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Factors Influencing FinTech Adoption Among Bank Customers in Palestine: An Extended Technology Acceptance Model Approach

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Abstract: This study examines FinTech adoption in the Palestinian banking sector, highlighting its role in driving innovation, improving customer satisfaction, and ensuring competitiveness. Using an extended Technology Acceptance Model (TAM) and SmartPLS 4.0 software for structural equation modeling, the research investigates factors influencing FinTech adoption among Palestinian bank customers. Findings show high adoption rates, with nearly half of customers also using non-bank FinTech services. While most prefer FinTech solutions from their banks, many are open to switching providers for better service, convenience, or pricing. Brand strength, trust, and awareness significantly impact perceptions of ease of use and usefulness. Customers trust bank-provided FinTech for precision and reliability but remain concerned about security. A lack of customer awareness highlights the need for targeted educational campaigns. These insights confirm the selection of an extended TAM framework as being an appropriate analytical tool in the Palestinian banking sector, incorporating brand, trust, and awareness alongside ease of use and usefulness. It emphasizes the need for banks to innovate, strengthen security, and enhance awareness efforts to retain and attract customers in a competitive landscape.

Keywords: FinTech; extended technology acceptance model; Palestine; banking; financial inclusion; trust; awareness; brand

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1. Introduction

FinTech, or financial technology, has grown rapidly, leveraging technology to transform financial services through agile and efficient solutions offered by start-ups, tech giants, and traditional institutions, representing both disruption and innovation in the sector (Schueffel, 2016; Das, 2019; Anshari et al., 2020). Disruption occurs by providing the same services in more convenient or cost-effective ways, such as improved financial management tools and mobile payments. It also represents innovation by introducing new services like crowdfunding and peer-to-peer lending, attracting customers to obtain loans outside traditional banks or intermediaries. Additionally, FinTech is considered a key driver for financial inclusion (Morgan, 2022). Evidence tends to suggest that FinTech innovations, such as peer-to-peer payments in China and mobile transfers in Kenya, enhance financial inclusion. By focusing on access and customer satisfaction, FinTech supports the United Nations' social development goal one (No Poverty) and social development goal ten (Reduced Inequalities) (de Mariz, 2020). FinTech is said to provide transactional security, convenience, and physical cash reductions, preventing robberies (Arslan et al., 2022). Green finance promotion is an example of commonalities that exist between sustainable finance and FinTech (Chueca Vergara & Ferruz Agudo, 2021). Contrary to the positive impacts of FinTech, Sampat et al. (2024) mentioned that weak technological infrastructure, poor data

management, limited data access, and low smartphone adoption hinder FinTech integration and expose customers to risks. They also say that inadequate privacy controls raise ethical concerns. Furthermore, FinTech providers need to ensure the inclusion of elderly people's specialties (Choi et al., 2024),

The importance of FinTech and the disruption caused to the financial services sector globally highly influences the probability of disruption in the MENA region across certain products and customer segments (Zalan & Toufaily, 2017).

The growth of FinTech globally offers transformative opportunities for emerging markets like Palestine, where financial inclusion remains low, and traditional banking infrastructure is still developing. According to ABP (2023), the Palestinian banking sector has only emerged recently. It started in 1994 after the establishment of the Palestinian National Authority because of the Oslo accords between Israel and the Palestinian Liberation Organization (PLO), where arrangements were agreed upon to manage the West Bank and Gaza Strip's financial sector and economy (Yale Law School, 2008). The Palestinian Monetary Authority (PMA) is the regulatory equivalent to a central bank without a national currency. There are thirteen banks operating in Palestine. Out of these thirteen, seven are Palestinian banks, five are Jordanian banks, and one is an Egyptian bank (ABP, 2023). Financial inclusion in Palestine is low, as an indicator; by the end of 2022, there were only 46% of adults in Palestine who had a bank account, i.e., 54% were still without a bank account and thus financially excluded. By the end of 2020, adults holding a bank account were at 76% worldwide compared to 71% in developing countries, while Middle Eastern and North African countries (MENA) were only at 53% (World Bank, 2021; PMA, 2022). This shows an emerging opportunity for FinTech to have a market entry point and provide financial services to this huge non-banking population. The discussions at the Fourth FSI–GPFI conference on global standard-setting bodies and innovative financial inclusion highlighted the strong FinTech adoption positive correlation with financial inclusion (FSI & GPFI, 2019). Financial inclusion and FinTech are recommended for future research subjects.

Despite the global rise of FinTech, its adoption in the Palestinian banking sector remains underexplored, especially regarding the factors influencing customer acceptance. For example, according to Awwad (2023), the FinTech adoption level among bank customers is "medium", and the legal environment for consumer protection from electronic services is the major obstacle. Additionally, economic conditions and individual income levels were found to be significant barriers to accessing and using FinTech services according to Habash (2024). This study aims to identify and analyze the key factors influencing FinTech adoption among Palestinian bank customers, utilizing the extended TAM framework. Given the pivotal role of technology in FinTech, TAM provides a robust framework for understanding customer attitudes toward technology acceptance, particularly in underbanked regions like Palestine.

It is of importance for banks in Palestine to invest in FinTech, for the purpose of defending and increasing the market share. Moreover, banks' failure to develop and invest in FinTech may introduce existential risks in case their customers leave to other competitors. Additionally, FinTech can participate in economic development country-wide.

Quantitative research methodology was employed to collect and analyze customers' responses to questionnaires using Ringle et al.'s (2023) version 4.0 software.

To achieve research goals, this paper is organized into several sections. Following the Introduction, which provides an overview of the study's context and objectives, the Literature Review examines existing research on FinTech and the extended TAM framework, and the Theoretical Framework establishes the conceptual foundation. The Hypothesis Development section outlines the conceptual model and the study's hypotheses, while the Methodology details the survey design, data collection process, and analysis tools

employed. The Results and Analysis present findings from descriptive and inferential statistical analyses, followed by the Discussion, which interprets the results in light of the study's objectives and existing literature. Finally, the Conclusion summarizes the key insights and implications for banks, policymakers, and future research.

2. Literature Review

Financial technology breakthroughs over the past two decades have been characterized by their potential to revolutionize the delivery of financial services, inspire the development of innovative business models, applications, processes, and products, and deliver significant benefits to consumers (Murinde et al., 2022). The Financial Services Board (FSB) defined FinTech as "technologically enabled financial innovation that could result in new business models, applications, processes, or products with an associated material effect on financial markets, financial institutions, and the provision of financial services" (CGFS & FSB, 2017, p. 2).

Classifications of FinTech services continue to emerge and change based on the nature of the widening and spreading of innovative services, which continue to be introduced by FinTech. For instance, Laidroo et al. (2021) distinguished seven FinTech classifications that include the following:

1. Payments: payment services that are technologically facilitated. Mobile and online payments and integrated billing are examples.
2. Deposits and lending: financing services that are platform-based. Examples include crowdfunding, peer-to-peer lending, microlending, and leasing.
3. Insurance: insurance services like brokerage and underwriting that are technology-enabled.
4. Investment management: technology-enabled services including robo-advice and automatic advice.
5. Analytics: including big data, machine learning, and artificial intelligence.
6. Distributed ledger technology: financial services using blockchain, including cryptocurrency.
7. Banking infrastructure: areas that cover user interface and enhancements of processing and open banking.

Moreover, the Financial Stability Board (FSB, 2017) organized FinTech activities into five categories: (1) payments, clearing, and settlement, (2) deposit, lending, and capital raising, (3) insurance, (4) investment management, and (5) market support.

According to Puschmann (2017), the drivers that led to the appearance of FinTech can be summarized as follows:

- Changes in the role of IT where the convergence and development of IT, such as the introduction of social computing, big data, machine learning, cloud computing, and the internet of things, enable the creation of new services, processes, and business models for financial services.
- Changing consumer behavior, with more adoption of technology and the acceptance and demand for electronic interaction channels, has driven institutions to provide more electronic and hybrid self-services. Digital natives or millennials are more likely to adopt FinTech than other generations (EY, 2019). Behavioral intentions to use FinTech services were found to be determined by the perceived usefulness of FinTech; additionally, social influence has a significant negative influence on such intentions (Singh et al., 2020).
- Changing ecosystems, where incumbents like banks and insurance companies started to outsource part of their operations and cooperate with new start-ups and new entrants.

- Changing regulations, where many regulators lowered the entry barriers for FinTech and adopted what is called a sandbox to experiment with new services and business models. As Lee and Shin (2018, p. 37) state, governments since 2008 have provided a "favorable regulatory environment" for FinTech through the provision of licensing with minimal and easy capital requirements, in addition to some tax incentives to encourage and advance FinTech innovations. On the other hand, governmental regulators enforced stricter regulations, and higher capital and reporting requirements from financial incumbents (Lee & Shin, 2018). While this may be the case in some countries, it may not be the case in other countries, where they tend toward protectionism, such as Taiwan (Iman, 2020).

FinTech is significantly transforming the banking sector, compelling banks to innovate and adopt advanced technologies to remain competitive. While FinTech firms may not replace banks, they push traditional institutions to improve customer experiences, operational efficiency, and service delivery. Banks must leverage digital platforms, AI, and blockchain to meet rising customer expectations and streamline processes. Strategic partnerships between banks and FinTech companies can be mutually beneficial, combining FinTech's agility with banks' infrastructure and regulatory expertise (Elsaid, 2023). As Ebrahim et al. (2021) note, FinTech enhances banks through improved digital experiences, personalized services, data security, cost-efficiency, and transactional speed. This underscores the urgent need for banks to embrace FinTech innovations to stay relevant.

Not only has FinTech had a transformative and disruptive impact on the banking sector, but it is also influencing shadow banking. The Financial Stability Board (FSB, 2011) defines shadow banking as the "system of credit intermediation involving entities and activities outside the regular banking system". Within this sector, FinTech platforms such as peer-to-peer (P2P) lending and crowdfunding have revolutionized access to funding for individuals and small businesses by offering alternatives to traditional financial intermediaries (Navaretti et al., 2018). These innovations have expanded the scope of shadow banking, improving access to finance in underserved markets but also raising concerns about regulatory oversight and financial stability.

In the Palestinian context, the Palestinian Monetary Authority (PMA) regulates commercial banks, microfinance institutions, and payment systems. On the other hand, the Palestine Capital Market Authority (PCMA) regulates the non-banking financial system, including stock exchange, insurance companies, financial leasing, and mortgage finance.

As of 2024, five payment services companies were licensed in Palestine (PMA, 2024a), offering a range of services such as money transfers, bill payments, account top-ups, online shopping, and QR code-based payments for vendors. The Palestine Monetary Authority (PMA) has made progress in digitally transforming payment services. Notably, in 2023, the E-Sadad platform was launched, allowing banks and e-wallet account holders to digitally settle bills and dues (PMA, 2023), and in 2024, the I-Buraq platform was launched, enabling instant payments between bank and e-wallet customers via both IBAN and aliases (PMA, 2024b). While these initiatives may create more opportunities for FinTech payment services to thrive, further steps can be game changers. For example, if the PMA implements the EU Payment Services Directive (PSD2), it could disrupt the Palestinian banking sector. PSD2 allows non-financial companies to access customer financial data, posing a challenge to traditional banks and financial service providers (Gounari et al., 2024). To stay competitive in this evolving landscape, banks will need to innovate and adapt their business models accordingly.

FinTech has driven transformative shifts within financial ecosystems by fostering collaboration among diverse categories, including start-ups, traditional institutions, and government regulators (Albarrak & Alokley, 2021). This innovation ecosystem drives

financial inclusion by improving access, encouraging competition, and fueling continuous advancements. The ecosystem is of high importance for the development of FinTech. This is relevant in the Palestinian market as well (Al-Daya et al., 2022). Daqar (2021) argues that Generation Z and millennials do have a high appetite to use and adopt FinTech in Palestine. Moreover, regulatory firms are taking positive approaches toward lowering entry requirements for entrepreneurs.

Understanding the ecosystem is important to identify FinTech innovations and their interactions. Lee and Shin (2018) identified the five main elements of the FinTech ecosystem:

1. FinTech start-ups are entrepreneurial ventures offering innovative financial services across various sectors such as payments, wealth management, lending, crowdfunding, capital markets, and insurance. By "unbundling" financial services, they can deliver personalized solutions to niche markets, disrupting traditional incumbents. This "unbundling" allows consumers to seamlessly access financial services from multiple FinTech providers.
2. Technology providers and developers in emerging fields like big data analytics, cloud computing, social media, and cryptocurrency have created an environment conducive to entrepreneurial success. These technologies offer substantial cost efficiencies and require minimal capital expenditure, allowing entrepreneurs to quickly launch their innovations. The widespread use of smartphones, mobile network services, and social media platforms has enabled innovators to overcome physical barriers and reach a broader audience. This ecosystem benefits all participants who share in revenue generation.
3. Governmental institutions responsible for legislation and regulation have created a supportive environment for entrepreneurs through favorable licensing and capital requirements. At the same time, stricter regulations on traditional incumbents have allowed innovators to thrive and expand. For example, regulatory sandboxes, designed to foster innovation by enabling businesses to test their FinTech solutions in a controlled setting, exemplify a move away from conventional regulatory methods. They represent an effort to adopt a more proactive, dynamic, and responsive approach to regulation (Fáykiss et al., 2018).
4. Consumers, both individuals and organizations, play a crucial role. Millennials (aged 18 to 34) are the primary users of FinTech services in most countries, and demographic trends suggest a growing preference for FinTech in the future.
5. Traditional financial institutions, such as banks, insurance companies, stock brokerage firms, and venture capitalists, initially offered conventional financial services. However, recognizing the disruptions introduced by FinTech entrepreneurs, these incumbents were compelled to reassess their business models. In response, they began developing strategies to adapt to the FinTech era, increasingly embracing collaborative approaches.

The adoption of FinTech services among bank customers has been widely studied using the Technology Acceptance Model (TAM), initially developed by Davis (1989). TAM originated from both the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1977) and the Theory of Planned Behavior (TPB) (Ajzen, 1991), both rooted in psychology. TAM has become popular in predicting the acceptance of technology and is considered the key model for this purpose (Marangunić & Granić, 2015). Li (2020) argued that behavioral theories are suitable to explain and anticipate individuals' adoption of FinTech. Oliveira and Martins (2011) concluded that the most widely used theories concerning individuals' adoption of technology are the Technology Acceptance Model (TAM), the Theory of Planned Behavior (TPB), and the Unified Theory of Acceptance and Use of Technology (UTAUT). Ashique Ali and Subramanian (2024) concluded that TAM is the most extensively utilized framework

in research concerning the adoption of mobile banking, while Jafri et al. (2024) noted that TAM is the most used framework in studies of FinTech in banking.

3. Theoretical Framework

The TAM model classifies factors affecting the attitude of individuals toward acceptance or rejection of technology into perceived usefulness (PU) and perceived ease of use (PEOU), as seen in Figure 1 below (Davis & Venkatesh, 2004). Perceived usefulness is defined as "the degree to which a consumer using this new technology would improve the work efficiency of that consumer" (Hu et al., 2019, pp. 3–4), while perceived ease of use refers to the "level at which an innovation is perceived by an individual easy to understand, learn and use" (Dhingra & Mudgal, 2019, p. 294).

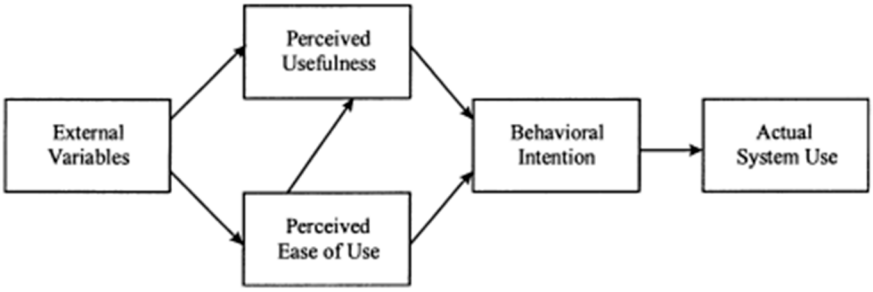

Figure 1. TAM model. Source: Davis and Venkatesh (2004).

Researchers often adopt the Technology Acceptance Model (TAM) due to its strengths, including its robustness, validity, and adaptability to various contexts and applications (Alshammari & Rosli, 2020). TAM overcomes the limitations of the Theory of Reasoned Action (TRA) by incorporating perceived ease of use and perceived usefulness as key belief factors. Additionally, its flexibility allows extensions to account for external factors, improving its explanatory power for diverse applications and cultural settings.

However, TAM has limitations. It is criticized for its simplicity, overlooking social influences, facilitating conditions, and specific factors like Sharia compliance in Islamic FinTech (Bagozzi, 2007; Alshammari & Rosli, 2020; Pahlevi et al., 2023). TAM is also considered too general, lacking contextual sensitivity, being too static to reflect evolving user attitudes, and limited in predicting actual usage behavior. Furthermore, its focus on cognitive responses neglects emotional and affective factors critical to technology adoption (Lee et al., 2003; Chuttur, 2009; Straub & Burton-Jones, 2007; Venkatesh et al., 2016). Recent research indicates that these constructs alone may not sufficiently account for adoption behaviors in the FinTech sector, particularly within the banking industry, where trust and brand equity are pivotal factors (Chauhan et al., 2022).

In response to general criticisms of the Technology Acceptance Model (TAM), this study adopts an extended TAM model, integrating brand, trust, and awareness to enhance its applicability. The extended model addresses TAM's static nature by focusing on the current adoption status and factors influencing customers' adoption decisions, making it suitable for the research objectives. To counter critiques of TAM's limited predictive validity, the survey was designed to measure the actual status of customer usage, providing a more accurate reflection of adoption behavior. These modifications ensure the research effectively addresses TAM's limitations while delivering meaningful insights into customer decision-making.

Numerous studies have employed and recommended an extended TAM model to predict the adoption of technology and FinTech, based on perceived ease of use and perceived usefulness, along with other factors such as knowledge (Majumdar & Pujari, 2022) and security and trust (Sulaiman & Almunawar, 2022). Additionally, other factors have included service trust and social influence (Akinwale & Kyari, 2022), customer awareness and per-

ceived trust and risk (Tiwari et al., 2021), perceived risk and perceived trust (Tiwari & Tiwari, 2020), as well as data security, customer trust, and user design (Stewart & Jürjens, 2018).

For example, compared to neighboring countries, several factors influencing bank customers' behavior toward FinTech adoption in Jordan have been identified. These include ease of use and usefulness, as well as additional factors such as privacy and financial risks (Abuhashesh et al., 2023), personal innovation (Almashhadani et al., 2023), environmental drivers like technology readiness and the impact of COVID-19, and trust (Alhajjaj, 2021). In Egypt, trust has also been recognized as a significant factor (Abdelfattah, 2023; Ismael et al., 2021), along with customer experience, which has been found to influence FinTech adoption (Bakr et al., 2023).

Bank branch distribution, geographical coverage, and the availability of internet access through mobile data and broadband coverage are of importance to customers' adoption of FinTech. Studies have shown that FinTech adoption tends to increase in areas underserved by traditional banks, especially in rural and low-income areas (Berg et al., 2020). In some cases, banks use their physical presence to offer FinTech services, thus blending the strengths of digital and physical channels (Claessens et al., 2018). A financial inclusion diagnostic report from 2023 in Palestine shows that there are sufficient branches and ATM distribution in Palestine (Abdel Jawwad et al., 2023); therefore, this factor was not chosen to be explored in this study.

Furthermore, the PCBS (2023) report shows that in the year 2022, about 92% of households in Palestine had access to internet services. Meanwhile, 89% of the population (10 years and above) used the internet from anywhere.

An extended TAM framework was used in this paper with three factors: FinTech awareness, customers' trust in FinTech, and brand strength, as shown in Figure 2.

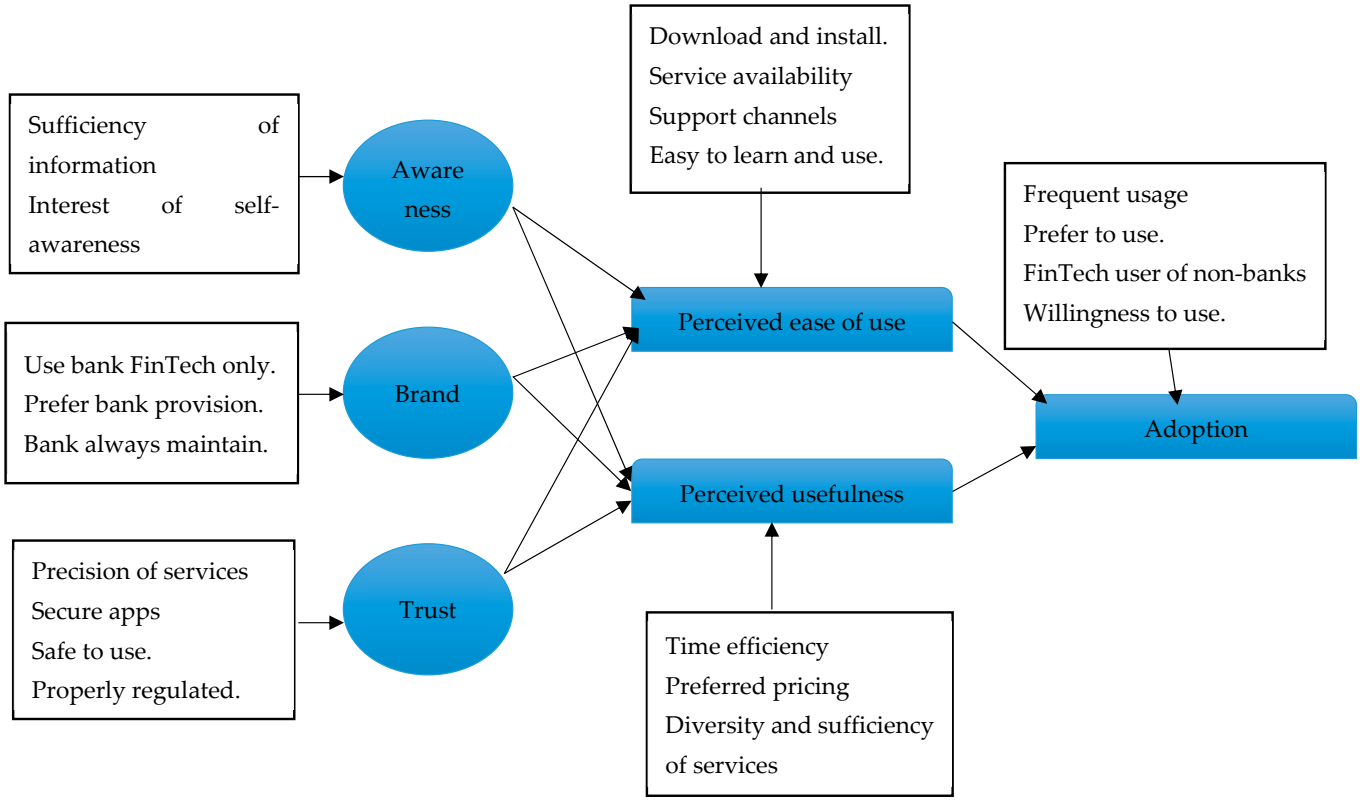

Figure 2. Conceptual extended TAM model.

4. Hypothesis Development

4.1. Customer Awareness

Customer awareness plays a critical role in FinTech adoption, as highlighted by Tiwari et al. (2021). Similarly, Majumdar and Pujari (2022) emphasized that the availability of technological knowledge significantly influences its adoption and usage. In this study, awareness was analyzed from two perspectives: first, respondents' perceptions of the availability of sufficient information about FinTech in the Palestinian market; second, the efforts made by customers to stay informed about FinTech, typically driven by stakeholders' information campaigns and promotional activities. The hypotheses explore the relationship between awareness, perceived ease of use, and perceived usefulness are as follows:

H1. *There will be a significant relationship between FinTech customer awareness and ease of use (AW → ES).*

H2. *There will be a significant relationship between FinTech customer awareness and usefulness (AW → US).*

4.2. Brand

Brand strength signifies the worth a brand holds in consumers' perceptions, shaped by elements like brand recognition, loyalty, perceived quality, associations, and emotional connection. It indicates how effectively a brand is positioned in the market and its capacity to draw in and keep customers, influence purchasing decisions, and endure competitive challenges (Kotler & Keller, 2006). This paper focuses on the perceptions of customers about their bank's FinTech solutions. Brand was found to be important in studies about the extended TAM model, for example, Chinese consumer intention to use mobile commerce (Chi, 2018). Furthermore, Davis and Venkatesh (2004) suggested that external factors, including brand image, can significantly influence both perceived ease of use and perceived usefulness. This is because brand image often encapsulates notions of quality, reliability, and user-friendliness. Respondents were questioned about their opinions about subjects including the preferences of users to use only FinTech provided by their banks, their trust in their bank's continuous investments in enhancing and introducing FinTech, and the preference of customers for using their bank's FinTech over those provided by non-banks. The hypotheses about brand and its relation to perceived ease of use and perceived usefulness are as follows:

H3. *There will be a significant positive relationship between brand and ease of use (BR → ES).*

H4. *There will be a significant positive relationship between brand and usefulness (BR → US).*

4.3. Trust

Trust includes the trust in FinTech services' precision and the right execution of their requests. Moreover, a moderating variable about the confidence in the security of FinTech services contributes to the trust factor. Trust is also related to the relationship between customers and their banks. Trust was identified as an important factor affecting perceived ease of use, perceived usefulness, and perceived trust and risk (Tiwari et al., 2021), perceived risk and perceived trust (Tiwari & Tiwari, 2020), and data security, customer trust, and user design (Stewart & Jürjens, 2018). This factor was handled through the trust customers feel when using FinTech providers other than their bank. The trust factor comes also from the regulatory aspect, where confidence in those FinTech providers can be enhanced if they are regulated by the PMA. The hypotheses about trust and its relation to perceived ease of use and perceived usefulness are as follows:

H5. *There will be a significant relationship between trust and ease of use (TR → ES).*

H6. *There will be a significant relationship between trust and usefulness (TR → US).*

4.4. Perceived Ease of Use

The perceived ease of use of FinTech services provided by banks and FinTech companies was measured by asking about the following factors:

1. The ease of downloading and installing FinTech applications, including the availability of these applications and their compatibility with different mobile operating systems, including IOS and Android. This gives users the opportunity to use FinTech services without location limitations except for the availability of an internet connection and suitable technological devices.
2. The high availability of FinTech services with minimal downtime gives the customers the impression of ease of use anytime with confidence and trust and provides users with time flexibility.
3. The provision of FinTech services requires the high availability of support provided by banks or companies to help users overcome any obstacles or solve any problems concerning the applications and their services. Such support channels can be diverse, including 24/7 call centers, chatbots, and other channels.
4. The ease of the applications themselves and the ability to learn and use them are other factors related to ease of use.

A hypothesis developed concerning the relationship between perceived ease of use and FinTech adoption is as follows:

H7. *There will be a significant relationship between ease of use and FinTech adoption (ES → FA).*

4.5. Perceived Usefulness

Perceived usefulness is related to how the users perceive the privileges and benefits of using the FinTech solutions, including the following:

1. Saving users' time through the usage of FinTech services, such saving happens as a result of reducing the time needed to reach geographic locations like branches and offices, and the time required inside such branches to receive the applications, or the time needed to process such applications, like executing a transfer.
2. Reduced fees and charges for banking and financial services executed using FinTech represent an important aspect of financial benefits or usefulness. Another important aspect is the better pricing for fixed deposits or saving accounts. Furthermore, preferred pricing for FinTech services is a promotional tool employed by banks to promote customer FinTech adoption. While financial benefits can be considered separately as a factor, according to some research, they are included with cost savings under the perceived usefulness factor (Luo et al., 2024; Susanto & Aljoza, 2015).
3. The diversity of FinTech services and their sufficiency is an important variable that affects users. The provision of a complete alternative service channel to branches and even the provision of some FinTech-only services contribute to the usefulness of such services to users.

A hypothesis about the relationship between usefulness and FinTech adoption is as follows:

H8. *There will be a significant relationship between usefulness and FinTech adoption (US → FA).*

5. Methodology

This paper employs a quantitative analysis approach to validate the proposed extended Technology Acceptance Model (TAM) for FinTech adoption, using data collected through a questionnaire administered to bank customers in Palestine. This method is designed to test, confirm, or challenge existing theories by quantifying variables and analyzing relationships to uncover patterns and correlations. As highlighted by Leavy (2017), this approach is particularly effective for evaluation and explanation, providing a robust foundation for understanding the factors influencing FinTech adoption. Quantitative research is well known in almost all research fields and is based on positivism and neo-positivism methodological principles where strict development of research design should be done before actual research, and mainly uses statistical analysis (Adams et al., 2014).

A questionnaire was used to collect data from customers of banks in Palestine regarding their level of FinTech adoption and the factors that motivate them to use and adopt FinTech in accordance with the extended TAM model.

5.1. Instrument Development

The survey used in the present study (shown in Supplementary Materials) consisted of two sections: the first section was designed to gather sample profile demographics using six items including gender, age group, education level, employment status, income level, and the main banking relationship.

The second section reflected the extended TAM model and included the FinTech-related questions. They were designed to poll respondents' perspectives about different factors that may affect the adoption of FinTech. Twenty questions were used to represent the six factors. The factors were Ease of Use (ES), with four questions about Usefulness (US), three questions about Trust (TR), four questions about Brand (BR), three questions about FinTech Awareness (AW), and two questions about FinTech Adoption (FA).

Respondents were asked to rank their agreement with the statement using a five-point Likert scale: strongly disagree (1), disagree (2), neutral (3), agree (4) and strongly agree (5).

Table 1 below shows the operationalization of the model constructs. The survey used twenty questions to poll the sample's opinion about the six constructs based on the mentioned conceptual framework adopted.

Table 1. Construct operationalization.

Construct (Variable)	Indicators	Related Questions in the Questionnaire	References
Perceived ease of use (ES)	ES1	Downloading and installing my bank's FinTech applications are easy.	(Xie et al., 2021; Hu et al., 2019)
	ES2	FinTech services are available at all times with minimal downtime.	(Sakala & Phiri, 2019)
	ES3	My bank provides support channels (like call centers, chatbots, etc.) to help solve any problems with FinTech services.	(Singh et al., 2020; Le, 2021)
	ES4	FinTech services provided by my bank are easy to learn and use.	(Singh et al., 2020) (Sakala & Phiri, 2019)
Perceived usefulness (US)	US1	Using the bank's FinTech, like digital services instead of branches, is more time efficient, and it saves my time.	(Singh et al., 2020)

Table 1. *Cont.*

Construct (Variable)	Indicators	Related Questions in the Questionnaire	References
Perceived usefulness (US)	US2	My bank provides preferred pricing and reduced charges for FinTech services.	(Mangin et al., 2011; Solarz & Swacha-Lech, 2021)
	US3	FinTech services are diverse; they serve my needs and are better alternatives to visiting branches.	(Mangin et al., 2011; Solarz & Swacha-Lech, 2021)
FinTech Adoption (FA)	FA1	I frequently use FinTech services provided by my bank (like mobile applications and/or internet banking, e-wallets, etc.).	(Hu et al., 2019; World Bank, 2021)
	FA2	I am a user of FinTech services provided by non-bank providers (like e-wallets that are not provided by banks).	
	FA3	I prefer to bank using FinTech rather than using branches.	(Hu et al., 2019; World Bank, 2021)
	FA4	It is fine with me to use FinTech services provided by companies other than my bank.	
Brand (BR)	BR1	I prefer to use FinTech services only if provided by my bank.	(Le, 2021; Hu et al., 2019).
	BR2	My bank keeps updating its FinTech services and introducing new ones.	(Solarz & Swacha-Lech, 2021)
	BR3	I prefer to have my bank offer FinTech services, rather than those offered by non-bank providers.	(Hu et al., 2019)
Trust (TR)	TR1	I am comfortable with the precision of my bank's FinTech services.	(Hu et al., 2019)
	TR2	I think that the FinTech services provided by my bank are not secure enough.	(Singh et al., 2020; Solarz & Swacha-Lech, 2021)
	TR3	I do not feel safe using FinTech provided by companies other than my bank.	(Singh et al., 2020)
	TR4	I am ready to convert to non-bank FinTech companies only if they are regulated by the Palestinian Monetary Authority (PMA).	
Awareness (AW)	AW1	There is sufficient information available about FinTech in Palestine.	
	AW2	I keep myself updated about FinTech services and their providers in Palestine.	

5.2. Data Collection

The questionnaire was organized using Google Documents. When it comes to sample selection, the expected challenges were confirmed by how to reach out to bank customers, taking into consideration many variables, including confidentiality and banking secrecy, in addition to the political and security environment. Such variables led to the reluctance of customers to participate, hence methods followed took into consideration both factors: reachability and trustworthiness. Trustworthiness was handled through researchers' adherence to the highest ethical research standards by protecting customers' privacy and confidentiality through not collecting any personal identifying data like emails, names, bank names, addresses, identification numbers, etc. To address reachability and mitigate the potential impact of sample bias stemming from the aforementioned circumstances, the researchers evaluated the available options and strategically decided to implement two targeted approaches aimed at minimizing bias and ensuring the reliability of the data:

- The first strategy was to distribute the questionnaire to all Palestinian regions through the banks' branch network with over 350 branches. Access to branch managers was through banks' CEOs and general managers, who extended help to researchers and sent the questionnaire's link to their branch managers for online completion, along with a PDF version for printing for customers who prefer to manually fill the questionnaire. Guidance given to branch managers emphasized the voluntary nature of participation. This approach was used to confirm confidentiality and trustworthiness for bank customers and to provide reachability to customers from all regions and from all banks. Furthermore, multiple options were availed for completing the questionnaire, including both electronic and manual using the printed PDF version. Manually completed questionnaires (35 in total) were collected via email.
- The second strategy involved hiring a Facebook influencer with over 250,000 followers to reach the widest possible Palestinian society audience. She shared the questionnaire on her Facebook page for two weeks. Additionally, researchers shared the questionnaire link in many WhatsApp groups. This strategy was employed to enhance response rates and ensure a diverse and representative sample across all age groups and regions.

Responses reached 683 after two weeks of distribution, bypassing the minimum required number of 384 responses to achieve a 95% confidence level and a 5% margin of error. The questionnaire was then marked as completed at a Google Documents site.

Considering that data collection took place during the 2022–2023 academic year, i.e before the latest war in the country, it may be worthwhile for future research to measure and analyze the war's impact on FinTech adoption by customers.

Although there were 35 manually filled questionnaires, which could be interpreted as an indicator of low-technology customers' participation, the heavy reliance on bank-mediated distribution could have led to sampling bias by unintentionally excluding individuals who are hesitant to engage with FinTech.

For future research, it is recommended to give this subject further attention by identifying different sample selection methods to mitigate potential sample bias.

5.3. Data Analysis Methods

The questionnaire was coded, and answers were translated numerically using a scale from 1 to 5: "strongly agree" was assigned 5, "agree" was assigned 4, "neutral" was 3, "disagree" was 2, and "strongly disagree" was 1.

CB-SEM, which relies on a multivariate normal distribution, analyzes relationships using covariance matrices, while PLS-SEM is a variance-based method that is better suited for smaller samples and complex models (Hair et al., 2021; Chin & Newsted, 1999). Although PLS-SEM has been criticized for producing biased estimates (Rigdon et al., 2017), it has advanced in managing complex models and formative measures (Hair et al., 2017).

The choice between CB-SEM and PLS-SEM depends on research objectives and data characteristics (Sarsour & Dombrecht, 2016). Given the study's sample size and goals, PLS-SEM was deemed the most appropriate for analysis.

Using SmartPLS 4 software, this paper uses partial least squares structural equation modeling (PLS-SEM) to analyze the inferential statistics and predict the model.

5.4. Data Analysis Tool

The responses were numerically coded to facilitate quantitative analysis, with "strongly agree" assigned a value of 5 and "strongly disagree" assigned a value of 1. Negative statements were reverse-scored to maintain consistency across measures. As responses were collected using Google Forms, incomplete forms were not accepted, which

meant that the 683 responses were all accepted. The questions were coded to represent their correlating factors, as shown in Table 1 above. The resulting Excel sheet was uploaded and analyzed using PLS-SEM 4.0 software.

6. Analysis and Results

6.1. Descriptive Analysis

The questionnaire had two parts. The first part included the sample profile; it included social questions about gender, age, work status, monthly income, and main banking relationships (conventional, Islamic, or both). The second part reflected the extended TAM model and included the FinTech adoption-related questions. They were designed to poll respondents' perspectives on factors affecting the adoption of FinTech: Ease of Use (ES), Usefulness (US), Trust (TR), Brand (BR), Social Effect (SE), and FinTech Awareness (AW).

6.1.1. Social Indicators

Responses about gender show that around 81% of respondents were males, as seen in Table 2. The numbers to some degree reflect the females' lower financial inclusion percentage (Harker & Hinn, 2023). Plans and efforts should be put in place to raise females' financial inclusion and encourage them to start banking relationships.

Table 2. Sample social indicators.

Item	Response	Percentage
Gender	Male	80.8%
	Female	18.6%
	Prefer not to answer	0.6%
Age (Years)	Below 18	2.2%
	Between 18–25	6.1%
	Between 26–35	20.5%
	Between 36–50	46.6%
	Between 50–65	24.5%
	Above 65	2.2%
Work Status	Not working	2.9%
	Employee/Supervisor	37.8%
	Manager	21.5%
	Senior Management	20.4%
	Self Employed/Business Owner	16.3%
	Retired	3.8%
Monthly Income (USD)	Below 1500	28.1%
	Between 1500–3500	39.1%
	Between 3501–5000	15.1%
	Between 5001–7000	7.3%
	Above 7001	10.4%

As for the age factor, results show a low percentage of age groups below 25 years, which can be linked to the low financial inclusion percentage in Palestine, where around 55.7% were still without a bank account by the end of 2020 (Harker & Hinn, 2023). More

efforts are needed to enhance financial inclusion for younger people by the provision of FinTech solutions.

The distribution of work status shows that only 2.9% of the sample are unemployed, and 3.8% are retired. This can be inferred that those who have banking relationships are those who are employed or self-employed within Palestine. The financial inclusion diagnostic report 2023 in Palestine clearly shows that a significant percentage of the society in Palestine remains unbanked due to various reasons, including lack of money, lack of jobs, dependence on cash (given Palestine's cash-based economy), and reliance on family members holding bank accounts (Harker & Hinn, 2023).

Concerning income levels, around 28% earn less than 1500 USD a month, and 39% of respondents have an income level between 1500 and 3500 dollars.

6.1.2. FinTech Adoption

As shown in Figure 3, FA1 to FA4 present customers' responses to questions about the adoption of FinTech. It shows that 94% of respondents agree or strongly agree, describing themselves as FinTech users of FinTech services provided by their banks. Moreover, more than 90% of respondents prefer to execute their banking services through FinTech alternatives rather than branches and offices. This indicates both the high adoption rate and the high intention rate of customers to use FinTech services when provided by their banks. This may imply the success of banks' strategies to convince their customers to use FinTech services. Sustainable efforts and resources are required by banks to build on the results, through continuously upgrading their FinTech services and ensuring that they are up to date and fulfill customers' needs. Consequently, it may be suitable for them to consider limiting their investments in branches and offices and directing more investments toward FinTech services.

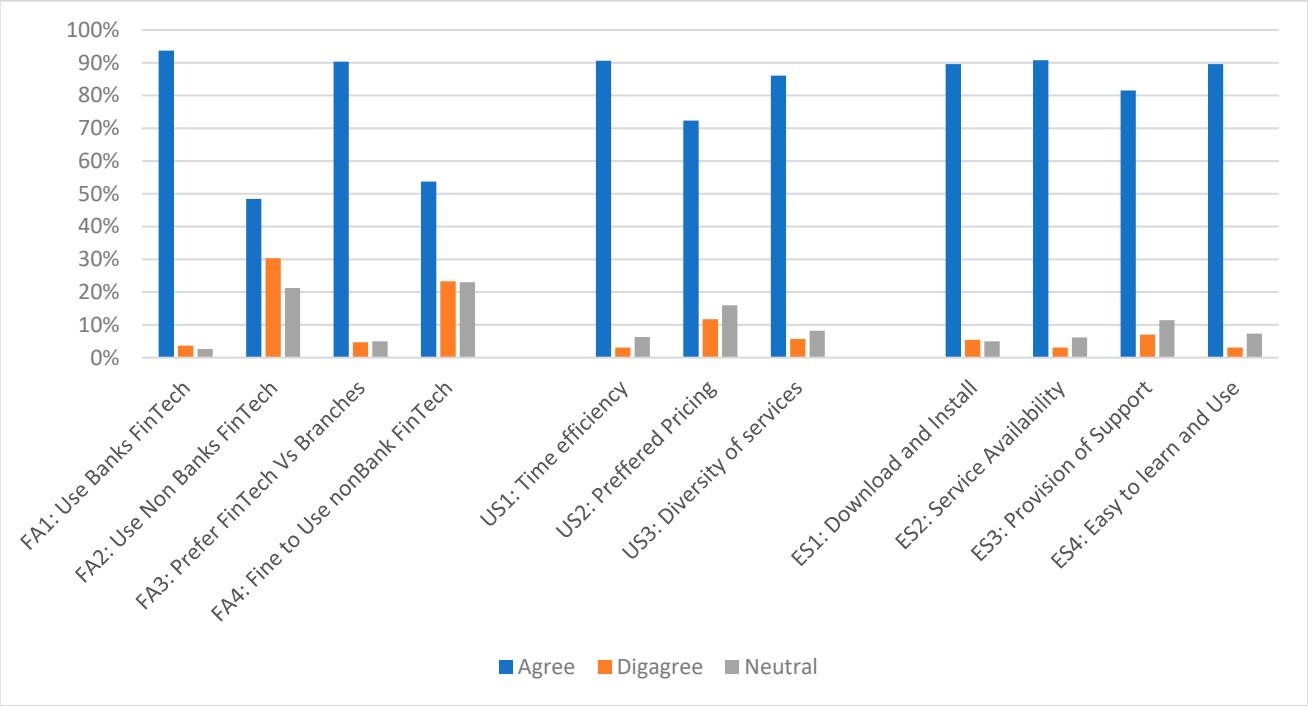

Figure 3. FinTech adoption, ease of use, and usefulness factors.

In relation to FinTech services offered by non-banks, 49% of respondents agree or strongly agree that they use them frequently. This indicates that non-bank FinTech providers are gaining market share and customers' confidence. When asked about their willingness to use non-bank-provided FinTech services, 54% of respondents showed willingness to use them, while 23% were neutral. Results indicate that there is an opportunity for FinTech entrepreneurs to strengthen their market share given that only around 23% disagree or strongly disagree with using the non-bank offered FinTech services. FinTech entrepreneurs and providers can benefit from these results by analyzing and enhancing their strengths and addressing users' concerns about their services.

An additional outcome here for banks is the risk of losing market share resulting from their customers moving to non-bank FinTech service providers, this may happen if banks fail to meet their customers' FinTech expectations or allow others to better innovate and present FinTech solutions. Banks need to assess their position, set suitable strategies for dealing with non-bank competition, and develop a working framework.

Perceived Ease of Use Factor Analysis

As discussed previously, perceived ease of use refers to the "level at which an innovation is perceived by an individual easy to understand, learn and use" (Dhingra & Mudgal, 2019, p. 294). To identify the ease-of-use factor, as seen in Figure 3, four aspects were used (ES1:ES4): downloading and installing, service availability, the provision of support, and ease of learning and usage. Around 90% of respondents responded "strongly agree" or "agree" to the question about the ease of downloading and installing the FinTech applications of their banks. This indicates that banks are successful in addressing this factor at present and need to maintain this in the future.

Around 90% said that the FinTech services provided by their banks are easy to learn and use, which implies that banks are conveniently providing FinTech services. The availability of FinTech services with minimal downtimes is another factor that can affect the sustainability of service provision, contributing to the FinTech services' ease of use. Around 91% of respondents confirmed that their banks are maintaining the availability of their FinTech services with high availability and minimal downtimes. This consistency in service reliability positively impacts customer adoption by building trust and reinforcing the utility of FinTech solutions. Banks and other FinTech service providers should always adopt planned downtimes announced beforehand, with minimal downtime periods, conducted when usage is at its minimum.

Finally, banks' support for their FinTech services is a critical factor for the ease-of-use construct. Support channels should be available and sufficient to respond to inquiries and provide immediate help and support to those FinTech services' users who need them. Around 82% responded that their banks provide support channels such as information centers, chatbots, and other channels. It is worth mentioning that such provision should have all the tools to provide help to customers, as the provision of those channels is one aspect, and their ability to help is another aspect. Banks need to empower those channels to help and support providers.

Perceived Usefulness Factor Analysis

Perceived Usefulness is the second factor of the TAM model that affects consumer adoption and use of technologies. Usefulness is perceived when people believe that their use of technology will enhance their performance (Dhingra & Mudgal, 2019). Responses to the perceived usefulness factor appear in Figure 3 as US1, US2, and US3. Time is a critical factor in service delivery. Time has more than one aspect; it can be the service availability time, and it can also be the time needed to complete the service. Time efficiency is always

of great importance to customers. Around 91% of respondents said that using FinTech services is timely and more efficient than using conventional service channels like branches and offices.

Customers' earnings and expenditure are another subject that is related to usefulness (Mangin et al., 2011), where customers enjoy better pricing on FinTech services compared to the same services at branches, aside from the time factor. Examples of this factor include higher interest rates or revenues for fixed deposits or e-saving accounts, fewer commissions on e-opened accounts or requested services like checkbooks and transfers, and better money exchange rates for currency exchange deals executed using digital platforms. Around 72% of respondents said that their banks offer better pricing for FinTech services, while around 11% disagreed and 16% were neutral. Results reveal that most customers perceive better pricing, while some do not. This highlights customers' lack of awareness about better FinTech pricing. Banks need to give special attention to this matter and design their FinTech offering to include and promote pricing advantages. Banks need to make their customers aware of such enhanced pricing through their marketing initiatives and proper communication strategies.

The diversity of FinTech services occurs because of the provision of comprehensive services that create a real alternative to branches on one side, innovations and new services on the other side, and the widespread integration with the ecosystem through APIs, open banking, and banking as a service (BaaS). Around 86% of respondents said that FinTech services are diverse, fulfill customers' needs, and are preferable to them over visiting branches and offices. Continuous development of FinTech services is critical. Additionally, banks are advised to engage with the ecosystem to enable new payments and FinTech services and widen the ecosystem.

Strength of Brand Factor Analysis

Brand strength can be inferred through the trust customers perceive in the bank's products and services and their loyalty to them. Strong brands enjoy customers' loyalty by appreciating their products and services and their belief in their quality. People in most cases are willing to pay higher prices for branded services and products (Le, 2021).

As shown in Figure 4, around 60% of respondents affirmed their preference for using FinTech services only from their bank, meaning that around 40% are ready to use FinTech services of other banks or non-bank providers. While results imply moderate strength of banks' brands, the results of another question about customer preferences for FinTech provision by their current bank show that around 94% prefer this. Consequently, while customers value their banks' brands, they also value technology and want their banks to invest in FinTech. But customers are not limiting themselves to what their banks offer, many are willing to move to other providers.

Around 86% of respondents said that their banks continuously update and enhance their current FinTech services and introduce new ones. Banks are encouraged to continue these policies and keep their FinTech services relevant to both market developments and their customers' requirements.

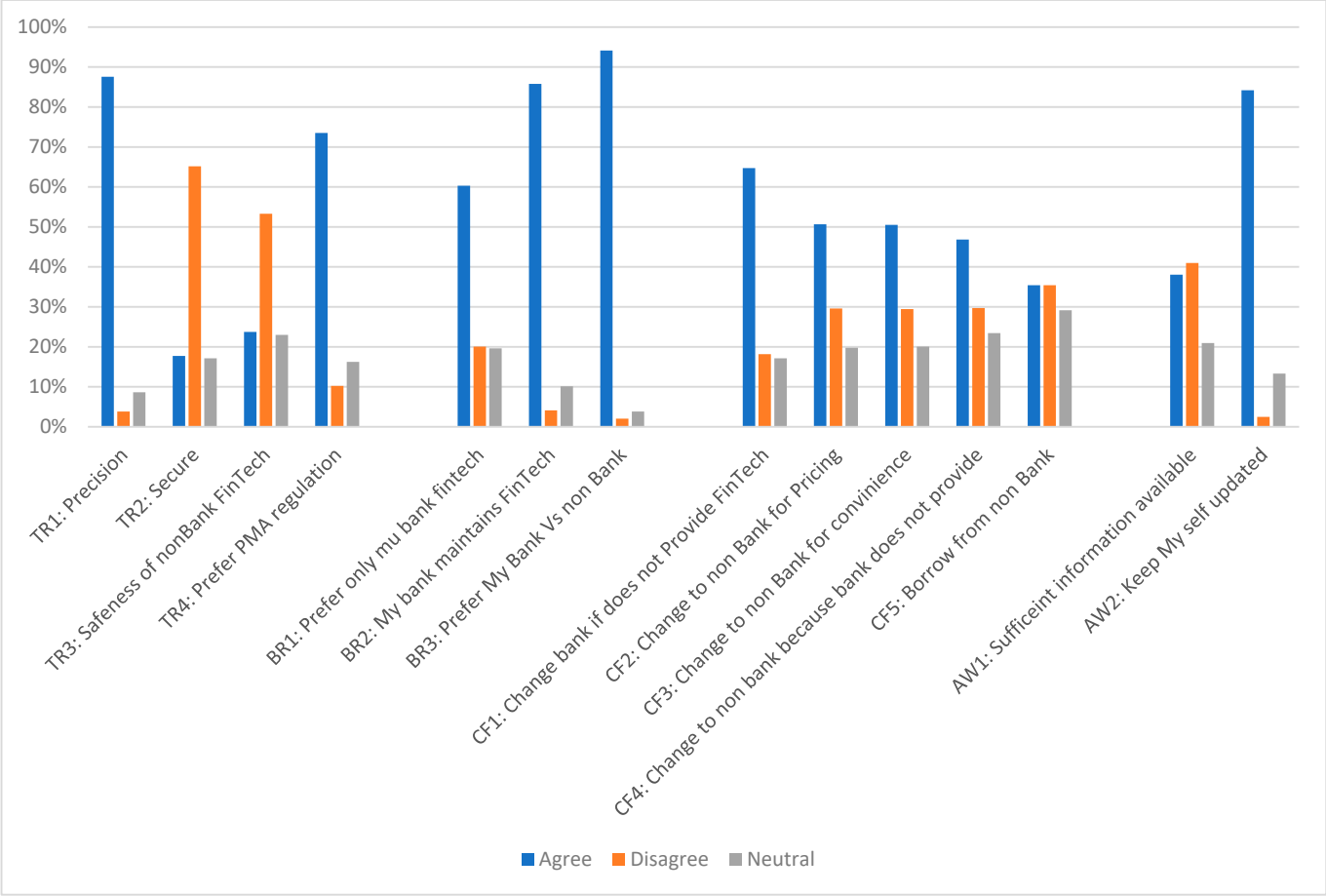

Figure 4. Trust, brand, change bank because of FinTech awareness factors.

Trust Factor Analysis

Trust results from many factors, precision of FinTech services, how secure they are in their users' eyes, and the preference of regulatory authorities to oversee and supervise such services, in addition to the perceived safeness by customers when dealing with FinTech provided by FinTech providers (Singh et al., 2020; Solarz & Swacha-Lech, 2021).

As Figure 4 shows, nearly 88% of respondents agree and strongly agree that they trust the precision of FinTech services provided by their banks. When asked about how secure FinTech services are, 65% agree or strongly agree that they are secure. On the other hand, 17% think that their FinTech bank services are not secure enough, and another 17% are neutral. Banks are required to ensure cyber security for their FinTech services and spread awareness about it among their customers. Enhancing trust in the security factor of FinTech services is of high importance. Customers who do not believe in the safeness and confidentiality of their banking information may either choose not to use FinTech services partially or totally, or even move to other service providers. Raising customers' awareness about security and how to respond to cyber risks is important and critical.

FinTech Awareness Factor Analysis

Lee and Shin (2018) emphasized customer awareness of FinTech. This is crucial for its adoption because it directly influences their willingness to engage with and trust new financial technologies. Awareness encompasses understanding the benefits, functionalities, and security measures of FinTech services, which can reduce hesitation and increase adoption rates. Figure 4 shows responses regarding FinTech awareness. Respondents said that they keep themselves updated about FinTech and its providers in Palestine,

with around 84% responding that they agree or strongly agree with this. This shows that customers have the motivation and desire to learn about FinTech services and providers. On the other hand, when asked about the sufficiency of information concerning FinTech in Palestine, respondents' answers show that only around 38% agree or strongly agree about information sufficiency, while 41% do not agree, and 21% are neutral. These results highlight an important aspect about FinTech awareness. It is obvious that awareness efforts by stakeholders are not sufficient and do not satisfy customers' expectations. Awareness strategies should be considered by banks, non-bank FinTech providers, and regulators. The more customers are aware, the more adoption rates grow, horizontally by increasing the percentage of users and vertically by increasing the number of provided services per customer.

6.1.3. Readiness to Change for FinTech

Customers leave their banks for a variety of reasons, often related to dissatisfaction with the product or service, better offers from competitors, or changes in personal circumstances (Reichheld, 1990). Understanding these reasons in the FinTech subject is crucial for banks to improve customer retention strategies.

As shown in Figure 4, 64% of respondents agree or strongly agree that they would consider moving to another bank because of better FinTech offerings and services. This emphasizes how critical the provision of FinTech services is to customers. Banks that fail to appropriately provide FinTech may lose their customers, and hence market share. On the other hand, it is an excellent opportunity for banks to invest in FinTech services provisions to defend and grow their market share.

Furthermore, around 47% said that they may consider moving to non-banking FinTech providers in case their bank fails to provide them, and 23% were neutral. This reveals an opportunity for non-bank providers to provide suitable alternatives to banks in the FinTech field. For example, when asked about receiving funding through non-bank FinTech providers, an identical percentage of around 35% appeared of those who agree or strongly agree and those who disagree or strongly disagree. This shows customers' openness to deal with even core banking services like funding from non-banks when provided by FinTech.

6.2. Inferential Analysis

Inferential analysis of the sample enables the authors to infer conclusions that can be generalized. Inferential statistics "are the drawing of inferences or conclusions based on a set of observations" (Sutanapong & Louangrath, 2015, p. 22). Using SmartPLS 4 software, this paper used partial least squares structural equation modeling (PLS-SEM) to analyze the inferential statistics to develop a predictive model. The analysis considers two main parts: first, the path modeling, and then, the bootstrapping procedure.

The purpose of the inferential analysis is to confirm or reject the hypothesis of the extended TAM model as mentioned before.

The model involves investigating the relationships among the latent variables: BR, TR, AW, ES, US, and FA, based on 683 cases (the entire dataset) analyzed as shown in Figures 5 and 6 below. Figure 5 illustrates the outcomes of the path algorithm, a systematic framework for identifying and analyzing the impact of multiple variables on a specified outcome. In this case, it examines ease of use (ES) and usefulness (US) in relation to FinTech adoption (FA), while also considering the influence of brand (BR), trust (TR), and awareness (AW) on both ES and US. The model accounts for the interactions and effects of these variables across multiple causal pathways.

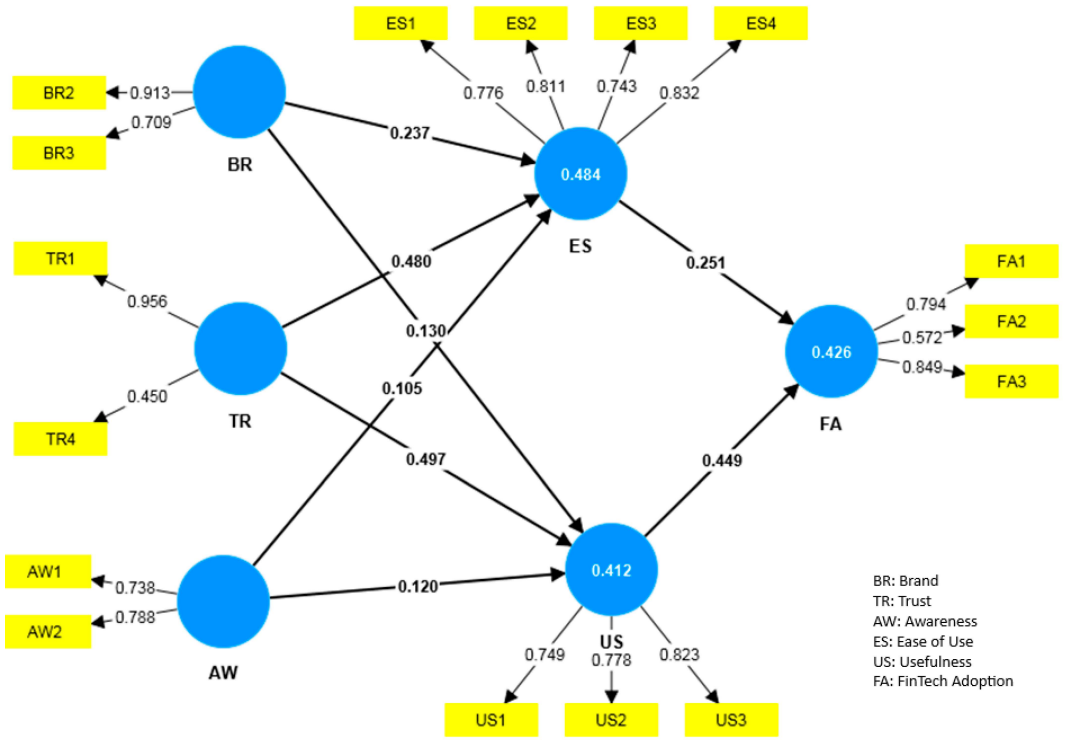

Figure 5. Path algorithm in the overall model. Note: R^2 appears in the blue circle for dependent variables. Arrows between blue circles represent relationships/hypothesis, and numbers on the arrows represent relationship strength. Arrows between blue circles and yellow rectangles represent the outer loadings of the indicators/items.

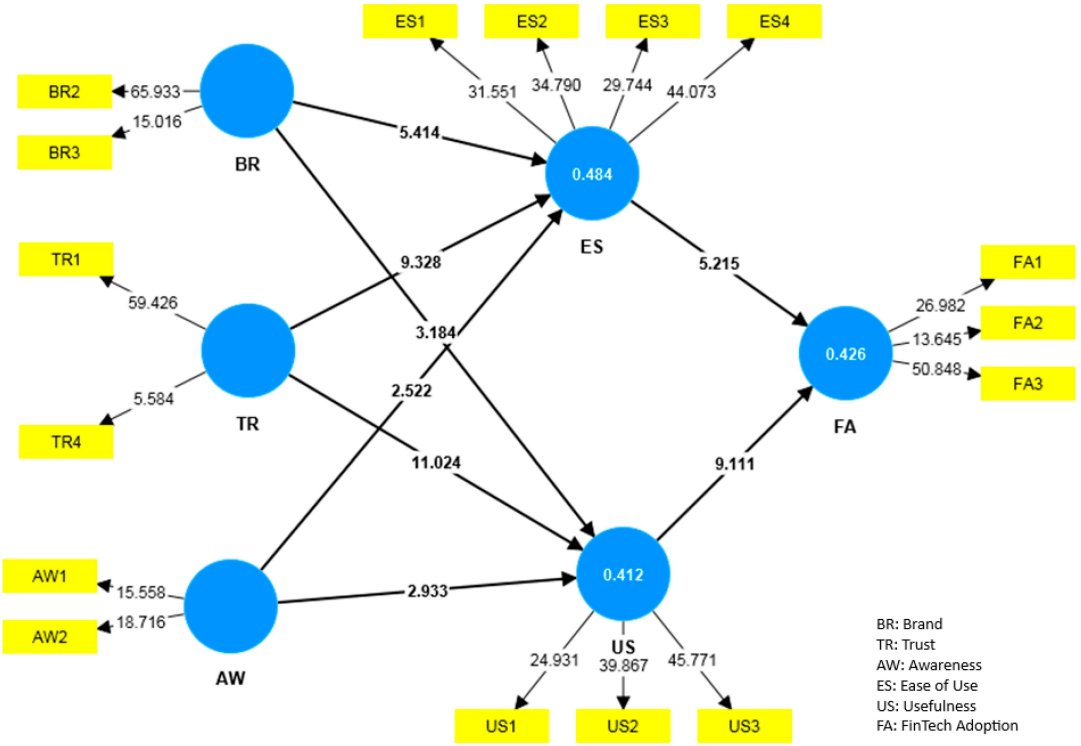

Figure 6. Bootstrapping in the overall model. Note: R^2 appears in the blue circle for dependent variables. Arrows between blue circles represent relationships/hypothesis, and numbers on the arrows represent relationship significance (T values). Arrows between blue circles and yellow rectangles represent the outer loadings' significance of the indicators/items (T Values).

Figure 6 presents the results of the bootstrapping analysis, a nonparametric technique used to assess the statistical significance of various PLS-SEM metrics, including path coefficients, Cronbach's alpha, HTMT, and R^2 values. This analysis evaluates the significance of the relationships between ease of use (ES) and usefulness (US) with FinTech adoption (FA). Additionally, it examines the significance of the influence of brand (BR), trust (TR), and awareness (AW) on both ES and US, providing robust insights into the strength and reliability of these relationships.

6.2.1. Structure Model

As shown in Table 3, the structural model demonstrates satisfactory relationships among the variables, with path coefficients exceeding the threshold of 0.1 and being statistically significant ($p < 0.05$). These results confirm that the model provides meaningful insights into the relationships between the constructs. For a structural equation model, the path coefficients between latent variables must satisfy specific criteria. Specifically, the path coefficient must be at least 0.1 and be statistically significant with a *p*-value of less than 0.05 (Hair et al., 2019).

Table 3. The relationships among the latent variables.

Relationship	Path Coefficients	Narrative
AW → ES	0.105	Awareness has a modest positive influence on ease of use (ES), suggesting that users who are more aware of FinTech perceive it as slightly easier to use. However, this relationship indicates a relatively weak impact.
AW → US	0.120	Awareness has a modest positive effect on usefulness (US), indicating that increased awareness slightly enhances the perception of usefulness. However, this relationship indicates a relatively weak impact.
BR → ES	0.237	Brand has a moderate positive impact on ease of use (ES), implying that brand strength contributes to perceptions of user-friendly FinTech services. This emphasizes the importance of brand reputation in shaping user experiences.
BR → US	0.130	Brand demonstrates a modest positive relationship with usefulness (US), suggesting that users are more likely to perceive FinTech services as valuable if the brand is strong and trustworthy. However, the relatively low coefficient indicates that other variables may play a larger role in determining usefulness.
TR → ES	0.480	Trust shows a strong positive effect on ease of use (ES), suggesting that users who trust the FinTech services find it significantly easier to navigate and use. Building trust appears to be a key factor in enhancing user experience.
TR → US	0.497	Trust has a highly significant impact on usefulness (US), indicating that users are much more likely to perceive a FinTech service as useful if they trust it.
ES → FA	0.251	Ease of use has a significant positive influence on FinTech adoption (FA), indicating that FinTech services perceived as user-friendly are more likely to be adopted. This underscores the importance of designing intuitive and accessible interfaces to encourage adoption.
US → FA	0.449	Usefulness has a substantial positive influence on FinTech adoption (FA), showing that users are significantly more likely to adopt FinTech services when they perceive them as beneficial and relevant to their needs.

The strength of relationships shows the following:

- The relationships between TR → ES (0.480) and TR → US (0.497) are particularly strong, indicating that trust (TR) is a critical driver of ease of use (ES) and usefulness (US).
- Moderate relationships such as US → FA (0.449) and ES → FA (0.251) show that both usefulness and ease of use play a vital role in forming attitudes toward FinTech adoption.
- The weakest relationship, AW → ES (0.105), though statistically significant, suggests that awareness (AW) has a limited direct impact on ease of use, which could indicate the need to explore indirect or moderating effects.

In addition, the coefficient of determination R^2 indicates how much of the variance in the dependent variables can be explained by the independent variables. This is a crucial metric for assessing the model's overall fit and the intensity of the relationships between variables. Normally, the R^2 values above 0.7 indicate a high level of correlation, whereas values below 0.4 indicate a low level of correlation. Moreover, R^2 values above 0.4 are indicative of acceptable predictive power in social science research (Hair et al., 2019). As shown in Table 4 below, the R^2 values for the dependent variables indicate that the model has an acceptable explanatory power:

- ES (0.484): About 48.4% of the variance in ease of use is explained by the predictors, demonstrating a moderate level of prediction.
- FA (0.426): Around 42.6% of the variance in FinTech adoption is explained, which is reasonable for behavioral studies.
- US (0.412): Approximately 41.2% of the variance in usefulness is explained, showing moderate predictive accuracy.

Table 4. Coefficient of determination R-squared. Data extracted using SmartPLS 4.0 (Ringle et al., 2023).

Variable	R^2	R^2 Adjusted
ES	0.484	0.482
FA	0.426	0.424
US	0.412	0.410

These guidelines suggest that the structural equation model is a reasonable fit for the data and that the relationships between variables are robust and meaningful.

Table 5 below shows that the constructs demonstrate good reliability and validity based on composite reliability (CR) and average variance extracted (AVE):

- All constructs meet the threshold for composite reliability (CR $\geq$ 0.7), with the exception of Trust (TR) (0.691), which is close enough to 0.7 to be acceptable.
- The AVE values exceed 0.5 for all constructs, confirming convergent validity.

Table 5. Construct reliability and validity. Data extracted using SmartPLS 4.0 (Ringle et al., 2023).

Construct	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
AW	0.737	0.583
BR	0.798	0.668
ES	0.870	0.626
FA	0.788	0.560
TR	0.691	0.558
US	0.827	0.614

The results from the bootstrapping analysis, as shown in Table 6, show that all hypotheses are supported, with statistically significant relationships ($p < 0.05$):

- The strongest effects are observed for TR → ES (T = 9.328) and TR → US (T = 11.024), reinforcing the importance of trust in shaping ease of use and usefulness.
- The weakest supported hypothesis is AW → ES (T = 2.522, $p = 0.012$), suggesting that awareness has a weak but statistically significant effect on ease of use (p-value is less than 0.05 at a significance level of 95%).

Table 6. Hypotheses testing. Data extracted using SmartPLS 4.0 (Ringle et al., 2023).

Hypothesis	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	p Values	Results
AW → ES	0.105	0.108	0.042	2.522	0.012	supported
AW → US	0.120	0.123	0.041	2.933	0.003	supported
BR → ES	0.237	0.239	0.044	5.414	0.000	supported
BR → US	0.130	0.131	0.041	3.184	0.001	supported
ES → FA	0.251	0.253	0.048	5.215	0.000	supported
TR → ES	0.480	0.478	0.051	9.328	0.000	supported
TR → US	0.497	0.496	0.045	11.024	0.000	supported
US → FA	0.449	0.449	0.049	9.111	0.000	supported

6.2.2. Measurement Model

The results of the Outer Loadings shown in Table 7 indicate that the reflective indicators are well loaded onto their respective constructs:

- Most indicators exceed 0.7, demonstrating good indicator reliability.
- Exceptions like FA2 (0.572) and TR4 (0.450) are acceptable in exploratory studies, as they still contribute meaningfully to their constructs. Values ranging between 0.4 to 0.7 are acceptable for exploratory studies, while values greater than 0.7 are excellent (Dwaikat et al., 2018).

6.2.3. Summary

Overall, the structural equation model demonstrates a good fit, with robust and meaningful relationships between variables. The model highlights the pivotal role of trust (TR) in driving ease of use (ES) and usefulness (US). The moderate explanatory power of the dependent variables (ES, FA, and US) suggests that the model captures key aspects of the underlying relationships but could be further enhanced by considering additional predictors or exploring mediating/moderating effects. Future research could focus on refining the weaker relationships (e.g., AW → ES).

Table 7. Outer loadings—the entire dataset.

Indicators/Constructs	AW	BR	ES	FA	TR	US
AW1	0.738					
AW2	0.788					
BR2		0.913				
BR3		0.709				
ES1			0.776			
ES2			0.811			

Table 7. *Cont.*

Indicators/Constructs	AW	BR	ES	FA	TR	US
ES3			0.743			
ES4			0.832			
FA1				0.794		
FA2				0.572		
FA3				0.849		
TR1					0.956	
TR4					0.450	
US1						0.749
US2						0.778
US3						0.823

Note: The indicators/constructs' description appears in Table 1.

7. Discussion

Analysis showed that in agreement with Puschmann's (2017) conclusions about FinTech drivers, the high percentage of bank customers' use and adoption of FinTech and technology services provided by their banks confirms that consumer behavior has changed and is changing in favor of technology. Customers are not only using their banks' FinTech, but a high percentage also (48.5%) responded that they use non-bank-provided FinTech. This highlights that customers value FinTech. This high percentage may suggest a threat to banks of losing their customers through a gradual shift toward FinTech companies. Furthermore, it may be an indication of a complementary relationship between banks and FinTech companies, where each specializes in specific services.

Findings suggest a sense of urgency for Palestinian banks to invest in FinTech. Stulz (2022) recommended that banks should do their best to effectively use available information technologies to compete and take advantage of their abilities to achieve economies of scale.

Mention (2019) explained that FinTech today surpassed its previous entry stage of promising financial system expansion by providing financial services to unserved or underserved populations. It is increasingly utilizing the factors of speed, cost, and convenience for its service models to disrupt the incumbent banking system. Research results revealed the readiness of bank customers in Palestine to change their bank for another bank in response to FinTech provision. Some 64% said they may change to another bank, while 47% responded that they may use non-bank FinTech. This adds to the sense of urgency for banks to retain their customers, as failing to provide FinTech solutions to their customers might result in them losing part of their customer base and market share to other banks or FinTech companies and may at some stage threaten their ability to stay competitive. It is of importance to mention here that while FinTech start-ups may not currently be counted as a real threat to banks in Palestine for the simple services they are providing, mainly payments and e-wallet simple transfers, they nevertheless challenge banks to catch up and enhance their digital services offerings to their customers. de Mariz (2020) concluded that the rise of FinTech will translate into a strategic threat for banks. Banks are advised to consider partnering with FinTech start-ups to enhance cost and time effectiveness for financial services and help enhance financial inclusion (Kaur et al., 2024).

The subsections below provide a discussion about the proposed extended TAM model.

7.1. Awareness Factor

In accordance with Tiwari et al.'s (2021) conclusions about the importance of customer awareness, results emphasized that while respondents are highly interested in keeping themselves informed about FinTech in Palestine, they showed a strong opinion about the insufficiency of such information in the Palestinian market. Awareness contributes to the perceived ease of use and perceived usefulness.

While inferential analysis confirmed H1 and H2 related to awareness relationship with Ease of Use and Usefulness, it shows that awareness has a limited but significant effect on ease of use; hence, future research is recommended.

7.2. Brand Strength Factor

The results show the importance of brand with regards to FinTech provision. Descriptive analysis emphasized that 60% of respondents are interested in consuming FinTech services provided by their banks, and their preference to see their banks, providing FinTech rather than other providers. While results suggest that customers have strong links to their banks' brands, it also shows that a significant percentage of customers (around 40%) do not recognize such strong links. Failing to create customer brand loyalty introduces significant risks for banks; such matters should be investigated, and mitigating actions should be implemented. The fast and efficient mitigation actions suggested are the investment in FinTech.

H3 and H4, which explore the relationship between brand and both ease of use and usefulness, were confirmed. These findings underscore the significant role a strong brand plays in influencing customers' perceptions of ease of use and usefulness, thereby facilitating FinTech adoption among bank customers, which is in line with Davis and Venkatesh's (2004) conclusions.

7.3. Trust Factor

Trust in the context of the TAM, generally refers to the degree to which a user believes that using a particular system or technology is secure and reliable and that the provider of the technology is trustworthy. It influences user perceptions of the system's usefulness and ease of use, which are the core determinants of technology acceptance in the original TAM framework (Gefen et al., 2003; Solihati et al., 2025). Results from descriptive analysis support the above description, where 88% of respondents expressed their trust in service precision and reliability, while 65% showed confidence in FinTech security.

Furthermore, inferential analysis showed that both H5 and H6, concerning relationships between trust and ease of use and usefulness, respectively, were supported.

Such results show that bank customers in Palestine value and trust FinTech services provided by their banks and think that trust has a significant relationship with both ease of service and usefulness.

Continuing on the path to invest in spreading trust in FinTech services is critical for customer adoption, especially in the efforts within the cybersecurity field, and in the precision and quality of offered services.

7.4. Perceived Ease of Use Factor

Results highlight the importance and relevance of ease of use and its effect on FinTech adoption. Descriptive analysis showed that customers value the high availability of FinTech services and the continuous maintenance and upgrades taking place by their banks. Moreover, they expressed their satisfaction with the support provided by banks for their FinTech services, in addition to the easy experience they enjoy while using them.

The perceived ease of use's significant relationship with FinTech adoption represented by H7 was supported, confirming the extended TAM framework.

7.5. Perceived Usefulness Factor

Descriptive analysis of responses was in alignment with the literature review discussions about perceived usefulness, which happens when customers think and expect technology to provide an upgrade to their performance (Dhingra & Mudgal, 2019). Responders showed valuing the time efficiency provided by FinTech compared to "bricks and mortar". Additionally, responders valued enhanced financial gains resulting from their FinTech adoption, in line with the literature review aspects of cost efficiency and expected higher earnings through FinTech, being another factor that customers perceive as useful (Mangin et al., 2011). It is worth noting that 72% responded positively to enhanced pricing, while 11% disagreed, and 16% were neutral. This puts further pressure on banks to enhance their FinTech offerings with better pricing and accompanying awareness campaigns to educate customers. Diversity of provided services contributes to the perceived usefulness, and results show that customers perceive such comprehensive diverse services. It is of value to highlight that FinTech services expand rapidly; hence, banks need to extend continuous efforts to keep up with FinTech provision and expansion.

Inferential analysis showed that H8 was supported contributing to the confirmation of the extended TAM framework in the Palestinian banking sector.

8. Conclusions

This study highlights the transformative role of FinTech in reshaping customer preferences and the competitive dynamics of the banking sector in Palestine. With a substantial percentage of customers adopting both bank and non-bank FinTech solutions, it is evident that technology has become an integral part of modern financial services. This shift underscores the need for banks to respond proactively to these changes to retain customer loyalty and stay competitive.

Key findings confirm that awareness, brand strength, trust, perceived ease of use, and perceived usefulness are pivotal in driving FinTech adoption. Customers place high value on speed, convenience, and the financial benefits offered by these services, yet gaps in awareness and competitive pricing present challenges that banks must address to maximize customer satisfaction and retention.

The readiness of customers to switch banks or adopt non-bank FinTech solutions signals a critical need for Palestinian banks to accelerate their digital transformation efforts. While FinTech start-ups currently offer limited services, their role in challenging traditional banking practices cannot be underestimated. Strategic partnerships with FinTech providers could offer a path for banks to enhance service efficiency and expand financial inclusion.

These insights validate the extended TAM framework and demonstrate its relevance in assessing technology adoption in the Palestinian banking context. To secure their market position, banks must prioritize investments in advanced FinTech solutions, foster trust through robust security measures, and actively educate customers on the benefits of digital financial services.

Ultimately, FinTech is not merely a tool for growth but a necessity for survival in an era of rapid technological advancement and shifting consumer expectations. Banks that embrace this change will not only safeguard their market share but also unlock new opportunities for innovation and customer engagement.

Future research is recommended to consider other factors that may affect FinTech adoption by bank customers, the factors that affect and encourage unbanked or underbanked to

adopt FinTech and become financially included, and the ramifications of 7 October 2023, and its consequences on the Palestinian banking sector, financial inclusion, and FinTech.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/ijfs13010011/s1. Table S1: Construct operationalization; Table S2: Sample social indicators; Table S3: The relationships among the latent variables; Table S4: Coefficient of determination R-squared; Table S5: Construct reliability and validity; Table S6: Hypotheses testing; Table S7: Outer loadings—the entire dataset.

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