

**دور التكنولوجيا المالية في تعزيز الشمول المالي في الأردن :
التأثير الوسيط للبنية التحتية التكنولوجية**

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The Role of FinTech in Enhancing Financial
Inclusion in Jordan: The Mediating Effect of
Technological Infrastructure

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المستخلص:

تبحث هذه الدراسة في دور التكنولوجيا المالية في تعزيز الشمول المالي في الأردن، وتبحث في كيفية تأثير البنية التحتية التكنولوجية على العلاقة بينها. يركز البحث على تحليل كيفية تحسين العناصر المحددة للتكنولوجيا المالية، مثل عدد أجهزة الصراف الآلي وطاقات الائتمان وخدمات الدين الإلكترونية، لتوافر الخدمات المالية وإمكانية الوصول إليها وسهولة استخدامها. بعد تحليل البيانات التي تم جمعها من 500 مشارك على Smart PLS 4.1.0.7، كشفت النتائج أن المؤسسات المالية قد تحسنت بشكل كبير من خلال هذه العناصر المحددة للتكنولوجيا المالية. بالإضافة إلى ذلك، عززت TI تأثير التكنولوجيا المالية على المؤسسات المالية من خلال لعب الدور الحاسم كوسيط. على الرغم من أن النتائج تظهر نتائج إيجابية، إلا أن بعض القضايا الحرجة مثل متانة الأمن السيبراني المطلوبة، والدعم من السلطات التنظيمية، والوعي المالي الرقمي لا يزال غير معالج بشكل كافٍ في السكان المستبعدين مالياً. وهذا يتطلب المزيد من البحث للتغلب على المشاكل الحاسمة في اعتماد التكنولوجيا المالية والحلول المالية في الأردن.

الكلمات المفتاحية: التكنولوجيا المالية، الشمول المالي، البنية التحتية للتكنولوجيا، الخدمات المالية.

Abstract

This study examines the role of FinTech in Enhancing Financial inclusion in Jordan and investigates how technological infrastructure mediates the association between them. The research focuses on analyzing how the specific elements of Fintech, such as the quantity of ATMs, credit cards, and electronic debt services improve FS availability, FS accessibility, and ease of use. After analyzing data collected from 500 respondents on Smart PLS 4.1.0.7, the findings revealed that FI is significantly improved by these specific elements of FinTech. Additionally, TI strengthened FinTech's impact on FI by playing the crucial role of mediator. Although the findings show positive outcomes, some issues are critical like cybersecurity robustness is required, support from regularity authorities, and digital finance awareness is still under-addressed in the

financially excluded population. This requires further investigations to overcome crucial issues in the adoption of FinTech and financial solutions in Jordan.

Keywords: FinTech, Financial inclusion (FI), Technology infrastructure (TI), Financial services (FS).

Introduction

The financial industry has witnessed a technological transformation in recent years due to the growth of telecommunications platforms. These developments have simplified the evolution of several FinTech solutions, such as electronic banking, cellular wallets, automated credit assessment systems, blockchain technologies, and debit card machines and related digital platforms (Kanga et al,2022). Although the term "FinTech" has only recently gained extensive attention, its roots can be traced back to the development of ATM networks in the nineties. The development of secured, generic digital networks and the digitization of FS allowed the expansion of ATM networks. It laid a technological foundation for future developments in FinTech, such as Internet banking, mobile money, and digital payment systems. Limited research has examined the influence of technical advancements in the FS industry on FI and living standards, even though technological diffusion has revolutionized the financial sector (Walker, 2023).

FinTech is increasingly organized in the business sector due to the immense opportunities and its ability to redesign businesses through the innovative combination of information technology and finance. FinTech, as a key player in the fourth industrial revolution, is transforming the financial industry by leveraging the growth of global connectivity and internet proliferation to give innovative financial aid (Khuong et al., 2022). FinTech is not only a technological trend but an innovative technology-based economic system aimed at promoting social welfare, enhancing FS, and increasing financial activity. FinTech facilities are accessible around the clock, offering quicker processing rates, fewer delays, enhanced clarity of information, increased adaptability, and enhanced spatial accessibility. FinTech is making smartphone payments including bill payments, online shopping, and transfers more efficient (Broby, 2021).

The rising application of FinTech in the banking sector shows its ability to improve financial products, reduce expenses, inspire startups, and create a robust and sustainable economy. As a result of the rapid increase in smartphone usage and developments in mobile technology, the adoption of FinTech has increased. Individuals may now use their smartphones to transfer money and do online shopping more conveniently (Al-Mamary, 2022b). Mobile banking allows users to perform banking functions including tracking funds, receiving transaction notifications, making instant transfers, and checking balances (FM Masad et al, 2023). Another important component of FinTech solutions is electronic lending (Giarretta, 2021). Electronic debts can modify traditional FS's reach to underserved populations who are currently excluded by conventional financial channels.

Cecchetti and Schoenholtz (2020) stated that developing an inclusive financial industry offers two complementary benefits. Firstly, FI may link individuals who were previously not part of the market to participate in economic growth. Secondly, as a consequence of economic expansion, the economic framework

attracts more individuals towards the proper financial system (Schuetz 2020). Financial inclusion supports economic development by enhancing components including expanding individual's access to opportunities for entrepreneurship and savings mobilization, reducing their vulnerability to economic shocks, and changing their lifestyles. To achieve financial access and increase the availability of financial services new bank types, including microbanks, wireless monetary facilities, and payment institutions that serve people without bank accounts, have emerged. Increased economic participation, potential opportunities for FI, fewer costs, convenience, and real-time access can be achieved through FinTech platforms (Banna et al. 2021). Yet, the degree to which FI has enhanced through FinTech is still a crucial question, especially in a country like Jordan where the economy is developing because of the occurrence of unique challenges by digital infrastructure and user adoption. In recent years, mobile networks have rapidly expanded into previously underserved areas and communities in Jordan, which has contributed to the spread of FinTech. Payment banks have helped to increase efficiency and reduce operational costs by offering mobile or smartphone banking to serve customers in remote areas. Due to new specialized entrants, creative business models, and technological infrastructure, FinTech has blurred the lines between finance and technology, lowered entry barriers for traditional banking services, and enhanced the potential innovative opportunities in financial services. However, numerous people are still hesitant to adopt FinTech despite the incredible prospects it is delivering, which restricts the growth of both individuals and businesses.

The importance of FinTech solutions has been further emphasized by the COVID-19 pandemic. Lockdown, social quarantine, and other epidemic restrictions pave the path towards contactless financial transactions and increased demand for FinTech (alHazimeh et al 2024). The coronavirus outbreak has been one of the most significant occurrences in recent decades., It has had an enormous impact on society and the economy worldwide, encompassing humanity and leading to restrictions and actions like physical separation and worldwide lockdowns (Cárdenas et al., 2021). As a result, automation emerged as a crucial and practical solution during lockdowns, causing a surge in digital technology that altered consumer behavior. FinTech has been in high demand during the coronavirus epidemic, helping to make FS simpler and more accessible for communities (D Almajali et al., 2023). According to an empirical study, Jordan has adopted FinTech more often as a result of the coronavirus epidemic (Almashhadani et al, 2023). However, instead of this shift towards FinTech Jordanians in rural areas remain financially excluded. This situation raises the importance of gaining knowledge of how the adoption of FinTech can be crucial for FI in the country. Moreover, FinTech implementation alone, cannot bring enhanced FI. The IT infrastructure significantly impacts how well the available technologies improve performance and fiscal progress (Alzghoul et al., 2022). The technologies and processes found in IT infrastructure are crucial to the successful execution of FinTech solutions (Jinasena et al., 2023). Digital finance businesses have benefited from the government's pro-startup policies and the CBJ's flexible regulatory standards. Promoting FI has been the aim of the CBJ and related government programs. This has meant encouraging innovation and competition in Jordan's emerging FinTech sector on a fair playing field (Zainab,2023). This has led to the development of both offline and online solutions, resulting in

a more open and secure financial system. By establishing five axes the financial culture, financial protection for customers, and financing for SMEs, the CBJ also introduced the country's FI strategy. This approach seeks to accomplish two primary objectives: 1. Increasing the number of individuals with financial institution accounts, which indicates the degree of FI. 2. Reducing the disparity in financial access between genders (CBJ, 2021).

According to recent advancements, technology plays a crucial role in boosting FI since it can lower transactional costs of products, improve product quality, provide clients with more options and flexibility, and ultimately raise the financial product's benefit (Al-Slehat, 2023). Numerous studies have demonstrated that FinTech is a developing and sustainable endeavor in the financial system's execution of services, including payment systems. Governments and financial institutions must work together to close the gap in FI and guarantee that more people have access to affordable FS.

Previous scholars have studied the global rise and impact of FinTech however very few researchers have explored the role of FinTech and how to leverage it to improve FI in Jordan. Moreover, there is a lack of evidence on how the technological infrastructure and policy agendas control the relationship between FinTech and FI. In this study, the researcher tried to fill the gap by investigating how the adoption of Fintech improves FI in Jordan and examining the degree of financial exclusion. This research also focuses on the mediating role of technological infrastructure.

This research tried to find the answer to the following question while focusing on the primary objective which is to evaluate the role of FinTech in promoting FI in Jordan.

How can FinTech solutions enhance FI in Jordan?

To which degree are the Jordanians financially excluded?

How does the technological infrastructure play its role in supporting FI in Jordan?

This study's second section critically examines the definitions of FI, financial technology, and technological infrastructure as well as the connections among them. The research methodology, components, and variables that support financial technology's role in FI are examined in the third section. The fourth part discusses and analyzes the data collected throughout the data-gathering procedure. There is further discussion of the conclusion and implications.

Literature Review

Definition and Importance of Financial Inclusion

FI is defined as an activity that connects people who are unable to use and access FS to banks based on their financial capacity, thereby making FS accessible and allowing those who are economically excluded to become part of the economic system and participate in its progress (Banerjee et al, 2020). FI ensures that individuals with low incomes have exposure to timely, appropriate, and cost-effective financial and credit services. Liu et al. (2021) confirmed this by pointing out that government intervention and the ease and availability of FS are common factors that influence FI. Additionally, research on the impact, distribution,

and environmental factors of smartphone FS is still ongoing, and institutional conditions that support the execution of smartphone FS are biased (Kim et al., 2020).

Barajas et al. (2020) described FI as the availability of FS in the community, their level of benefit, their cost, and their quality. A person who has an account with a financial institution can employ electronic payment services in addition to lending and borrowing money. Iskandar (2020) added that FI encompasses several dimensions, including infrastructure quality, technological expertise, barriers, effective use, ease of FS, availability of FS, the standard of FS, knowledge of finances, and raising the quality of products. FI is favorably and significantly impacted by ease, safety, and effectiveness concerning cost, and simplicity of use (Gokilavani, 2020). Lamidi (2021) agreed that FI is a situation where all people have access to a variety of FS that are of excellent quality, have affordable costs, and ensure the comfort and safety of their clients. In other words, FI is the way that FS is defined by simplicity, lower prices, and accessibility for all businesses and individuals, irrespective of their size or net worth.

According to the literature, FI plays the role of a connector between financial stability and inclusive progress. However, the exciting literature lacks research on Middle Eastern countries like Jordan. The current literature focuses on FinTech and FI in developed economies and some developing countries.

FinTech and Its Role in Enhancing Financial Inclusion

FinTech can therefore be used to accomplish FI. Segura (2020) claimed that FinTech refers to innovative companies that offer financial services, mostly via automation. FinTech incorporates different software programs and machinery that permit banking services to generate a variety of banking transactions, such as debit and credit card transactions, electronic money transfers, e-money, ATMs, etc. It also denotes the growth of financial sector services through automated methods and Internet usage (Zaghol et al. 2021). FinTech relies heavily on cutting-edge technologies like blockchain, IoT, NFC, mobile wallets, and artificial intelligence. The incorporation of these skills into FinTech services has been explored. Barbu et al. (2021) suggested that the effect of FinTech is based on high-tech innovation and the application of creative programs, leading to 24/7 financing with customized development and delivery that improves the customer experience. According to Hassan (2022), investments in different software programs, high-tech systems, electronic devices, and the huge quantity of ATMs have a beneficial effect on the economic performance and long-term survival of the banking and financial industries as well as enterprises in general. Li et al. (2021) provided support for this notion, demonstrating that technological innovation is greatly enhanced by modern technologies, mainly those associated with big data, the web, smartphones, and portable devices, notably in the financial services sector. Phimolsathien (2021) defines FinTech as a group of cutting-edge digital services that incorporate one or more FS. Examples of these services include digital financial guidance, electronic cash transfers, ATM facilities, smartphones, online monetary payments, crediting and insurance offerings, and lending. The so-called "digital finance" on the other hand aims to achieve cheap costs and high efficiency while doing away with time and space constraints (Li, 2021).

FinTech offers the following numerous benefits to consumers, participants, and the economy: Customers: greater options for products, reduced costs, and high-quality services; players: FI support, information flow facilitation, transaction chain shortening, capital efficiency, and operational flexibility. According to Wardhani (2021), FinTech facilitates economic development, speeds up money transfers, and aids in monetary policy. Additionally, Saraswati et al. (2021) revealed that FinTech has a beneficial short- and long-term impact on household consumption as it affects every part of life and incorporates speed and effectiveness with it. Through automated processes that offer financial guidance and advice in the areas of revenues and monetary planning, FinTech assists with technology investment and savings (Nashaat, 2023). This is shown in the suitable collection of reserves, deposits, and collections of assets by investor preferences. The successful implementation of FI is improved by this FinTech application (Iskandar, 2020). Using data from digital payment services given via mobile devices and the internet, as well as another traditional FI index for FS offered by conventional financial institutions, he created a new measure of FI. According to their new measure, FI rose dramatically in several countries in the years after the COVID-19 pandemic. Jordan witnessed a rush toward using a mobile wallet because of quarantine restrictions (alsmadi & alsmadi 2024). This shows that FinTech can be helpful and can support the economy in crisis. Instead of the FinTech growth, Jordan still lags behind as the adoption rate of FinTech is still low in Jordan specifically in rural areas. This shows the possible holes in infrastructure and awareness of FinTech.

Technological Infrastructure as a Mediating Factor

Technological infrastructure helps in the successful implementation and deployment of FinTech solutions. It includes networks, data centers, hardware, and software, to be properly provided and facilitated (Hanafizadeh & Amin, 2023). Effective, creative, and customer-focused FinTech may establish a company as a leader in its field (Guerrero, 2023). However, the strength, adaptability, and scalability of an organization's IT infrastructure greatly influence how much use it can make of these benefits. Strong computer systems that can manage massive transaction volumes and facilitate data analytics are part of TI. Securing adaptable, scalable, and reasonably priced cloud services requires rapid net and sophisticated communication networks (Lobozynska et al., 2021). Network infrastructure guarantees the continuous operation of financial operations. Private financial data is protected by cybersecurity technologies such as intrusion detection systems, firewalls, and encryption (Despotović et al., 2023). Empirical research has shown how important TI is as an intermediary in the association between FI and FinTech adoption. For example, a study on the effective benefits of FinTech by Wang et al. (2021) showed a clear link between high-standard performance in the financial industry and a strong IT infrastructure.

FI, FinTech adoption, and IT infrastructure have a dynamic and complex relationship. The mediating influence of overall IT infrastructure makes it clear that it may either act as a barrier that prevents potential advantages or assist in accelerating FI through good FinTech integration. Since technology is always changing, one of the most important parts of this connection is its infrastructure (Chen, 2020). Blockchain-based systems and the growing trend of global decentralization present both possibilities and difficulties that

flexible and agile IT infrastructures must overcome. To be competitive, businesses must actively modernize and enhance their IT infrastructure.

Hypotheses development

Based on the above literature the author has selected FinTech tools like Quantity of ATMs, Credit cards, and electronic debt as the dimensions of FinTech. However, the technological infrastructure mediates the efficiency and efficacy of these tools. Wang et al (2021) agreed that TI mediates the relationship between FI and FinTech.

Furthermore, FI in the Hashemite Kingdom of Jordan will be measured through Access to FS, Ease of FS, and Availability of FS. To see the influence of FinTech on the FI in the Hashemite Kingdom of Jordan the author has proposed the hypotheses.

H1: The Quantity of ATMs positively influences Access to FS.

H2: The Quantity of ATMs positively influences the ease of FS.

H3: The Quantity of ATMs favorably impacts the availability of FS.

H4: credit cards favorably impact Access to FS.

H5: credit cards favorably impact the ease of FS,

H6: credit cards have a favorable impact on the availability of FS

H7: Electronic debts favorably impact Access to FS.

H8: Electronic debts favorably impact the ease of FS

H9: Electronic debts favorably impact the availability of FS.

H10: TI mediates the relationship between the Quantity of ATMs and Access to FS.

H11: TI mediates the relationship between the Quantity of ATMs and the ease of FS.

H12: TI mediates the relationship between the Quantity of ATMs and the availability of FS.

H13: TI mediates the relationship between credit cards and Access to FS.

H14: TI mediates the relationship between credit cards and the ease of FS.

H15: TI mediates the relationship between credit cards and the availability of FS

H16: TI mediates the relationship between electronic debts and Access to FS.

H17: TI mediates the relationship between electronic debts and the ease of FS.

H18: TI mediates the relationship between electronic debts and the availability of FS.

Methodology

Method and design

To provide a detailed analysis of the association between FinTech and FI in Jordan a mixed-method approach that focuses on both qualitative and quantitative techniques was used in this study. The researcher used quantitative as the primary method that relied on specially designed questionnaires and PLS-SEM. More precisely, the researcher employed Smart PLS software 4.1.0.7 to assess the study hypotheses. The researcher used the qualitative method in the design phase of the instrument as various experts and higher management of CBJ were interviewed to authenticate and refine the items of the instrument.

Sampling

FinTech users and businessmen who use mobile banking, ATMs, credit cards, electronic debt instruments, and other electronic payment services offered by FinTech in Jordan are the target population for the study. To ensure the regional representational from all the 12 governorates of Jordan it is hard to get opinions of a total population of 11.5 million individuals, a stratified judgmental sampling method was used. This method helped in the inclusion of individuals who are engaged in FinTech services. Initially, 800 questionnaires were distributed through Google Forms and emails. The response rate was near 62% as a total of 500 responses were collected in this phase. This sampling technique helped in reducing the selection bias by adding rural users as well and age, gender, and experience were also controlled. A Likert scale ranging from strongly disagree (5) to strongly agree (1) was used to collect responses from the participants.

Data Collection

Data was collected through questionnaires. Senior management at CBJ contributed to constructing the questionnaire, which was pretested before being used in the survey. To make the questionnaire easy and understandable it was divided into two subsections. Demographic data, including age, gender, and years of experience using mobile and other FS, were gathered from participants in the first section. Aspects of FinTech acceptance, FI, and the technical infrastructure were covered in the second part.

Variable Measurement

To test the hypotheses and provide reliable findings, the study included a collection of variables that need to be precisely computed. The three variables (dimensions) that are used to quantify FinTech are the Quantity of ATMs (QOA), credit cards (CC), and electronic debt (ED). The selection of these dimensions is based on the literature that revealed the significant impact of these dimensions on the adoption of FinTech and their significance in the financial ecosystem of Jordan.

Access to FS (AFS), ease of FS (EFS), and availability of FS (AVFS) are the dependent variables that assess FI. Each dimension was covered by several questions on the questionnaire, to which the sample governors' research observations responded. After separating the questionnaires for each governorate to guarantee reliability with the data of the dependent variables, the average of all Accepted observation answers for each governorate was taken into account.

Results and Discussion

Before doing the SEM, it was crucial to verify the acceptance and consistency of the constructs and examine the loadings of each item. We had to carry out this initial phase to guarantee strength in the model's measurement, which in turn lends confidence to the later structural assessment. The study's use of PLS-SEM methodologies, as detailed in Table 1, demonstrates the strong acceptance and reliability of the variables being examined (FI, FinTech, and TI). Looking at Table 1. The value of each factor loading is higher than 0.5. Loadings above 0.5 are considered acceptable as they show that the underlying construct is contributed sufficiently by each item. All of the items related to FinTech, FI, and TI showed strong loadings as all were

greater than the 0.5 threshold. This suggests that all the items are suitable for the study and that none of them were rejected. The thorough examination and enhancement of item loadings reinforces the measurement model as a whole, guaranteeing precise and consistent assessment of every item and opening the door for an acceptable investigation route for the structural model of the research.

This table also demonstrated that the CR values of all indicators were more than the standard value of 0.70.

Besides, all AVE results surpass the 0.5 criterion, confirming CV.

Table 1. Convergent Validity

CONSTRUCTS	ITEMS	F.LOADINGS	ACC/ NOT ACCEPT ED	CR	AVE
Quantity of ATMS	QOA			0.932	0.732
	QOA1	0.831	ACC		
	QOA2	0.798	ACC		
	QOA3	0.812	ACC		
	QOA4	0.930	ACC		
	QOA5	0.899	ACC		
Credit Cards	CC			0.916	0.686
	CC1	0.768	ACC		
	CC2	0.832	ACC		
	CC3	0.812	ACC		
	CC4	0.871	ACC		
	CC5	0.855	ACC		
Electronic Debt	ED			0.917	0.689
	ED1	0.833	ACC		
	ED2	0.862	ACC		
	ED3	0.861	ACC		
	ED4	0.792	ACC		
	ED5	0.801	ACC		
Access to FS	AFS			0.909	0.666
	AFS1	0.822	ACC		
	AFS2	0.781	ACC		
	AFS3	0.795	ACC		
	AFS4	0.836	ACC		
	AFS5	0.846	ACC		
Ease of FS	EFS			0.903	0.650

	EFS1	0.798	ACC	
	EFS2	0.799	ACC	
	EFS3	0.865	ACC	
	EFS4	0.732	ACC	
	EFS5	0.831	ACC	
Availability of FS	AVFS			0.928 0.720
	AVFS1	0.892	ACC	
	AVFS2	0.835	ACC	
	AVFS3	0.841	ACC	
	AVFS4	0.796	ACC	
	AVFS5	0.876	ACC	
TI	TI			0.959 0.681
	TI1	0.877	ACC	
	TI2	0.799	ACC	
	TI3	0.846	ACC	
	TI4	0.802	ACC	
	TI5	0.792	ACC	
	TI6	0.833	ACC	
	TI7	0.812	ACC	
	TI8	0.811	ACC	
	TI9	0.825	ACC	
	TI10	0.875	ACC	
	TI11	0.798	ACC	

Consequently, the measurements confirmed that the constructs in the study model were accurate, dependable, and well-defined, so offering a solid basis for further analysis in the organizational model of the research.

To ensure that the constructs tested in the study are distinct and reflect a range of effects, it is essential to examine DV using the HTMT ratio, as shown in Table 2.

Table 2: Discriminant validity

	QOA	CC	ED	AFS	EFS	AVFS	TI
QOA							
CC	0.612						
ED	0.629	0.606					
AFS	0.639	0.661	0.697				

EFS	0.69	0.614	0.585	0.606		
AVFS	0.632	0.643	0.602	0.599	0.641	
TI	0.599	0.643	0.706	0.671	0.698	0.591

Regarding FinTech, it is evident that all of its constructs are strong because the HTMT values are lower than the conventional standard value of 0.90. The HTMT values below the 0.90 threshold demonstrate that constructs are statistically different from each other which confirms that the same concept is not measured by different variables. All of the variables' connections are concurrently less than 0.90. These findings imply that each construct in the model only measures particular aspects of the phenomenon being studied, with little overlap between them. Consequently, the HTMT ratios provide significant evidence for discriminant validity, which in turn supports the PLS-SEM analysis's structural integrity and interpretive validity in this study.

Following acceptance of the measurement model, the hypotheses are evaluated using the structural model. Here, SEM was applied using a bootstrapping technique with 5000 resamplings. Table 3 displays the results of the structural model. The findings demonstrate a clear correlation between all of the variables. FinTech and FI have a direct relationship, as shown by H1, H2, H3, H4, H5, H6, H7, H8, and H9. Furthermore, the technological infrastructure operates as a mediating variable, as shown by H10, H11, H12, H13, H14, H15, H16, H17, and H18.

Hypothesis	Original Sample (O)	Sample Mean (M)	Standard Dev	T statistics	P value	Status
H1	0.214	0.212	0.078	2.118	0.006	Accepted
H2	0.236	0.201	0.085	1.426	0.000	Accepted
H3	0.249	0.219	0.084	2.342	0.000	Accepted
H4	0.286	0.211	0.092	1.398	0.001	Accepted
H5	0.195	0.131	0.105	1.193	0.000	Accepted
H6	0.248	0.152	0.092	1.793	0.002	Accepted
H7	0.117	0.116	0.083	1.382	0.000	Accepted
H8	0.182	0.081	0.074	1.123	0.003	Accepted
H9	0.106	0.131	0.068	1.627	0.002	Accepted
H10	0.149	0.216	0.074	1.662	0.003	Accepted
H11	0.221	0.132	0.096	1.465	0.000	Accepted
H12	0.179	0.191	0.182	1.323	0.000	Accepted

H13	0.282	0.081	0.074	1.123	0.003	Accepted
H14	0.196	0.131	0.068	1.627	0.002	Accepted
H15	0.182	0.111	0.075	1.293	0.001	Accepted
H16	0.213	0.213	0.092	1.432	0.000	Accepted
H17	0.231	0.081	0.072	1.124	0.003	Accepted
H18	0.187	0.132	0.066	1.628	0.001	Accepted

In Table 3 the results of hypotheses H1 to H9 reveal that the dimensions of FinTech positively influence the dimensions of FI. Table 3 also presents the results of the testing of Hypotheses H10 to H18, which investigate the role of TI as an intermediary between FinTech and FI. The values of p and t stats of hypotheses H10 to H18 confirmed that TI acts as a mediating variable between FinTech and FI. Therefore, all the hypotheses are fully corroborated in this research.

The study's objective is to examine the constantly evolving FinTech landscape, its effects on Jordan's FI, and the role that TI plays as a mediator in this relationship. By challenging conventional models, the quickly developing FinTech is reshaping the financial sector and providing creative alternatives. The results support the idea that FinTech has positive impacts on FI (Iskandar, 2020). According to some scholars (e.g., Saraswati et al., 2021), FinTech has an impact on every aspect of life and, as a result, all financial operations in a way that improves FI. To increase access to FS for all societal sectors at the lowest feasible cost, which expedites the process of obtaining FI, it is necessary to take advantage of the quick advancements in FinTech, such as funding platforms and smartphones. TI does meaningfully facilitate the link between FinTech adoption and FI, according to hypotheses H10 through H18. This outcome approves the findings of Wang et al. (2021) and Chen (2020), who found that strong TI may improve the country's FI and facilitate the exploitation of FinTech applications. The cross-sectional side of the data forbids the study to definitively conclude the causality while the study creates significant associations. The expansion and demand of FinTech can be stimulated by the greater FI. This indicates a reciprocal relationship. FI might be influenced by different variables other than FinTech like policy agendas, economic disparity, and financial knowledge. They might be not measured in this model.

The study has some limitations as well. Firstly, the temporal bias can be included as the data was collected in a certain timeframe which can be the reason for temporal bias, and the generalization of the findings in different conditions can be limited. Secondly because of the stratified sampling approach sample bias can be introduced into the study as the respondents can be already engaged with FinTech platforms.

The findings show that a strong IT infrastructure enhances and supports the impact of FinTech on a firm's effectiveness. It suggests that investing in TI serves as a strategic facilitator for FinTech rather than just a supporting role. Thus, this conclusion emphasizes how crucial IT infrastructure is to maximizing the

advantages of FinTech adoption and how crucial it is as a strategic asset for FI. This provides valuable insights for officials and FS providers to improve FI through digital revolutions.

Conclusion

This study aimed to examine the FinTech contribution towards FI in Jordan keeping technology Infrastructure as a mediating variable. The results confirm that FI is vital for promoting economic development and maintaining economic firmness. In many nations, a generous percentage of the population lacks a basic bank account. FinTech and mobile money services must be used for transactions as well as to change one's life by funding the creation of new ventures or self-employment projects. Laws, information technology, and the sharing economy are all contributing to these initiatives' rapid growth. In the majority of economies, policymakers prioritize FI. This study participated in the body of research on the factors that influence FI in FinTech, particularly for Jordan's economically disadvantaged population. According to the results, all respondents are meant to use FinTech services to contribute to FI; they should always aim to conduct transactions using smartphone services. They find services to be user-friendly and want to keep utilizing FinTech for FI. A major factor in achieving FI in the Hashemite Kingdom of Jordan is the integration of FinTech solutions, which are backed by a strong IT infrastructure. To fully utilize these new financial technologies, the financial industry should aggressively adopt new FinTech innovations and make strategic investments in IT infrastructure.

Recommendations

Some actions are required to enhance FI in Jordan with the help of FinTech services. The regulatory sandboxes should be developed, by government officials or policymakers. The policymakers should focus on the underserved areas especially rural areas for the expansion of digital infrastructure. A national strategy focusing on digital ID systems and real-time payments should be developed. Easy KYC procedures, low-income inclusive products, and increased customer support should be provided by financial institutions. FinTech startups should be funded by investors in underserved areas to enhance FI in the economy. Through data-driven personalization service delivery can be improved. Civil society and ambassadors should support awareness campaigns and digital awareness programs to include underserved populations in digital finance. This will help in bringing more individuals into the financial system. This will boost FI and national economic growth.

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Conflicts of Interest

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References English

- Amer Mohd Al_hazimeh, Raed Walid Al-Smadi and Arkan Walid Al-Smadi (2024). Future trends in Fintech and sustainability: Empirical study. *Investment Management and Financial Innovations*, 21(3), 51-63. doi:10.21511/imfi.21(3).2024.05
- Almashhadani, I. S., Abuhashesh, M., Bany Mohammad, A., Masa'deh, R. E., & Al-Khasawneh, M. (2023). Exploring the determinants of FinTech adoption and intention to use in Jordan: The impact of COVID-19. *Cogent Social Sciences*, 9(2), 2256536.
- Al-Slehat, Z. A. F. (2023). FinTech and FI: the mediating role of digital marketing. *Business: Theory and Practice*, 24(1), 183-193.
- Cecchetti, S. G., & Schoenholtz, K. L. (2021). Finance and technology: What is changing and what is not. *Fostering FinTech for Financial Transformation*.
- Chen, K. C. (2020). Implications of FinTech developments for traditional banks. *International journal of economics and financial issues*, 10(5), 227.
- Almajali, D., Al-Radaideh, A., Nussir, N., Eid, A., Al-Fakeh, F., & Masad, F. (2023). Antecedents of mobile banking app adoption during COVID-19: A perspective of Jordanian consumer. *International Journal of Data and Network Science*, 7(1), 477-488.
- Despotović, A., Parmaković, A., & Miljković, M. (2023). Cybercrime and cyber security in FinTech. In *Digital transformation of the financial industry: approaches and applications* (pp. 255-272). Cham: Springer International Publishing.
- Masad, F. M., Nussir, N. A., Eid, A. A., Aldoulat, T., & Alsheikh, G. A. (2023). Electronic Banking and its Impact on Job Security in Jordanian Banking Sector: Profitability is an Intermediate Variable. *Journal of Namibian Studies: History Politics Culture*, 33, 363-383.
- Giaretta, E., & Chesini, G. (2021). The determinants of debt financing: The case of FinTech start-ups. *Journal of Innovation & Knowledge*, 6(4), 268-279.
- Goswami, S., Sharma, R. B., & Chouhan, V. (2022). Impact of financial technology (FinTech) on FI (FI) in Rural India. *Universal Journal of Accounting and Finance*, 10(2), 483-497.
- Hanafizadeh, P., & Amin, M. G. (2022). The transformative potential of banking service domains with the emergence of FinTechs. *Journal of FS Marketing*, 1.
- Iskandar, Z. (2020). The role of financial technology in enhancing the effectiveness of FI a standard study of the opinions of a sample of workers in the Mosul Bank for Development and Investment in Nineveh governorate. *Journal of Administration and Economics*, 9(33), 92-124.

- Jinasena, D. N., Spanaki, K., Papadopoulos, T., & Balta, M. E. (2023). Success and failure retrospectives of FinTech projects: a case study approach. *Information Systems Frontiers*, 25(1), 259-274.
- Kanga, D., Oughton, C., Harris, L., & Murinde, V. (2022). The diffusion of FinTech, FI, and income per capita. *The European Journal of Finance*, 28(1), 108-136.
- Khuong, N. V., Phuong, N. T. T., Liem, N. T., Thuy, C. T. M., & Son, T. H. (2022). Factors affecting the intention to use financial technology among Vietnamese youth: Research in the time of COVID-19 and beyond. *Economies*, 10(3), 57.
- Lamidi, L., & Rahadhini, M. (2021). The effect of digital marketing and FI on business sustainability through Marketing Performance Culinary Msme's in Surakarta. *Journal of Economics, Finance And Management Studies*, 4(06), 716-723.
- Nashaat Majeed Nashaat. (2023). The role of information technology in developing banking technologies to promote sustainable development of the Iraqi banking sector. *Economic and Administrative Studies Journal*, 2(1), 83–100. <https://doi.org/10.58564/EASJ/2.1.2023.6>
- Nussir, N. A., Alhindawi, K. T., & Eid, A. A. (2022). The Extent to which the Financial Information Quality Contributes to Influencing Investors Decisions in Amman Stock Exchange. *Res Militaris*, 12(2), 5374-5385.
- Phimolsathien, T. (2021). Determinants of the use of financial technology (FinTech) in Generation Y. *Utopía y praxis latinoamericana: revista internacional de filosofía iberoamericana y teoría social*, (2), 27-35.
- Raed Walid Al-Smadi and Arkan Walid Al-Smadi (2024). The relationship between foreign direct investment and financial inclusion in MENA countries: Evidence from the General Method of Moments. *Investment Management and Financial Innovations*, 21(2), 144-154. doi:10.21511/imfi.21(2).202
- Schuetz, S., & Venkatesh, V. (2020). Blockchain, adoption, and FI in India: Research opportunities. *International journal of information management*, 52, 101936.
- Walker, G. A. (2023). Money and Financial Technology (FinTech) History. *The International Lawyer*, 56(2), 227-331.
- Wang, Y., Xiuping, S., & Zhang, Q. (2021). Can FinTech improve the efficiency of commercial banks? —An analysis based on big data. *Research in international business and finance*, 55, 101338.
- Wardhani, N. (2021). Do financial technology firms influence bank performance? A reverse-engineered pitch. *Journal of Accounting and Management Information Systems*, 20(1), 154-160.
- Zainab Hamid Kateh, Hala Ayyed Hadi, & Rami Abbas Hameed. (2023). Localization of salaries of public sector employees in Iraq and its role in enhancing financial inclusion in banks. *Economic and Administrative Studies Journal*, 2(4), 204–218. <https://doi.org/10.58564/EASJ/2.4.2023.22>