such services, as well as to measure the extent of satisfaction with such services and try to come up with an idea about what this service could reach in the future. Thus, it was necessary to conduct a survey on a random sample of E-money service users to obtain preliminary data that will be the basis for this pilot study and its results. All of these to come up with statistical indicators that serve researchers and those interested in E-money services, the Yemeni banking sector in general; to evaluate the quality of service, the banks' performance providing the service, and users of E-money services in particular.

### Data Collection Method

In collecting data, the study authors relied on selecting a random sample from the users of E-money services list of licensed banks; counting on filling in the questionnaire questions by phone to 176 individuals from the sample, and sending the same questionnaire to 435 individuals using social media. The data from the questionnaire was collected for 611 users. The number of male participants was 449, by 73.5%, and the number of female participants was 162, by 26.5%, for all types of electronic services provided in Yemen.

### Designing the questionnaire questions

The study authors intended to design and prepare the questionnaire in a proper way, in which E-money services are used, as they are in the early stages of dealing with them, to come up with indicators that reflect the current status of this service from the perspective of its users. Therefore, the questionnaire questions focused on answering four main themes:

1. The means of service access to customers and to what extent the ease of subscription procedures.
2. The users' understanding of E-money services, their ability to use it and the number of usage times of each service.
3. Knowing the problems facing service users and how they deal with them.
4. Measuring the reliability of the service for its users and their future directions for its use.

### Questionnaire data analysis

Due to the great diversity in the data and the reliance of the study authors on a random sample of the study population, the data were analyzed using the statistical inference program SPSS. In order to obtain a comprehensive view that reflects the general impression of users of E-money services, the questionnaire data were analyzed for all respondents in general.

#### **Means of access to E-money services and the ease of subscription procedures**

##### **1 .How did E-money service users register for the service?**

In this part, the questionnaire questions revolved around finding indicators that would contribute to answering questions related to the means by which the E-money service reached individuals and the extent of the ease of procedures required to subscribe to this service. Also, researchers counted the most important means of service to customers, which were represented in reaching the service either through friends, announcements of service providers, the workplace, the interest of individuals and their search for it, or another method of rare repetition as shown in the table below:

**Table No. (10) shows the frequency of means by which E-money service reached its users based on gender**

Gender	How did you register for the service?					Total
	Via friends	Company announcements	I like electronic service & I search for it.	From workplace	Others	
Male	141	100	58	125	25	449
Female	40	45	7	63	7	162
<b>Total</b>	<b>181</b>	<b>145</b>	<b>65</b>	<b>188</b>	<b>32</b>	<b>611</b>
<b>Overall Ratio</b>	<b>29.6</b>	<b>23.7</b>	<b>10.6</b>	<b>30.8</b>	<b>5.2</b>	<b>100%</b>

Out of the total sample size, the highest percentage was 30.8% for those who reported that they subscribed to this service through their employer, as it is likely that some agencies have contracted with service providers to pay the salaries of their employees through the E-money service or via a third party such as the Ministry of Finance in transferring the salaries

of some government bodies through this service<sup>8</sup>. With a percentage very close to the accessibility of the service through the employer, the method or reason for subscribing to this service comes through friends, as 29.6% of the sample stated that they registered for the service via a friend.

Moreover, 23.7% stated that the announcements of service providers are the reason for their subscribing, which shows the modest contribution of service providers' announcements to passing the service to individuals and expressing the absence of competition among service providers if we consider legal business entities to be the ones seeking to obtain the service and the initiatives absence of service providers. We also find that only 10.6% of the sample are looking for electronic services, and 5.2% have subscribed to these services in another way<sup>9</sup>.

## 2. How easy is it to register for the service?

In addition to knowing the method in which the electronic services reached their users, it was necessary to know how easy the procedures for subscribing to these services are, as they may be an obstacle for many, and therefore the respondents were asked about their evaluation of how easy it is to register in the services they use.

When asking service users about this, about 59% of them considered that the registration process was easy, while 34% considered it average, while about 7% considered the registration procedures difficult. The table below shows the evaluation of users of E-money services for the process of registering for the service.

**Table No. (11) shows the respondents' evaluation regarding the registration process in electronic services based on gender**

Gender	What is your evaluation of how easily registering for the service?			Total
	Easy	Average	Difficult	
Male	253	164	32	449
Female	111	41	10	162
<b>Total</b>	<b>364</b>	<b>205</b>	<b>42</b>	<b>611</b>
Overall Ratio	59.6	33.6	6.9	100 %

<sup>8</sup> A number of service subscribers reported that the reason for their participation in the service came through a third party, such as the cash aid provided by international organizations or paying the salaries of some public agencies, the salaries of their employees with this service.

<sup>9</sup> A number of respondents reported that they participated in electronic services while they were in exchange companies to send or receive money transfers or in a bank where they were informed of them, and some also reported that they participated in electronic services through social media or because of a family member such as a husband or children for the purpose of cash transfers from home and abroad.



Referring to the above table & taking into account that the registration for the service via workplace represents the highest percentage in the method of subscription in total and therefore it can have an impact on the evaluation of easy registration as registering via workplace is often done collectively and the employers provide most of the registration requirements and this makes the registration process easy. 61.7% of those who subscribed from a workplace considered the registration process easy and 31.9% considered it average and 6.3% considered it difficult. At the same time, considering that the registration for the service via a friend or advertisements or fans of electronic services or others requires the subscriber to provide all the subscription requirements himself/herself, the total number of those who registered in these methods reached 423, of whom about 59% considered the registration process easy while 34% considered it average, and 7% considered it difficult. The proximity of these percentages gives a logical indication about the suitability of the registration procedures, as they are easy or moderate from the point of view of 93% of the sample size.

By reviewing the registration procedures for the five governorates by the study team, we confirm that the registration procedures are often easy and their requirements are limited, but the problem may fall on the respondents to have the requirements of the national number card as it is a major requirement, as well as filling out a KYC form, as the contents of this form differ from one bank to another as it includes some details in some banks, while the form is limited to basic data in others.

### **The users' understanding of E-money services, their ability to use it, and the number of usage times of each service.**

The objective behind the process of collecting this data is to draw conclusions that may reflect the extent of users' knowledge of E-money services, and their ability and frequency of using it.

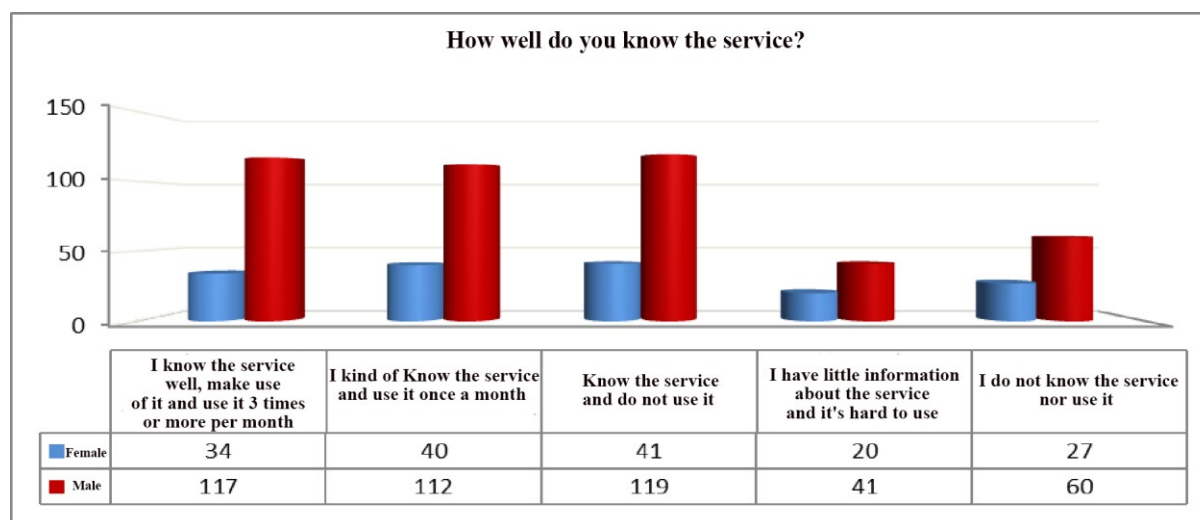
#### **1. How well do users of electronic services know it?**

Many people may wonder about the extent of users' knowledge of E-money services in Yemen and measure this knowledge with the users' eligibility in general regarding scientific, professional, or cultural terms in society & from the perspective of those who do not use this service in particular. Also, the term "user" of E-money services may lead to the belief that he/she is fully familiar with it. Therefore, in order to answer that, the respondents were asked about the extent of their knowledge of this service, their benefit from it, and the number of times it was used.

In order to measure the users' knowledge of E-money services, five different cases have been placed that acceptably express the classification that the user of the service falls under, as shown in the figure below.



**Figure No. (32) shows the frequency of answers about the extent of users' knowledge of electronic services based on gender**



The use of E-money at least three times per month means the user's classification is active and the level of active use decreases without that.

From the above figure, users of E-money services can be classified into two categories, where 24.7% of the sample size know the service well and benefit from it and use it more than three times a month, while 24.9% know the service somewhat and use it once a month, and this category represents approximately 50% of the sample. As for the second group, they are the least active or inactive; 26.2% said they know the service and do not use it<sup>10</sup>, 10% said that they have little information about the service and use it with difficulty, and 14% neither know nor use the service.<sup>11</sup>

## **2 .Types of E-money services provided and the number of uses for each service per month.**

As for the uses of E-money services, the most common or mainly available E-money services in Yemen and the average usage for each service were counted on a monthly basis. Where the available services are represented in the operations of deposit, cash withdrawal, transfer within the service itself or between the service and bank accounts or using it to receive

<sup>10</sup> - There are many reasons for some users of the service to stop using it despite their knowledge of it, either because of the interruption of financial resources or high financial costs in exchange for its use or for reasons related to the network, whether the telephone network or the Internet or transfer fees to use the service, as in the case of two services from the same provider or the absence of service agents or other reasons.

<sup>11</sup> - These users are the ones who do not have enough information about the service and how to use it, and they are registered in the service by chance or have subscribed to complete one financial transaction.

remittances, receive monthly dues, pay bills, or buy from stores. After conducting an exploratory test of the respondents' answers, the response options were limited to the type and number of times the service is used, in which the user may not use some of them or use them once or twice a month, or the usage may reach five or more times as shown in the table below.

**Table No. (12) shows the frequency of use of each service based on the type of service**

Service Type	Gender/ statement	No. of usage times			
		I don't use it	From 1 to 2 times	From 3 to 5 times	More than 6 times
Cash Deposit	Male	250	146	24	29
	Female	124	30	6	2
	Total	374	176	30	31
	<b>Usage ratio</b>	<b>61.2</b>	<b>28.8</b>	<b>4.9</b>	<b>5.1</b>
cash withdrawals	Male	214	171	32	32
	Female	97	50	12	3
	Total	311	221	44	35
	<b>Usage ratio</b>	<b>50.9</b>	<b>36.2</b>	<b>7.2</b>	<b>5.7</b>
Transfer to another account in the same service subscription	Male	275	108	45	21
	Female	137	16	4	5
	Total	412	124	49	26
	<b>Usage ratio</b>	<b>67.4</b>	<b>20.3</b>	<b>8</b>	<b>4.3</b>
Transfer from an electronic account to a bank and vice versa	Male	353	64	17	15
	Female	152	4	3	3
	Total	505	68	20	18
	<b>Usage ratio</b>	<b>82.7</b>	<b>11.1</b>	<b>3.3</b>	<b>2.9</b>
Bill payment	Male	247	97	37	68
	Female	124	21	7	10
	Total	371	118	44	78
	<b>Usage ratio</b>	<b>60.7</b>	<b>19.3</b>	<b>7.2</b>	<b>12.8</b>
Paycheck	Male	348	78	4	19
	Female	132	24	4	2
	Total	480	102	8	21
	<b>Usage ratio</b>	<b>78.6</b>	<b>16.7</b>	<b>1.3</b>	<b>3.4</b>
Receive remittances from a third party	Male	325	82	21	21
	Female	150	10	1	1
	Total	475	92	22	22
	<b>Usage ratio</b>	<b>77.7</b>	<b>15.1</b>	<b>3.6</b>	<b>3.6</b>
Shopping payment	Male	363	52	11	23
	Female	141	13	4	4
	Total	504	65	15	27
	<b>Usage ratio</b>	<b>82.5</b>	<b>10.6</b>	<b>2.5</b>	<b>4.4</b>

From the above table, we noticed that the most used service is the cash withdrawal service by over 49.1% of the total sample; the reason behind it is due to the preference of many to deal in cash, as in the case of cash remittances between individuals or agencies<sup>12</sup>, and the number of usage times that ranges from one to two times per month was the highest among all services about 36.2%. This may be due to the use of the service to withdraw the salary at the end of the month. As for the service most frequently used, ranging between three to five times, it was the transfer to another account in the same service subscription by over 8% of the sample size, while the highest percentage in terms of using the electronic service for more than 6 times per month was the bill payment by over 12.8% of the total sample size.

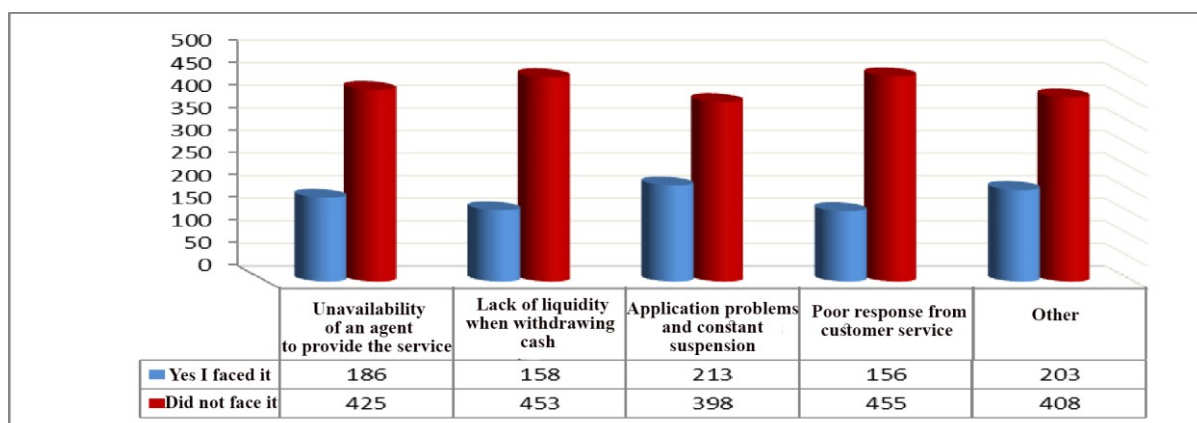
**Knowing the problems facing users of E-money services and how they deal with them**

In this theme, in order to know what are the problems that users of E-money services face as well as the mechanism of dealing with them, and to measure the extent of users’ evaluation of the cost of using them, three questions have been placed under each of them a number of answers that describe in an acceptable way the situation facing them.

**1 .The most common problems facing users of E-money services**

Considering the current environment for using E-money services in Yemen, we find that the main problems that may face service customers are the insufficient spread of the service in all regions or the inability of agents to provide liquidity; in addition to Yemen’s lack of communication networks that cover adequately the geographical outreach. Also, to address the issue or issues faced by service users, a number of the main common problems in using electronic services were presented, as shown in the figure below.

**Figure No. (33) illustrates the problems faced by users of E-money services**



<sup>12</sup> - Some users of the service stated that they prefer to deal financially when transferring money or withdrawing their money, which may be financial dues from the employer when needed, and this is what makes it also more frequent than other services, in addition to that some use this service when receiving financial support.

From the above figure, we notice that the higher percentage of the sample size around 34.9% faced problems regarding the application and continuous glitches when using electronic services, which negatively affects their use. At the same time<sup>13</sup>, the percentage of those who encountered other problems reached 33.2%. One of the main problems that the service users faced was the Internet problem and mobile network coverage<sup>14</sup>. Therefore, along with the problems of the application and constant glitches they fall under the technology problem. The unavailability of service agents scored the second place of the problem by over 30.4%, while the problem of lacks liquidity and poor customer service response scored the lowest rates between 25.9% and 25.5%, respectively.

## **2 The communication culture between users and providers of electronic services and the cost of the service**

A large part of the problems that service users may face is related to the service provider or their ability to solve them. Therefore, communication between the service user and the provider gives an indication of the service provider's concern to solve users' problems by receiving complaints and inquiries as feedback and at the same time indicating the level of culture of service users to communicate their problems or inquiries to the service provider. When asking the respondents about the service providers' response to their requests and inquiries, 26% of them said that their requests and inquiries are answered quickly, while 19% replied that they are answered but slowly, and 3.8% don't get answered. It is worth noting that 51.2% of the sample size stated that they had never attempted to request or inquire about anything from the service provider.

<sup>13</sup> Some users of the service reported that the application and the glitch problems cause great fear for them in case of happening any errors that may lead to the loss of their money, in addition to that this makes the service impractical for them.

<sup>14</sup> In addition to the problems of the Internet and the coverage of mobile networks in the first place, but there is a problem represented by the deterioration of trust between the service provider and the agent, as some agents claim that they are not related to the service provider and are not affiliated with the providers in fear of not being able to cover the amounts of operations in cash (liquidity crisis).

**Table No. (13) shows the frequency of service knowledge, its use, request, or inquiry from the service provider**

		Are your inquiries and requests answered quickly?				Total
		Yes, quickly	Yes, but slowly	No response	I haven't tried that	
How well do you know the service?	I know the service well, make use of it and use it 3 or more times per month	60	34	7	50	151
	I know the service somewhat and use it once a month	54	43	1	54	152
	I know the service but do not use it	24	28	6	102	160
	I have little knowledge about the service and find difficulty when using it	12	6	5	38	61
	Neither do I know the service nor do I use it	9	5	4	69	87
<b>Total</b>		<b>159</b>	<b>116</b>	<b>23</b>	<b>313</b>	<b>611</b>

From the above table, it becomes clear that there is a relationship between the extent of knowledge of the service and the request or inquiry from the service provider, as 54.6% of those who have not previously requested or inquired about something from the service provider are those who know the service and do not use it, as well as those who do not know the service and do not use it. Whereas those who have little information about the service and use it with difficulty formed 12%, and therefore those who use the service widely consider that the service provider's response to their requests or inquiries is quick.

In addition, 33.9% of respondents answered that the fees for obtaining the service were appropriate, while 22.6% considered them somewhat appropriate. As for those who considered the service fees high or did not know the amount of the fees, they were 10.3% and 33.2%, respectively.

**Table No. (14) shows the knowledge frequency of the service, its use, and whether the service fee is appropriate, average, or high**

		Is the service fee appropriate?				Total
		Yes, appropriate	Somehow appropriate	High	I don't know how much the fee is	
How well do you know the service ?	I know the service well, and I make use of it, and use it 3 or more times per month	82	28	22	19	151
	I know the service somewhat and use it once a month	56	49	16	31	152
	I know the service and do not use it	44	33	14	69	160
	I have little knowledge about the service and I find difficulty using it	15	17	5	24	61
	Neither do I know the service nor do I use it	10	11	6	60	87
<b>Total</b>		<b>207</b>	<b>138</b>	<b>63</b>	<b>203</b>	<b>611</b>

From the above table, it is clear that there is a relationship between the extent of service knowledge and its use and whether the service users consider the usage fees appropriate or not. Whereas, 54.3% of those who use the service three times or more consider that the fees for using the service are appropriate, and 18.5% of the same category considered that the fees for using the service are somewhat appropriate. At the same time, 14.5% of those who use the service three or more times a month considered the fees to be high, and those who didn't know the fees were about 12.5%.

Likewise, for those who use the service once a month, who considered that the service fee is appropriate around 36.8% and considered it somewhat appropriate, 32.2%, and those who didn't know the fees from the same category were about 20.3%.



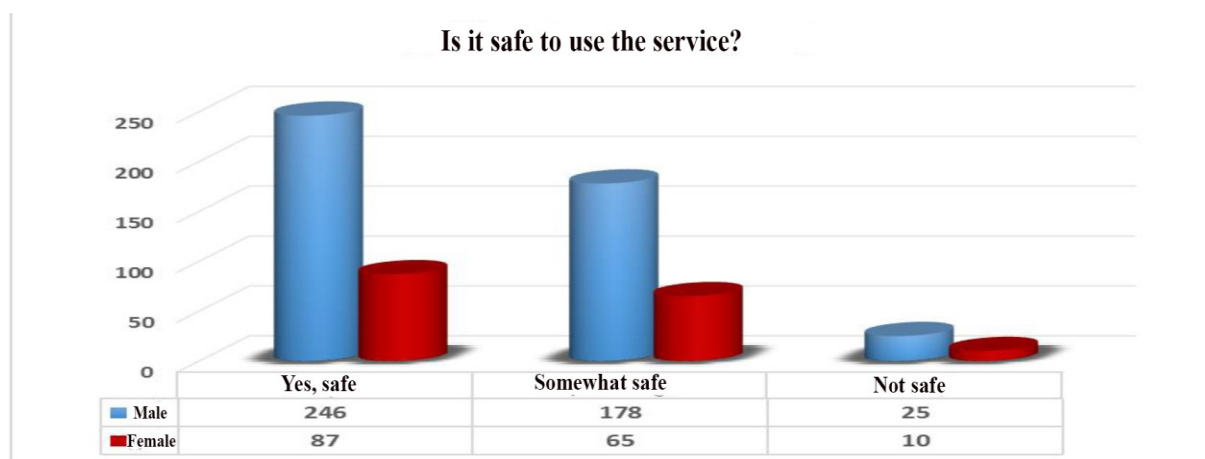
**Measuring the reliability of the service with its users and their future directions for its use**

In the final part of the E-money service evaluation from the users' point of view, the users' questionnaire sought to determine the overall impression of the service in terms of feeling safe in its use, reliability in the level of protection, and also the desire to continue using E-money services.

**1 .Is the E-money service safe from the users' point of view ?**

In order to reach this, respondents were asked about their feeling of safety in using the service, and 54.5% stated that using electronic services is considered safe, while 39.8% considered it somewhat safe, and 5.7% considered it unsafe as the figure below shows.

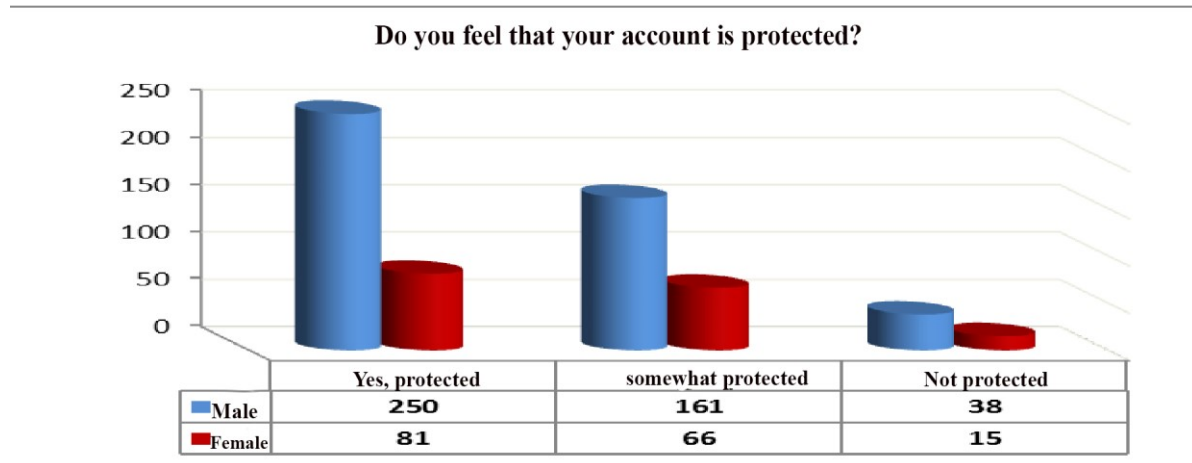
**Figure No. (34) shows the sense of safety in using E-money services**



**2 .Do users of E-money services feel that their accounts are protected?**

When asking an inquiry whether users of E-money services feel that their accounts are reasonably protected, 54.2% of the sample size considered it "yes" protected, while 37.2% considered it "somewhat protected" while the rest of the sample went to 8.7% indicate that it is "unprotected", as the figure below shows.

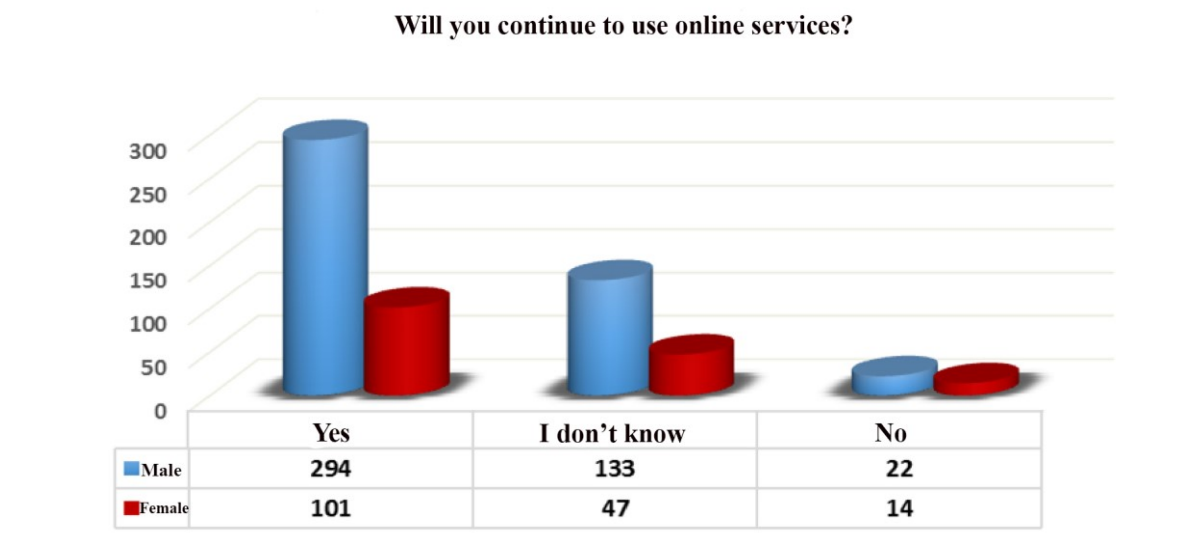
**Figure No. (35) shows the extent to which users of E-money services feel that their accounts are protected**



**3 .Do users of E-money services want to continue using it?**

In order to find out the desire of electronic service users to continue, 64.6% said that they wish to continue using the service, while 29.5% said they are neutral in the possibility of continuing, and 5.9% have expressed their unwillingness to continue using E-money services, as shown in the figure below.

**Figure No. (36) illustrates the desire of E-money service users to continue using it**





## **Chapter 6**

# **Experiences of some countries in providing electronic payment services**



## Experiences of some countries in providing electronic payment services

The accelerated technological development has helped to strengthen electronic payment systems and expand the range of digital financial services, especially those that rely on mobile phones in the so-called E-money services via mobile phone.

E-money services have achieved widely prevalent in many poor countries in Africa, Asia, and South America, especially Kenya, Bangladesh, Brazil, Jordan, Uganda, Tanzania, and Somalia. Mobile financial services have become an increasingly viable option for providing financial services to those who do not have bank accounts.

The following will show some experiences of a group of countries in providing E-money services:

### **Kenya**

In March 2007, Safaricom, the largest mobile operator in Kenya, launched the M-PESA platform for electronic financial transactions, which provides financial services to individuals via mobile phone, especially to disadvantaged rural areas, and has achieved great success as the M-PESA service is the engine for a rapid social and cultural transformation in Kenya. The access to service increased per capita consumption and lifted 194,000 - or 2% of Kenyan families out of extreme poverty, which strengthened confidence in service and combined ease and efficiency, which promoted the rapid growth of payment services in Kenya.

Money transfer via SMS is the first service provided by m-pesa, as users can send and withdraw money electronically through a network of agents.

The service has succeeded because it includes convenience stores, petrol stations, post offices, and even traditional bank branches. Service agents receive encouraging incentives as the main dealerships get 30% of the commissions paid by Safaricom and retail agents receive 70%.

Under the fee structure, no fees are charged for cash deposits, while a commission is charged when sending money electronically or when withdrawing in cash. The agents get commissions from the transaction value (both cash withdrawals and cash deposits).

The service has gradually evolved and new services are being added, as services have been added to purchase minutes for mobile phone calls, payments of public service bills, and school fees payments.



In 2013, Safaricom launched a payment program with M-PESA that allows merchants to open an account with a specific number that enables shoppers to participate in the service to pay for the services and goods purchased. Transferring the amount from users' accounts to merchant accounts.

At the end of 2012, Safaricom, in partnership with the African Commercial Bank, launched the M-Shwari service, a group of banking services that enabled users to open savings accounts with interest and to obtain short-term loans.

At the beginning of 2017, Safaricom launched a service that enabled smallholder farmers to use cell phones, and from 2018, it enabled them to communicate with some markets to sell their crops, and farmers are not charged fees for using the service.

**According to World Bank statistics, the service continued to grow as follows:**

In 2008, M-PESA had 1.2 million customers compared to 2006 (before the service was launched), it had fewer than three commercial banking branches for every 100,000 adults and only 19% of adults had formal bank accounts). And 10 years after its launch, in 2017, it now serves 30 million customers through 287,400 agents in 10 provinces. Today, 96% of families living outside Kenya's capital have at least one account, and in 2016, M-Shwari processed 6 billion transactions, more than 21 million depositors and borrowers, and loaned more than 30 billion Kenyan shillings. According to the African Commercial Bank, users have demonstrated a commitment to repay the loans. The average loan amount is 3,300 Kenyan shillings while total savings are 21.6 billion KES.

Technically, as a result of issuing regulations adopted by the Central Bank of Kenya, which decided not to oppose the entry of the telecommunications company into the financial sector, the central bank has actively participated in the development of M-PESA since 2004. The Central bank also worked with Safaricom to prepare a model that provides the bank with adequate precautionary measures by authorizing to deposit all client funds in a regulated financial institution and allowing the central bank to directly review the security features of the platform. In addition to the "try first, then organize" approach adopted by the Central Bank of Kenya, other factors that helped to succeed were the ease of setting up an account (which is free and only requires an official ID card), simplicity of use, affordability, and the high prevalence of mobile phones in 2017 went up to 55% of the population.

Indicators show an increase in the owners of personal IDs in Kenya to 91% of whom 88% use their mobile phones to access their bank accounts. The index of individuals owning bank accounts in formal financial institutions in Kenya increased from 42.3% in 2011 to 55.7% in 2017; the index of access to accounts increased in Official financial institutions from 30% in 2011 to 37.6% in 2017; the index of using bank accounts increased from 23% in 2011 to 57% in 2017; the savings index in the formal financial



institutions increased from 1.1 in 2011 to 6.2% in 2014, and the borrowing index in financial institutions increased From 9.7% in 2011 to 16.8% in 2017.

### **Bangladesh**

In April 2007, the public and private telecommunications companies established their networks all over Bangladesh, and accordingly, in Bangladesh, an E-money service began in partnership with Dhaka Bank Limited and Western Union for remittances targeting 7 million expatriates in order to facilitate and accelerate remittances from more than 200 countries to Bangladesh and vice versa.

Bangladesh has grown to become the seventh-largest country of remittances received in the region, with remittances reaching 9.6% of GDP, and in the recent period, financial services companies and mobile phone networks launched a new platform to manage their bank accounts with their mobile phones and conduct remittances and payments transactions at low costs. It launched the bKash platform by linking BRAC Bank Ltd with the American Money in Motion LLC to ensure the expansion of financial services to Bangladesh, the service targeted people with limited income and access to sustainable partial savings, thus achieving financial inclusion, which resulted in 83% of the population living on \$ 2 a day owning personal IDs, of whom 15 % linked their accounts to the official financial system and 44% used their mobile phones. To facilitate and speed up remittance service, the post office in Bangladesh expanded the mobile remittance service through 606 post offices in the various provinces. Therefore, Bangladesh took advantage of the information and communication technology features and provided opportunities for a massive expansion of mobile banking services.

### **According to World Bank statistics, payment services have continued to grow as follows:**

In 2017, the percentage of Bangladeshis' ownership of bank accounts became 50% compared to 31.7% in 2011; the percentage of their ownership of a mobile phone account increased in 2017 to 21% compared to 3% in 2011; the index of accessing their bank accounts via mobile phone has reached 22.4% In 2017; 18.6% of Bangladeshis in 2017 send and receive remittances via mobile phone, compared to 4.7% in 2011. The savings index in the formal financial institutions decreased from 16.6% in 2011 to 9.9% in 2017.

### **Brazil**

Mobile banking applications in Brazil are among the best applications in the world in this field, as this type of banking includes nearly a third<sup>15</sup> of banking transactions.

<sup>15</sup> According to a survey conducted by FEBRABAN in 2017

Mobile banking transactions form 21% of the 51 billion banking transactions carried out by the 17 largest banking institutions in Brazil, while it formed 1% of those transactions in 2012. Itaú Bank which is considered the largest bank in Brazil and Latin America has implemented one of the most innovative operating models in the field of digital services, which led to it being ranked first in the world. Brazil has focused on investing in information technology development in the banking sector, as it ranks seventh in the world in comparison to the percentage these investments represent in the country's GDP. The bank has contracted with the American company Kony Solutions, leading in the field of mobile applications to be responsible for mobile applications used to provide bank services via mobile phone.

**According to the statistics of the World Bank, payment services have developed in Brazil as follows:**

Indicators show an increase in personal ID holders in Brazil to 98%, of whom 18% use their mobile phones to access their bank accounts; the index of individuals owning bank accounts in formal financial institutions increased from 55.9% in 2011 to 70% in 2017; the index of access to accounts increased in 2017. The index of access to accounts in formal financial institutions increased from 41.2% in 2011 to 59.3% in 2017; the savings index in the formal financial institutions increased from 6.9% in 2011 to 13.1% in 2017, and the index of borrowing from financial institutions increased from 6.3% in 2011 to 8.6% in 2017.

**Jordan**

The Central Bank of Jordan has operated the national exchange system for mobile payments (JoMoPay) in 2017, whereby the number of users in the system became five banks (Bank of Jordan, Jordan Commercial Bank, Housing Bank for Trade and Finance, Arab Bank, and Cairo Amman bank) and five financial companies ( Zain Cash, Al-Hulool for Mobile Payments, AYA-JO, Dinarak, and Middle East Payments Services MEPS), and the number of payment transactions through the system for the year 2017 was (157,529) transaction with a total value of (6.4) million dinars compared to (8,898) transaction with a total value of (198.9) thousand Jordanian dinars in the year 2016. The Central Bank continued during the year 2017 to provide a service for viewing and collecting bills electronically through the eFAWATEERcom system Which is operated by Madfootcom for electronic payment, which is linked to all banks operating in Jordan kingdom with the exception of two banks to provide the service through various banking channels. Military Credit Fund, Cities and Villages Development Bank, Standard Chartered Corporate Channel, Arab Jordan Investment Bank, Jordan Post Company, EMP Company, Trust for Electronic Services, Al-Rajhi Bank, Middle East Payment Services - MEPS, and the mobile payment system as

providers for payment services to target citizens who do not have bank accounts and enable them to inquire and pay bills and thus enhance financial inclusion in the Kingdom of Jordan.

On the other hand, the number of billers subscribing in the system reached (111) billed during 2017, compared to 75 billers in 2016; the number of payment transactions on the system reached 4.67 million transactions with a value of 3.3 billion Jordanian dinars during 2017 compared to 1.837 million transactions with a total value of 560.8 One thousand dinars for the year 2016. The Central Bank continued in 2017 to provide the service of viewing and collecting bills electronically (eFAWATEERcom) through the electronic payment gateway (Portal) aiming at enabling all Jordanian citizens who reside in the Kingdom or anywhere in the world to inquire and pay their bills and other payments using payment cards Credit issued by various banks around the world easily and securely. The operator and administrator of the system (Madofatcom for electronic payment) operate the electronic payment gateway on behalf of the Central Bank of Jordan through one of the payment service providers linked to the eFAWATEERcom system.

The Central Bank of Jordan initiated the process of developing and restructuring payment and settlement systems in the Kingdom in partnership with banks operating in Jordan and relevant partners, aiming to maintain the integrity and efficiency of the national payments system via the interoperation payment system. Also, developing legal and comprehensive frameworks to enhance financial inclusion and encourage increased acceptance for modern payment tools, reducing systemic risks and credit risks, and facilitating the money cycle in the economy, in a way that enhances economic efficiency. The Central Bank has taken the lead role for this process, supported by commercial banks.

**According to the statistics of the World Bank, payment services have developed as follows:**

Indicators show an increase in personal ID holders in Jordan to 88%, of whom 10.2% use their mobile phones to access their bank accounts; the index of individuals owning bank accounts in formal financial institutions increased from 25.4% in 2011 to 42.4% in 2017; the index of access to accounts in formal financial institutions increased from 14.7% in 2011 to 30.8% in 2017; the savings index in the formal financial institutions increased from 8.3% in 2011 to 10.1% in 2017, and the borrowing index from financial institutions decreased from 4.5% in 2011 to 16.6% in 2017.

## Findings and recommendations

### First: Findings

- All performance indicators for the banking sector have decreased since 2015 as a result of aggression, blockade, and war, and have declined to the lowest level in 2017, but they have gradually recovered since 2018, and improvement is expected to continue.
- The indicators of payment systems in Yemen are the lowest in the Arab world, as only 10% of Yemenis have bank accounts, including E-money accounts. This is due to the high rate of illiteracy, low-income, as well as political instability status.
- Lack of financial awareness among Yemenis due to the absence of adoption of financial and banking awareness and education programs, either through programs dedicated to financial education or within the educational system.
- Limited banking branches and providing financial service points to the public, and focusing only on the capitals of the main governorates, and not covering their services to remote population centers.
- The Act of Payment Systems & Financial Electronic Banking Operations No. 40 of 2006 did not address many important issues related to organizing payment systems and tools, finalizing settlements, and absorbing advancements and modern technology as well as banking developments. Although it dealt with many issues such as recognizing electronic operations and their Proof of Authority, the Central Bank gave regulatory and supervisory powers over payment systems.
- Poor infrastructure for communications, internet and electricity sector, as Internet services are only available at limited speeds, which are the lowest in the region, and there are still many areas in the countryside that have not received communications and internet coverage. Internet and communications services have worsened due to the war and the blockade, which limited the ability of Communications companies updating and expanding their systems or replacing the damaged ones, and this limits the possibility of publishing electronic payment services.
- The high prices of communications services and the additional fees imposed by the Ministry of Communications for services that are used to deliver E-money services to customers, especially text messages, in addition to the fact that communications companies refuse to provide USSD and IVR services to E-money service providers, which creates a major obstacle in delivering electronic payment services to groups of society with limited incomes in rural areas who still use non-smart traditional phones and where the Internet is not available.
- The failure of the banking model adopted by the Central Bank for a period of five years, as banks have proven their inability to succeed in E-money service despite the elapse of that period of practicing E-money services.
- The year 2019 achieved an increased growth in the value of operations and the number of E-money accounts compared to previous years; this is due to the efforts to encourage electronic payment services from official agencies, especially when using E-money to

disburse the salaries of some entities, as well as the process of exchanging new money for old ones.

- Service delivery points are concentrated in the main cities; scarce in secondary cities; absent in the countryside, due to the high costs of providing the service in the countryside, the lack of agents, the reliance of banks on their branches, exchange companies to act as agents to provide the service, and these are usually concentrated in cities.
- E-money services were concentrated for men in a very large percentage compared to women, due to the conservative nature of Yemeni society, weak awareness and financial education, and the emphasis on consumer protection and data privacy.
- Despite the increase in the number of E-wallet agents in recent years, one-third of the clients in the study sample complained about either the absence of agents or the lack of agents providing the necessary liquidity to implement E-money operations and it is considered one of the main problems that impede the spread of E-money services.
- There are no official instructions and requirements for combating money laundering and terrorist financing for the E-money service that takes into account the privacy of the service.
- The findings of the public opinion poll (the sample) and the evaluation of the degree of satisfaction with the service showed:
  1. The registration procedures for the service are often easy and their requirements are acceptable.
  2. The use of the service is still limited, as only a quarter of the sample uses it more than three times a month.
  3. Cash withdrawal is the most used process among the services provided, as nearly half of the sample has carried out at least one operation per month, which confirms that the public still prefers to use cash, and most of those who have made cash withdraw are employees whose salaries have been added through E-money.
  4. Technical issues are still one of the main problems facing customers, as two-thirds of the sample answered that they faced problems using the application and other problems related to the interruption or unavailability of the Internet.
  5. More than half of the sample consider the service safe and about 6% consider the service unsafe, and the rest of the percentage is neutral.
  6. About 64% of the sample would like to continue using the service in the future.



## Second: Recommendations

### Short term:

- Coordinate the efforts of the competent authorities to support payment activities, which include the Central Bank, banks, exchange companies, financial service companies, and the Ministry of Communications and Finance by establishing a national committee for payments headed by the Central Bank in order to facilitate coordination among the competent authorities to develop and encourage electronic payment services.
- The Central Bank shall enhance the financial culture to deliver banking services to the largest group of people, in coordination with the Ministry of Information and Culture, Ministry of Education, Ministry of Higher Education, and Yemen Banks Association to adopt an education and awareness program on electronic payment services and to conduct seminars and awareness programs on television and through social media.
- Reduce the value of messages and cancel the additional fees for the short code and other fees that may raise the costs of electronic payment services. As well as requiring communications companies to provide added services, such as USSD & IVR to companies providing payment services at nominal prices, preventing monopoly, and coordinating among the competent authorities to provide safe services at fair prices to providers and users of electronic money services.
- Encourage electronic payment systems by accepting E-money in collecting government revenues and paying salaries and other dues and assistance through E-money services.
- Encourage research and marketing studies in the field of electronic payment services, develop banking services, and seek to find various new mechanisms and means to use and provide electronic banking services to customers.
- Train Personnel on modern technologies for electronic payments and encourage innovation.
- Strengthen and support the role of payment systems management and confirm the monitoring and oversight role of the Central Bank.
- The main priority for payment service providers should be raising the level of customer satisfaction, not just focusing on profits, with addressing the problems facing customers and finding solutions to them in order to encourage the use of the service, such as achieving a wider spread of service provider agents, as well as finding solutions to the problems of service use applications.
- Establish incentives that would push merchants and businessmen to rely on the electronic payment method instead of cash payment.
- Work to encourage interconnection among all communication companies, financial services and banks that provide electronic payment services.



- Enhance consumer protection for electronic payment services and adopt instructions that enhance consumers' protection of services and preserving their rights and obligating electronic service providers to provide customers with transparent and clear data about service fees, which would enable users to conduct cost comparison for the various available e-money services and thus raise the level of competition among services providers.

### **Long-term:**

- Seek economic recovery, reconstruction, and improve the level of economic performance.
- Prepare a national financial inclusion strategy that the government shall officially adopt and have clear goals to raise the number of dealers with the financial and banking sector to 30% within two years according to a clear and timed plan.
- Add financial education programs within the educational curricula in cooperation with the government and private agencies such as the Ministry of Education, the Ministry of Higher Education, the Ministry of Technical Education, the Ministry of Information, and the Ministry of Culture, according to a national program.
- Adopt a law that organizes the provision of financial and banking services through agents by making use of the experiences of successful countries in this field and encourage small traders and train them on how to provide financial services to clients.
- Encourage the use of P.O.S, NFC & QR technologies, and set standard specifications to be approved by the Central Bank for this purpose, and allow companies that provide payment services to provide them according to terms and requirements that are reduced and less than the licensing requirements for E-money service providers, and the Egyptian experience can be used as an example.
- Support the payment systems management and provide them with qualified technical staff and develop them and train their staff in order to be the strong supporter of the Central Bank in organizing and supervising the payment systems in the Republic of Yemen.
- Develop the legal structure by updating the law and prepare an executive regulation.
- Issue instructions to regulate the provision of electronic services to payment system operating groups and payment service providers, and take advantage of technological developments in information systems and adopt modern technologies in providing electronic payment services.
- Develop the communications and internet infrastructure, as well as electricity, especially establishing a modern network for broadband internet services covering all Yemeni regions, as well as establishing an infrastructure that supports digital money transfers.
- Encourage banks and companies to invest in providing electronic payment services, enhance competition, and build confidence in modern technologies for payment systems and tools.

- Adopt and establish a payments system and a national payment infrastructure in the central bank by installing the RTGS system and retail systems such as C-ACH, Central billing, National Switch for E-money service providers, the rest of retail payments, the interconnection of all payment service providers, billers, and government service and revenue institutions according to a national strategy for payments to be implemented over a period of 3 to 6 years.
- Establish a National Council for Payments to coordinate the efforts of the relevant authorities to develop payment systems, headed by the Central Bank, and it includes the Ministry of Finance, Communications, Industry and Commerce, Yemen Banks Association, Chamber of Commerce, and other institutions interested in developing payment systems and defining its functions similar to the countries that preceded us in this field, such as Jordan.
- Deliver the national number services to all Yemenis and provide a bridge with the National ID number for financial institutions and electronic payment service providers to create an electronic identity system that will facilitate the registration of customers remotely by verifying the customer's identity by fingerprint.
- Establish a national network and a central credit information system that enables entities to ensure the reliability of customers and their credit history.

#### Future Study Prospects:

The electronic payment system topic is a broad one and has different dimensions. The study recommends researchers and those interested in research in the areas of tax challenges, electronic accounting, electronic contracts, and legal challenges that govern and regulate dealing with electronic payment systems.

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