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In quest of perceived risk determinants affecting intention to use fintech: Moderating effects of situational factors

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ABSTRACT

This paper seeks to fill a notable gap in the current literature by exploring the perceived risks linked to the integration of financial technology (fintech) in the context of Pakistan. Despite the evident progress in fintech, customer apprehension persists. There were 210 participants in this study. This study examined the information using the structural equation modeling method. According to empirical outcomes, Time risk ($\beta = 0.274$) emerges as the most significant among the five risk categories, increasing perceived risk, followed by financial risk ($\beta = 0.214$), security risk ($\beta = 0.203$), social risk ($\beta = 0.151$), and performance risk ($\beta = 0.140$). However, the Intention to use fintech was negatively influenced by perceived risk ($\beta = -0.284$). Situational factors are essential while functioning as a moderator. The results aid professionals in refining their understanding and mitigating risk thresholds when strategizing for potential fintech disruptions. Recommendations include a focus on enhancing operational fintech skills and practical framework performance in fintech services. Fintech service providers can prioritize strategies that address time risk and mitigate overall perceived risk, while policymakers can create frameworks that promote transparency and address user concerns to encourage wider fintech adoption.

1. Introduction

Fintech, a fusion of "financial" with "technology," has lately generated significant attention in the market. According to EY, a fintech company integrates cutting-edge business strategies and technology to materialize, improve, and revolutionize fiscal operations. Fintech, taken as a whole, cites businesses that present customers with financial programming solutions. In other words, companies offer their clients software and financial programming solutions. Fintech use increased faster than expected, from 52 % in 2017 to 64 % in 2019. Simultaneously, the worldwide level of fintech attentiveness is startlingly soaring (payments made by means of computer or smartphone are 89 %, while services for non-bank money transfers and a P2P fund transfer are 82 %) (EY, 2019). This study focuses on risk management and payment. Pakistan has the sixth largest population globally but a cashed-based economy. Pakistan's economy has always been constrained by a shortage of capital (Abbass et al., 2022). The topographical endeavor may be expanded by controlling technology. Innovative mechanical setups like branchless banking services or e-commerce may significantly improve physical access to finance (Wirdiyanti et al., 2023). Collaboration and goodwill between financial institutions and unofficial suppliers may make the services and operations of their establishments more topographically accessible, less confusing, and generally more cost-effectively reasonable for customers (Imtiaz et al., 2023). The financial domain's constraints might allow virtual monetary institutions to provide workable solutions.

The specific difficulties experienced by fintech users in Pakistan—a setting that is quite different from that of industrialized economies—underline the significance of this research. It is vital for stakeholders seeking to encourage the growth and usage of fintech in comparable emerging economies to comprehend these obstacles. This investigation delves into the realm of individual consumer behavior, scrutinizing the factors that impact the inclination of individuals in Pakistan to embrace fintech. While Pakistan's technological landscape is on an upward trajectory, it remains in a developmental phase, marked by limited familiarity among the populace (Hayat et al., 2021). Notably, only literate individuals or the younger generation possess a certain level of acquaintance with financial technology. Unlike countries like China, where even individuals in dire financial straits employ QR codes for transactions (T. Wang and Jia, 2021), the majority of literate

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individuals in Pakistan and other emerging economies lack awareness of such facilities. A pronounced technological adoption gap exists between emerging economies like Pakistan and more developed nations. It's noteworthy that this study doesn't zero in on focused fintech products or offerings such as virtual, ATMs, mobile banking, or shopping apps. Instead, the focus is on broader fintech categories, particularly within the realms of risk management and payments. It's crucial to acknowledge the research's limitations, particularly its concentration on individual behavior within the selected categories. Despite these constraints, this approach furnishes a valuable glimpse into distinctive setbacks and chances within the Pakistani context, casting light on the current landscape of fintech adoption in the country. Fintech use in Pakistan has been impeded by a number of perceived risks, including time, security, and financial ones. This research tackles a significant obstacle to the adoption of fintech by identifying these risks and comprehending their influence on user intentions.

The study aims to achieve the following objectives:

- To explore if perceived risk (PRCVR) factors influence consumers' intentions to use fintech (IU).
- To identify the factors more closely connected to risk and influence the IU.
- To ascertain if situational factors are crucial in examining consumers' adoption of fintech in Pakistan.

This study fills a critical gap in the existing literature by examining the moderating effects of situational factors on perceived risk and intention to use fintech in a developing country context. This research differs from earlier studies in that recent studies have discovered many factors affecting fintech adoption. Few studies have been conducted on the obstacles and risks that keep customers from using fintech (Ali et al., 2022; Azeem et al., 2023). Examining the variables influencing Pakistani consumers' IU in terms of risk perception is thus essential. The technology acceptance model (TAM) is a recurring theme in Pakistani fintech literature (Azeem et al., 2023). There has, however, been a noticeable research vacuum, with no comprehensive analysis of risk variables taking the moderating effects of situational factors into account. Agha and Saeed (2015) employed TAM and a single social risk factor to determine if buyers would adopt the technology. The moderating impact of situational factors was considered as this article analyzed risk factors related to payment apps for online money transfers or shopping in Pakistan. Data is gathered from financially literate, highly educated customers, and then this research utilized a direct influence of risk factors on aspirations to embrace fintech.

The remaining portion of the manuscript is organized subsequently: In Section 2, the conceptual framework and hypotheses are outlined. The method used is described in Section 3, and its results are presented in Section 4. Section 5 presents the conclusions, implications, limitations, and recommendations for further research. Ultimately, the article concludes in Section 6.

2. Conceptual framework

Fintech isn't limited to the banking industry. As an alternative to traditional financial realms, it involves executing corporate activities, giving assistance, and shipping items in addition to financing, developing new methods, and constructing company structures and tactics (P2P borrowing and crowdsourcing) (Boot et al., 2021; Liu et al., 2020; Pushpa et al., 2023). Fintech facilitates the engagement of people in an array of mobile climate services. Fintech allows users to save costs, eliminate intermediaries, increase accessibility to financial data, and benefit from an improved and transparent environment (Bavoso, 2022; Dharmadasa, 2021; Dorfleitner et al., 2023).

Fintech has gained a lot of attention from customers, but its acceptance is still debatable and unclear. It is understood that this conduct will be adversely affected by a pessimistic individual. The academics claim that artificial intelligence (AI) is transforming the financial industry. The client, nevertheless, actively engages in this process and is hesitant to trust (Zarifis and Cheng, 2022). Due to the significant and unavoidable risks associated with using fintech technology, buyers may be reluctant to do so. These unforeseen hazards of using fintech might harm customers, which hinders their use. These lines led to the need for a study on how consumers perceive the risk associated with using fintech.

The primary theories considered for this research were perceived risk theory (PRT), which maintains that risk is an important component in technology adoption, and behavior or intentions theory (TAM). This research has taken into account Belk's concept of situational circumstances in order to examine the impact of moderation on users' intent.

Although the adoption of fintech in industrialized economies has been the subject of many studies (Huarng and Yu, 2022; Kabengele and Hahn, 2021), there is a crucial knowledge vacuum regarding these processes in emerging economies such as Pakistan (Niaz, 2022). The TAM paradigm is often used in existing research (Agha and Saeed, 2015; Zhang et al., 2023), yet this approach may not adequately represent the subtleties of user behavior in developing economies with unique cultural settings and infrastructural constraints. Furthermore, a study conducted recently highlights the significance of perceived risks in the adoption of fintech (Saleem, 2021). The moderating impact of situational variables on the association between perceived risk and IU, however, has not received much attention in studies. By examining the moderating impacts of elements such as environmental and physical surroundings (EPS) and the impact of a pandemic and impending policy (PIP) on user behavior in Pakistan, this research fills this knowledge gap. Through the integration of these components, this study seeks to enhance the overall comprehension of fintech acceptance in developing nations.

2.1. Theoretical and hypothetical model

2.1.1. Perceived risk theory

Scholars have described the perceived risk (PRCVR) as an inescapable sense that the outcome is dire (Meyliana and Fernando, 2019; Ryu, 2018). How much risk they perceive influences people's confidence and trust in their decisions. Several academics say users' PRCVR is allegedly a multifaceted construct. In any instance, the product category may alter the PRCVR aspects. Previous researchers listed six types of PRCVR: safety, performance, financial, time or opportunity, social, and psychological (Ryu, 2018). Financial, performance, psychological, time, privacy, social, and total risk are the primary risk factors in the initial acceptance phase of the wireless Internet, according to Luo et al. (2010). Web-based banking doesn't threaten people's lives; hence, this research did not consider physical risk. This study delineates PRCVR as the emotionally inferred anticipation of a setback when scrutinizing a particular online transaction in fintech apps or engagements, such as online transactions.

2.1.2. Belk's theory

Concerning the Situational factors, Belk used the term “situational factors” concerning consumer shopping behavior to show that various variables may affect consumers' purchasing choices. Following “a modified stimulus-organism-response paradigm,” Belk categorized these impacts into two groups: situational and non-situational elements (Belk, 1975). Non-situational attributes refer to an individual's or an item's enduring characteristics, encompassing traits like personality, cognition, gender, ethnicity, individual recognition, brand awareness, durability, dimensions, and functionality applicable to a purchasable item. However, situational factors are “all those variables specific to a time and location of observation that is not derived from personal knowledge and sensory characteristics and have a demonstrated and systematic impact on present behavior” (Belk, 1975). The situational elements are Physical and social surroundings, temporal perspective, task definition, and antecedent state. Then, some scholars suggested updated situational

elements (Ashraf et al., 2014; Zhuang et al., 2006) and utilized these additional variables in their model parameters concerning their study area.

Innovation and new technology are more likely to be adopted by consumers (Firmansyah et al., 2022). On the other hand, the willingness of prospective consumers to accept or reject an invention depends on their beliefs or perspectives about it.

Based on this study, additional components based on the status of the world today, including a PIP, were added to the utilization of fintech, along with certain situational aspects like EPS.

2.2. Fintech risk perception

Perceived risk is characterized in multiple ways. Users' concerns about possible drawbacks from using new technology are reflected in perceived risk, which continues to be a significant factor affecting technology adoption (Purnama et al., 2023). User engagement may be severely hindered by this apparent uncertainty (Hwang and Youn, 2023). Research in a variety of technology fields continuously shows that PRCVR and intention to use (IU) are negatively correlated (Anwar et al., 2021). Perceived risks such as financial losses, privacy issues, and security breaches may be major deterrents when it comes to fintech adoption, making it harder for consumers to trust and be eager to use these services (Idayani et al., 2024).

The significance of reducing these perceived risks for fintech service providers is shown by the negative correlation found between PRCVR and IU. Crucial actions include putting in place strong security measures, encouraging data privacy policies, and making sure user interfaces are intuitive (Zhang et al., 2023). Moreover, fintech services can help reduce anxiety and foster positive perceptions by addressing user concerns through clear communication and educational initiatives (Bouteraa et al., 2023; Dekkal et al., 2023; Patnaik et al., 2023).

PRCVR adversely impacts the uptake of information technology about the database framework. The PRCVR is connected to the goods or services that use technological innovation (Ryu, 2018). Accordingly, PRCVR is illustrated as “customers' perception of fragility, susceptibility, and the potential for adverse Fintech outcomes.” Five elements of PRCVR were identified through the measurement of PRCVR and fintech literature: performance risk (PRFE), financial risk (FINR), social risk (SOCR), time risk (TR), and security risk (SECR) (Fig. 1); these components may affect buyers' expectations for how fintech will be received.

2.2.1. Performance risk

The terms “performance risk” or “operational risk” pertain to the possibility of losses brought on by deficiencies in or malfunctions of web-driven financial systems, for example, digital purchases (Abdul-Rahim et al., 2022; Barakat and Hussainey, 2013). Recurrent disconnections and site malfunctions make it difficult to evaluate electronic services. One kind of PRFR is operational risk (Luo et al., 2010). Because of the risky potential of operational and financial domains of fintech businesses, individuals won't plan to use fintech. Users will become doubtful and frustrated due to structural issues, the absence of effective and swift response skills, and poor or non-existent internal procedures (Gupta et al., 2023). This will prevent attempts to use fintech. Therefore, it is hypothesized in this study that PRFR increases PRCVR. As a result, this research proposes:

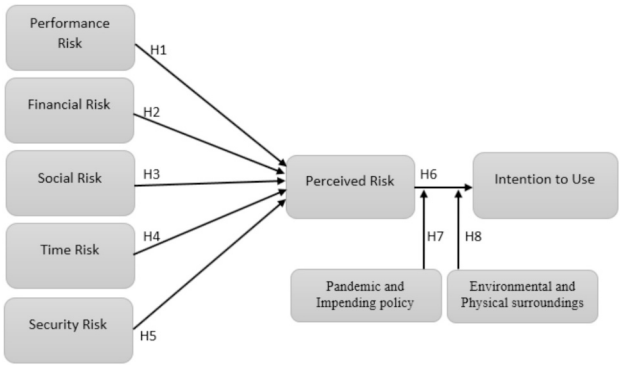

Fig. 1. Proposed model.

H1. PRFR positively affects PRCVR.

2.2.2. Financial risk

Financial risk pertains to potential financial losses incurred during financial transactions, such as those facilitated by fintech (Abdul-Rahim et al., 2022; Ali et al., 2021). Misuse of an account, an exchange mishap, or a transaction error might all result in financial hardship. Previous data systems studies have shown that the primary component adopted by mobile phones and network systems is a FINR (Ryu, 2018). The risks posed by the financial market system, currency distortions, ethical challenges, fraudulent activities, and the potential for additional transaction costs linked to a desired price are financial challenges for fintech. These FINR variables heighten consumer risk aversion, which adversely affects the IU (Gupta et al., 2023). According to earlier research, FINR has increased, possibly repeating economic catastrophes in the financial services industry due to misrepresentation (Luo et al., 2010). In this way, PRCVR is influenced by FINR, which leads to the following conclusions:

H2. FINR positively affects the PRCVR.

2.2.3. Social risk

Social risk is a diminished self-perception when acquiring or using specific services or goods that a particular segment of society considers unsuitable (Xie et al., 2021). It suggests that there's a possibility using financial technology might lead to dissatisfaction with friends, family, or colleagues (Submitter et al., 2021). People probably have various viewpoints about financial technology, such as Internet banking, which affect how they see their users. Social media engagement and participatory conduct are vital for interaction on every online platform. Conversely, abstaining from online banking might either enhance or adversely affect social standing. Given this research, it becomes sensitive to assume that social risk may have a detrimental effect on customers' views about fintech usage. Hence, it can be concluded that:

H3. SOCR positively affects the PRCVR.

2.2.4. Time risk

Time risk is the additional time spent, difficulty, or annoyance resulting from payment delays or other route-related issues (finding suitable services or hyperlinks) (Guru et al., 2020; Sreya and Raveendran, 2016). According to some scholars, all consumption and consumer behavior are inherently tied to the dimensions of time and location (Sheth, 2020). Unorganized or perplexing websites that load slowly while surfing are two significant factors in unpleasant online encounters that might be considered a TR. Harried shoppers are more compelled to make online purchases for the sake of time efficiency. Time-conscious individuals are more prone to express concerns about missing deadlines. Consumers are, therefore, less likely to choose an e-service involving higher transaction, implementation, installation, and initial expenses. TR has a greater influence on the global financial market than it does on an individual basis (Elsayed et al., 2020; Le et al., 2021). Web buying is severely hampered by time risk. Thus, the following is hypothesized:

H4. TR positively affects the PRCVR.

2.2.5. Security risk

Security risk is a threat that increases the risk of a circumstance, condition, or event, such as destruction, disclosure, information

tampering, service refusal, malpresentation, fabrication, loss, and misuse (Tang et al., 2020). Many studies have shown that gaining customers' trust regarding security and privacy issues will pose a significant barrier to online businesses (Degerli, 2019). Ryu said that using fintech is often coupled with more potential loss, such as confidentiality, personal data, and swapping (Ryu, 2018). Additionally, it increases the awareness of the dangers connected with using fintech. Fintech adoption has been proven to be significantly impacted by security and privacy concerns (Le, 2021a, 2021b). The use of fintech is thus predicted to impact the SECR significantly. Consequently, it is assumed that:

H5. SECR positively affects the PRCVR.

2.2.6. Perceived risk and intention to use fintech

A key barrier to engaging in actions is perceived risk. PRCVR is described as the emotion or sensation of uncertainty experienced by users or worries about their conduct and potential negative outcomes linked to availing offerings (Ali et al., 2021; Xie et al., 2021). Risk perception is detrimental to overall IU in e-service scenarios like electronic currency and online payments. Security and privacy issues have generally been seen as the most crucial ones regarding risk (Wang and Lin, 2017). Researchers have shown that people's choices are significantly influenced by their perception of risk (Zobeidi et al., 2022). PRCVR has an impact on investment intentions (Amir Rahmani et al., 2023). However, more recent research has adopted a complex idea that includes financial, performance, social, psychological, physical, and temporal risks when consumers conduct transactions (Groß, 2016).

In this research, PRCVR is defined as a user's perspective on the unpredictability that could result in an unfavorable outcome from a fintech transaction. Some researchers have looked at the impact of PRCVR over time, even though many studies have studied how trust and PRCVR are factors in adopting and using technology. If fintech businesses fully understand the impacts of trust and risk on the sustained use of fintech, they can meet their long-term development goals.

H6. PRCVR negatively impacts consumers' IU.

2.3. Moderator's dimension

2.3.1. Pandemic and impending policy

A pandemic is considered a destructive element in the progress of an economy. Ever since the end of 2019, COVID-19 has become a worldwide epidemic. It has spread to 213 nations, killing about 724,000 people (Sumaedi et al., 2020). Due to corona, many people have shortened the time of staying out of the home. Physical activities have been reduced, and the number of customers in the market has decreased. Though the contemporary world has technology-infused at each door, people are still not using it completely. Due to the coronavirus's fear, people have started working from home (De Haas et al., 2020). The pandemic has had a negative impact on traditional shopping, but people have to fulfill their needs; thus, they are using fintech platforms to perform transactions. Even during the pandemic, financial enterprises enhance efficiency by adopting fintech solutions tailored to societal needs, market demands, and customer satisfaction (Zahariev et al., 2023).

COVID-19 may be slowed down in a nation by following simple rules, like hand washing and physical distance. The “Stay at Home” policy is one of the numerous measures taken by several nations (Sumaedi et al., 2020). Staying at home is a kind of activity linked to one's health. Intention and health-related behavior have a favorable connection. The introduction of the “Stay at Home” policy is one of the Pakistani government's attempts to combat the illness. During the COVID-19 epidemic, remaining at home is an easy campaign. The plea also urged people to stay away from crowds, enhance their physical condition, and avoid unnecessary travel (Sumaedi et al., 2020). People in Pakistan are also advised to avoid congested areas and to obtain accurate measurements. Pandemic restrictions (government measures) stop people from freely moving outside and performing traditional transactions. Some scholars found that people are more prone to work at home (De Haas et al., 2020). Thus, it was compulsory to know the current consumers' IU because of this pandemic.

So, it can be said that current situational factors such as the PIP have urged people to use fintech and let consumers have experience using it regardless of other factors such as the PRCVR that hinder them from using it. Therefore, this research proposes:

H7. The PIP moderates the relationship between PRCVR and IU.

2.3.2. Environmental and physical surroundings

Few physical activities are encountered in that set of people due to environmental factors such as inaccessibility of facilities, neighborhood environment, adverse weather, and safety hazards such as heavy traffic, lack of safe place, elevated levels of violence nearby, or unmonitored dogs (Humpel et al., 2002). So, if a customer finds himself in a position where his needs for going outdoors are unmet, he will most likely remain at home and conduct transactions via an online platform. Consumers who haven't used online services or fintech will probably try this. In other words, the situation creates the need among consumers to use fintech for online shopping or transactions, further moderating the association between the PRCVR and IU. Previous scholars found that situational factors such as time availability, money availability, and tasks cause the impulsive buying behavior of consumers (Jung Chang et al., 2014). Dabholkar and Bagozzi (2002) found that situational factors such as time moderate the relationship between attitude and IU. Similarly, Kim et al. (2017) found that situational factors such as location and convenience moderate the relationship between relative advantages, compatibility, complexity, PRCVR of online stores, and IU.

Different authors have considered different situational factors (Dominici et al., 2021; Febrilia and Warokka, 2021; Zhuang et al., 2006). Currently, the shopping complex has a diverse selection of stores. It is usual to see shopping centers and department shops work hard to improve the physical value of their surroundings to attract customers. These essentials include design, internal structural design, decorating lighting, music, fragrance, and cleanliness. Observations throughout the holiday period, such as Christmas, individual shop discounts, and product concerts, contribute to the physical environment. Consumers often evaluate their previous shopping experience in a store based on the physical environment and the supply of services before purchasing. Furthermore, the shopping area's image helps customers condescend to the business (Debenedetti, 2021; Rajagopal and Rajagopal, 2020). According to a prior study, consumers prefer to conduct conventional shopping/purchasing products when the interior decoration of the shopping mall/organization is spectacular or has a pleasant odor or when they are amused by melodic music in the shopping mall/organization (Ashraf et al., 2014). Consumers prefer to use conventional transaction methods if a shopping mall or organization is not far away. As a result, this study suggests, based on prior research, that:

H8. EPS moderates the relationship between PRCVR and IU.

3. Methodology

3.1. Data collection

A survey was undertaken to get data from respondents, Pakistani residents living in different cities all over the country. The questionnaire was written to make it easy for the respondents to read and understand. Two management specialists assisted in completing and double-checking the questionnaire.

The sample responses were gathered between the first of August and the first of October 2022 during the pandemic era. Two hundred ten respondents from various backgrounds participated in an online survey. All of the responses were used to examine the given hypotheses. The poll is limited to those with, at most, basic internet knowledge, skill, and

experience owing to the research's online nature. The questionnaire link was shared online with responders via WhatsApp, Facebook, emails, and messages. In order to improve data integrity and promote complete engagement, this research imposed incentives on participants (Witte et al., 2023). The questionnaire's introductory part explained the study to the respondents. Responders were invited to take part in the survey and were fully informed that their involvement was associated with research to be used exclusively for academic purposes. No personally identifiable information was collected from the respondents, including details such as their name, date of birth, home address, or cellphone number, to ensure the anonymous conduct of data analysis. Disclosing salary or selecting a specific number from the provided options was optional.

3.2. Measurement items development

The research was designed to include a two-part questionnaire with five-point Likert scales. Intentions to utilize fintech, perceived risk considerations, and the moderating impacts of situational circumstances were the main topics of the second section, ranging from "strongly disagree" (1) to "strongly agree" and nominal scales in the first section (5). As a consequence, the first portion is made up of basic information. This survey section was designed to collect respondents' descriptive data, including their gender, age, education level, employment, and fintech experience. The detailed questionnaire is provided in Appendix A.

The questionnaire's second section was built around the ideas of performance risk, financial risk, social risk, time risk, and security risk concerning the IU and two moderating variables, PIP and EPS. The performance and financial risks were operationalized by considering Gupta et al. (2023), containing three and five elements, respectively. The social risk and security risk were taken from Khuong et al. (2022) containing three for each. Time risk was taken from Lee (2009), containing three items. The perceived risk was taken from Gupta et al. (2023) and Abdul-Rahim et al. (2022), containing three items. The IU was adopted from Le (2021a). The assessment of the pandemic and impending policy was based on five items; the first two were taken from De Haas et al. (2020) and, the third was a new item, the fourth and fifth were taken from Sumaedi et al. (2020). Environmental and physical surroundings from Humpel et al. (2002) and Ashraf et al. (2014) contain two items.

3.3. Responders' demographic profile

According to Table 1, men comprised 61.40 % of the data, while females comprised 38.60 %. 74.28 % of respondents were between the ages of 20 and 30. Regarding education, 40 % of the respondents fell into the master group, which held the majority of positions in the survey. In terms of the respondents' profession, students made up the most considerable number (43.30 %). Over USD 200 was the income level of 41.43 % of respondents. This study discovered that 74.30 % of those surveyed had a fintech background.

Convenience sampling was used in this research for the exploratory investigation. This method gives preference to those who are easily accessible and fit particular requirements. The target audience for this study was literate people with relevant fintech experience. Although this established a foundational degree of literacy and exposure to fintech, it's crucial to recognize that convenience samples could not be entirely representative of the general public. This may result in a situation where some groups are overrepresented, such as those with better incomes and educational attainment. This is reflected in the sample, as the thorough demographic breakdown in Table 1 makes clear.

On the other hand, the goal of exploratory studies such as this one is to grasp general trends and obtain preliminary insights. At this point, precise estimates of the population parameters are less important. Therefore, obtaining sufficient data to accomplish these goals was given top priority in this study. This study's strong sample size of 210 participants offers insightful information about user attitudes and actions surrounding the adoption of fintech in the particular setting of this investigation.

Table 1
Responders' demographic profile.

Variable	Descriptions	Frequency	Percentage
Gender	Male	130	62.00 %
	Female	80	38.00 %
Age	20–30 years old	156	74.28 %
	31–40 years old	50	23.80 %
	41–50 years old	3	1.42 %
	More than 50	1	0.50 %
Education	Bachelors	78	37.00 %
	Master	84	40 %
	PhD	30	14 %
	Others	18	8.60 %
Occupation	Working	75	35.70 %
	Self-Employed	28	13.30 %
	Unemployed	9	4.30 %
	Housewife	6	2.90 %
	Pensioner/retired	1	0.50 %
	Student	91	43.30 %
Income Level	Less than 100 USD	43	20.48 %
	100–150 USD	48	23 %
	150–200 USD	32	15.23 %
	More than 200 USD	87	41.43 %
Categorization of respondents	Experienced users	156	74.30 %
	Non-experienced users	54	25.70 %

3.4. Structural equation modeling technique

This research employed the two-step Anderson and Gerbing (1988) technique was used in this study to assess the data. First, the measurement model's discriminant and convergent validity were assessed. Next, by examining the structural model, the routes between the constructs' strengths and directions were ascertained.

Because of its capacity to manage intricate interactions between observable (survey items) and latent variables (constructs), structural equation modeling (SEM) was selected. The measuring model and the structural model were the two primary phases of the investigation. The measurement model specifies the links between latent variables and their observable indicators. In this research, numerous observable variables were used to assess each latent variable. Factor loadings, Composite Reliability (CR), and Average Variance Extracted (AVE) were used to evaluate convergent validity. Cross-loadings and the Fornell-Larcker criteria were used to confirm discriminant validity. The links between the constructs, both direct and indirect, were investigated using the structural model. The direction and intensity of these associations were ascertained by estimating the path coefficients. Smart PLS-SEM was used for the study, and it produced accurate results for evaluating validity and reliability.

4. Results

4.1. Measurement model assessment

Along with factor loadings, it is suggested that each item's validity and reliability be evaluated. Reliability refers to a measure's consistency (Sürücü and Maslakçi, 2020). A measure must provide consistent findings under predictable conditions to be considered trustworthy, and the value for every item's loadings must be greater or equal to (0.7).

For composite reliability, Cronbach's Alpha values must be equal to or over (0.7). 0.5 to 0.7 is allowable, while over 0.7 and under 9.5 are excellent (Kennedy, 2022).

Additionally, validity is defined as the grand mean of the squared loadings of the construct-related items. The convergent validity of a

measure may be assessed using the AVE. That is the percentage of variance that a latent construct's indicators can account for.

If the construct's AVE value is (0.5) or above, it illustrates >50 % of the variance of its components (Hair Jr et al., 2016). As shown in Table 2, composite reliability values are over 0.7, Cronbach's Alpha is acceptable, and AVE values are over 0.5. The convergent validity of constructs is demonstrated.

The Fornell-Larcker criteria are used to compare the square root of the AVE value to latent variable correlations (see Table 3) (Rasoolimanesh, 2022).

4.1.1. Internal consistency reliability and convergent validity

The findings show that all constructs and indicators meet the criteria for reflective measurement, i.e., all indicators have loadings over 0.7. AVE is >0.5. Table 2 and Fig. 2 indicate composite reliability values are >0.70, and Cronbach's alpha values are likewise acceptable. Finally, the results showed that all indicators are valid, the data have internal consistency, and convergence validity has been validated.

4.1.2. Discriminant validity

To achieve discriminant validity, it is proposed that the loadings of own construction should be higher than that of other constructs in the model (Hilkenmeier et al., 2020). All the structures in Table 3 meet this requirement.

As shown in Table 4, the heterotrait-monotrait (HTMT) correlation criteria are used to assess the outcomes of discriminant validity. The results exhibit discriminant validity satisfying the HTMT 0.9 criteria. (Rasoolimanesh, 2022). Concerning the cross-loadings, all the values are up to standards and have been given in Appendix B.

4.1.3. Collinearity

Construct correlations are strong, according to Table 3, ranging from 0.771 to 1.000. Regression analysis might be used to evaluate the probability of multicollinearity explicitly. A common indicator of Collinearity in regression analysis is the variance inflation factor (VIF), which measures the degree to which other predictor variables describe a predictor variable (Hair Jr et al., 2016). A threshold VIF of less than or equal to 10 (i.e., tolerance >0.1) is often advised, and <3 is preferable. The inner VIF values for each construct in the model are shown in Table 5 and range from 1.101 to 2.573. According to this data, the structural model has no collinearity issues since the VIF of all constructs is <3.

4.1.4. Assess path coefficient

Five thousand subsamples were used in a bootstrapping technique to assess the path coefficient. The testing findings are shown in Table 6, showing that all hypotheses are validated. *P* values fall below 0.05 (Anderson, 2020). The provided requirements are met, and the patch coefficients (−1 to 1), mean, standard deviation (±2), and T values (>2) are all up to par with the supporting hypotheses.

Table 2
Construct reliability and validity.

	Cronbach's alpha	rho_A	Composite reliability	Average variance extracted (AVE)
EPS	0.804	0.810	0.872	0.631
EPS × PRCVR	1.000	1.000	1.000	1.000
FINR	0.828	0.841	0.879	0.595
IU	0.773	0.792	0.868	0.687
PIP	0.929	0.933	0.946	0.779
PIP × PRCVR	1.000	1.000	1.000	1.000
PRCVR	0.814	0.816	0.890	0.729
PRFR	0.768	0.776	0.866	0.684
SECR	0.860	0.868	0.914	0.780
SOCR	0.810	0.815	0.888	0.725
TR	0.788	0.789	0.876	0.702

4.1.5. An explanatory model

The suggested model's goodness of fit is excellent, as shown in Table 7. The R square shows that the model's explanatory power is substantial (Chicco et al., 2021) since the explanatory variables account for 0.658 in PRCVR and 0.445 in the IU.

4.2. Impact of risk factors

Based on the results, all the antecedents of PRCVR (Table 6) are positively connected to PRCVR, whereas PRCVR is adversely connected to utilizing fintech. Moderators significantly affect the relationship between PRCVR and IU. In other words, Pakistani fintech users are hampered by PRCVR. TR (β = 0.274) is the greatest of the five risk categories increasing PRCVR, followed by FINR (β = 0.214), SECR (β = 0.203), SOCR (β = 0.151), and PRFR (β = 0.140). Whereas PRCVR (β = −0.284) negatively impacted the IU.

According to H1, PRFR positively correlates with PRCVR. The value of H1 (β = 0.140, $t = 2.214$, $p = 0.023$) indicates its relevance; hence H1 is supported.

H2 indicates whether FINR positively affects PRCVR. As revealed by the study, FINR has a strong positive influence on PRCVR to utilize fintech. Thus, H2 was corroborated (β = −0.214, $t = 2.761$, $p = 0.003$).

H3 ascertains whether SOCR positively pertains to PRCVR. The outcomes show that SOCR significantly influenced PRCVR (β = −0.151, $t = 2.224$, $p = 0.033$). Thus, H3 is validated.

H4 shows whether TR is positively related to PRCVR. The outcomes disclosed that TR positively impacts PRCVR (β = −0.274, $t = 3.134$, $p = 0.004$). Consequently, H4 is supported.

H5 states whether SECR positively correlates to PRCVR. It is found that SECR significantly positively impacted PRCVR (β = 0.203, $t = 0.374$, $p = 0.001$). Thus, H5 is also sustained.

H6 explains the negative relationship between the PRCVR and the IU. Results (β = −0.284, $t = 4.538$, $p = 0.000$) showed that PRCVR negatively impacts the IU.

Concerning the H7, this hypothesis was supported as PIP was able to reduce the negative impact of PRCVR on IU significantly from (β = −284, $p < 0.001$ to β = −158, $p = 0.005$, see Table 6, Fig. 3). Hence, PIP negatively moderated the negative relationship between PRCVR and IU, or in other words, PIP enhanced the IU.

Concerning the H8, this hypothesis was supported as EPS could ultimately offset the negative impact of PRCVR on IU (from β = −0.284, p < 0.001 to β = 0.141, $p = 0.021$). Hence, EPS moderated the negative relationship between PRCVR and IU; in other words, EPS enhanced the IU.

5. Discussions

The factors that affect fintech users' IU are examined in this research. This study suggests a comprehensive approach for defining customers' IU based on perceived risk theory (PRT) and Belk's theory. This investigation produced a variety of noteworthy discoveries presented in two categories: negative and positive elements. The discriminant analysis outcomes disclosed that among the factors that increase the PRCVR, TR is the greatest, followed by FINR, SECR, SOCR, and PRFR. PRCVR negatively affects the IU, whereas two situational factors, PIP and EPS, moderate the relationship between the PRCVR and IU. The results of this study hold significant and broad-ranging relevance for both fintech practitioners and academics.

The results show that PRFR significantly affects how risk is perceived. Consumers' perception of risk rises, reducing their IU—-whether due to ongoing transaction failure, incomplete or unsuccessful transactions, agreements, or procedures, or an absence of operational experience and solutions. Therefore, reducing the possibility of web page failure may increase consumers' willingness to do online

Table 3
Fornell-Larcker criterion.

	EPS	EPS × PRCVR	FINR	IU	PIP	PIP × PRCVR	PRCVR	PRFR	SECR	SOCR	TR
EPS	0.794										
EPS × PRCVR	0.154	1.000									
FINR	−0.102	−0.172	0.771								
IU	0.402	0.319	−0.411	0.829							
PIP	−0.005	0.217	−0.491	0.397	0.883						
PIP × PRCVR	0.237	0.203	−0.116	−0.049	0.025	1.000					
PRCVR	−0.277	−0.273	0.693	−0.528	−0.456	−0.028	0.854				
PRFR	−0.165	−0.214	0.656	−0.443	−0.517	−0.048	0.648	0.827			
SECR	−0.065	−0.103	0.595	−0.300	−0.395	−0.010	0.628	0.518	0.883		
SOCR	−0.179	−0.259	0.590	−0.370	−0.471	−0.202	0.628	0.526	0.479	0.851	
TR	−0.200	−0.271	0.647	−0.465	−0.552	−0.017	0.719	0.669	0.559	0.658	0.838

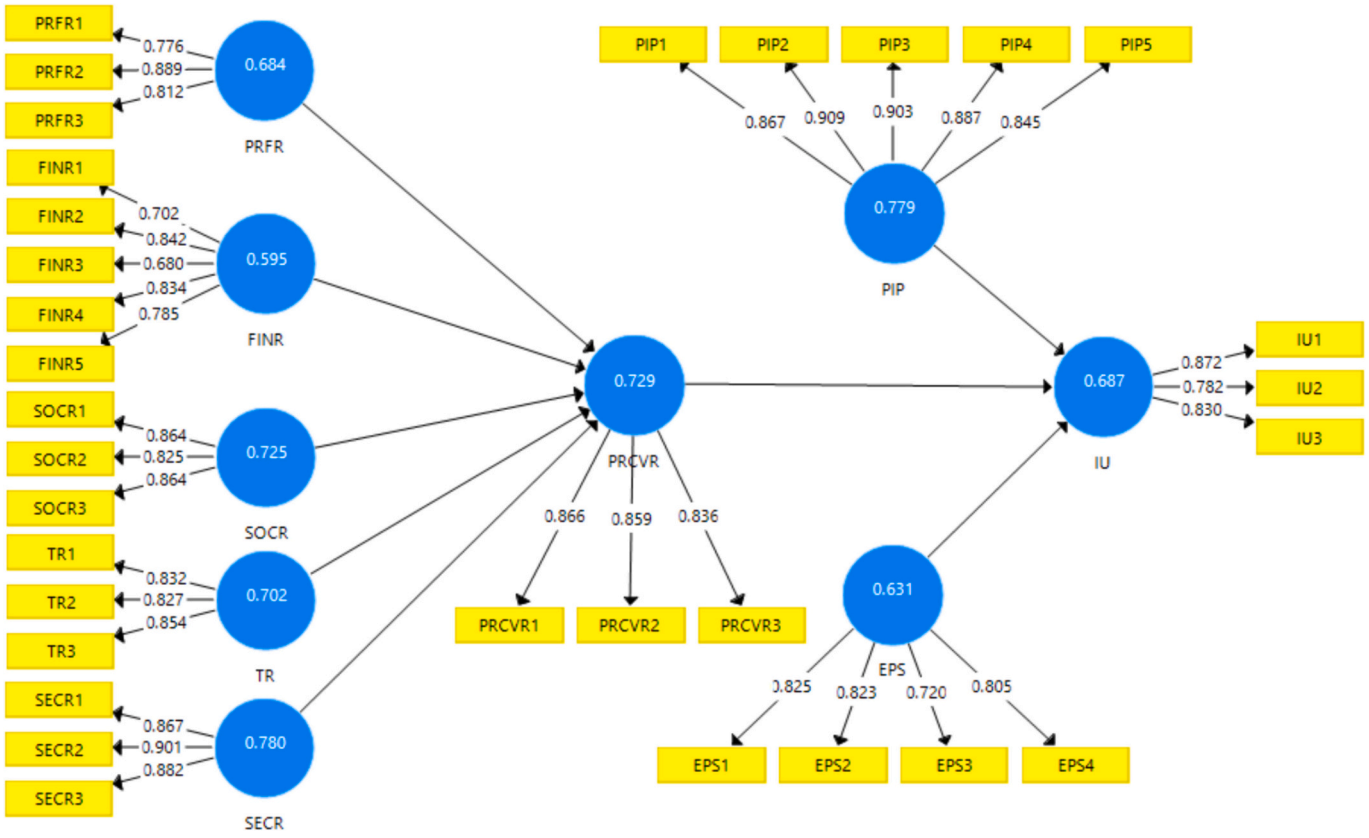

Fig. 2. Measurement model.

Table 4
Heterotrait-monotrait ratio (HTMT).

	EPS	EPS × PRCVR	FINR	IU	PIP	PIP × PRCVR	PRCVR	PRFR	SECR	SOCR	TR
EPS											
EPS × PRCVR	0.169										
FINR	0.124	0.188									
IU	0.504	0.363	0.496								
PIP	0.095	0.225	0.551	0.458							
PIP × PRCVR	0.262	0.203	0.122	0.058	0.066						
PRCVR	0.342	0.303	0.836	0.656	0.521	0.085					
PRFR	0.210	0.245	0.815	0.565	0.608	0.096	0.816				
SECR	0.092	0.108	0.709	0.353	0.441	0.054	0.745	0.633			
SOCR	0.217	0.287	0.716	0.460	0.541	0.222	0.772	0.659	0.575		
TR	0.245	0.306	0.790	0.587	0.643	0.023	0.897	0.858	0.680	0.820	

transactions. The findings align with the research conducted by Lee (2009), however do not align with the findings of Khuong et al. (2022). A prior study examined how people's perceived value is influenced by performance expectation and perceived risk, which in turn affects adoption intention (Xie et al., 2021). Researchers have also shown how fintech affects company performance and how adopters of the

Table 5
Inner VIF values.

	EPS	EPS × PRCVR	FINR	IU	PIP	PIP × PRCVR	PRCVR	PRFR	SECR	SOCR	TR
EPS				1.183							
EPS × PRCVR				1.144							
FINR							2.363				
IU											
PIP				1.314							
PIP × PRCVR				1.101							
PRCVR				1.449							
PRFR							2.169				
SECR							1.713				
SOCR							1.936				
TR							2.573				

Table 6
Hypothesis testing (path coefficients).

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
PRFR → PRCVR	0.140	0.131	0.063	2.214	0.023**
FINR → PRCVR	0.214	0.223	0.077	2.761	0.003***
SOCR → PRCVR	0.151	0.156	0.068	2.224	0.033**
TR → PRCVR	0.274	0.267	0.087	3.134	0.004***
SECR → PRCVR	0.203	0.204	0.058	3.474	0.001***
PRCVR → IU	−0.284	−0.278	0.063	4.538	0.000***
PIP → IU	0.235	0.235	0.063	3.726	0.000***
PIP × PRCVR → IU	−0.158	−0.155	0.053	2.992	0.005***
EPS → IU	0.340	0.348	0.065	5.218	0.000***
EPS × PRCVR → IU	0.141	0.138	0.056	2.525	0.021**

Note: *P*-value statistics (**$p < 0.05$, ***$p < 0.01$).

Table 7
R square.

	R square
IU	0.445
PRCVR	0.658

technology have a stronger bond with fintech customers (Al-Shari and Lokhande, 2023; Haddad and Hornuf, 2023). This indicates that fintech customers have always placed a high priority on performance risk. This study also demonstrated the relationship between PRFR and PRCVR.

This H2 result implies that PRCVR is affected by potential monetary losses like fraud, the breakdown of transaction processes, and monetary falsification. Considering FINR is crucial while selecting whether or not to use fintech (Ali et al., 2021; Saleem, 2021). When fintech businesses provide dependable systems, services, and protection, economic processes will be secure. This study's findings are in line with Ryu (2018) but do not align with Khuong et al. (2022). Consumers are less inclined to embrace fintech apps as PRCVR rises if they perceive financial danger. Even damaging or overcharging customers will make them feel threatened. Fintech service providers should thus be constantly aware of these financial misrepresentations, such as hidden customer fees.

The fact that SOCR influences PRCVR shows that customers are worried about the cultural expectations of online banking from their colleagues, family, friends, or neighbors. This contradicts the findings of Lee (2009) and Khuong et al. (2022), which indicated that SOCR is negligible. The findings of this research concur with those of Agha and Saeed (2015). Their study likewise discovered that SOCR has a negative impact on consumers' IU since Pakistan is a collectivist society. Because social values are prioritized in Pakistani society, this research discovers that SOCR has a more significant impact on consumers' perceptions of risk. On the other hand, SOCR has minimal effect on customers' IU. They discovered that whereas social norms have little bearing on IU for voluntary use, they significantly affect those for mandatory use. The current trend in the contemporary world is changing. Fintech users are less concerned with social concerns and more with the success of fintech businesses. Another research likewise demonstrated that the factor having the most impact on consumers was social influence (Al Rubaiai and Pria, 2022).

Earlier research has shown TR to have a greater influence on PRCVR (Lee, 2009). As a result, fintech customers can be concerned about delayed payment and the time required to download the website or figure out how to utilize it. Even while technology is moving substantially more quickly than it did in the past, this study showed that TR does have an impact. This research somewhat supports the findings of Andreoni and Sprenger (2012). They discovered that customers are more concerned about the risk associated with financial concerns than time since purchasers may wait when there is a financial difficulty. On the flip side, everyone possesses an implicit understanding of how technology influences time. Everyone knows that shopping for things online and comparing them to other websites, cross-checking information, etc., takes time away from productivity. Consumers are concerned about the fintech delays. Xie et al. (2021) demonstrated how intentions are impacted by effort expectancy. This indicates that customers are reluctant to invest further time in learning about adoption. Fintech firms should pay attention to this problem even if it is quicker than conventional business methods; for instance, during COVID-19, fintech usage rose overall (Fu and Mishra, 2022). The fact that the TR hypothesis was accepted shows that consumers still do not trust fintech regarding time management. Consumers still perceive a TR.

SECR is necessary for customers to do transactions online (Hwang et al., 2021; Saxena and Tripathi, 2021). Additionally, this survey demonstrates that customers in Pakistan are concerned about security. It reveals how modern internet systems are simple to exploit. Thus, it is crucial to consider the premise that SECR influences PRCVR. Contrary to the research findings of Tang et al. (2020) and Khuong et al. (2022), this outcome does not support the notion that customers' views of e-payment and security concerns are unrelated. Enforcing rigorous security measures in network monitoring systems and fintech applications, including encryption, e-signatures, and multi-factor verification, may demonstrate that the SECR can be controlled.

The details above illustrate the risks of installing modern IT systems since these risks affect the exchange of information, the gathering and delivery process, management and finance preconditions, and new financial structures. Transformation in the IT industry may significantly impact the categories and postulates of a financial system. The processing of massive volumes of data in the quickest period is made

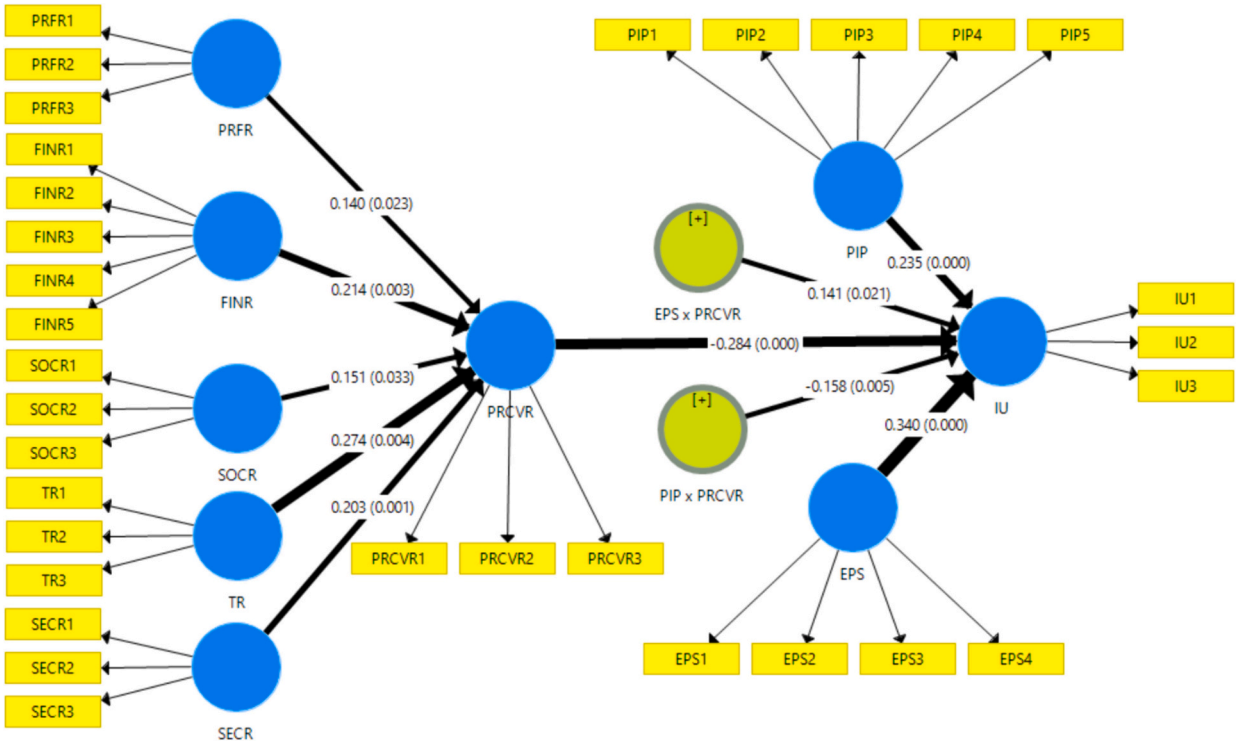

Fig. 3. Structural equation model.

feasible by inventive IT improvements in accounting, but the danger issues must also be considered.

The PRCVR adversely affects the IU fintech since the antecedents of PRCVR raised it. Consumers will use fintech less often the more danger they feel. This study validates the findings of Namahoot and Laohavichien (2018) and Al Rubaiai and Pria (2022).

Concerning the situational factors, the PIP reduced the negative impact of PRCVR on IU significantly. According to this study, though it lacks a positive impact, it still moderates the association between the PRCVR and IU. So, PIP negatively moderated the negative relationship between PRCVR and IU; in other words, PIP enhanced the IU. It is because, during the pandemic, people are restricted from going out, and some other issues restrict consumers' freedom of free movement. Due to the fear of PIP, consumers started availing of online services. These outcomes align with those of Rahman et al. (2022), who examined adult e-wallet adoption during Malaysia's pandemic. Abdul-Rahim et al. (2022) found in earlier research that PRCVR did not affect the adoption of fintech. However, they also found that the panic of COVID-19 entirely mediates the association between PRCVR and IU, acting as a moderator in the relationship between perceived advantages and adoption.

Concerning the EPS, this hypothesis was supported as EPS could significantly offset the negative impact of PRCVR on IU. Hence, EPS moderated the negative relationship between PRCVR and IU; in other words, EPS enhanced the IU. Consumers get ready to take risks despite the higher PRCVR due to the different situations. As in this study, EPS moderates the association between PRCVR and IU.

5.1. Theoretical implications

In the theoretical contributions, this study has addressed situational variables and perceived risk factors in the context of fintech use.

The study's results shed light on many crucial facets of customers' fintech aspirations that were ignored in earlier studies. The theory should continue to evolve steadily as a consequence of this approach. Thus, the suggested strategy considerably adds to fintech's literary work. Future fintech research is likely influenced in many ways by the study's findings. As per empirical findings, risk has a bigger impact on consumers' decisions than gain; hence, the risk is more important to online customers when weighing fintech than benefit. This study reveals the theoretical relationship between PRCVR and their antecedents with the IU, enriching relevant theories in the field and expanding the application of the research above in the context of Pakistan. This study unveils a dynamic interactive model based on PRT, marking the first exploration of emerging factors affecting IU in Pakistan. Targeting an educated and diverse group with fintech experience across Pakistan, the research fills a gap in the literature.

The study identified two situational factors, namely, the PIP and the EPS. It explored their moderating effects by following Belk's theory and clarified the boundary conditions of the relationship between PRCVR and IU. The inclusion of moderators PIP and EPS enriches the theoretical landscape and fintech literature. This broadens our knowledge of user behavior by taking into account the ways in which outside factors may affect how users perceive risk and, ultimately, adopt a technology. Future fintech research is likely influenced in many ways by the study's findings. As per empirical findings, risk has a bigger impact on consumers' decisions than gain; hence, the risk is more important to online customers when weighing fintech than benefit.

This research looks at the perspectives of users in Pakistan, a developing country with a booming fintech industry. Offering views outside wealthy economies where fintech adoption could be more entrenched enhances the theoretical image. The research makes a substantial contribution to the body of literature by evaluating risk and identifying the overall condition of financial technology-related businesses, which provides useful information for business planning concerning fintech usage.

5.2. Practical implications

The results of this study offer valuable perspectives on essential considerations regarding consumer intentions to embrace fintech, which were not previously explored in existing research. The managers considering deploying resources to maintain, keep, and grow their

present clientele will find this conclusion particularly pertinent. Contrarily, creating a risk-free environment for online transactions is significantly more complex than offering customers benefits. In terms of risk mitigation techniques, segmentation and targeting, and policy and legislation, the results give insightful advice for fintech service providers and legislators.

Fintech organizations may create focused strategies to reduce risks by identifying the particular risk elements that discourage consumers, such as performance problems, time risk, and security concerns. This can include bolstering security protocols, enhancing service dependability, and instructing consumers on internet safety. Effective risk-reducing techniques may consist of return assurances and publicly promoted customer satisfaction commitments to address concerns about finance and performance-based risks. If customers have faith in the service operators' dedication to them, they could be ready to tolerate the apprehended risk.

Service providers may divide up their user base into several groups and adjust their outreach and marketing strategies to target the moderating impacts of situational circumstances better. For example, it may be more efficient to concentrate on the security and convenience features of fintech in the event of a pandemic or for customers who are located in distant areas. This study concludes that situational factors significantly influence how consumers operate. Thus, it should come as no surprise that situational factors EPS and PIP affect the relationship between PRCVR and IU. Therefore, fintech service providers must take advantage of the situation and prove to fintech users trust the fintech services.

Policymakers need to put policies in place that reduce perceived risks in order to create an atmosphere that is conducive to the adoption of fintech. This entails improving operational openness, launching public awareness initiatives, and strengthening cybersecurity standards. These kinds of programs are crucial to raising public confidence in fintech services, which will increase adoption rates, promote financial inclusion, and boost the economy.

5.3. Limitations and future work

The study has a narrow focus and solely examines risk factors as they are perceived. It examines how PRCVR, in different situational conditions, influences customer IU in Pakistan. Future research could expand on and explore perceived benefits and dangers to understand intentions better to use fintech. The study's emphasis on risk perception among a sample of people with a fintech background (74.3 %) may have obscured the viewpoints of users who are cautious or hesitant. Subsequent investigations, including hesitant users, would provide a more comprehensive comprehension of risk and benefit assessments among diverse user segments. The real usage of fintech was also left out of this research. Future academics should do more research to examine how financial technology is used in their study framework. In addition, researchers may examine economic problems and financial literacy to determine the intent. To some extent, this research was a convenience sampling approach, not a fully target-oriented approach, focusing only on those living in Pakistan; thus, the future study may be recreated using samples from various nations to test the model's generalizability across diverse cultures. The present study is grounded on fintech-related online platforms and does not target any particular industry, including the banking, health, education, or private sectors. Subsequent investigations may classify and examine the uptake of fintech.

6. Conclusion

Research on PRCVR factors has been extended across some fields. This study seeks to contribute to the understanding of fintech infrastructure in Pakistan, particularly for professionals looking to conceptualize, alleviate risk hurdles, and prepare for the impact of fintech. The outcomes are consistent with other studies in that risk is the most crucial element that raises PRCVR and discourages consumers from utilizing fintech. However, both situational factors, PIP and EPS, significantly alleviate the adverse impact of PRCVR on the IU.

Regarding PRCVR, the outcomes show that TR is the most important element, followed by FINR, SECR, SOCR, and PRFR. This implies that customers are especially worried about financial services operating well, including any problems like slower internet, server outages, or maintenance. In this sample and setting, these risk factors were the main source of worry, which resulted in a decrease in system adoption and assessment.

Upon pinpointing the most crucial risk factors, the focus could establish the maximum acceptable levels of risk for each PRCVR aspect. These thresholds might serve as a benchmark to determine the low-risk perceptions required to promote adoption in each target audience. The user interface may include several straightforward risk-reduction techniques such as such as data security guarantees or streamlined transaction processes, to ease consumer concerns. While providing services, operational abilities, technological proficiency, and system functionality must be taken into account. Inadequate or unsuccessful financial services operations can result in users' dissatisfaction and mistrust, creating barriers to adopting fintech.

In conclusion, by emphasizing the interaction between PRCVR, situational factors, and user intentions, this research adds to the continuing debate on the adoption of fintech in emerging countries. In their efforts to increase fintech availability and usage in Pakistan, policymakers, fintech innovators, and service providers may take note of the results, which give useful suggestions.

Ethics statement

This research did not include any clinical-related research on animals or humans.

Informed consent

Informed consent was obtained from all participants. It was an online questionnaire-based study, and all the responders were fully aware of the academic research purpose of the study, as the purpose was clearly mentioned in the introductory part of the questionnaire. This study needed responders' responses regarding fintech usage. The demographic information was not set as compulsory questions because of privacy concerns.

CRediT authorship contribution statement

Haifeng Zhao: Writing – review & editing, Supervision, Formal analysis. **Nosherwan Khaliq:** Writing – original draft, Software, Methodology.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The datasets analyzed during the current study are available from the corresponding author on reasonable request.

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Appendix A

Constructs	Source
Performance Risks	
I'm afraid the fintech service may not perform properly due to sluggish internet speeds, server downtime, or website maintenance. (Network problem).	Gupta et al. (2023); Lee (2009)
Fintech online servers might not function well and incorrectly proceed with payments/transfers.	
Considering the expected level of service performance of the fintech, such as online banking/online shopping or easy paisa, for you to register for and utilize it would be unsafe/risky.	
Financial Risk	
If I transfer money through fintech, I'm afraid I'll lose money due to careless missteps like entering the wrong account details or amount.	Gupta et al. (2023); Lee (2009)
If you utilize online transactions, there's a strong chance you'll lose money.	
I'm concerned that I won't receive reimbursement from fintech firms or banks if I make a transaction mistake。	
Registering for and using fintech would cause an economic loss for me.	
You are putting your checking account in danger by utilizing an Internet bill-payment service and economic loss for me.	
Social Risk	
My friends, family, and coworkers would probably think less of me if I opted to utilize fintech.	Featherman and Pavlou (2003); Khuong et al. (2022); Lee (2009); Wu and Chen (2005)
My social status will be affected if anything goes wrong with online transactions.	
When my bank account is hacked or my personal information is stolen, I risk losing my social standing.	
Time Risks	
Using fintech would be inconvenient since I would have to spend a significant amount of time correcting payment problems.	Lee (2009)
It would take a long time for me to learn how to utilize Internet financial technologies.	
Considering my investment time to switch to (and set up) a fintech, make them very risky?	
Security Risks	
I wouldn't feel comfortable/safe sharing personal information via fintech.	Khuong et al. (2022); Lee (2009)
I'm hesitant to use fintech because others, such as Internet hackers (criminals), may get control of my account.	
I wouldn't feel safe transmitting important information over fintech.	
Perceived risk	
It is probable that fintech would not be worth its cost.	Gupta et al. (2023); Abdul-Rahim et al. (2022); Im et al. (2008)
Fintech would probably frustrate me because of its poor performance.	
It is uncertain whether fintech would be as effective as I think.	
Pandemic and impending policies	
I cannot move freely due to a pandemic situation; thus, I am using fintech for my transactions.	De Haas et al. (2020)
Due to the pandemic, I am afraid to go outside; thus, I use Fintech regularly.	
Due to the pandemic restrictions (government measures) on freely moving outside, I use fintech-related services more frequently.	
The current situational policy, “Stay at home,” affects my traditional ways of transactions.	
The current situational policy, “Stay at home,” encourages/impels me to use fintech.	
Environmental and physical surrounding	
Due to the lack of facilities nearby or at a distance, I use fintech for online transactions.	Humpel et al. (2002), Ashraf et al. (2014)
The neighborhood environment is not so good/convenient; thus, I am using fintech services for my transactions.	
Due to the poor weather, I prefer using Fintech to perform traditional transactions.	
I prefer to use fintech for my transactions to keep the safety issues (e.g., heavy traffic, lack of safe place, high levels of crime nearby or unattended dogs, etc.).	
Intentions to use	
I have a higher likelihood of purchasing/using products/services on the fintech plate-form.	Cheng et al. (2006); M. T. Le (2021a); Nguyen et al. (2021)
I intend to use fintech.	
My willingness to use fintech is high.	

Appendix B

Cross-loadings.

	EPS	FINR	IU	PIP	PRCVR	PRFR	SECR	SOCR	TR
EPS1	0.825	−0.053	0.311	−0.117	−0.207	−0.101	−0.019	−0.075	−0.121
EPS2	0.823	−0.066	0.322	−0.012	−0.184	−0.057	−0.012	−0.128	−0.104
EPS3	0.720	−0.053	0.286	0.018	−0.218	−0.115	−0.068	−0.133	−0.117
EPS4	0.805	−0.142	0.353	0.086	−0.267	−0.239	−0.103	−0.223	−0.278
FINR1	−0.049	0.702	−0.234	−0.267	0.479	0.503	0.434	0.434	0.404
FINR2	−0.103	0.842	−0.409	−0.447	0.584	0.555	0.476	0.452	0.511
FINR3	−0.021	0.680	−0.213	−0.304	0.426	0.369	0.465	0.401	0.378
FINR4	−0.112	0.834	−0.306	−0.476	0.597	0.553	0.456	0.482	0.595
FINR5	−0.089	0.785	−0.391	−0.368	0.562	0.527	0.477	0.503	0.571
IU1	0.371	−0.417	0.872	0.390	−0.516	−0.440	−0.345	−0.351	−0.466
IU2	0.287	−0.327	0.782	0.295	−0.397	−0.287	−0.166	−0.284	−0.311
IU3	0.334	−0.259	0.830	0.288	−0.383	−0.357	−0.208	−0.275	−0.361
PIP1	0.014	−0.435	0.388	0.867	−0.418	−0.498	−0.370	−0.429	−0.501
PIP2	0.006	−0.489	0.350	0.909	−0.410	−0.467	−0.382	−0.443	−0.533
PIP3	−0.024	−0.392	0.330	0.903	−0.337	−0.433	−0.330	−0.385	−0.445
PIP4	0.018	−0.428	0.368	0.887	−0.441	−0.449	−0.323	−0.427	−0.510
PIP5	−0.046	−0.419	0.303	0.845	−0.396	−0.426	−0.336	−0.389	−0.434
PRCVR1	−0.216	0.660	−0.476	−0.440	0.866	0.604	0.560	0.530	0.600
PRCVR2	−0.220	0.577	−0.452	−0.348	0.859	0.501	0.552	0.531	0.611
PRCVR3	−0.276	0.533	−0.423	−0.377	0.836	0.552	0.495	0.549	0.632
PRFR1	−0.083	0.483	−0.338	−0.377	0.477	0.776	0.338	0.353	0.487
PRFR2	−0.099	0.602	−0.385	−0.441	0.566	0.889	0.421	0.432	0.561
PRFR3	−0.221	0.536	−0.375	−0.460	0.560	0.812	0.514	0.511	0.605
SECR1	−0.043	0.519	−0.271	−0.349	0.497	0.463	0.867	0.456	0.506
SECR2	−0.080	0.579	−0.312	−0.359	0.606	0.451	0.901	0.436	0.481
SECR3	−0.045	0.476	−0.208	−0.339	0.553	0.460	0.882	0.380	0.499
SOCR1	−0.155	0.509	−0.349	−0.420	0.540	0.471	0.415	0.864	0.559
SOCR2	−0.133	0.427	−0.264	−0.379	0.489	0.388	0.393	0.825	0.535
SOCR3	−0.167	0.561	−0.327	−0.404	0.571	0.479	0.414	0.864	0.584
TR1	−0.175	0.558	−0.367	−0.455	0.622	0.526	0.474	0.583	0.832
TR2	−0.158	0.501	−0.406	−0.506	0.577	0.577	0.418	0.478	0.827
TR3	−0.170	0.564	−0.398	−0.429	0.607	0.581	0.511	0.588	0.854

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