Journal of Information Systems Engineering and Management
2025, 10(33s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

The Effect of Digitization on Financial Inclusion and Expanding the Scope of Monetary Credit in the Iraqi Banking Sector

Muhammad Hussein Uabis[1], Dr. Mohammed Madlool Al-Sultan[2]
[1] 1University of Babylon, College of Management and Economics. bus662.muhammad.hussein@student.uobabylon.edu.iq
2University of Babylon, College of Management and Economics. bus.mohammed.madlool@uobabylon.edu.iq

ARTICLE INFO

Received: 30 Dec 2024
Revised: 12 Feb 2025
Accepted: 26 Feb 2025

ABSTRACT

Digitization was normally a result of the tremendous technological developments taking place globally in recent years, causing a shift in various fields, including the economic sector, which was heavily affected by this transformation. It has resultantly changed the operational mechanisms from traditional methods to digital approaches across multiple domains. However, this study objectively aims at exploring the theoretical relationship among digitization, financial inclusion indicators, and the expansion of monetary credit, with a focus on the development of credit cards in the Iraqi banking sector. Nonetheless, it meticulously investigates how technological innovations can effectively contribute to significantly broadening the scope of financial services and achieving financial inclusion for a larger segment of the Iraqi population. The study also analyzes key technological developments that have affected banking operations within the Iraqi banking sector, assessing their spread in various regions, including remote areas previously excluded from banking services, where individuals no longer need to travel to distant bank branches. This shift undoubtedly contributes to improving financial inclusion for those who previously struggled to access financial services. Finally, the research concludes that digitization has a noticeable impact on the expansion of banking services and the increase in credit provision.

Keywords: digitization, credit, inclusion, financial, banking, payment.

INTRODUCTION

Digitization and financial inclusion are definitely interrelated concepts. Digitization is undoubtedly one of the main factors that effectively help achieve financial inclusion and substantially contribute to increasing the volume of cash credit by enabling access to services in remote areas without the need for physical presence. This enables access to banking and financial services for people and businesses in the remotest and underserved regions. The achievement of this may happen with the help of modern technologies like smartphones, the internet, and several banking applications. It will also allow for financial inclusion, which is targeted to serve all segmentation of society including the underprivileged lower classes. It includes access to a bank account, loans, insurance, investments, electronic payments, and savings. It helps to better economic stabilisation and sustainable development. Restructuring banking infrastructure and related services within a modern framework is also a critical aspect linked with digitization. This makes financial inclusion one of the most important metrics as to how accessible and effective the use of basic financial services can be for people and folks.

With the wide development of technology in the world, digital transformations have entered the banking sector in Iraq, where electronic banks appeared, and electronic payment companies expanded, the mobile Banking began to grow, and many banking devices such as ATM and cash deposit machines were used. All these developments undoubtedly aim to achieve broader financial inclusion and elevate the quality of financial services provided to customers, thereby contributing to strengthening financial stability and supporting economic growth in Iraq.

CHAPTER ONE: THE CONCEPTUAL FRAMEWORK OF DIGITIZATION

First: The Concept of Digitization: Digitization refers to the adoption of digital technology to transform services or businesses by replacing non-digital or manual processes with digital ones, or by replacing outdated digital technology with the latest innovations. Digital solutions, in addition to improving efficiency through automation, can

Journal of Information Systems Engineering and Management
2025, 10(33s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/
Research Article

also enable new forms of innovation and creativity, rather than merely enhancing and supporting traditional methods. (Al-Mutairi, 2022)

In the banking context, digitization refers to how technology is used within banks. It helps improve financial performance and the quality of services offered to customers. It involves employing technology in all departments of a bank to enhance and simplify the services provided to citizens, usually through digital means that save both time and effort. (Al-Danun, 2022)

Digitization can also be defined as: "a process of fundamental changes within a company's value creation chain or its internal structure, which is either caused by or a prerequisite for the use of technology." (Zidan, 2023)

Second: The Importance of Digitization: The importance of digitization in banks is reflected through the following aspects: (Allaam, 2022)

1. Providing banking services more easily and quickly without the need for long waiting periods.
2. Contributing to the connection of government and private sectors through collaboration and coordination via the internet.
3. The necessity for banks to keep up with modern times by turning to technology in order to apply digitization in delivering their banking services and to achieve customer satisfaction.
4. Overcoming societal pressure on institutions, organizations, and companies to improve their services and offer technological programs online.
5. Enabling banks to compete effectively by modernizing, maintaining their competitive edge, and creating value.

Third: Indicators of Digitization

1. The number of mobile phone subscribers.
2. The number of internet subscribers.
3. The number of telecommunications and information technology companies established. (Zidan, 2023)

As for the most notable indicators of the role of the telecommunications and IT sector in development, they include:

1. Areas of mobile phone use by households.
2. Areas of internet use via mobile phones.

CHAPTER TWO: FINANCIAL INCLUSION AND ITS INDICATORS

First: Introduction and Definition of Financial Inclusion:

There is a distinction between the concept of financial inclusion and the concept of access to financial services. Financial inclusion refers to the number of individuals and businesses that *use* financial services, while lack of usage does not necessarily mean lack of access. Some individuals may be capable of accessing financial services at prices suitable to them but may choose not to use certain financial services. On the other hand, many people may not access these services due to their unavailability, high cost, regulatory obstacles, or cultural reasons. In this case, the absence of financial inclusion may result from low demand for financial services or barriers preventing individuals and companies from accessing them. (Al-Amry, 2018)

Financial inclusion is offering all the financial services that are available and usable by all individuals in society through official channels. They comprise accounts and savings alongside payment and transfer facilities, insurance coverage, financing, and credit facilities. They aim to discourage individuals from using informal and unregulated institutions, which are more expensive and lack government regulation, so that individuals become susceptible to having their financial needs exploited. (Arab Monetary Fund, 2015)

Second: Objectives of Financial Inclusion (Al-Sabouni, 2015)

1. Expanding access to financial services: Financial inclusion aims to enhance opportunities for individuals and businesses to access a wide range of financial services including savings, payments, money transfers, credit, insurance, and wages.
2. Reaching the low-income groups: An inclusive financial system focuses on the poor and low-income groups to facilitate them to improve their living standards and exit poverty.

3. Fostering a non-cash economy: Transitioning to a non-cash from a cash economy helps to achieve various purposes in the interests of individuals, governments, as well as commercial and financial sectors, helping towards economic progress and financial soundness.

4. Strengthening economic and financial policies: Inclusion of finances makes economic, financial, and monetary policies more effective, especially in developing and emerging countries.

5. Reducing tax evasion: A non-cash economy helps to reduce tax evasion and provides a secure environment for savings.

6. Enhancing the regulation of financial transactions: Financial inclusion makes banking and financial transactions more secure and simpler to monitor and regulate.

7. Expanding payment and collection outlets: Financial inclusion offers multiple, safe, and efficient outlets for payments and collections, and financial services become more accessible in rural and remote locations.

8. Enabling formal and informal financial services: Financial inclusion involves both formal financial services regulated under the financial and banking sector and informal financial services, including a wide range of activities.

Third: Financial Inclusion Challenges: As previously indicated, financial inclusion is primarily concerned with poor and low-income earners who cannot obtain financial, banking, and credit facilities. Such unavailability may be caused by excessive fees, geographical unavailability, insufficiency in relevant identification documents, or existing legal policies within a nation. Risks and implications of the absence of financial inclusion vary with the type and magnitude of financial and banking facilities available. These challenges can be summarized as follows: (Abu-Dhiah, 2016)

1. Low financial and banking awareness among individuals.
2. Difficulty in obtaining credit from informal sources at high costs.
3. Overall decline in savings and investments.
4. High rates of unemployment and inflation.
5. Decline in private sector projects, which are a key driver of economic growth.
6. Increased prevalence of poverty, corruption, and crime.
7. Weakness of financial and banking systems and their inability to keep up with rapid technological advancements.

Fourth: Financial Inclusion Indicators and Methods of Measurement: At the G20 **(Group of Twenty)** Leaders Summit in Los Cabos, June 2012, the leaders endorsed the recommendation by the **Global Partnership for Financial Inclusion (GPFI)** to support the efforts of collecting global and national data on financial inclusion. They agreed on a core set of financial inclusion indicators. *The G20 is an international forum that brings together governments and central bank governors from 20 countries and the European Union. The organization was established in 1999 with the aim of discussing policies related to enhancing international financial stability and addressing issues that go beyond the responsibilities of any single country. The G20 addresses major global economic and financial issues and holds annual meetings in one of the member countries. The G20 members represent about 90% of the world's total GDP, 80% of global trade, two-thirds of the world's population, and about half of the planet's land area. It serves as an important platform for international cooperation in the fields of economy and trade.

The Global Partnership for Financial Inclusion (GPFI) is an inclusive platform that brings together G20 countries, interested non-G20 countries, and relevant stakeholders to work on promoting financial inclusion. This includes implementing the Financial Inclusion Action Plan approved at the G20 Summit in Seoul. (Al-Sin, 2019)

These indicators aim to measure three main dimensions:

- Access to financial services
- Usage of financial services
- Quality of financial services

The document identified a group of indicators used to measure financial inclusion levels across countries. These indicators allow for cross-country comparisons and the identification of disparities in access to financial services among the adult population. Some of these indicators, particularly those for which data is available in the Palestinian economy, can be presented and applied in the following chapters of the study to assess the extent of financial and banking services' availability and reach among members of society. The following table (not included here) outlines the most important financial inclusion indicators according to international standards.

1	Categories	Indicators	Standard dimensions
2	Adult Bank Customers (Individuals)	% of Adults Holding an Account at a Formal Financial Institution	Number of Depositors per 1,000 Adults or Number of Deposit Accounts per 1,000 Adults
3	Deposit Accounts	% of Adults with at Least One Outstanding Loan from a Formal Financial Institution	Number of Borrowers per 1,000 Adults or Number of Loan Accounts per 1,000 Adults
4	Credit Accounts (Individuals)	% of Small and Medium Enterprises Holding an Account at a Formal Financial Institution	Number of Deposit Accounts for SMEs / Total Number of Enterprises
5	Credit Accounts for Enterprises	% of SMEs with at least one outstanding loan from a formal financial institution	Number of outstanding SME loans / Total number of active loans
6	Number of Branches	Number of branches located in the regions	Number of branches per 100,000 adults
7	Number of ATMs	Number of ATMs located in the regions	Number of ATMs per 100,000 adults
8	Non-cash transactions	Financial transfers	Percentage of customers receiving domestic or international remittances
		Checks	Number of checks per 100,000 adult population
		Credit cards	Number of credit cards per 100,000 adult population
		Debit cards	Number of debit cards per 100,000 adult population
		ATM debit cards	Number of ATMs per 100,000 adult population
9	Via Mobile phone transactions	Mobile payment service penetration among individuals.	Percentage of individuals using mobile phones to make payments among the adult population.

Source: (Al-Sin, 2019)

CHAPTER THREE: THE CONCEPTUAL FRAMEWORK OF CASH CREDIT

First: The Concept of Cash Credit:

Cash credit refers to all types of credit facilities and direct financing operations, including advances, loans, discounted commercial papers, and overdrawn current accounts. It represents the largest portion of fund allocation by commercial banks across all economic sectors. (Ali, 2016)

There are multiple forms of credit requested by clients for direct use, and among these facilities are: (Abdullah, 2006)

A. Loans and Advances: Loans are the foundation for generating profits for commercial banks. They are granted to clients based on bank policies and specific conditions, including the amount, duration, interest rate, and collateral. Advances, on the other hand, are short-term debts usually given to employees or individuals in need of small amounts. They are often secured by salary and are typically lower in value and shorter in duration than loans.

B. Overdraft on Current Account: An overdraft can be defined as the bank's ability to extend a short-term financing limit, allowing clients to withdraw more than what is available in their current account, with the possibility of immediate recall of the withdrawn amounts. (Bill, 2004)

C. Discounting of Commercial Papers (Bill Discounting): This refers to the process by which banks enable merchants to obtain funds for their transactions without waiting for the maturity date of commercial papers. In practice, discounting means the bank pays the amount stated in the commercial paper to its bearer before its due date in exchange for the paper itself being handed over to the discounting bank.

Journal of Information Systems Engineering and Management
2025, 10(33s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/
Research Article

Second: The Relationship Between Digital Finance and Financial Inclusion:

Digital finance offers multiple advantages that contribute to enhancing financial inclusion. It enables access to financing for groups that were previously excluded under the traditional financial system. Moreover, it helps reduce the cost of services provided by banks and fintech companies through the adoption of modern technology-based banking systems. The significance of digital finance is reflected in internet banking, mobile banking, e-wallet applications, and credit and debit cards, all of which play a prominent role in improving levels of financial inclusion. Among the most impactful tools in expanding the reach of financial services are digital currencies and mobile phone technologies. In addition, digital finance supports small and medium-sized enterprises (SMEs) by providing the necessary funding to enhance their operations, growth, and investment potential. (Al-Hariri, 2021)

CHAPTER FOUR: THE RELATIONSHIP BETWEEN DIGITAL TRANSFORMATIONS, FINANCIAL INCLUSION INDICATORS, AND THE MECHANISM FOR EXPANDING CASH CREDIT IN THE IRAQI BANKING SECTOR

First: Introduction:

In recent years, significant and notable developments have occurred within the Iraqi banking sector. These include the emergence of electronic payment companies and digital banks, a shift from traditional banking to electronic banking, and a clear increase in the spread of service delivery points in public areas, such as ATMs and Point-of-Sale (POS) devices in commercial stores. Furthermore, mobile banking and mobile financial transactions have become widely popular and used among members of Iraqi society.

Second: The Current Impact of Digitization on Financial Inclusion in Iraq:

The Central Bank of Iraq, through its future strategy, aims to achieve the goals of financial inclusion by raising its level within the Iraqi economy. This is being pursued through increasing the number of bank accounts and electronic cards for individuals and businesses. The salary localization project launched in 2016 served as a foundational step to integrate individuals into the financial system by encouraging them to open bank accounts for receiving their salaries electronically. This contributed to a 9% growth in the number of opened bank accounts in 2021 compared to the previous year. Additionally, there was a 26% increase in the number of issued electronic cards in the same period. (Iraqi Central Bank, 2021)

The Central Bank has also issued licenses to mobile service companies that have supported financial inclusion by offering digital financial services to the public. As a result, there was a 71% growth in the number of e-wallets in 2021 compared to 2020, reflecting the Central Bank's serious steps in enhancing financial inclusion, which in turn directly contributes to strengthening financial stability.

Third: The Spread of Mobile Payment Services:

Advancements in payment systems are among the most effective methods for promoting financial inclusion in any economy. Mobile payment operations, in particular, facilitate various financial transactions with speed and accuracy. Access to mobile payment services and the ability to conduct other financial transactions via mobile represents a highly advanced form of financial development. To that end, the Central Bank of Iraq granted licenses to mobile companies to participate in the electronic payment ecosystem. These companies now offer services such as money transfers, bill payments, electronic card purchases, prepaid line top-ups, as well as cash deposits and withdrawals to and from mobile wallets through authorized centers. It has been observed that Zain Cash dominates the mobile financial transaction market, with its share of total transferred funds rising from 46.4% in 2018 to 78.7% in 2021. Meanwhile, Asia Hawala saw its share decline from 53.6% in 2018 to 18% in 2021. A newer player, Nass Wallet, began operations in 2020, and although its share was initially low at 0.03%, it increased to 3.2% in 2021. The growing competition among these companies has had a positive effect on financial development and is contributing to the enhancement of the quality and availability of mobile payment services. (Iraqi Central Bank, 2021)

The first step towards financial inclusion is opening a bank account. Therefore, an increase in the number of bank accounts represents the inclusion of more individuals in the financial system. The same applies to electronic wallets and electronic cards. The growth in the number of electronic cards, bank accounts, or electronic wallets indicates a development and expansion of financial inclusion, as individuals who acquire any of these become part of the financial system. The growth rate of electronic wallets reached 71% in 2021 compared to 2020, while the growth rate of electronic cards was 26% in 2021 compared to 2020. The same increase was observed in the number of bank accounts, which grew by 9.3% in 2021 compared to 2020. Hence, there is an expansion in financial inclusion, with a greater number of individuals entering the financial system. (Iraqi Central Bank, 2021)

Journal of Information Systems Engineering and Management
2025, 10(33s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/ Research Article

Fourth: The Spread of Banking Outlets (ATM, POS, and POC):

To attract a larger audience into the banking system and increase operations within the financial system while gradually reducing cash transactions, it is essential to expand electronic payment services, which is one of the primary goals pursued by the Central Bank of Iraq. This indicator measures the level of spread of electronic payment services, and it is clear that there has been an increase in the number of ATMs, POS devices, and POC devices across Iraq. The number of ATMs has risen from 1.5% in 2017 to 3.6% in 2021, while the spread of POS devices has increased from 2.1% in 2017 to 19% in 2021. Similarly, the number of POC devices has increased from 11.7% in 2017 to 33.5% in 2021. These figures indicate that these rates are expected to continue rising in alignment with the Central Bank of Iraq's objectives. (Iraqi Central Bank, 2021)

Fifth: The Contribution of Financial Companies to Financial Inclusion:

The role of these companies is very important within the country's financial system, as they are responsible for issuing cards for banks, processing transactions, and providing other services. The number of these companies within the financial system in Iraq has increased to 11 companies, and their performance within the system has varied according to the activity of each company. It is evident that Iraq Gateway Company holds the largest share of the total financial transactions, whether they are issued, processed, or collected, with a share of 69.1% of the total transactions handled by financial service providers by the end of 2021. In contrast, GPS Company accounted for 10.4% of the total service provider transactions at the end of 2021, having started operations in 2021. This indicates Iraq Gateway's dominance in the financial services market. Looking back to 2018, Iraq Gateway Company was the largest player in the market, controlling 72.9% of the total transactions, while Al Arab Company held 18.6%. This shows competition in the financial services market with new entrants. Other companies, however, remained weak competitors in the market throughout the period (2018-2021). Five companies started their operations in 2021. The services provided by non-bank financial companies are considered one of the most important steps towards developing financial inclusion, as they facilitate transactions and encourage the shift to digital processing, saving time and effort, which is an attractive factor for the public to enter the financial system. (Iraqi Central Bank, 2021)

Sixth: The Impact of Digitization on Expanding the Credit Service in Iraq:

Table (1) shows a significant increase in the use of credit cards in Iraq, with the number rising from 15,158 cards in 2017 to 126,491 cards in 2023, representing an increase of over 700% over seven years. This increase reflects an improvement in financial inclusion, as more individuals are now able to access digital banking services, reducing reliance on traditional cash transactions. The large growth in 2023 may be due to banking reforms, new facilitation in issuing cards, or greater awareness among individuals of the benefits of digital banking, especially with the country's accelerating digitization.

Table (1): Development of the number of credit cards and total credit in the Iraqi banking sector (2017-2023).

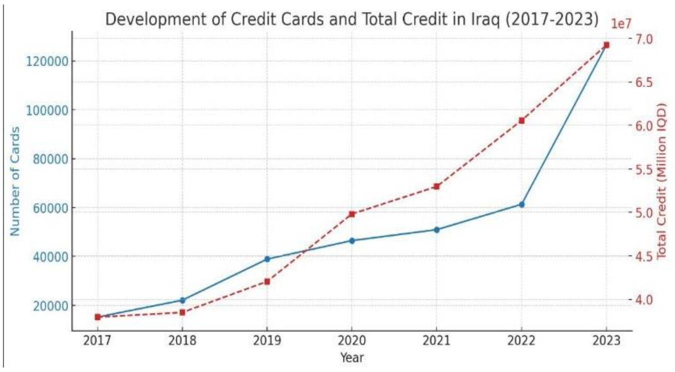
Total Credit		No. of Cards	
Years	**Value**	**Years**	**Value**
2017	37,952,829	2017	15158
2018	38,486,947	2018	22067
2019	42,052,511	2019	38883
2020	49,817,737	2020	46469
2021	52,971,508	2021	50927
2022	60,576,014	2022	61320
2023	69,252,894	2023	126491

Source: Central Bank of Iraq, Statistical Website.

On the other hand, total credit has increased from 37.95 billion dinars in 2017 to 69.25 billion dinars in 2023, indicating an expansion in banking lending activity. This growth may be driven by an increased reliance on credit cards, as these financial tools facilitate payments and borrowing, thereby boosting spending and consumption. This increase could have a positive effect on the economy by supporting small businesses and individuals who require quick financing, which enhances the dynamics of financial markets and stimulates economic growth. As shown in Figure 1 below, there is a proportional increase in both variables. The increase in the number of credit cards appears to contribute to the expansion of credit, where the blue line represents the number of cards, and the dashed red line represents total credit:

Journal of Information Systems Engineering and Management
2025, 10(33s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/
Research Article

Figure (1): Development of the number of credit cards and total credit in the Iraqi banking sector (2017-2023).



Source: By the researcher depending data from Table (1)

The focus was placed on credit cards as they are the most prominent technological elements that contribute to the increase in cash credit. However, there are other digital banking elements that also contribute to the increase in cash credit, such as electronic loans and digital currency borrowing.

Seventh: In light of the digitization in Iraq, the Central Bank of Iraq has recently undertaken several measures, including: (Mahdi, 2024)

1. The Central Bank of Iraq has facilitated the procedures for granting licenses for card collection using Point of Sale (POS) devices, and reduced the commissions for banks and entities that use these devices.

2. The Central Bank has mandated that all governmental and non-governmental departments, mixed-sector organizations, unions, associations, and all centers where payments are collected must open bank accounts and provide POS devices for electronic payments, enabling customers to make payments with cards, while still allowing for cash payments.

3. Government and private banks are responsible for providing POS devices for electronic payments and card payments to the aforementioned entities and other customers, ensuring electronic money collection across Iraq.

4. The contracting and importation of electronic payment and collection devices, including POS devices and ATMs for card payment systems, is exempt from customs duties.

5. All electronic payment transactions (POS) are exempt from taxes.

CONCLUSIONS:

1. Digitization contributes to improving financial inclusion, which increases the use of credit cards, and in turn, contributes to the rise in cash credit.

2. There has been a clear increase in the use of digital and electronic banking channels in Iraq, especially in the recent years of the study.

3. There is a significant demand for acquiring credit cards in 2023, along with a noticeable development in the volume of bank credit.

REFERENCES

[1] Al-Mutairi, M. A. (2022). *Digital transformation strategy*.

[2] Al-Tabi, O. M., & Al-Danun, A. M. (2022). The impact of digital transformation on the financial performance of Egyptian banks: A case study of Bank Misr. *Journal of Accounting Studies*, 2.

[3] Zidan, M. M. M. (2023). The role of digital transformation in achieving financial inclusion. *Spirit of the Laws*, 35(102), 2373-2410.

[4] Allaam, W. K. M. (2022). Digital transformation and its impact on enhancing the competitive advantage of banking services from the perspective of customer service officials: A field study applied to the banking sector in southern Upper Egypt. *Scientific Journal of Economics and Trade*, 52(1), 159-220.

[5] Al-Amiri, R. A. L. (2018). The impact of supervisory auditing by the Central Bank of Iraq on achieving financial inclusion. *Higher Institute of Accounting and Financial Studies, Department of Accounting Studies*, PhD Dissertation.

Journal of Information Systems Engineering and Management
2025, 10(33s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/
Research Article

[6] Arab Monetary Fund. (2015). The interrelationship between financial stability and financial inclusion.
[7] Al-Sabouni, M. H. A. (2015). The concept of financial inclusion: Goals and challenges. *Journal of Financial and Banking Studies*, 3.
[8] Abu Dhiah, M. M. M. (2016). The role of banking outreach and financial inclusion in the Palestinian economy. *Master's Thesis*, Al-Azhar University, Faculty of Economics and Social Sciences.
[9] Al-Sin, A. A. Z. (2019). The role of financial inclusion in achieving economic stability and growth. *Arab League University*.
[10] Central Bank of Iraq. (2021). *Financial Stability Report*.
[11] Mahdi, H. R. (2024). The development of electronic payments in Iraq. *Central Bank of Iraq, Department of Banking Supervision*.
[12] Ali, A. S. M. (2016). *Encyclopedia of Banks and Credit: Credit Policy of Banks*. Dar Al-Taleem Al-Jami'i, Alexandria.
[13] Abdullah, K. A., & Al-Tarad, I. I. (2006). *Management of local and international banking operations*. Dar Wael for Publishing and Distribution, Amman, Jordan.
[14] Al-Hariri, B. M. I. (2021). The impact of digital financing on enhancing financial inclusion: The moderating role of financial literacy—An applied study on Egyptian bank customers. *University of Damietta, Faculty of Commerce*.
[15] Central Bank of Iraq, Statistical Website.
[16] Neale, B., & McElroy, T. (2004). *Business finance*. Person Edition Limited, London.