

Islamic banks and the application of financial technology (a statistical study)

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Abstract:

The study aims to determine the reality of technology, especially in Islamic finance in various countries of the world, and its opportunities to increase the effectiveness of the Islamic finance industry, where the problem was: What is the reality of financial technology in Islamic banks? And identifying the obstacles facing its development and adoption in the world, where we relied in our study on a theoretical approach and another by collecting statistical data. The study reached a set of results, the most important of which is that financial technology can open new horizons and many innovations in Islamic finance products, on the other hand, this contributes to improving access to high-quality financial services, the study concluded recommendations, the most important of which is necessary Islamic finance institutions may enter into partnerships with world-leading companies specialized in the field of financial technology, and this would help these institutions to maintain their market share, by offering innovative financial products to their customers.

Key words: Financial technology, Islamic finance, Banking, Technology.

Introduction:

The period of transition in the financial services sector, especially with developments in the banking sector's technology innovations, has brought about significant changes in the financial transaction method. The latter relies on creativity and the ability to focus on the client with more flexible financial services than those offered by the traditional model.

Problem of the study:

To delve into the subject of Islamic financial technology, we pose the following problem: What is the reality of financial technology in Islamic banks in Algeria?

To go deeper into this topic, we ask the following sub-questions:

What is the importance of fintech in the banking sector?

What are the challenges facing the Islamic financial industry?

Objectives of the study:

Through this study, we aim to:

- Identify the opportunities offered by financial technology to Islamic banks that help them to establish a good partnership and relationship with other banks;
- Determine the most prominent obstacles to Islamic finance and the problems it faces until they are solved
- Investigate the reality of Islamic financial technology and the latter's opportunities to increase the effectiveness of the Islamic finance industry.

The importance of the study:

The importance of this study stems from an attempt to learn about the implications of Islamic banking's adoption of financial technology and the consequent change in the performance of the banking institution. The importance of the study also lies in demonstrating the extent to which financial technology facilitates the operation of Islamic banks.

1. First theme: Fintech

1.1. The Fintech Revolution around the World: It is a new branch of knowledge that mixes financial knowledge and financial technology, or in short, Fintech, i.e. technological skills in providing financial services and improving the internal performance of institutions. According to the Financial Stability Board, fintech is defined as "financial innovations using technology that can create new business models, applications, processes or products that have a material and tangible impact on financial markets and

institutions. It is also the provision of traditional financial services or the development of new and innovative technologies.” Currently, this technology includes various forms of technologies that are used to provide services ranging from digital banking, online insurance, crowdfunding, cryptocurrencies, and online trading of financial instruments. For instance, the blockchain is faster, cheaper, easier, and more accessible. In most cases, these services and products are developed by start-ups, but this does not negate the contribution of large players in the financial sector such as large banks. Moreover, the fintech industry has flourished in the last ten years, which has contributed to the acceleration of the growth of global investments in this industry (عیشوش و صدقاوي، 2021، صفحة 26). Therefore, financial technology is products and services that rely on modern technology, and are used to improve the quality of traditional financial services and operations or have an impact on institutions in the financial sector.

The importance of the use of financial technology in the financial and banking sector has increased over the past years, especially with the significant growth witnessed by related technologies and services, as these modern technologies have provided an opportunity for developing countries to go beyond the traditional model of traditional bank branches and make significant progress in increasing access to financial services to the most vulnerable. Financial technology can also improve the performance, transparency, and effectiveness of financial services (عيبوشة، صدقاوي، و برزاية، 2021، صفحة 56).

Fintech is not only important, but it can contribute to achieving broader goals, namely “diversifying economic activity and achieving financial stability”. The real measure of fintech success lies not in the development of another tool to provide convenience to customers and improve financially excluded opportunities in banks, but in the extent to which it contributes to enhancing the financial inclusion of small and medium enterprises in accessing finance, especially medium and micro enterprises. In most cases, these services and products are developed by startups. Startups are small companies that aim to expand by creating new markets or capturing a large share of existing markets by offering valuable propositions. Therefore, fintech start-ups are small and modern companies that promise to improve individual and corporate banking in collaboration or competition with existing financial service providers.

Characteristics of financial technology:

Financial technology is characterized by a set of characteristics represented in:

Speed: Information technology performs the process of processing information, including the transformation, processing, and calculation of information, in a fast way compared to humans, and this feature allowed to reduce the processing time of information significantly.

Approximation of distance: It means the economy of time spent on remote communication; nowadays it is possible to transfer immediately large volumes of information between countries of the world.

Storage capacity: This is evidenced by the development of electronic media used to store information, as well as the continuous development of systems that manage existing databases and documents that allow each user to access a large mass of information, regardless of where it is stored.

Flexibility of use: a very basic feature that can be used in very wide and different fields (السبع، 2021، صفحة 20)

The importance of fintech:

Fintech connects the ICT and financial sectors as a framework for collaboration between financial regulators on innovation-related topics that would help build institutional capacity and enhance the conditions for the integration framework for the expansion of fintech related to financial inclusion. The importance of financial technology is not limited to improving customer service, raising the efficiency of providing financial services, and reducing costs and completion time, but financial technology can contribute to achieving broader goals, which are diversifying economic activity and achieving financial stability. The real measure of the success of fintech lies not in the development of another tool to provide convenience to bank customers, but in the extent to which it contributes to enhancing financial inclusion for financially excluded groups and improving access to finance, especially for small, medium, and micro enterprises. (السبع، 2021، صفحة 21)

1.2. Key Fintech Sectors:

Fintech companies offer a wide range of financial services that include several sectors that can be summarized in the following five elements: (حرفوش، 2019، صفحة 30)

Payment Services: they are the most active and flexible banking activities that Fintech provides to many customers, providing them with a range of various payment methods such as mobile payment, money transfers abroad, e-commerce payment flow management, and currency exchange at no cost (TransferWis, Kantox).

Retail Banking: includes simple retail online banking, without any physical agency presence, at low costs. It includes also budget management solutions as well as various personal financial management tools.

Investment and financing: Fintech attracts the savings of individuals, by offering simplicity in offerings granted, crowdfunding platforms for companies, whether in the form of loans or capital investment, as well as providing online financial advice to individuals.

Services provided to banks on the basis of a large data base (big data): It provides solutions aimed at the banking sector through the collection and analysis of a large database, which will improve customer relationship management (buying behavior, savings, and solvency).

Services for banks and companies: Fintech offers many solutions to improve corporate governance, such as blocktech technology, which develops solutions, based on blockchain technology, with regard to transaction registration, information processing, risk management, tax management... Etc

1.3. The reality of fintech companies in the world:

- ✓ **Growth in fintech investments:** The rise in fintech investment globally is due to three centers: Silicon Valley, New York, and London. Although the United States accounted for more than 60 percent of investments in fintech fields, Asia's share of annual investments tripled from 6 percent to 19 percent in 2016. All regions of the world are in one of the three stages of the Fintech 8 cycle (wamda, 2016, p. 09).

- ✓ **New environment:** most fintech startups are still in the idea stage or the early stages with less let dealing with customer acquisition laws.
- ✓ **Ecosystem:** The first group of fintech startups has a large customer base, three-figure annual investment rates, and increased collaboration with new companies.
- ✓ **Entrepreneurship ecosystem:** It is the one that reaches the stage of saturation and fewer deals, but their sizes are larger, estimated at approximately more than a billion dollars, and only some European countries and the United States of America have reached this stage.

2. Islamic banks:

Islamic banks are financial monetary institutions concerned with collecting monetary resources from individuals and institutions, and employing them in society in accordance with the rules of Islamic law in economic transactions, thus contributing to exemplary economic and social development.

2.1. Principles of Islamic Banking Philosophy:

The philosophy of banking organizations is based on the idea of financial intermediation and risk tolerance to make a profit, while the philosophy of Islamic banking is based on main principles: (chehrit, 2007, p. 42)

The principle of investment delegation: is given to the Islamic bank by depositors, where depositors deposit their money in the Islamic bank under written contracts authorizing the bank to invest their deposits within a certain period in exchange for obtaining an agreed percentage of the profit. Under that authorization, it invests those deposits separately in certain projects or merges and invests them all;

The risk principle: with the funds of shareholders and depositors together. Based on the mandate, the Islamic Bank invests the funds of shareholders and depositors together in certain projects of its own or by participating in projects with others in order to obtain satisfactory returns for shareholders and depositors.

Islamic banking windows are a move to improve the performance of the Algerian banking system: The Bank of Algeria has officially adopted banking windows in accordance with Law No. 18-02. 2018.

2.2. The concept of Islamic windows:

Islamic windows are defined, according to the Islamic Financial Services Board, as part of a conventional financial services institution, where a window or specialized unit of that institution provides money management services (investment accounts) and financing and investment services that comply with the provisions of Islamic Sharia. (قسومية و بن غرز، 2018، صفحة 18)

It is also defined as branches that belong to conventional banks and practice banking activities and operations in accordance with the provisions of Islamic Sharia, and therefore the conventional bank can through these branches practice Islamic banking activity in parallel with its practice of conventional banking activity. (شحرور، 2001، صفحة 33)

This definition enables us to define the concept of Islamic banking windows as a spatial space that opens within the conventional banking space for the practice of Islamic banking, within the framework of contract banking for the purpose of providing Islamic banking services and products specified by the monetary authority of the state.

The relationship of Islamic banking windows with conventional banks:

Islamic banking windows are part of the conventional banking space and operate under its umbrella in accordance with the legislation and laws of the conventional monetary authority according to the relationship of a superior and a subordinate. The Central Bank of the State grants accreditation to the conventional bank to practice its conventional banking activity, which in turn requires the Central Bank to grant it a license to open an Islamic banking window to practice Islamic banking services represented in a number of contracts such as sales contracts with profit margin “Murabaha”, leasing, profit and loss sharing, as well as legitimate “Mudaraba”. There must be a primary asset in all sales or lease banking, unlike conventional banking, where the asset is limited to being collateral but does not necessarily form part of the lending transaction. Furthermore, the Central Bank of Algeria has approved the banking services allowed to deal within the Islamic banking windows represented in: Murabaha (cost plus)- Musharaka (sharing)- Mudaraba (speculation)- Ijara (leasing) - Istinfaa (benefit)- Silm (forward sale)-

and deposits in the investment account, as stated in Law No. 18-02, 2018 of the Central Bank of Algeria.

2.3. Services of the Islamic Window Banking:

The aforementioned Bank of Algeria law on the establishment of Islamic banking windows approved a set of Sharia services that are completely contrary to the classic services, which we mention as follows: (صفوان، 2008، صفحة 211)

Mudaraba (speculation): it is based on combining capital and labor, thus combining those who have money and those who can work, which leads to social balance and solidarity between people and reduces the severity of the effects of social classes. Mudaraba is the first tool for employing funds available to Islamic banks through which the bank's funds can be operated, make profits, and contribute to the operation and exploitation of creative energies and competencies.

Musharaka (sharing): it is one of the tools officially adopted by the Central Bank of Algeria as a service marketed by Islamic banking windows, and it means participation between two or several parties in the process of financing or investment creation, and differs from Mudaraba as a mechanism with multiple shareholdings.

Murabaha (cost plus): Islamic Murabaha is what is known in Islamic jurisprudence as sales, and Murabaha sale is one of the types of Islamic and basic sales. Murabaha makes the bank a trader in goods or services, as it buys the commodity in its name and then resells it to its customers with a profit margin calculated according to the price of the commodity in the market without exaggerating the prices, taking into account the purchasing power of the individual.

Ijara (leasing): it is a legitimate instrument in Islamic banking transactions approved by the Central Bank of Algeria for Islamic banking windows. It means investing the bank's money in purchasing expensive means of production that are required in recruitment and operation, and then Islamic banking windows lend them to customers in different economic fields such as agriculture, manufacturing, or even for individual and private purposes. Its fee is paid according to the contract of agreement concluded between the parties.

Istisnaa (Tooling): Linguistically, it is a productive economic process that takes place between two people, the first who wants to obtain a material product and the second who is the executor or manufacturer of the process, even if he mediates at a factory or craftsman. In this way, a mandatory contract arises between three parties, and Istisnaa is completely different from Murabaha, as it takes into account the tastes of consumers who are looking for the quality of the commodity while maximizing their own benefit.

2.4. The problem of opening banking windows in Algerian classical banks:

The process of opening banking windows in Algeria can result in many negative effects, which constitute a problem for its work, which we summarize as follows: (هنّي، 2017)

1. The problem of running these windows by the Bank of Algeria through the duplication of conventional and Islamic work in the same banks.
2. The dominance of conventional banks in the provision of Islamic banking services does not encourage the establishment of Islamic banks.
3. Providing Islamic banking services through conventional banks affects the confidence factor and distorts the Islamic banking business due to the lack of clarity on the Islamic position of these services.
4. Opening these windows in conventional banks would contribute to the continuity of the latter, which is not acceptable in Sharia.
5. The problem of mixing Islamic money in windows with the money of the parent bank.
6. Lack of clarity of vision at the level of the bank as a whole regarding management plans and what is related to Islamic banking.

3. Fintech adoption in the Islamic banking industry:

With the advancement of Islamic banking and finance, technology has become a key enabler of future financial and business services. Although Fintech is not a new concept, it was only since 2014 that the sector has attracted the interest of regulators and participants in the Islamic banking industry and consumers alike. With the combination of Islamic finance and fintech, Islamic fintech has emerged as an Islamic version of fintech. (علي، 2019، صفحة 79)

Before 2016, fintech in Islamic finance was in the form of a crowdfunding platform. In 2016, some notable achievements were recorded such as the introduction of the Robo-Advisor (Islamic Advisor approach) and the Islamic account platform IAP. There are also other Islamic fintech initiatives launched or announced in 2016 such as the IFT Alliance, the Islamic Fintech Centre and, P2P Islamic Finance (Lumpur, 2019, p. 12).

Some of the Islamic finance players that have entered the fintech space also include Abu Dhabi Islamic Bank (ADIB), Dubai Islamic Bank (DIB), and National Bonds, which is a Shariah-compliant savings company. ADIB has teamed up with IBM to build a digital studio working on digital innovation projects, including iOS mobile banking apps based on IBM's Bluemix cloud platform and IBM Mobilefirst. Moreover, Dubai Islamic Bank (DIB), the largest Islamic bank in the UAE, also announced the launch of Visa payWave cards, which use contactless payments that allow customers to make transactions quickly.

In Malaysia, a major Islamic finance marketplace launched the Fintech initiative known as the IAP (investment account platform). IAP Integrated started its business in 2015 as a multi-bank investment portal based on the Internet. The portal facilitates brokerage by sponsoring banks to match project financing requirements with investments from individual and institutional investors via investment accounts.

In addition, the Dubai Multi Commodities Murabaha Program (DMCC) in the UAE and the Nasdaq Dubai Murabaha platform developed by Dubai in collaboration with Emirates Islamic and Emirates Islamic Financial Brokerage (EIFB), are among other notable Fintech initiatives, which Nasdaq Dubai's Murabaha platform uses Wakala-based certificates that enable Islamic financial institutions to offer cash financing to customers in a fast and efficient manner.

Another development in this area is the Shariah-compliant P2P lending platform Liwwa (based in Jordan), an online credit marketplace that enables borrowers to access capital and helps investors earn regular monthly returns on their investments. As for Islamic fintech companies, it was estimated at about 100 companies as of the end of February 2018; about 70% of these companies were active in providing financial services such as money transfer, crowd funding, and digital banking. The other 30% worked in technical infrastructure, Information

technology, artificial intelligence, and robotics among others. Of these companies, 46% were concentrated in Asia, 23% in Europe, and 23% in the Middle East.

3.1. Statistics about Islamic windows in the world:

The following table represents the ranking of countries by number of windows

Table (01): Ranking of Countries by Number of Windows

Countries	Rank	Year	Number of windows
Iran	1	2018	222397.00
Indonesia	2	2021	51472.00
Bangladesh	3	2019	33691.00
Pakistan	4	2021	21823.00
Saudi Arabia	5	2021	17650.00
Turkey	6	2021	17142.00
Malaysia	7	2020	11288.00
Emirates	8	2021	7075.00
Egypt	9	2019	5051.00
Jordan	10	2020	4363.00
Iraq	11	2020	4301.00
Qatar	12	2020	2425.00
Bahrain	13	2016	2034.00
Palestine	14	2021	1449.00
Brunei Darussalam	15	2021	1191.00
Nigeria	16	2021	926.00
Afghanistan	17	2021	898.00
Oman	18	2021	775.00
Libya	19	2020	466.00
Lebanon	20	2016	339.00
Kazakhstan	21	2019	176.00

) <https://www.sesric.org>(2022 ,/

The table represents the ranking of countries (21 countries) according to the number of Islamic windows they have during different years. As noted in the table, Iran has the largest number of Islamic windows with about 222397.00 windows, where the Iranian financial banking sector is a hundred percent Islamic financial sector. In second and third place, we find Indonesia and Bangladesh with 51472.00

and 33691.00, respectively. We notice a greater increase and spread of the number of Islamic windows in the world in general and in the Arab world in particular due to the religious background of the latter. Algeria has Al Baraka and Al Salam Bank as Islamic banks and has recently opened windows in most conventional banks representing Islamic services.

3.2. FinTech Opportunities and Challenges for the Islamic Banking Industry:

When talking about banks and their relationship with the financial technology industry, it can be said at the outset that this industry and its various applications represent opportunities and challenges at the same time for banks and financial institutions, which requires banks and regulators to consider how to achieve a balance between maintaining the integrity and durability of the banking system, and developing innovation in the financial and banking sector.

Opportunities and prospects for the Islamic banking industry in light of the adoption of financial technology: Fintech helps to open new growth opportunities for the Islamic banking industry through faster execution and better tracking of transactions. The following are the opportunities that financial technology gives to the Islamic banking industry:

1. **Ease and speed of transactions:** This is especially true for payment and money transfer services, where those in charge of the Islamic finance industry can take advantage of the possibilities offered by financial technology and other innovations to enhance its services and attractiveness. Technology can also reduce costs, allowing employees to be redeployed to higher value-added operations.
2. **Transaction tracking:** Using blockchain can help reduce the industry's exposure to risks related to transaction security or identity theft. This may also disrupt the way instruments are issued and managed. The blockchain technology solves three challenges related to issuing and managing instruments:
 - Tracking of underlying assets, which help investors better avoid instruments-related risks in their portfolios;
 - Track cash flows, which help issuers implement immediate corrective actions if an underlying asset is underperforming;

- Investor traceability, which can work with smart contract protocols to find faster solutions outside of the instruments-related disputes.
- 3. **Improving governance:** Regulatory technology can help the Islamic finance industry with more powerful tools to achieve compliance with Sharia regulations and requirements, assuming agreed Sharia standards exist, and can reduce reputational risks related to potential violation of Sharia requirements and free Sharia scholars to focus on innovation. In addition, providing adequate physical infrastructure and implementing the necessary regulatory framework are prerequisites for fintech to enrich the Islamic finance industry.
- 4. **Greater access to Islamic finance services:** Fintech can also help the Islamic banking industry expand its reach and benefit from new excluded customer segments. For example, new growth horizons can be achieved by providing mobile banking services to customers in remote areas, or providing products such as crowdfunding for affordable housing or small and medium-sized enterprises. (damak, 2020, p. 11)

3.3. Challenges of adopting financial technology in Islamic banks:

Globally Despite all the opportunities that technology offers to various sectors including the banking sector, it is also associated with a number of challenges and risks. Islamic finance institutions face greater challenges as a result of the development of financial technology due to their emerging situation, as they suffer from lower levels of digitization compared to traditional finance. Islamic banks still suffer from lower customer engagement in mobile banking services compared to conventional banks. According to BCG, banks that are still lagging behind digitally could see profits fall over the coming years, by between 15% and 30% compared to their digitally accelerated competitors.

Fintech's greatest potential impact on Islamic finance will be the expansion of Islamic financial services as an alternative to traditional finance, especially in markets where the concept of Islamic finance has not yet evolved. However, traditional Islamic finance providers will face tighter competition with Fintech affected by its margins. International financial institutions may also end up having a low deposit and investment portfolio, while increasing online investment options to increase consumers, which will force international financial institutions to provide services via digital channels, consolidating offers for clients. Here, some

IFIs may also collaborate with Fintech companies, allowing them to focus on their core disciplines.

It is clear that cybersecurity and data protection from the challenges of adopting financial technology are followed by oversight with a number of other issues, but their scores have been modest, suggesting that many challenges can be overcome. Attracting and retaining customers is also of concern to Islamic bankers, which can be understood in the midst of a highly competitive financial industry centred on acquiring new customers and expanding the provision of products among customers. Banks face this competition not only from traditional banks and other Islamic banks but also from the emergence of non-traditional business models based on financial technology.

According to the results of the Global Questionnaire for Islamic Bankers issued in June 2020, the more financial technology is used within the Bank's systems and operations, the greater the exposure of the Bank to technology and cybersecurity risks, such as data management, malware, hacking, and impersonation attacks. This increasing trend in technological risk scores in recent years represents a reasonable trend given the increase in electronic banking and related threats. Perhaps unsurprisingly, technological risks have emerged strongly as a concern for Islamic banks, as technology and cybersecurity currently affect almost all aspects of banks' business. It is logical that while banks are making their utmost efforts to expand their customer base and provide new financial products and services, cybersecurity risks will be a matter of urgent concern to them. In addition, the development of fintech and digitization of banking means that banks will have to reinvent their entire business model, as the future of retail banking in emerging markets will increasingly depend on mobile/smartphone apps. This prompts Islamic banks to keep pace with the age of digitization, as a result of which, the boards of most Islamic banks have agreed to spend on digital initiatives worth \$15 million and \$50 million over the next three years. (the emergence of fintech, 2017)

Conclusion

Expanding the reach and utilization of Islamic financial services requires more reliance on fintech to attract more users with the technological revolution in telecommunications and electronics that the world is witnessing during the 21st century, as well as in the extraordinary circumstances imposed by the coronavirus

pandemic. The study has concluded a number of results, the most important of which are:

- The use of financial technology contributes to increased levels of financial inclusion, as it contributes to improved access to financial services;
- Islamic fintech has considerable room for growth, with largely unaddressed opportunities in several areas.

Recommendations

Based on the foregoing study, a number of recommendations can be made:

- Given the need of the future economy for technologically competent citizens, technology should be used in the curriculum in order to create young people with the ability to innovate and deal with sophisticated fintech.
- It is essential for Islamic finance institutions to partner with the world's leading and specialized companies in the field of financial technology. This will help these institutions maintain market share by providing innovative financial products to their customers.
- Islamic financial institutions and regulators should strike a balance between risk avoidance and the global trend towards fintech innovations and digitization.

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