Chapter 1

The FinTech Industry in Iraq: Challenges and Opportunities

Mustafa Hasan Hamad Ameen[1]

Aslı Afşar[2]

Abstract

Although the financial technology (fintech) industry is relatively nascent in Iraq but has been experiencing a steady growth in recent years. Fintech, describes the use of technology to supply financial services and products in a modern shape. The growth of fintech in Iraq has been driven by various factors such as a young population, an increase in smartphone penteration and a desire for more easily available and effective financial services. However, this rapid growth in the fintech industry has not been without a number of challenges and obstacles Moreover, the absence of appropriate measures and regulations may led to negative impacts on the financial sector and fintech industry in general. Therefore, this study highlights the capabilities and advantages of financial technology (fintech) while emphasizing the need for an enabling environment, including appropriate regulatory rules, information security, and communication technology infrastructure. We emphasize the importance of reviewing legal and regulatory frameworks and managing risks associated with innovative financial and banking products. We also addresses the impact of fintech on money laundering, noting the speed and difficulty of detecting such operations in modern banking technology and highliting the role of the Central Bank of Iraq in granting licenses to fintech companies. The study suggests enhancing financial infrastructure, protection systems against cyberattacks, and improving the readiness of regulatory authorities to address potential threats. Furthermore, We stresse the importance of increasing financial knowledge and literacy among customers and Iraqi population in general, where financial services

1 (Ph.D. Student, Department of Finance, Faculty of Business Administration, Anadolu University, Eskisehir, Turkey, ORCID: 0000-0001-7797-5779, Mail: mustafahasan957@gmail.com)

2 Prof. Dr., Foreign Trade Program, Eskisehir VHS, Anadolu University, Eskisehir, Turkey, ORCID: 0000-0001-7031-1419, Mail: aafsar@anadolu.edu.tr

https://doi.org/10.58830/ozgur.pub105.c645

and fintech products are underutilized. Additionally, it concludes by acknowledging that while fintech presents opportunities, companies in this space must navigate complex regulations, address cybersecurity risks, build consumer trust, and compete with traditional financial institutions. Finally, We call for the increased availability of ATMs and POS machines across Iraq to enhance financial services and accessibility.

1. Introduction

Although banking has existed in Anatolia since BCE 12,500, the modern definition of banking took shape in the 12th century and grew quickly during the Renaissance as a way for wealthy families in important cities to manage their wealth. Amsterdam and London became the financial hubs for the nations of northern Europe during the 17th and 18th centuries as a result of the advent of systematic innovations like central banking. Although London continued to be the industry leader by the turn of the 20th century, New York had now joined it and it is currently roles as a leader of financial innovations. However, by the turn of the twenty-first century, banks had expanded internationally and had become independent behemoths that may pose a threat to the world economic order, as was seen during the 2008 global financial crisis (Sironi, 2021).

The 2008 financial crisis had severe repercussions for economies all across the world. Governments pumped trillions of dollars into markets in an effort to restore stability, and many people lost their jobs almost immediately. Financial institutions that were once seen as inalienable assets (mainly in the U.S. and GB) went bankrupt, were rapidly nationalized or were bought to prevent collapse. The general public's faith in financial institutions and governments was destroyed. Financial Technology (Fintech) was developed out of this reality and is characterized by disobedience and a strong desire to upend the status quo through the use of cutting-edge technology and novel business models. Bitcoin as an obvious example, was born in January 2009 (Rose, 2015; Bender, 2021).

Technological change has been reshaping traditional finance and banking services for years. Particularly, after the 2008 crisis and then the COVID-19 crisis. Groundbreaking innovation and widespread adoption have accelerated this process internationally. Technological innovation in financial activities (FinTech) is increasingly disrupting core financial services traditionally provided by banks and has gained even more momentum during the COVID-19 epidemic. Decentralized finance (DeFi) is a cutting-edge area of technology. Decentralized financial intermediation or DeFi is a type of crypto-market-based financial intermediation where all financial transactions are carried out over a computer network without the use of a central middleman. Along with the development of the crypto ecosystem, DeFi has experienced fast growth (Beştaş, 2023).

Financial services are increasingly provided outside of traditional financial services, which has improved financial access, increased financial inclusion, and increased competition within the financial system, thus promoting economic growth. Along with all its facilities using FinTech as an innovative means for granting credit and providing other financial services involves many risks and challenges for governments and financial institutions. The common challenges that FinTech services face in general are complying with regulations and standards in the financial industry, cybersecurity risks, customer trust and adaption, limited resources, IT and Technological infrastructure, and a low customer base compared to traditional financial institutions (Chen & Zhang, 2018; A-Duhaidahawi et al., 2020; Feyen et al., 2021; Kaur et al., 2021; Ediagbonya & Tioluwani, 2023; Aysan & Unal, 2023). However, the difficulties that FinTech services bring to traditional financial services may vary from one country to another based on their systems.

A study conducted by Kowalewski and Pisany indicates the importance of IT infrastructure for Fintech services in a country. They have illustrated that countries with strong and developed technological services have more opportunities and access for fintech companies. Also, they supported the idea that a friendly legal environment enables innovation in the markets and helps start-up companies to work efficiently (Kowalewski & Pisany, 2023). Another study conducted by Allen focuses on two different groups of countries in the MENA region. The first group includes high-income countries in terms of GDP per capita such as Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE. Meanwhile, the second group contains middle-income countries such as Algeria, Egypt, Iraq, Jordan, Lebanon, Morocco, and Tunisia. Generally, the countries located in the first group provide a better environment for fintech services compared to the countries in the second group due to the ease access of to the internet, digital payments, mobile banking and the IT infrastructure that enables them to support fintech services better. The study also shows that both Iraq and Algeria as the middle-income countries in the second group have a better chance to come up with global financial market regulations due to their nature as oil producer countries. However, the study suggests that all countires need to improve and strengthen the IT infrastructure, cybersecurity, and financial regulations to ensure fintech improvements (Allen, 2021).

2. An Overview of the Financial Institutions and FinTech Services in Iraq

Discussing financial technology services without mentioning the role of banks in the country may not be the right fit in the case of Iraq. Therefore, we see it necessary to provide a brief history of the banking sector before diving into the fintech industry in the country.

Following the imposition of the British Mandate and the conclusion of WWI, the Iraq Currency Board was established in 1931 in London. The main duties of the board were issuing notes and maintaining reserves for the Iraqi dinar (IQD) at that time. The Iraqi dinar had a precious value during that time since it was valued equally with British Pound and its parity (Welk, 1949). However, the supremacy of British banks and the incompetence of traditional local currency traders in 1936 led the state to establish both the Agricultural and Industrial Bank as a single entity and then the two banks split into various institutions so called the Agricultural Bank and the Industrial Bank. Following that, the Al-Rafidain Bank was established in 1941 in the country and ruled as the primary commercial and central bank of Iraq (History of Central Bank, 2022).

After disbanding the Iraq Currency Board in 1947, the National Bank of Iraq was established to take over its duties. The newly established national bank fulfilled its responsibilities in a short time and provided economic growth. As a result, several state-owned banks were formed, namely the Real Estate Bank, Mortgage Bank, and the cooperative bank (Jirjees, 2022). Additionally, the flourished economy opened opportunities for other Iraqi and foreign banks to work in the nation. Consequently, the National Bank of Iraq became the Central Bank of Iraq (CBI) and its responsibilities were currency issuance, control of foreign exchange, regulation of banks, and managing governmental accounts.

The authorities of CBI increased significantly over time till the Gulf War in 1991 which was a blow to the Iraqi economy and led to an economic blockade and the necessity for a modern and lower-quality currency. After the war ended, a new opportunity came out to private banks that they were permitted to open in Iraq. Therefore, the Iraqi Investment Bank and Middle Eastern Bank became the first two private banks in the country.

The year 2003 is another stage in Iraq's history and its economy in general. That year marked the establishment of a new financial system and the restructuring of the financial structure and banking sector. The banking law was implemented on September 2003 to align the country's banking regulations with global standards and enhance a secure, competitive, and accessible banking sector to instill confidence in the system (IRFAD, 2014). Thereafter, the Coalition Provisional Authority (CPA) announced the new Iraqi dinar coins and notes that incorporating improved anti-countrfeiting measures. The last update of the Central Bank of Iraq was made on March 2004 which is the current form of the CBI as an independent central bank for the country.

After 2003, the Central Bank of Iraq (CBI) initiated new measures to regenerate the Iraqi banking sector in line with international banking progress. The CBI began implementing the Cash Automated Clearing House and the Real-Time Gross Settlement System in 2006, replacing manual operations with automated processes. In 2007, a partnership was formed between the public sector banks (Al-Rafidain and Al-Rasheed) and the private sector entity Iraqi Electronic Payment Systems to establish Qi-Card. This card is currently utilized to distribute public pensions to more than 7.4 million Iraqis.

In 2014, new regulations governing retail payments were put into effect, and the CBI launched the Iraq Retail Payment System Infrastructure in 2016, which enabled the country's first retail transaction. This infrastructure included the Iraqi National Retail Switch and a mobile payment system that makes it possible for banks and electronic payment services to execute transactions through points of sale (POS) and automated teller machines (ATMs). Moreover, a new era started in the Iraqi financial sector in 2016, the Central Bank of Iraq (CBI) granted permission to mobile wallets like ZainCash and AsiaHawala. These mobile wallets played a significant role during the challenging period of the COVID-19 epidemic, as government endowments were obtained through them. They also expedited online shopping and contributed to the enlarged utilization of e-commerce platforms.

Electronic card issuance has grown since 2017 in Iraq. One of the most popular types of electronic cards that has experienced exponential growth since 2017 in Iraq is prepaid cards, this type of card has recorded the highest number of issued cards by the end of 2021 which was over 9.7 million issued cards. The preference for these cards and the reasons that made them popular can be attributed to their ease of use and the convenience of acquiring them without the obligation to have a bank account. What rises eyebrows here is the diminution of Qicards issuance in the previous years. The main reason for this decline may be attributed to a shift that the Ministry of Finance made in the payment method for pensions in 2019. The Ministry of Finance changed from using the prepaid QiCard to announcing the MasterQi Card which is a debit card authorized by MasterCard. The new decision by the Ministry of Finance only included the newly issued cards, in a way that all of the cards should be issued based on the MasterQi cards while changing the pre-issued cards was not necessary (Qi Card, 2019).

Simultaneously, another important point in Iraq is the disparity between the rising number of electronic cards and the restricted obtainability of banking infrastructure. Both Automated Teller Machines (ATMs) and Point Of Sale (POS) terminals are falling behind the growing demand for electronic payment methods. The limited number of ATMs and POS makes an imbalance and forces cardholders to depend on cash withdrawals to meet their daily needs rather than enjyoing the convenience of electronic payments. In other words, cash still remains king in Iraq (Rodgers, 2023). Furthermore, the notable rise in Points of Cash (POC) aligns with the rise in debit cards, especially QiCards. These POCs reflect several points distributed across the nation, ranging from small stores to currency exchange establishments, equipped with devices that are capable of reading QiCards and cash withdrawal possibilities for its holder.

According to a report by Rodgers variety of payment systems are authorized by the Central Bank of Iraq (CBI). The total number of licensed digital payment wallets and e-payment companies are seventeen companies. The most known systems among these methods are digital wallets which include AsiaHawala, ZainCash, NassPay, and FastPay. Also, the rest fifteen systems are licensed for services related to e-payments such as Qi-Card, APS, Blue Pay, Switch, neo, and the First Iraqi Bank as the first bank depended on digital payment technology in the nation (Rodgers, 2023).

3. FinTech Industry Challenges in Iraq

Although it is expected that the FinTech business will become massive in the upcoming years in Iraq. However, it is currently limited to a few sub-sectors. This means that online shopping, trading and electronic services, and smartphone applications are some of the "Hot" growing information system fields that are maturing progressively. In comparison to other nations in the middle east, Iraq is sluggish to adopt FinTech, and overall investment in the FinTech market and the passage of associated regulations is low. This is attributable to a variety of reasons, including money laundering, cybersecurity risks, the lack of trust, and insufficient electronic payment infrastructure. Furthermore, reports indicate that the unbanked population mostly depends on cash, and the level of financial literacy in the country is among the reasons for fintech companies to progress more (AL. Musawy & Kashmoush, 2022; Abdullah, 2022). The most known challenges for the FinTech industry in Iraq are summarized below:

3.1. Inadequate Electronic Payment Infrastructure

It is clear that the number of tech cards and e-payment transactions increasing in Iraq and the consumers in the nation are accustomed to using technology in daily transactions. Nevertheless, the fintech platforms and companies still face difficulties with the limitations caused by the obsolete infrastructure and the regulatory system complexity. This forces the fintech companies to set up foundations to keep to manage the regulatory changes in the country. Moreover, Al-Safi believes that the current infrastructure may be a reason to limit the scalability of fintech companies and platforms in Iraq (Al-Safi, 2023). Furthermore, Rodgers illustrates the fact that technological finacial services are limited and limited access to digital financial services poses challenges for startups and enterprenurs to grow and scale up in Iraq (Rodgers, 2023). According to Kapita, what makes a serious imbalance is the rising installation and issuing of digital payment cards particularly with the salary domiciliation efforts. Since there is still a cash-dependable society and electronic cards are used for daily transactions which forces cardholders to withdraw their salary instaed of utilizing digital payment services (Kapita, 2022).

According to an indicator provided by the Global Economy, the number of bank branches in Iraq between 2004 and 2020 has fluctuated overtime. The average number of bank branches was 3.94, with a minimum of 0.17 branches in 2004 and the maximum average of branches in 2012 was 5.52 bank branches in Iraq. And the latest number of branches is in 2020 which was 3.85 branches. If we compare this number to a global ranking in the same year, we can see a huge gap between Iraq and the global average. Iraq laggs at the bottom of the global average based on 154 countries in 2020 which was 27.9 bank branches per 100,00 adults, meanwhile the number for Iraq was only 3.85 branches at that year. Additionally, the data of bank branches in Iraq which provided by the global economy between 2012 to 2020 show that the country has recorded a serious decline in bank branches per 100,000 adults inside the country, as shown in the figure below.

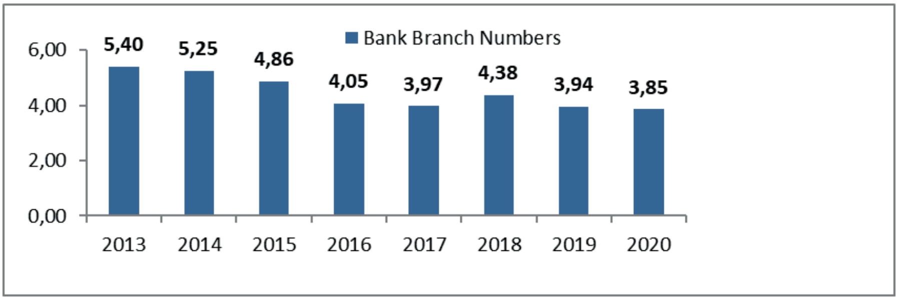

Figure 1: Number of Bank Branches per 100,000 Adults in Iraq, Source: (Global Economy, 2020)

Furthermore, comparing the number of ATMs per 100,000 adults in Iraq to the countries in MENA region, it can be noticed that Iraq is has the lowest number of ATMs and located behind all the countries in terms of the number of ATM machines in 2021. The data may seen as a significant reason for financial technology companies to face challenges and defficulties to grow and develope in Iraq.

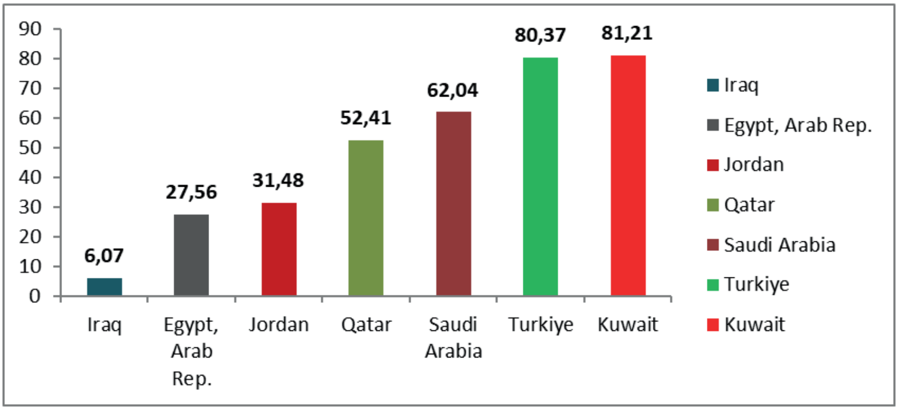

Figure 2: ATMs Per 100,000 Adults in the MENA Region, Source: (World Bank I, 2021))

3.2. Cash Dependence

The Covid-19 pandemic caused digital payments usable everywhere around the world. According to a report constructed by the World Bank Group, two-thirds of adults utilize digital payments worldwide. The ratios vary from one country to another, however, in emerging countries the percentage of digital payment users has raised from 35% in 2014 to

57% in 2021, this change particularly noted in Africa and Asia countries (World Bank II, 2021). One of the biggest barriers to the development of the banking system in Iraq is the dominance of cash in the economy (Kapita, 2022). The significance of cash is connected to the stability of the economy in the country, the economic instabilities and the political uncertainties can be attributed as the main reasons for Iraqis mostly depend on cash as the strongest economic instrument during crises (IRIS , 2021). Additionally, the Iraq's economy is heavily dependent on oil exports, also, due to the wars and international sanctions throughout history Iraq has not been able to build a strong banking and financial infrastructure to enhance its economy. In his research, Rodger claims that Iraqis are cut off from electronic payment systems to the extent that more than 95% of the population rely on cash and do not prefer to use bank accounts. Therefore, cash still remains king in Iraq (Rodgers, 2023).

3.3. Money laundering

For a country like Iraq perhaps the most crucial issue ahead of the financial revolution is the possibility of using fintech in money laundering operations, which is one of the most important financial crimes affecting the financial system and then the economic system in general. Especially since fintech has characteristics that make the process of transferring money through it quick and smoothly compared to traditional financial services, which would destabilize the economic system. Money laundering poses a significant threat to fintech growth in Iraq due to the risks of using innovations in Financial Technology in the nation. In 2016 Iraq was added to the European Union's list of countries for money laundering and financing terrorism. However, in January 2022 the EU's representetive in Bgadad announced that the union decided to take out the country on the list of risky countries (EU, 2022). In 2019, Iraq has done her best and spent crucial efforts to prevent money laundering operations by setting anti-money laundering strategies and anti-terrorist financing regulations (Rudaw, 2022). According to a study conducted by Gailan Ismail in 2022, various obstacles are ahead of the anti-money laundering operations in Iraq such as inadequate anti-money laundering laws and regulations, the enermous of foreign monetary transfers, the secrecy of banks, the lack of staff qualification in banks and financial institutions, and the undeveloped information systems are the main challenges that the fintech industry faces due to the money laundering operations (Abdullah, 2022).

3.4. A Significant Number of the Unbanked Population

The higher number of the financially excluded population can be another obstacle in front of fintech growth in Iraq. According to a report conducted by the World Bank Group, only 24% of Iraqi households have access to a financial institution's account. The report also illustrates the percentage of adults that do not have bank accounts in Iraq, according to the report, in 2021, only 19% of Iraqi adults have access to bank accounts, and the remaining are financially excluded. By the end of 2021, the credit-to-GDP ratio was below 15% in Iraq, and also the unbanked population was 81% which is 21% higher than the other Arab nations, according to the World Bank Group Report (World Bank II, 2021). Looking at the peer group countries we can see a significant gap between Iraq and her peers, for instance, the 90% of participants in Iran shows that they have an active account in a financial institution, and number is 26% in Egypt, 43% in Jordan, 74% in Saudi Arabia, 73% in Turkey (World Bank II, 2021).

In case of debit or credit cards usage, 10% of Iraqi respondents have a debit card or credit card, meanwhile the ratio is totally higher than this in the other peer countries. For example, report shows that 22% of respondents in Egypt own a debit or credit card, and the ratio is 83% in Iran, 33% in Jordan, 72% in Saudi Arabia, and 60% in Turkey. However, we do see a change regarding government employees who are now getting paid via Master Card & bank accounts rather than the old cash payment procedure. Especially, in the Kurdistan Regional Iraq (KRI), the northern part of the country (Rodgers, 2023).

3.5. Cybersecurity

Cybersecurity threats pose a high risk to Iraq's financial sector in general. The concerns regarding the lack of online payment security in Iraq lead consumers to prefer cash on delivery in e-commerce transactions and also the worst scenario exists in consumers' minds to think of what they may face in case of cybersecurity attacks. Cybersecurity risks are proven to have a direct impact on the banks and financial technology in Iraq (A-Duhaidahawi et al., 2020). The necessity for understanding the risk landscape is urgent given how sophisticated cyber risks are gradually changing alongside an increase in the variety and intensity of attacks. Cyber dangers take the form of security incidents that jeopardize the confidentiality, integrity, or accessibility of data. These outcomes approve to the dissemination of confidential financial information to allowed internal workers and external parties (Kaur et al., 2021). It can be said that in the new digitalized era, cyber risks have put businesses, corporations, governments, and individuals at constant risk. Therefore, the governments and banks need to develop programs and systems to protect consumers from the constant threats of cyber attacks (Najaf et al., 2021). Fintech companies also need to be aware of how several nations interpret the same legal ideas. As a result, it is significant for fintech companies to develop fintech apps based on useful resources and practical tools, also with the grasp of local laws and regulations to protect data. Since data security is the top concern for 70% of banks (Rikkeisoft, 2022; Burak, 2023; Marlow, 2023).

3.6. Financial and Digital Literacy

According to the study conducted by Farida et al, financial literacy has a strong and positive effect on people's awareness of financial technology products (Farida et al., 2021). Also, it is proved that individuals with higher financial literacy have a better chance to benefit from fintech services and financial well-being (Panos & Wilson, 2020; Kakinuma, 2023). The OECD's definition of financial literacy is the combination of awareness, knowledge, skill, attitude, and behavior of individuals that are required to make wise decisions and achieve financialwell-bing. On the other hand, digital literacy is the ability to understand the technology and utilize it properly (OECD INFE, 2011). Some studies indicate that the lack of financial knowledge in Iraq has painful consequences for the adult population in the country. According to S&P financial literacy survey, the level of financial literacy among Iraqi adults in 2021 is only 27%! (Klapper et al., 2015; Xiao, 2021). Unfortunately, this means that 73% of adults in Iraq do not have financial awareness and counting this to the definition of OECD, we can mention that the low of financial awareness in the country dose not help financial technology to grow fast compared to the other Arab countries in the region. This is also proved by the study conducted by Hadi et al, regarding the Fintech industry in Iraq (Hadi & Abdullah, 2023).

The table below shows the an evaluation of Financial Literacy by the Union of Arab banks in enhance the level of financial literacy and financial inclusion in these countries. As can be seen the level of literacy in Arab countries in 2014 was under 50 percent for all countries in the table. However, comparing Iraq to the other Arab nations, we can understand that the country again laggs behind her neighbour countries such as Kwait, Saudi Arabia and Jordan.

Tablo 1: Financial Literacy in Arab Countries

Country	Adults	Men	Women
Iraq	27%	29%	25%
Egypt	27%	30%	25%
Jordan	24%	25%	22%
Saudi Arabia	31%	34%	28%
Kwait	44%	46%	40%

Source: Union of Arab Banks, 2017

Moreover, according to a survey by the World Bank Group in 2021 which examines the level of financial inclusion and the digital literacy during Covid-19 in 123 countries, only 7% of Iraqis use a mobile phone or the internet to make the payments, buy things, to send or receive money using a financial institution account. Meanwhile the ratio is 8% in Egypt, 17% in Jordan, 79% in Saudi Arabia, 54% in Iran, and 50% in Turkey (World Bank II, 2021).

3.7. The lack of trust

Iraqis do not have a fruitful history with the traditional financial system due to the lack of financial instability and seismic political changes in practice. Iraqis are used to cash and prefer it more than digital payments due to the lack of trust in financial institutions such as banks, fintech startups, and digital payment companies and do not see these institutions as a secure place to shelter their money (ILO, 2021; Kapita, 2022). According to Ameen, banks in Iraq has lost the trust of people and the individuals' bad experience with banks makes the process even harder for banks to solve these issues and gain customer trust again (Ameen, 2018). Therefore, the peoples' attitude regarding the previous financial system in Iraq poses challenges to the fintech startups to grow fast. The World Bank survey in 2021 indicates 40% of Iraqi respondents that do not have trsut in the financial system and the lack of trust became one of the main reasons to not facilitate financial servives in Iraq, while the proportion is 7% in Egypt, 11% in Jordan, 10% in Saudi Arabia, 17% in Iran, and 27% in Turkey (World Bank II, 2021).

In addition, there are some other reasons that may bring difficulties to the fintech companies and the fintech industry in Iraq. For example, some studies indicate religion as the main reason why Iraqis do not prefer banks and other financial institutions. Therefore, society remains a cash-dependent society and financially exluded individuals. Moreover, Islamic banks and the Islamic financial system are another reason as people prefer the Islamic principles and sharia in their relations with banks (Ameen, 2018; Jamil & Yas, 2020). A survey conducted by the World Bank Group indicates a high percentage of the respondents that see religion as one of the reasons to be financially excluded or not go with the modern financial system that is mostly dependent on interest (World Bank II, 2021).

Another significant obstacle in front of the fintech startup and companies in Iraq is considered to be the relative cost of internet and mobile services to the low-income population which limits demand for digital financial services. Studies show that the high cost of using the internet and smartphone devices for limited-income individuals is one of the main reasons to not prefer digital payments. Moreover, the cost of the internet and digital devices also proved as a reason to affect households' income by increasing expenditure and promoting consumption. As a result, this affects the fintech services provided by the companies and does not grow fast in these countries (Li et al, 2020; Abdullah, 2022; Tian, 2022).

In conclusion, the aforementioned obstacles are the main challenges in front of Fintech companies and startups in Iraq to grow fast and compete with other nations in the region, particularly the Arab nations.

4. Opportunities and Recommendations

Although the use of mobile and electronic payment systems is growing in Iraq, it is still not as widespread as in other nations in the region. Cash payment upon delivery when ordering goods online and money transfer "hawala" are the most prevalent payment options, with using credit cards infrequently. Iraq's primary underdeveloped areas are e-commerce (food, real estate, shipping, transportation, and travel services), e-banking, and digital payments. Managing deposits and cash withdrawals through automated teller machines (ATMs) and executing electronic debit and credit payments are among the electronic payment services authorized in the country. These electronic payments are performed using any type of digital communication and information technology, such as a network operator acting as a middleman between the user and the service provider, or any other receiver, via mobile phone transfers. Electronic payment service providers with an Iraqi license may also facilitate acquiring bank loans that are delivered directly to the user's credit card.

Therefore, it requires improving the information and communication technology infrastructure and developing protection systems, especially with regard to protection against any type of electronic attack, which requires regulatory frameworks for information security, as well as against money laundering. Also, increasing financial awareness of the services provided by financial technology allows for greater use of digital services. The central bank must be ready to identify potential risks arising from the use of modern technological means in financial services and to develop methods to reduce these risks through specialized departments that grant licenses for the use of these products. Fortunately, important steps have been done recently by the Central Bank of Iraq and other non-government organizations to work on financial awareness and promote financial services literacy among the society. In 2022, the Ministery of Youth and Sports of Iraq announced a program that cooperated with International Labour Organization (ILO) to determine financial literacy and the Iraqi context and the need to improve financial literacy at the national level (ILO, 2022). We believe that the government should support financial literacy cources in schools to increase students awareness in terms of investment, savings, risk management, and dealing with money in all matters. Such a project has announced in Saudi Arabia to support financial literacy of first year students of all tracks the first year of school. The project is to help students to learn financial skills and how to make a wise decision in finance by avoiding wrong financial decisions in Saudi Arabia (Al-Shammari, 2022).

The government must have the plan to work on the unbanked and financially excluded population in order to decrease the scary high number of financially excluded people by providing financial services to all people equally in the financial system. In 2022, the Central Bank of Iraq (CBI), the Ministry of Planning, and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) announced a project titled "Financial Inclusion for Economic Restart and Integration in Iraq" to promote access to increase financial services inclusion in vulnerable target groups in the country. The project's main purposes are to support the CBI to increase the financial regulations and standards, training programs to increase financial knowledge and inclusion, develop inclusive financial services, and increase women-led business in the nation (GIZ, 2022). Additionally, the government should work to increase the number of bank branches, POS, and ATMs all across Iraq to promote financial inclusion and enhance the accessibility of financial services. This can also assist the government to decrease cash dependence and keep up with the adoption of electronic payment methods in society.

We believe that the Central Bank of Iraq and the related ministries can enhance the financial sector by bringing back trust to the community through fostering a culture of customer reliance and expanding financial services to meet demands. Also, providing training programs to increase the financial knowledge of government employees and individuals, and encourages financial institutions, banks, and fintech companies to provide customer awareness programs and activities to support financial improvements. On the other hand, private financial institutions and fintech companies should cooperate with the government to follow the laws and regulations posed by the CBI and its policy to meet the determined goals.

5. Conclusion

Financial technology offers many capabilities and advantages, but it needs to provide an enabling environment, such as providing appropriate regulatory rules for the work of startups in financial technology, as well as information security and providing information and communication technology infrastructure. The development of financial technology depends on reviewing the legal and regulatory frameworks and risk management that arise from innovative financial and banking products and services. Financial technology also contributed to the development of methods of money laundering operations due to its speed in transferring funds and the difficulty of detecting them, which made modern banking technology a safe haven for money launderers to conduct their operations more safely.

The Central Bank of Iraq is the only entity responsible for granting a license to financial technology companies, as financial technology companies are subject to the provisions of Regulation No. (3) of 2014 issued by Council of Ministers Resolution No. (186) of 2014, however, the legal measures taken by the Iraqi legislator in the matter of financial technology suffer from its shortcomings in limiting the spread of money laundering, as the practical reality has proven that the procedures on which the legislator relies are insufficient (Koperly, 2022). Therefore, it must enhance financial infrastructure and protection systems such as cyberattacks. Additionally, we recommend the CBI be more ready and stand to determine the potential threats coming from modern financial and technological adaptation. Last but not least, financial institutions, banks, fintech, and other start-up companies should work on increasing customers' financial knowledge and financial literacy. Despite the density of the young population in Iraq that shows great potential, financial services, and fintech products are used at a meager rate. Therefore, the number of ATMs and POS machines should be increased all across the nation in order to provide financial services and increase ease of access.

Overall, it can be said that fintech presents both opportunities and challenges for financial services, and companies operating in this space must navigate a complex regulatory landscape while also addressing cyber-security risks, building consumer trust, and competing with traditional financial institutions.

Bibliography

Allen, F. (2021). Globalization of Finance and FinTech in the MENA Region. *The Economic Research Forum (ERF)*, 1-20.

Ameen, M. M. (2018). How to Develop Trust in the Distrusted Banking System of the Kurdistan Region in Iraq. *Cardiff School of Management*, 50-62.

Bender, A. (2021, October 26). Retrieved from Calcalsit: https://www.calcalistech.com/ctech/articles/0,7340,L-3920989,00.html

Chen, C., & Zhang, Z. (2018). Linkage between FinTech and Traditional Financial Sectors in U.S. *Jönköping International Business School*, 2-36.

Ediagbonya , V., & Tioluwani, C. (2023). The role of fintech in driving financial inclusion in developing and emerging markets: issues, challenges and prospects. *Technological Sustainability*, 2754-1312.

Farida, M. N., Soesatyo, Y., & Aji, S. T. (2021). Influence of Financial Literacy and Use of Financial Technology on Financial Satisfaction through Financial Behavior. *International Journal of Education and Literacy Studies, 9*(1), 2202-9478.

Feyen, E., Frost, J., Gambacorta, L., Natarajan, H., & Saal , M. (2021). Fintech and the digital transformation of financial services: implications for market structure and public policy. *BIS Papers, 117*, 1-48.

Kakinuma, Y. (2023). Fintech as a Gateway to Enhance Financial Literacy. *https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4367898*, 14.

Kaur , G., Lashkari , Z. H., & Lashkari, A. H. (2021). *Understanding Cybersecurity Management in FinTech; Challenges, Strategies, and Trends.* Switzerland: Future of Business and Finance.

Klapper, L., Lusardi, A., & Oudheusden, P. v. (2015). *Financial Literacy Around the World; Insights from the Standards and Poor's Ratings Services Global Financial Literacy Survey.* http://www.finlit.mhfi.com/.

Kowalewski, O., & Pisany, P. (2023). The rise of fintech: A cross-country perspective. *Technovation*, 3-11.

Najaf, K., Mostafiz, , I. M., & Najaf, R. (2021). Fintech firms and banks sustainability: Why cybersecurity risk matters? *International Journal of Financial Engineering, 8*, 2-10.

Panos, G. A., & Wilson, J. O. (2020). Financial Literacy and Responsible Finance in the FinTech Era: Capabilities and Challenges. *2021*, 1-8.

Rodgers, W. (2023, February 8). *Why Cash is Still King in Iraq.* Retrieved from Rest of World: https://restofworld.org/2023/iraq-digital-payments/

Rose, C. (2015). The Evolution Of Digital Currencies: Bitcoin, A Cryptocurrency Causing A Monetary Revolution. *International Business & Economics Research Journal*, 617-622.

Tian, G. (2022). Influence of Digital Finance on Household Leverage Ratio from the Perspective of Consumption Effect and Income Effect. *Sustainability, 14*, 16271.

Xiao, J. J. (2021). *Financial literacy and financial education in Asia.* London: Routledge.

Abdullah, G. I. (2022). FinTech in Iraq and the Risks of Using It in Money Laundering Operations. *World Economics & Finance Bulletin*, 2749-3628.

A-Duhaidahawi, H. M., Zhang, J., Abdulreza, M. S., Sebai, M., & Harjan, S. A. (2020). Analysing the effects of FinTech variables on cybersecurity: Evidence form Iraqi Banks. *Research in Business & Social Science, 9*, 123-133.

AL.Musawy, 1. A., & Kashmoush, M. B. (2022). Digital financial inclusion in Iraq: reality, challenges, and investigation requirements. *Journal of Positive School Psychology, 6*, 3455 – 3470.

Al-Safi, K. (2023, May 16). An Overview Of Fintech In Iraq. Bagdad, Iraq.

Al-Shammari, H. (2022). *Students in Saudi Arabia to be taught financial literacy in upcoming academic year.* Riyadh: Arab News.

Aysan, A. F., & Unal, I. M. (2023). Challenges in Islamic Fintech and Digitalization: An Extensive Literature Review. *WS Annual Review of Islamic Finance, 1*, 41-52.

Beştaş, M. (2023). Merkeziyetsiz Finans (DeFi). *International Journal of Social and Humanities Sciences Research (JSHSR)*, 2459-1149.

Burak, A. (2023, January 27). *CyberSecurity in FinTech: How to Develop a Secure FinTech App*. Retrieved from Relevant Sfotware.

EU. (2022). *High risk third countries and the International context content of anti-money laundering and countering the financing of terrorism*. Retrieved from European Commission: https://finance.ec.europa.eu/financial-crime/high-risk-third-countries

GIZ. (2022). *Promoting financial inclusion in Iraq.* Bagdad: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

Global Economy. (2020). *Iraq: Bank branches per 100,000 people.* The International Monetary Fund.

Hadi, H. H., & Abdullah, I. S. (2023). The Complementary Relationship Between Financial Culture and Financial Literacy -An Applied Study in Insurance Companies Operating in Iraq Stock Exchange. *World Bulletin of Management and Law*, 8-18.

History of Central Bank. (2022, January 3). *CBI issues regulations for funding renewable energy power generation systems*. Retrieved from Central Bank of Iraq.

ILO. (2021). *Economic Relief, Recovery, and Resilence Assessment For Southern Iraq* . Iraq: International Labour Organization (ILO).

ILO. (2022). *The Ministry of Youth and Sports and the ILO partner to advance financial education among youth in Iraq [EN/AR]*. Bagdad: International Labour Organization (ILO).

IRFAD. (2014). Iraq Banking. Iraq.

IRIS . (2021). *Expanding Access to Banking in Iraq.* Sulaimani: Institute of Regional and International Studies (IRIS).

Jamil, A. S., & Yas, A. K. (2020). The Role of Islamic Banks in the Provision of Islamic Funding Services: Al-Nahrain Islamic Bank and the Iraqi Islamic Bank as a Case Study. *Economics and Administration Studies Journal (EASJ), 1*, 127-154.

Jirjees, A. (2022). Evaluating the Financial Performance of Iraqi Commercial Banks by Topsis Method. *Karabulk University*, 17-42.

Kapita. (2022). *Iraqi Banking Secotr and Financial Infrastructure Overview.* Iraq: KAPITA.

Koperly, M. (2022). *FinTech in Iraq.* London: Al Nessor Law Firm.

Li, J., Yu, W., & Xiao, J. J. (2020). The Impact of Digital Finance on Household Consumption: Evidence from China. *Economic Modelling, 86*, 317-326.

Marlow, D. (2023, January 2). *An overview of Cybersecurity Issues faced by the Fintech Industry*. Retrieved from Security Boulivard.

OECD INFE. (2011). *Measuring Financial Literacy: Questionnaire and Guidance Notes for Conducting an Internationally Comparable Survey of Financial Literacy.* Paris: OECD.

Qi Card. (2019, May 30). Important News From the National Pension Authority. Bagdad, Iraq.

Rikkeisoft. (2022). *Cybersecurity in Fintech: Standards & Solutions for Safe System.* Rikkeisoft.

Rudaw. (2022). *Iraq removed from EU list of high-risk money laundering countries.* Erbil: Rudaw.net.

Sironi, P. (2021). *Disrubtive & Sustainable Innovation and Coopetition on FinTech.* Istanbul: BKM.

Union of Arab Banks. (2017). *Financial Literacy in the Arab Region: A Prerequisite for Financial Inclusion.* Union of Arab Banks.

Welk, W. G. (1949). *Present Economic Position and Creditworthness.* Economic Department: World Bank.

World Bank . (2021). *The Global Findex Database.* Washingot, DC: The World Bank.

World Bank. (2021). *Automated teller machines (ATMs) (per 100,000 adults) - Iraq.* The International Monetory Fund.