

The Role of Financial Technology in Promoting Financial Inclusion**Harfouche Saida**Associate Professor, Lab for MQEMADD, Djelfa University (Algeria),
s.harfouche@univ-djelfa.dz**Received: 09/09/2024****Accepted: 16/10/2024****Published: 19/11/2024****Abstract:**

This study aims to highlight financial technology by exploring its concept, development, and key services. It also seeks to understand financial accessibility, its significance, characteristics, and connection between financial technology and financial by looking at the function of FinTech services and their contribution to enhancing financial inclusion. Ultimately, the study concludes with several findings, primarily that financial technology involves the use of modern technological advancements, which facilitate the delivery of financial services and products easily, quickly, and at the lowest possible cost. This contributes to reaching various segments of society, especially vulnerable and marginalized groups, through digital payment services and the benefits of alternative financing, thereby promoting financial inclusion.

Keywords :

Financial inclusion, financial technology, digital payments, alternative financing, crowdfunding platforms, peer-to-peer lending.

JEL Classification: G10, G19.

1. Introduction:

In recent years, a rapidly growing and evolving field known as Financial Technology (FinTech) has emerged. This field involves using technology to improve and streamline financial services and goods through numerous applications, technologies, and solutions that advance and revolutionize the provision of financial services and goods. among the most popular places FinTech are digital payments and alternative financing, such as crowdfunding and peer-to-peer lending.

FinTech plays a pivotal role in enhancing financial inclusion. Technological innovations in financial services and products have created new means to expand access to financing and essential financial services for various segments of society, particularly marginalized groups who are excluded from traditional financial systems.

These developments, especially in mobile technology and financial applications, have led to the widespread adoption of digital financial services and payments, thereby improving access to financing for different segments of society. Consequently, FinTech represents a powerful tool for increasing financial inclusion and providing opportunities for marginalized groups to benefit from essential financial services and products.

1.1 Study problem:

The following key question can be used to formulate the study's problem:

To what extent does FinTech enhance financial inclusion?

1.2 Study Hypotheses:

- FinTech contributes to supporting financial inclusion by utilizing modern technologies, particularly remote applications.
- Financial services via mobile phones help reach a large segment of marginalized groups in society.
- The emergence of crowdfunding and peer-to-peer lending platforms has significantly facilitated access to financing for various segments of society.

1.3 Importance of the Study:

This study's significance comes from its emphasis on the advancements in financial technology, as financial innovations contribute to improving the quality of financial services and simplifying them to reach various segments of society at lower costs. It helps facilitate access to digital payments and loans, while enhancing transparency and financial awareness, enabling marginalized groups to access a range of financial services and thereby promoting financial inclusion.

1.4 Research Methodology:

This study relied on both the descriptive and analytical approaches to define the theoretical framework of financial technology and financial inclusion. Additionally, it presented and analyzed various statistics related to the sectors of financial technology that contribute to enhancing financial inclusion.

2. The conceptual framework of financial inclusion:

2.1 Concept of Financial Inclusion:

Financial inclusion refers to the availability and usage of various financial services by various societal groups through official channels, such as banking and savings accounts, insurance services, financing and credit, and payment and transfer services offerings. This is meant to prevent some people from depending too much on unofficial channels that are comparatively costly and not subject to the bare minimum of oversight and control. As this Their financial needs may be harmed by the misuse of banking and financial services.¹

It is also defined as the state in which individuals and the workforce have access to different financial services and products (like credit, savings, and payment transactions, transfers of funds and insurance) at a reasonable cost, meeting their needs and helping them improve their standard of living in a safe and sustainable manner.

The World Bank defines financial inclusion as the process by which individuals and Businesses can obtain helpful financial services and products (like transactions, insurance, savings, credit, and payments) at reasonable costs, given in a responsible and in a manner that is friendly to the environment.²

What the Organization for Economic Cooperation and Development (OECD) claims Financial inclusion, according to the International Network on Financial Education, is the process of encouraging the availability of numerous regulated and authorized financial services and products at a fair price and in a sufficient amount, increasing the use of these products by various groups within society. This is accomplished by creative methods that include financial To improve social inclusion, financial well-being, and awareness, as well as economic integration.³

The Bank of Algeria defines financial inclusion as the accessibility and financial services used by various societal groups, especially the marginalized via official channels, such as payment and transfer methods, savings and banking accounts, services, credit, and the development of better financial services at affordable prices reasonable costs. Additionally, safeguarding the interests of financial services customers and urging these groups to properly manage their finances and savings in order to refrain from to unofficial channels devoid of regulatory monitoring and oversight, and levy comparatively high fees. The degree of financial inclusion is determined by the accessibility of financial services, how they are used (demand side), and how well they are integrated the supply and demand sides.⁴

Therefore, financial inclusion can be defined as: "Ensuring the integration of all segments of society, including individuals and institutions, in accessing the financial services they need to improve their lives, especially the vulnerable segments, at the lowest possible cost".

2.2 The Importance of Financial Inclusion: It can be summarized as follows⁵:

A. Financial inclusion enhances financial stability and economic growth: Studies have demonstrated a robust relationship between financial stability, inclusion, and economic expansion. The goal of financial inclusion is to give all societal segments access to official financial services via official channels at fair prices. It is difficult to achieve financial stability and acceptable economic growth when a significant portion of the Institutions and the populace are still financially shut out of the economy. A monetary structure that does not encompass all population segments lacks sufficient information about the actual production

and investment levels in society. As a result, the likelihood of financial shocks increases, and its ability to achieve Stability declined. This, attaining financial inclusion contributes to the stability of finances..

B. Financial inclusion promotes competition among financial institutions: This is achieved by diversifying their products, focusing on quality to attract a larger number of customers and clients, and regulating some informal channels.

C. Financial inclusion is a key factor in achieving sustainable development goals: Widely disseminating financial services contributes to improving living standards, empowering women, financing micro-projects, decreasing inequality and poverty, offering job openings and the incorporation of the unofficial sector into the formal economy Through formalization small and medium-sized enterprises. Consequently, it raises economic growth rates.

D. Financial inclusion emphasizes the social aspect: This is evident in the focus on the poor and low-income individuals by ensuring their access to financial products fairly and at low prices, thus improving their social and economic conditions.

2.3 The dimensions of financial inclusion: Here are the key components of financial inclusion according to the World Bank methodology :

A. First Dimension: How Bank Accounts Are Used:

- The proportion of adults who have official bank accounts;
- Accounts' purpose (personal or business) ;
- Utilization of accounts (deposits, withdrawals);
- Access to accounts (ATMs, branches).

B. Second Dimension: Savings:

- Formal savings with financial institutions;
- Informal savings mechanisms;
- Other savings methods (e.g. at home).

C. Third Dimension: Borrowing:

- -Percentage of adults who took out a loan from a monetary organization;
- The proportion of adults who took out a loan in the previous year months from traditional informal sources (including borrowing from family and friends).

D. Fourth Dimension: Payments:

- Percentage of adult recipients of government or wage payments who used a formal account funds made during the previous 12 months,
- The proportion of adults who transferred or received money from relatives who have moved within the last year;
- The proportion of adults who send and receive messages or pay bills using mobile phone funds over the previous 12 months.

E. Fifth Dimension: Insurance:

- Percentage of adults who have insurance coverage;
- Percentage of adults working in agriculture, forestry, fishing, or other activities who have insurance coverage against natural disasters.

3. Financial Technology (Fintech):

3.1 Concept of Financial Technology:

The term "Fintech" is a combination of two terms: "technology" and "finance." It refers to innovative start-up companies that use technology to redefine financial and banking services. Following the 2008 financial crisis, a significant number of bankers and traders left financial centers worldwide and embarked on entrepreneurial ventures to reimagine the financial model through financial innovation.

FinTech can be defined as simply the use of technology in the finance industry. These advancements pertain not only to services provided by particular industries but also to all products and services provided in Industry are referred to as financial technology or FinTech. the application of creativity and technology to challenge conventional financial practices in the provision of financial services⁶

FinTech, a nascent financial sector, utilizes technology to enhance financial The term "activities" describes the new business models, applications, procedures, and products in the financial services sector, which includes a number of related financial services and are given as an integrated process via the Internet FinTech can also be considered as any creative ideas that work to improve financial service operations by proposing technological solutions according to different work situations ⁷.

The Financial Stability Board defines it as technological advancements in finance that introduce novel applications, procedures, business models, or goods that have a measurable influence on financial institutions, markets, and the delivery of financial services⁸.

The Arab Monetary Fund defines it as "products and services that rely on modern technology and are used to improve the awareness of traditional financial services and processes or have an impact on institutions in the financial sector."⁹

Therefore, Financial Technology can be defined as any invention or innovation that relies on technology to develop the financial sector. It aims to improve the quality of financial services, facilitate access to them, and reduce their costs compared to traditional transactions.

3.2 Evolution of Financial Technology:

Financial technology (fintech) has a long history, as it is an integral part of the financial services industry. Innovations in financial technologies have contributed significantly to making financial services more automated and efficient. The following outlines the key phases in the evolution of financial technology¹⁰:

A. Fintech 1.0 (1866-1967) is the phase focused on infrastructure development

The initial phase of financial globalization was characterized by simple technologies such as the telegraph, railroads, and steam engines that enabled the rapid transmission of financial information. This period includes the following key events:

- The laying of the first transatlantic cable in 1866, which facilitated the fast exchange of financial data across the Atlantic Ocean;
- The establishment of the first electronic money transfer system, Fedwire, in the United States in 1918;
- The introduction of credit cards in the 1950s, such as Diners Club in 1950 and American Express in 1958, which helped to reduce the burden of carrying physical cash.

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B. Fintech 2.0 (1967-2008) is about banks:

This period is characterized by the shift towards digital technology, led by traditional financial institutions. It includes several notable events:

- When the first portable calculator was introduced and the first automated ATM was invented in 1967 by Barclays Bank;
- The founding of NASDAQ, the first digital stock exchange in history, in the early 1970s;
- The Society for Worldwide Interbank Financial Telecommunication was established. Global Financial Messaging System (EFMS) was established in 1973;
- The development of mainframe computers for financial institutions, the 1990s internet boom, and growth of business models in e-commerce.

C. Fintech 3.0 (2008-2014) is the era of startups:

After the 2008 global financial crisis, which quickly turned into an economic crisis, the general public no longer trusted the traditional banking system, leading to a shift in mindset and paving the way for a new industry - Fintech 3.0. This period was characterized by the emergence of financial technology (fintech) startups:

- Cryptocurrencies gained prominence after the launch of Bitcoin in 2009;
- The widespread adoption of smartphones enabled millions of people around the world to access the internet and use financial services;
- The launch of Google Wallet in 2011, followed by Apple Pay in 2014.

D. Fintech 3.5 (2014-2017) is about globalization:

Fintech 3.5 denotes a departure from the financial industry dominated by the West and considers the global expansion of digital banking, with advancements in Fintech innovation. It centers attention on how customers behave and use internet access in developing nations. In China and India, for instance, markets that have never been open to new ideas because it took time to build the physical banking infrastructure in the West. quicker resolutions. There are more and more new competitors in this era, and their advantages as last movers.

E. Fintech 4.0 (2018-present) is about disruptive technologies:

The integration of new technologies, such as artificial intelligence, blockchain, and cloud computing, into the fintech sector has accelerated during this era. Fintech is shaping the future of financial services.

3.3 Fintech Services:

Fintech has revolutionized the financial services market and has dealt with a wide range of services, which can be summarized in the following five elements¹¹:

A. Payment Services: This refers to the most active and flexible banking activities offered by Fintech to many customers, providing them with a range of payment methods, including:

- Mobile payments;
- Low-cost international money transfers (e.g., TransferWise);
- Currency exchange without fees (e.g., Kantox);

- Streamlining payment flows available for e-commerce, facilitating online payments, and introducing innovative payment methods;
- Simplifying peer-to-peer payment processes.

B. Individual Banking Services: These include simple online banking services targeting individuals without the need for physical branches, with low costs. These services also include budget management solutions and various tools for personal financial management.

C. . Investment and Financing:

- Fintech attracts individual savings by offering simplified investment options;
- It provides crowdfunding platforms for companies in the form of loans (crowdlending), equity investments (crowdequity), or donations;
- Fintech offers online consultation to assist individuals in managing their savings, analyzing risks, and providing diverse investment proposals.

D. Services provided to banks based on a large data base (big data):

These services provide solutions targeted at the banking and financial sector, by collecting and analyzing a large data base, which can improve customer relationship management (behavior, savings, career pathways of customers, and financial solvency), in addition to working in the cyber security space, by promptly identifying any fraudulent behavior shown by the client in their actions, like determining the location of smartphones, or protecting private information and data with encryption. Fintech assesses risks as well. and offers resources to support decision-making regarding portfolio management, additionally aid in the regulatory report preparation process.

E. . Services for Banks and Corporations:

Fintech offers various solutions to enhance corporate management. For banks, it includes blockchain technology solutions for transaction recording. For corporations, Fintech provides information processing software, information systems control procedures, risk management, tax management, and more.

4. Relationship between Fintech and Financial Inclusion:

As we have mentioned before, Fintech has a variety of sectors, including the payments sector, the lending (financing) sector, the insurance sector, regulatory technology, etc. These sectors can, in one way or another, affect financial inclusion, which essentially requires reaching different segments of society and providing them with all financial services. The Fourth Industrial Revolution has revealed many technologies in the field of Fintech that can enhance financial inclusion, the most important of which may be financial transactions or financial services through mobile applications and lending or financing through platforms, as we will see below:

4.1 Payments Sector:

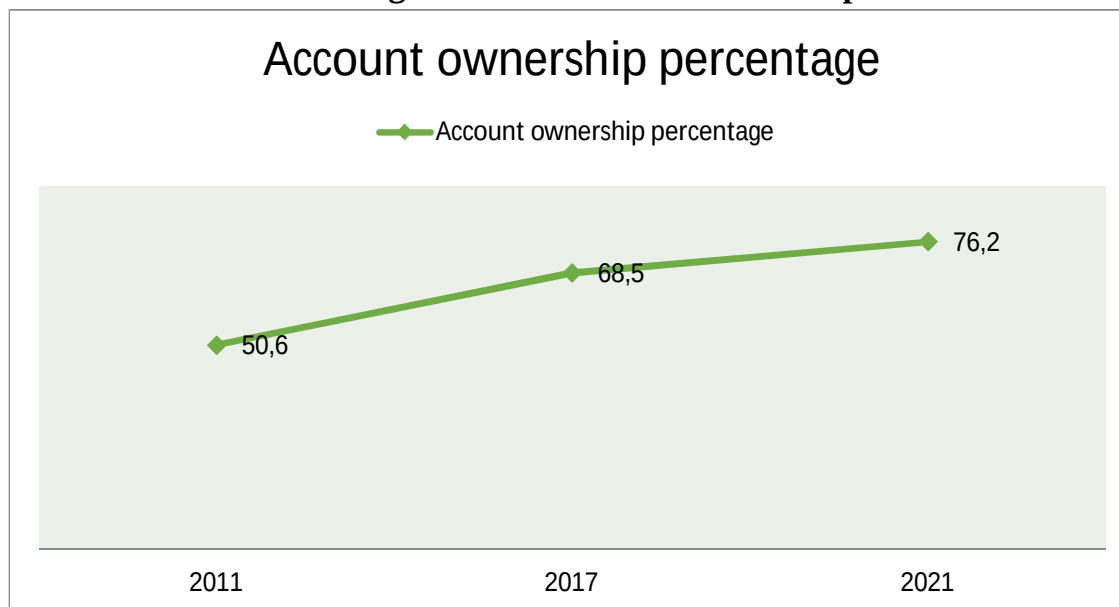
The payments sector refers to all banking services that provide payment methods, such as mobile payments, various online money transfers, etc.

A. Mobile banking applications:

Based on Figure 1, which shows the percentage of account ownership in countries around the world, we note that the ownership of bank accounts globally in 2021 has exceeded 76% for individuals over 15 years of age, compared to 68.5% in 2017 and 50.6% in 2011.

This confirms that the ownership of bank accounts through mobile (portable) phones is increasing and has reached a high percentage during 2021, meaning that account ownership has reached a significant segment of individuals in societies, which contributes to enhancing financial inclusion.

Fig 01: Global Account ownership



Source: Database Index Global 2021 p 16

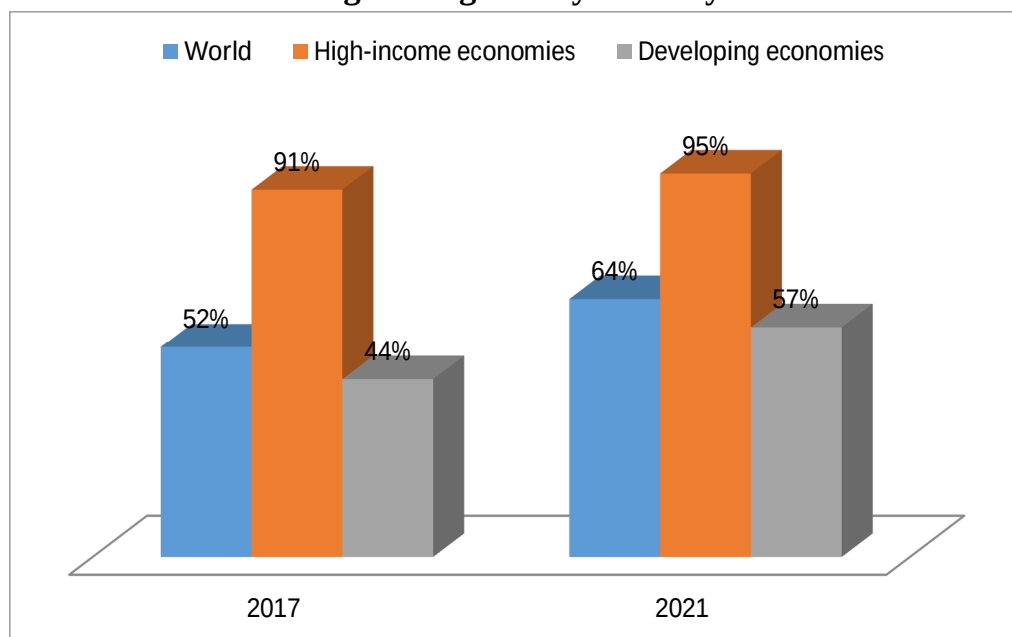
B. Digital Payments:

Digital payments refer to any transaction conducted through mobile phones or the internet related to money transfers or bill payments, such as using a digital wallet, credit card, or debit card, etc. According to Figure 2, which illustrates the growth of digital payments in the economies of countries around the world and in developing countries, 64% of adults globally have made or received digital payments, which is around 84% of those who own bank accounts (Figure 3) according to the World Bank report. This is broken down by income level as follows:

- **Global:** 64% of adults worldwide have made or received digital payments, which is around 84% of account owners worldwide in 2021, compared to 2017 when the percentage was 52% of adults making or receiving digital payments (around 76% of account owners worldwide). These percentages confirm that the use of digital payments globally is increasing, meaning these individuals have benefited from digital financial services, which is one of the fintech sectors and a requirement for financial inclusion. This confirms that fintech contributes to the requirements of financial inclusion, which necessarily aims to make financial services accessible to all segments of society.
- **High-income economies:** 95% of adults or 98% of account holders have made or received digital payments, meaning the use of digital payments is almost universal in high-income economies, covering most members of society in high-income countries.
- **Developing economies:** 57% of adults, or around 80% of account holders, made or

received digital payments, compared to 2017 when it was 44%, or 70% of account holders.

Fig 02: Digital Payments by Adults

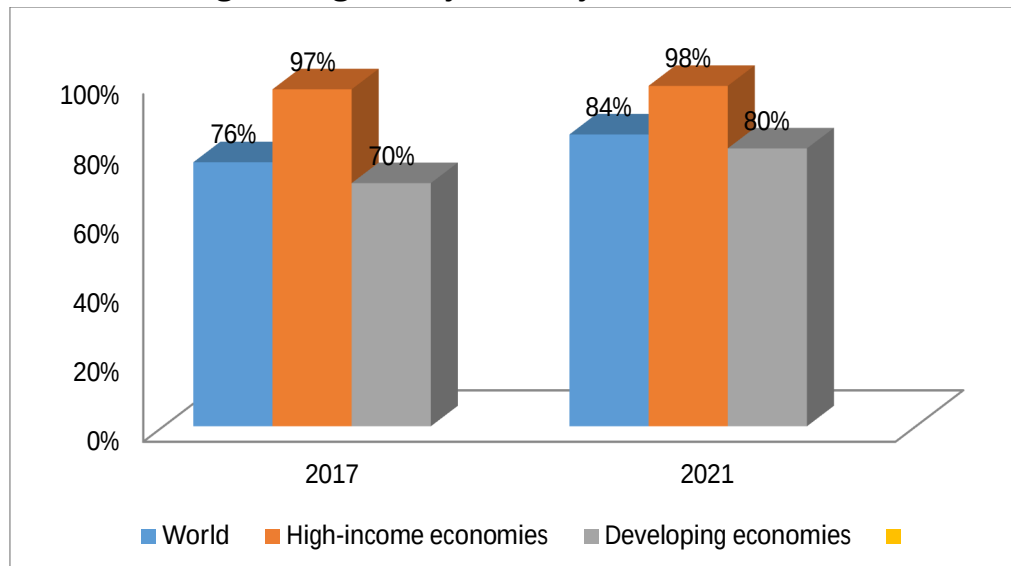


Source: Prepared by the researcher based on:

Database Findex Global 2021 p 56

Database Findex Global 2017 p 55

Fig 03: Digital Payments by Account Holders



Source: Prepared by the researcher based on:

Database Findex Global 2021 p 56

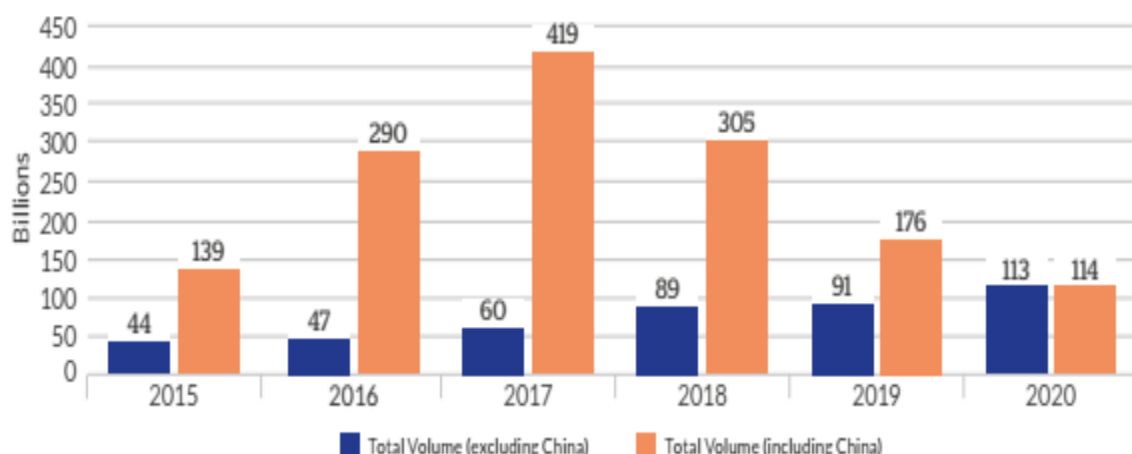
Database Findex Global 2017 p 55

What we observe is that the use of digital payments is almost complete, i.e. universal, in the economies of high-income countries, while in developing economies, the use of digital payments is evolving compared to 2017. This confirms that digital payments contribute to enhancing the reach of financial services to different segments of society and thus enhancing financial inclusion.

C. Alternative Financing (Crowdfunding Platforms, Peer-to-Peer Financing):

Alternative financing, whether crowdfunding platforms or peer-to-peer (P2P) financing, is considered one of the most important sectors of financial technology, and it is primarily based on online financing and the exclusion of traditional financing through banks or financial institutions. This industry has witnessed remarkable development in recent years, since its first appearance in 2015 through the development of platforms that handle this type of financing.

Fig n 04: Total Global Alternative Finance Volume 2015 - 2020, USD



Source: The 2nd Global Alternative Finance Market Benchmarking Report, June 2021, p. 35

From the fig n 04, which represents the volume of alternative financing during the period 2015-2020, we note that the world is following a gradual positive growth trend excluding China, where it reached \$44 billion in 2015 and continued to increase gradually until 2020 when it reached \$113 billion.

Considering China, and from fig n 04, we find that alternative financing reached \$139 billion in 2015 and continued to grow until 2017 when it reached \$419 billion, then it began to decline gradually during the years 2018 - 2019 - 2020 respectively. The reason for the decline is attributed to the decline in the volume of alternative financing witnessed in China, as it accounted for the largest share of the global alternative financing volume, reaching 86% of the total global alternative financing in 2017, due to the regulatory changes imposed by China on this sector, which affected the overall global volume of alternative financing.

The peer-to-peer sector is the main and dominant axis on the total alternative financing transactions in China, as it held the largest market share and recorded remarkable growth during the years 2015- 2016- 2017 respectively, but it recorded a significant decline in 2018, which may be attributed to the regulatory changes that China imposed on this type of financing.

Through the analysis of the previous data, it can be said that this market is gradually heading towards growth over the years and an increase in the volume of alternative financing in the world, which represents an important indicator of the access of many community groups to loans, confirming that the alternative financing sector, which represents an important part of the financial technology sectors, contributes effectively to enhancing financial inclusion.

4. Conclusion:

Financial technology (FinTech) refers to any invention or innovation that relies on technology to develop the financial sector. It aims to improve the quality of financial services, facilitate access to them, and reduce their costs compared to traditional transactions. FinTech has proven to be an effective tool for enhancing access to financial services for diverse segments of society, especially marginalized groups that have suffered from a lack of traditional services. Through innovations in digital payments and loans, this technology has improved the quality of financial services and reduced costs. Additionally, FinTech contributes to enhancing transparency and financial awareness, thereby increasing individuals' trust in the financial system.

The purpose of this study was to demonstrate how FinTech can advance financial inclusion, and we came to the following conclusions::

- Financial inclusion ensures the integration of all segments of society, whether individuals or institutions, in accessing the financial services they need to improve their lives, especially vulnerable groups, and at the lowest possible cost.
- Financial inclusion enhances financial stability and economic growth, fosters competition among financial institutions, and is a key factor in achieving sustainable development goals, while also addressing social aspects.
- FinTech utilizes modern technological advancements, encompassing a range of digital applications and solutions to improve and develop the delivery of financial services and products.
- FinTech offers a wide array of services across its sectors, such as electronic payment services, investment and financing, regulatory technology, and insurance technology, among others.
- FinTech promotes financial inclusion through various sectors.
- The electronic payment sector is the most significant contributor to enhancing financial inclusion, as evidenced by the statistics studied regarding account ownership and digital payment services worldwide from 2017 to 2021.
- The second sector of FinTech contributing to financial inclusion is alternative financing, known as crowdfunding platforms and peer-to-peer (P2P) lending. The development of this sector has been tracked globally from 2015 to 2020, showing an increase in alternative financing volume worldwide, which directly contributes to enhancing financial inclusion.

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