

Key Drivers of Digital Platform Usage Intention Among Physical Banking Users in Ecuador

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Abstract

The objective of this research was to determine the influence and intensity of perceived risks associated with electronic banking usage in an integrated manner and to explain the effect of different types of perceived risk on attitudes toward online banking, as well as their subsequent impact on the intention to use digital platforms, which constitutes the study's fundamental contribution. To achieve this, the construction of "perceived risk" was analyzed, drawing upon several theoretical frameworks, including the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB), and other related models. The sample consisted of 938 users from private banking institutions in Cuenca, Ecuador, and structural equation modeling was employed for the analysis. The findings revealed that privacy, performance, security, time, and psychological risks have a direct impact on attitudes toward online banking. In contrast, financial risk was found not to have a direct effect on such attitudes, a result consistent with the findings of others researches. Furthermore, it was confirmed that attitudes toward online banking are a decisive factor in determining the intention to use this service, providing valuable insights and guidelines for various stakeholders in the sector.

Keywords: *Online Banking; Perceived Risk; Trust; Behavioral Intention.*

Introduction

It is widely known that the advent of the internet has reshaped consumer behavior. Activities that were once conducted exclusively in person are now also offered virtually. Financial institutions are part of this extensive group of companies that have gradually launched products in this new format. According to data from the Central Bank of Ecuador (2024), there has been a 168% increase in the number of transactions and a 63% rise in transaction amounts compared to 2019.

In this context, consumer behavior becomes complex, prompting various theories aimed at understanding it. The Theory of Reasoned Action (TRA), proposed by Fishbein in 1967, was developed to better comprehend attitudes, intentions, and behaviors (Hill, Fishbein, & Ajzen, 1975). In line with this, Taylor and Todd (1995) employed attitudes to understand information technology usage (considered an influential factor) within intentional behavior, particularly in the banking sector.

Moreover, scholars such as Davidow (1986) and Sarin, Sego, and Chanvarasuth (2003) concurred that consumers' perception of online banking involves high levels of risk, as services linked to technology present unfamiliar stimuli. As a result, consumers who choose to use online banking services face uncertainty about the availability, compatibility, and proper functioning of electronic banking channels.

The service sector, particularly banking, has been extensively explored in academic research. Studies have examined the adoption of mobile technology by consumers to facilitate banking operations and the factors influencing this adoption (Tingting, Can, & Murat, 2018). However, attention must be given to the potential risk issues stemming from consumer characteristics, such as psychological and social risks, financial risk, and privacy concerns, which may strengthen constructs adapted to new market demands.

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Similarly, prior research has evidenced the perception of risks and their impact on the use of digital banking, including financial, security, privacy, psychological, and performance risks. These risks tend to be more intense among users who do not utilize digital banking (Demirdogen et al., 2010; Wang et al., 2016; Reepu & Arora, 2022; Rahman et al., 2024; Bathy et al., 2023). The latter even incorporates perceived risk in relation to social expectations, while Rahman et al. (2024) add the element of trust. Security and privacy risks are among the most critical (Wang et al., 2016; Khedmatgozar, 2021; Gui et al., 2024). Furthermore, perceived behavioral control and social influence also shape consumers' risk perceptions. When consumers feel in control of their transactions and observe others using electronic banking, their perceived risks tend to decrease (Manzano et al., 2011; Gui et al., 2024).

Recent empirical studies are grounded in the Unified Theory of Acceptance and Use of Technology (UTAUT), a theoretical framework developed by Venkatesh et al. (2003). This framework emphasizes technology usage, incorporating effective use as a dependent variable without explicitly considering moderators (Jerene & Sharma, 2019; Reepu & Arora, 2022; Hilal & Varela-Neira, 2022; Abrar et al., 2023; Bhati et al., 2023).

The literature review suggests that previous studies have focused on analyzing perceived risks among mobile banking users in isolation, following criteria established by various scholars. On this basis, the research question that this study seeks to address is: How do perceived risks operate comprehensively on consumer attitudes, and how do they consequently influence the intention to use digital banking?

Accordingly, the study incorporated significant variables into the construct of "perceived risk" that have not been sufficiently addressed in previous research, such as psychological risk. It also explained the effect of different types of perceived risk on attitudes toward online banking and, in turn, the impact of these attitudes on the intention to use digital platforms. The article is structured into the following sections: literature review, methodology, results analysis, discussion, and conclusions.

Literature Review

Electronic Banking

This term can be conceptualized as the automated provision of both new and traditional banking products and services directly to customers through interactive electronic communication channels (Drigă & Isac, 2014). The service process can be defined as the configuration of technologies through which service providers perceive and respond to the dynamic and complex needs of their clients using advanced technology (Dabholkar & Overby, 2005). Electronic banking provides users with the ability to conduct financial transactions without human intervention, meaning that users can access their bank accounts via the internet and perform transactions (Safeena, Date, Hundewale & Kammani, 2013).

Technological innovations in banking have resulted in a rise in e-commerce transactions. The shift from physical contact to electronic transactions, as well as advancements in banking and the economy, are now well-known for the strong connection they establish with users. The electronic banking system has shown steady growth in terms of value and volume (Pikkarainen, K., Pikkarainen, T., Karjaluohto & Pahnla, 2006). The success of such service innovations largely depends on user consumption patterns or trends. Attitude is one of the critical factors influencing the adoption and proliferation of innovative services in this category (Arora & Sandhu, 2018).

Theory of Reasoned Action (TRA)

The Theory of Reasoned Action (TRA), developed by Fishbein and Ajzen (1975), is a psychological model designed to explain and predict an individual's behavior based on their beliefs, attitudes, and subjective norms. In the context of consumption, this theory posits that a person's intention to perform an action (for example, using digital banking) is the best predictor of whether they will carry out that action.

The primary components of TRA, according to its authors, are:

- *Attitude Toward the Behavior*: Defined as the individual's evaluation of performing a particular action based on behavioral beliefs and the value assigned to the consequences of adopting that behavior. In the context of digital banking, this refers to how positive or negatively the consumer perceives using online banking services.

- *Subjective Norm*: This refers to the individual's perception of social pressure to perform or not perform an action based on normative beliefs and motivation to meet the expectations of others. In this case, it would be the consumer's perception of what important people (family, friends) think about using digital banking.

- *Behavioral Intention*: The subjective probability that the individual will perform an action soon. In this context, it refers to the consumer's intention to use digital banking services — the concrete action resulting from behavioral intentions, which is also influenced by external factors or contextual limitations.

Various other theories and models have been developed around TRA, complementing it:

Theory of Reasoned Action and Other Consumer Behavior Theories

- *Theory of Planned Behavior (TPB)*

Proposed by Ajzen (1991), the TPB is an extension of the TRA that introduces an additional component: perceived behavioral control. This concept considers an individual's perception of their capacity to perform an action (i.e., whether they believe they have the necessary resources or skills). This makes it more suitable for analyzing behaviors where external or internal barriers exist.

- *Health Belief Model (HBM)*

Although it also aims to predict behaviors, the HBM (Becker, 1974) focuses on perceptions related to health risks. It includes factors such as perceived susceptibility, severity, and perceived benefits, distinguishing it from TRA by being more specific in its application domain.

- *Social Learning Theory*

Proposed by Bandura (1977), this theory highlights the importance of observing and learning from the behaviors of others. In the context of digital banking, the positive experiences of friends, family, or influencers can motivate others to adopt the service.

- *Technology Acceptance Model (TAM)*

Developed by Davis (1989), the TAM demonstrates how perceived usefulness and ease of use influence people's intention to adopt technologies.

Perceived Risk Theory

Developed by Bauer (1960), this theory posits that consumers evaluate potential risks associated with an action before deciding.

Technology Trust Model

Primarily attributed to McKnight, Choudhury, and Kacmar (2002), this study is pivotal in the development of trust measures in technology. It explores how trust in technology and service providers influences adoption decisions, especially in contexts such as e-commerce. Trust is a determining factor in the adoption of digital services (Silva, 2015; López, 2020).

A more comprehensive analysis of these theories and models can be found in the following table:

Table 1. Comparative Analysis of Theories/Models Addressing Consumer Behavior with Emphasis on Digital Banking Application

Model	Main Components	Focus	Application in Digital Banking	Limitations
Theory of Reasoned Action (TRA)	Attitude toward behavior, Subjective norms, Behavioral intention, Behavior	Explains deliberate behavior based on conscious reasoning	Evaluates how beliefs about benefits/risks and social pressure influence the intention to use digital banking	Assumes behavior is rational, excluding external barriers or emotional factors
Theory of Planned Behavior (TPB)	Attitude toward behavior, Subjective norms, Perceived behavioral control	Includes perceived control as an additional predictor, especially in contexts with barriers	Analyzes whether consumers feel capable and resourceful enough to use digital banking	Does not consider emotional or habitual factors influencing automatic behaviors
Technology Acceptance Model (TAM)	Perceived usefulness, Ease of use, Attitude toward use, Intention to use	Focuses on technology adoption, explaining how perceived usefulness and ease of use affect behavior	Assesses how consumers perceive the usability and usefulness of digital banking platforms	Does not address the impact of social norms or emotions in decision-making
Perceived Risk Theory	Financial risk, Privacy risk, psychological risk	Focuses on how perceived risks negatively influence the decision to adopt a service or product	Identifies consumers' main concerns when using digital banking services	Does not consider positive factors (such as benefits or social influences) that could counterbalance risks
Technology Trust Model	Trust in technology, Trust in service provider, Mitigation of perceived risks	Explains how trust in technological systems and providers influences usage disposition	Helps understand how banks can build trust to reduce perceived risks	Needs to be combined with other theories to explain attitudes, norms, and contextual factors
Social Learning Theory (Bandura)	Observation of models (influential people), Social reinforcement, Self-efficacy	Explains how behaviors are learned by observing others and considering social rewards or sanctions	Demonstrates how positive experiences of other users can influence digital banking adoption	Does not address individual attitudes or subjective norms specific to users
Health Belief Model (HBM)	Perceived susceptibility, Perceived severity, Perceived benefits,	Focuses on how individual beliefs about health influence the adoption of	Assesses how perceptions of risks (security failures, fraud) and benefits (convenience,	Assumes decisions are rational and based on individual perceptions, overlooking

	Perceived barriers, Cues to action, Self-efficacy	preventive behaviors	accessibility) impact digital banking adoption, considering barriers such as lack of technical knowledge and self-efficacy	emotional or social factors affecting behavior
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Source: Own elaboration based on (Fishbein & Ajzen, 1975; Ajzen, 1991; Becker, 1974; Bandura, 1977; Davis, 1989; Bauer, 1960; McKnight et al., 2002).

Several models have been developed to study perceived risks associated with the use of electronic banking. These models often integrate various theoretical frameworks to provide a comprehensive understanding of the factors influencing user adoption and behavior. Below are key models and their components:

Technology Acceptance Model (TAM) and Extensions

- *Extended TAM:* This model incorporates perceived risk and internet connection quality to examine the factors affecting online banking acceptance. It highlights the significant impact of perceived usefulness, security risk, and performance risk on the intention to use internet banking (Madininos et al., 2013).
- *TAM with Perceived Risk Theory:* This model classifies perceived risk into external and internal risks, examining their influence on customer beliefs and internet banking adoption. It finds that both external and internal risks inhibit customer acceptance (Roy et al., 2017).
- *TAM with Trust and Security:* This model explores the importance of risk, security, and trust in consumers' acceptance of online banking. It emphasizes that perceived risk can hinder internet banking use, while security and trust can enhance it (Mangin et al., 2014).

Unified Theory of Acceptance and Use of Technology (UTAUT)

- *UTAUT with Perceived Risk:* This model combines UTAUT with perceived risk to explain behavioral intention and usage behavior of internet banking. Risk is identified as a strong predictor of intention, with behavioral intention being the most important factor for usage behavior (Martins et al., 2014).
- *UTAUT with Trust as a Moderator:* This model examines the impact of perceived risk on behavioral intention directly and indirectly through UTAUT constructs, where trust moderates the relationship between perceived risk and behavioral intention (Kaur & Arora, 2021).

Estructural Equation Modeling (SEM)

- *SEM with Perceived Risk Dimensions:* This model incorporates seven risk constructs into TAM to understand the impact of risks on the intention to use internet banking. It confirms that perceived risk dimensions are strong determinants of usage intention (Kassim, 2015).
- *SEM with Perceived Risk and Trust:* This model integrates perceived risk and trust with the Theory of Planned Behavior (TPB) to analyze factors determining the intensity of online banking usage. It finds that trust positively influences loyalty and mitigates the negative effect of perceived risk (Manzano et al., 2011).

Other Integrated Models

- *TAM and Theory of Planned Behavior (TPB):* This model integrates perceived benefit and risk with TAM and TPB to explain customers' intention to use online banking. It finds that

security/privacy risks and financial risks negatively affect the intention to use online banking (Lee, 2009).

- *TAM with Diffusion of Innovation Theory (IDT)*: This model examines the factors affecting customers' intentions to adopt internet banking services, incorporating perceived security and privacy risks alongside TAM constructs (Giovanis et al., 2009).

Table No. 2. Comparative Analysis of Theories/Models Addressing Consumers' Perceived Risks

Model	Key Components	Recommendations
Extended TAM	Perceived risk, internet quality	Address the impact of security and performance risks on user intention.
Perceived Risk Theory	Internal and external risks	Both types of risks inhibit consumer acceptance.
TAM with Trust and Security	Risk, security, trust	Risk hinders usage, while security and trust promote adoption.
UTAUT with Risk Perception	Performance expectancy, effort expectancy, social influence, risk	Risk is a strong predictor of user intention.
UTAUT with Trust as Moderator	Perceived risk, trust	Trust moderates the relationship between risk and user intention.
SEM with Risk Dimension	Seven dimensions of risk	Risk dimensions strongly determine user intention.
SEM with Risk and Trust	Perceived risk, trust, TPB constructs	Trust positively influences loyalty and mitigates the negative effects of perceived risk.
TAM and TPB	Perceived benefits, perceived risk	Security/privacy and financial risks negatively impact user intention.
TAM and IDT	Perceived security, privacy risk, TAM constructs	Compatibility and perceived risk shape user intention.

Source: Own elaboration based on (IA, Maditinos et al., 2013; Roy et al., 2017; Mangin et al., 2014; Martins et al., 2014; Kaur and Arora, 2021; Kassim, 2015; Manzano et al., 2011; Lee, 2009; Giovanis et al., 2009).

Even though the Theory of Reasoned Action (TRA) presents some limitations as outlined in the table, it is considered a powerful tool due to its usage advantages concerning:

- *Focus on Intention*: By emphasizing behavioral intention, TRA allows for more accurate predictions of whether a consumer will use digital banking.
- *Consideration of Social Factors*: The inclusion of subjective norms acknowledges the influence of the social environment on consumer decisions.
- *Applicability*: The theory can be applied to a wide range of behaviors, including the adoption of new technologies such as digital banking.

Therefore, TRA provides a useful framework for understanding the factors that influence consumer decisions and for comprehending how consumers evaluate the risks associated with digital banking and ultimately decide whether to adopt this service.

The key lies in the components of TRA:

- *Attitude Toward the Behavior*: Perceived risks directly influence the consumer's attitude toward digital banking. If an individual perceives a high risk of fraud or data loss, their attitude toward using these services will be more negative.

- *Subjective Norm:* Risks can also affect subjective norms. If the consumer's social environment (friends, family) expresses concern about the risks of digital banking, this can influence the individual's perception of what they "should" do.

- *Behavioral Intention:* Finally, the perception of risks is a fundamental determinant of the intention to use digital banking. If the risks outweigh the perceived benefits, the intention to adopt this service will decrease.

In summary, TRA allows us to understand that the decision to use digital banking is not merely a matter of convenience but is strongly influenced by the evaluation of associated risks.

Attitude

Attitude refers to an individual's behavior and conduct; it can be defined as the learned predisposition to respond consistently concerning a given object (Hill, Fishbein, & Ajzen, 1975). The banking sector plays a fundamental role in the adoption or rejection of technology use. In the context of online banking adoption, attitude is considered a social function that becomes more frequent, as using online banking services involves monetary transactions and, therefore, user beliefs about risk and security. Positive or negative consumer feedback on their Internet banking experience greatly influences their attitude (Nunnally & Bernstein, 1994).

The factors that determine attitude explain most of the variation in electronic intention. Püschel, Mazzon, and Hernández (2010) discovered in their study that attitude has a positive effect on consumers' intentions to continue using a certain service. Attitude resides in the mind, precedes, and produces behavior, and consequently, can be used to predict intention (Yang & Yoo, 2004).

Attitude Toward Internet Banking

In the context of the adoption of Internet banking, attitude takes on greater importance as it directly involves monetary transactions, which inherently brings consumers' underlying beliefs about risk and security (the basis for shaping consumer attitudes). Moreover, attitude is considered a social function, in the sense that people mutually influence each other based on their experiences.

Authors such as Davidow (1986), Sarin, Sego, and Chanvarasuth (2003) agreed that consumers' perception regarding the use of online banking involves high levels of risk. As this is closely linked to technology, the feeling of fear becomes more perceptible, exposing users to uncertainty at various levels or stages of the process.

Perceived Risk

In 1960, perceived risk was defined as a concept comprising two aspects: uncertainty, referring to the consumer's lack of knowledge about what might occur, and the negative consequences related to the potential loss associated with a purchase (Bauer, 1960). Consequently, risk perception refers to the individual evaluation of the inherent risk in a specific situation. Risk perceptions are affected by the degree of risk associated with a particular situational context, ensuring that an individual's risk perception will be strongly linked to the probability of loss and the anticipation of unfavorable consequences from a decision (Bauer, 1960).

Consumers' purchasing decisions are generally significantly influenced by perceived risk, especially in situations where unpredictability and negative or unpleasant consequences are strongly connected to those decisions. Perceived risk is an important factor contributing to consumer resistance to various technologies, particularly those involving online financial transactions. This is because the Internet is considered an inherently risky environment, and consumers do not maintain face-to-face contact with the provider (Bashir & Madhavaiah, 2015).

Previous studies, such as those conducted by Martins, Oliveira, and Popovič (2014), indicate that in the context of e-commerce, perceived risk is undoubtedly considered a multidimensional construct. The authors Yang, Liu, Li, and Yu (2015) adopted a measurement in their research that includes five dimensions of perceived risk in online payments: financial risk, privacy risk, performance risk, psychological risk, and time risk.

Perceived Risk in Internet Banking

In the context of online banking services, perceived risk has been defined as the consumer's expectation of loss resulting from using the Internet to conduct banking transactions (Yousafzai, Pallister, & Foxall, 2003). The dimensions addressed as part of perceived risk in online banking services include security, privacy, functional risk, time loss, and social risk (Lee, 2009; Littler & Melanthiou, 2006; Pikkarainen et al., 2004). Researchers such as Pavlou (2003) suggest that risk is elevated subjectively in individuals and that it is challenging to separate perceived risk into its sub-dimensions.

Financial perceived risk refers to the consumer's perception of potential monetary loss caused by using the Internet for payments (Featherman & Pavlou, 2003). Regarding privacy risk, this is another critical dimension from the consumers' perspective when considering the adoption of online payments. This concern arises from the extensive requirement for private information, such as phone numbers, social security numbers, security codes, purchase locations, records, and more. This information could be misused, even by service providers themselves (Yang, Liu, Li, & Yu, 2015; Namahoot & Laohavichien, 2018).

Performance risk refers to the user's perception of the possibility that the electronic payment system may not function correctly and, therefore, may not deliver the desired services (Featherman & Pavlou, 2003). Limitations such as Internet speed and wireless network availability may also be considered. On the other hand, psychological risk relates to the consumer's perception of potential psychological frustration, that is, the pressure or anxiety they may experience because of using a service that requires online payments (Yang, Liu, Li, & Yu, 2015).

When analyzing time risk, it can be inferred that any potential time loss may occur due to using the Internet and the platform employed for the transaction. This could be due to uncertainty regarding the time needed to learn how to operate the software (Featherman & Pavlou, 2003). Disorganized websites may create confusion and dissatisfaction among users, especially due to delays in accessing Internet banking services (Namahoot & Laohavichien, 2018).

Perceived risk in Internet banking usage involves significant customer concerns, particularly regarding system security and money transfers (Lee, Kwon, & Schumann, 2005). Therefore, according to authors such as Jaruwachirathanakul and Fink (2005); Mukherjee and Nath (2003); Polatoglu and Ekin (2001); and Wang, Y., Wang, Y., Lin, and Tang (2003), perceived security issues and privacy risks are imminent components of perceived risk.

Purchase Intention

According to Chen and Barnes (2007), purchase intention is determined by initial trust and familiarity in online transactions. The level of uncertainty in a virtual environment makes users more vulnerable. The TRA model, concerning the prediction of intention, states that intention can be explained by two basic determinants: personal evaluation or attitude toward a behavior, and a social component or subjective norm (Hill, Fishbein, & Ajzen, 1975).

According to the model mentioned above, the primary antecedent and mediator of the effects of other variables on usage intention is the individual's attitude toward using a technology (Schierz, Schilke, & Wirtz, 2010; Oertzen & Odekerken, 2019). Attitude undeniably plays a fundamental role in the intention to use new technology (Davis, 1989). Intention represents a person's willingness to perform a specific behavioral action and is considered the immediate antecedent of behavior (Ajzen, 1985).

The intention to adopt online banking services is defined as users' willingness and determination to accept, try, and plan to use or support products in this sector. On the other hand, purchase intention was examined by Shimp and Kavas (1984) and Gruen, Osmonbekov, and Czapski (2000). Both studies agreed that the intention to continue using a service and remain loyal to current service providers was positively associated with consumers' attitudes toward these services.

Effect of Perceived Risk on Attitude Toward Online Banking

Due to the inability to predict the consequences of using online banking services, perceived risk is considered the uncertainty that a consumer may incur financial, social, time, performance, privacy, or other losses (Vatanasombut, Stylianou, & Igbaria, 2004; Jarvenpaa, Tractinsky, & Vitale, 2000). In an online environment, where negative outcomes are more easily perceived, consumers' perception of risk increases, significantly influencing their purchasing decisions (Vatanasombut, Stylianou, & Igbaria, 2004; Jarvenpaa, Tractinsky, & Vitale, 2000).

It was found that perceived risk is a significant factor affecting consumers' attitudes through perceived ease of use and perceived usefulness (Akturan & Tezcan, 2012). Research conducted by Yang (2009) and Bashir and Madhavaiah (2015) confirms that perceived risk is a key factor influencing attitude. These studies provide evidence that perceived risk has a negative influence on attitude and behavioral intention.

Effect of Attitude Toward Online Banking on the Intention to Shift from Physical to Digital Platforms

In the field of Internet banking services, attitude becomes a more important factor as it is shaped by consumers' underlying beliefs about risk and security. Additionally, attitude is considered a social function and a key mediator of the effects of other variables on usage intention (Davis, 1989).

In the domain of acceptance, several researchers have studied the relationship between attitude and intention. As Yang and Yoo (2004) point out, attitude resides in the mind, precedes, and produces behavior, and therefore, can be used to predict intention. It has been found that attitude factors explain most of the variation in electronic intention (Püschel, Mazzon, & Hernandez, 2010). Authors like Chiou and Shen (2012) provide empirical evidence that consumers' attitudes influence their intentions to use Internet banking services.

Methodology

The approach of this research was quantitative, employing an explanatory design within a cross-sectional study framework. The technique utilized was the survey method. The sampling type was non-probabilistic and convenience-based, as a specific participant profile was established. This profile included users (both men and women) who are clients of private banks such as Banco del Austro, Banco Bolivariano, Banco General Rumiñahui, Banco de Guayaquil, Banco Internacional, Banco de Loja, Banco de Machala, Banco del Pichincha, Banco ProCredit, Produbanco, Citibank, and Banco Solidario. The study focused on individuals who utilized banking services exclusively through physical platforms and not electronic ones in the city of Cuenca, the third-largest city in Ecuador (INEC, 2019). The sample consisted of 938 users of private banks in Cuenca, Ecuador.

The variables included in the study and their operationalization are presented in the following table:

Table No. 3. Operationalization of Variables

Dependent Variable	Theoretical Definition	Author and Source	Dimensions	Indicators	Data Collection Instrument
Attitude	Positive or negative evaluation	Hill, Fishbein, & Ajzen (1975). <i>Belief</i> ,	Cognitive, Affective	Degree of agreement with positive	Likert-scale survey (1-5):

	towards the use of a system or service, based on associated beliefs and feelings.	<i>Attitude, Intention, and Behavior: An Introduction to Theory and Research.</i>		or negative statements about the system	Opinions and perceptions
Purchase/Usage Intention	Degree to which a user plans to use a system or service in the future, based on perceived risks and benefits.	Davis, F. D. (1989). <i>Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology.</i>	Attitude towards use, Perceived usefulness, Ease of use	Willingness to use the service, expected frequency of use	Likert-scale survey (1-5): Usage intention

Independent Variables	Theoretical Definition	Author and Source	Dimensions	Indicators	Data Collection Instrument
Social Risk	Perception that using a product/service may affect how others perceive the consumer.	Featherman & Pavlou (2003). <i>Predicting E-Services Adoption.</i>	Social opinion	Influence of family and friends, social approval	Likert-scale survey (1-5): Level of agreement
Privacy Risk	Concern about the possibility of personal data being accessed or shared without authorization.	Featherman & Pavlou (2003). <i>Predicting E-Services Adoption.</i>	Data security	Concern about personal information leakage, Trust in data protection	Likert-scale survey (1-5): Concern
Time Risk	Perception of time loss when performing activities related to using the digital service.	Jacoby & Kaplan (1972). <i>Components of Perceived Risk.</i>	Temporal efficiency	Time required for transactions, System speed	Survey: Average time in minutes
Security Risk	Concern about potential technical failures or attacks compromising transaction security.	Lee & Turban (2001). <i>A Trust Model for Consumer Internet Shopping.</i>	System security	Trust in banking platform, Fraud protection	Likert-scale survey (1-5): Perceived security
Performance Risk	Perception that the digital system may not function correctly or meet user expectations.	Jacoby & Kaplan (1972). <i>Components of Perceived Risk.</i>	System functionality	Quality of digital service, Frequency of system errors	Likert-scale survey (1-5): System performance
Financial Risk	Concern about potential economic losses resulting	Featherman & Pavlou (2003).	Economic impact	Risk of financial fraud,	Likert-scale survey (1-5):

	from using digital banking.	<i>Predicting E-Services Adoption.</i>		Perception of additional costs	Financial concern
Psychological Risk	Perception of stress, anxiety, or discomfort when using digital platforms due to uncertainty or complexity.	Jacoby & Kaplan (1972). <i>Components of Perceived Risk.</i>	Psychological well-being	Stress levels when using digital banking, Anxiety due to lack of knowledge	Likert-scale survey (1-5): Stress level

Source: Own elaboration

Based on this analysis, the following hypotheses were defined:

- **H1.** Privacy risk directly and significantly affects attitudes toward online banking.
- **H2.** Performance risk directly and significantly affects attitudes toward online banking.
- **H3.** Security risk directly and significantly affects attitudes toward online banking.
- **H4.** Time risk directly and significantly affects attitudes toward online banking.
- **H5.** Financial risk directly and significantly affects attitudes toward online banking.
- **H6.** Psychological risk directly and significantly affects attitudes toward online banking.
- **H7.** Social risk directly and significantly affects attitudes toward online banking.
- **H8.** Attitudes toward online banking have a direct and significant effect on the intention to use the digital platform.

The survey used to collect information was designed based on various constructs and included 32 items. Social, privacy, time, and security risks were each measured using 3 items, performance risk with 4 items, and financial risk with 5 items, all proposed by Akturan and Tezcan (2012). Psychological risk was assessed using 3 items proposed by Yang et al. (2015), while the attitude construct was analyzed through 4 items suggested by Akturan and Tezcan (2012). Finally, usage intention was measured using 4 items presented by Marafon, Basso, Espartel, de Barcellos, and Rech (2018).

The instrument incorporated a Likert scale with an interval from 1 to 5 points and was previously validated using Cronbach's Alpha and confirmed through a pilot test. The sample consisted of 989 cases, and Structural Equation Modeling (SEM) using PLS (Partial Least Squares) software was employed for data analysis.

According to Levy, Gonzalez, and Muñoz (n.d.), this model establishes the dependency relationships between variables. It aims to integrate a set of linear equations and determine which of them are dependent or independent of others. In other words, it allows for the simultaneous examination of all relevant variables, in addition to evaluating the theoretical model of the research and testing the significance of the hypotheses. The model comprises two elements:

Measurement Model: This component analyzes the factor loadings of observable variables (indicators) concerning their corresponding latent variables (constructs). In this structure, the reliability and validity of the measures in the theoretical model are evaluated.

Structural Model: This element analyzes causal relationships between independent and dependent latent variables. Latent or unobservable variables are those that cannot be measured directly (exogenous variables) and act as predictors of endogenous constructs (Leyva & Olague, 2014).

Results Analysis

Measurement Model Evaluation

Table 4 presents the demographic profile of respondents based on a complete sample of private banking users in the city of Cuenca, Ecuador. During the measurement model evaluation phase, several analyses were conducted to confirm the reliability and validity of the data.

First, a Confirmatory Factor Analysis (CFA) was performed to assess the reliability of the measurement scales, as well as convergent validity and discriminant validity. According to the findings, it is important to note that the social risk construct did not meet the minimum factor loadings of 0.50, as suggested by Bagozzi, Yi, and Phillips (2013), while the other criteria were satisfactorily met.

Table 4. Demographic Information of Respondents

Variable	Category	Frequency	Percentage
Gender	Male	429	45.70%
	Female	509	54.30%
Education Level	Basic Education	77	8.20%
	High School	325	34.60%
	Undergraduate Degree	438	46.70%
	Graduate Degree	98	10.40%
Type of Housing	Luxury Suite	7	0.70%
	Room(s) in Rented House	70	7.50%
	Rented Apartment	148	15.80%
	Own House/Apartment	686	73.10%
	Hut/Shack/Other	27	2.90%
Number of Vehicles	0	330	35.20%
	1	398	42.40%
	2	151	16.10%
	3	39	4.20%
	More than 3	20	2.10%
Internet Service	Yes	891	95.00%
	No	47	5.00%
Age	Average Age	31.58	
	Minimum Age	15	
	Maximum Age	81	
Sample Size	n:	938	100%

The results presented in Table 5 indicate that all item loadings meet the minimum cutoff point of 0.50, as suggested by Bagozzi, Yi, and Phillips (2013). The Composite Reliability (CR) for all constructs, as well as the Average Variance Extracted (AVE), exceeded 0.70 and 0.50, respectively (Chin, 2010; Fornell & Larcker, 1981). Thus, internal consistency was achieved.

Table 5. Outer Loadings, Composite Reliability (CR), and Average Variance Extracted (AVE)

Construct	Items	Outer Loadings	Composite Reliability (CR)	Average Variance Extracted (AVE)
Attitude Toward Online Banking	A1	0.900	0.950	0.826

	A2	0.928		
	A3	0.909		
	A4	0.898		
Performance Risk	ER1	0.696	0.888	0.666
	ER2	0.777		
	ER3	0.897		
	ER4	0.878		
Financial Risk	FR1	0.751	0.914	0.680
	FR2	0.824		
	FR3	0.827		
	FR4	0.821		
	FR5	0.895		
Intention to Use Online Banking	IU1	0.912	0.952	0.831
	IU2	0.922		
	IU3	0.925		
	IU4	0.886		
Privacy Risk	PR1	0.880	0.920	0.794
	PR2	0.899		
	PR3	0.894		
Psychological Risk	PSR1	0.887	0.866	0.764
	PSR2	0.861		
Security Risk	RSEG1	0.938	0.803	0.676
	RSEG2	0.686		
Time Risk	TR1	0.887	0.912	0.775
	TR2	0.913		
	TR3	0.840		

Note: *PSR3* and *RSEG3* were removed due to their low outer loadings.

In the case of discriminant validity, as shown in Table 7, the criterion proposed by Fornell and Larcker (1981) was applied. The AVE value demonstrated the inter-correlation of the construct with other constructs within the research model. All values were higher than the correlation coefficients of each construct (Chin, 2010).

The results, therefore, indicate that the measurement model was satisfactory, providing sufficient evidence in terms of reliability, convergent validity, and discriminant validity.

The coefficient of determination (R^2) for attitude toward online banking was 0.570, and for the intention to use online banking was 0.727 (for the full sample), explaining more than 57% and 72.7% of the variance in the respective constructs.

All these R^2 values indicate a substantial model.

Table 6. Discriminant Validity of Constructs – Cross Loadings

Items	Attitude Toward Online Banking	Intention to Use Online Banking	Privacy Risk	Performance Risk	Security Risk	Time Risk	Financial Risk	Psychological Risk

A1	0.900	0.757	0.631	0.107	0.515	-0.142	-0.107	0.281
A2	0.928	0.766	0.633	0.113	0.521	-0.127	-0.098	0.289
A3	0.909	0.782	0.606	0.083	0.523	-0.177	-0.135	0.252
A4	0.898	0.794	0.654	0.124	0.521	-0.161	-0.104	0.259
ER1	0.037	0.068	0.039	0.696	0.104	0.421	0.567	0.324
ER2	0.044	0.068	0.073	0.777	0.113	0.466	0.587	0.324
ER3	0.124	0.104	0.136	0.897	0.202	0.467	0.556	0.373
ER4	0.115	0.112	0.114	0.878	0.116	0.439	0.592	0.375
FR1	-0.053	-0.030	-0.023	0.694	0.062	0.568	0.751	0.312
FR2	-0.115	-0.128	-0.084	0.594	0.002	0.596	0.824	0.346
FR3	-0.079	-0.068	-0.075	0.548	-0.012	0.635	0.827	0.374
FR4	-0.063	-0.048	-0.104	0.537	-0.005	0.617	0.821	0.398
FR5	-0.141	-0.149	-0.142	0.518	-0.019	0.704	0.895	0.381
IU1	0.791	0.912	0.562	0.115	0.437	-0.183	-0.099	0.254
IU2	0.789	0.922	0.564	0.125	0.438	-0.165	-0.081	0.295
IU3	0.778	0.925	0.602	0.110	0.479	-0.193	-0.110	0.204
IU4	0.749	0.886	0.594	0.068	0.462	-0.201	-0.153	0.191
PR1	0.582	0.542	0.880	0.113	0.629	-0.046	-0.082	0.189
PR2	0.624	0.569	0.899	0.122	0.595	-0.068	-0.106	0.224
PR3	0.649	0.589	0.894	0.106	0.568	-0.081	-0.117	0.214
PSR1	0.272	0.225	0.254	0.369	0.215	0.386	0.384	0.887

PSR2	0.247	0.230	0.152	0.375	0.143	0.342	0.377	0.861
RSEG1	0.590	0.521	0.633	0.134	0.938	-0.028	-0.062	0.194
RSEG2	0.281	0.229	0.447	0.181	0.686	0.185	0.127	0.143
TR1	-0.165	-0.216	-0.051	0.411	0.050	0.887	0.624	0.306
TR2	-0.163	-0.180	-0.095	0.492	0.026	0.913	0.708	0.392
TR3	-0.095	-0.118	-0.040	0.537	0.057	0.840	0.700	0.443

Table 7. Discriminant Validity of Constructs – Fornell and Larcker Criterion

Construct	Attitude Toward Online Banking	Intention to Use Online Banking	Privacy Risk	Performance Risk	Security Risk	Time Risk	Financial Risk	Psychological Risk
Attitude Toward Online Banking	0.909							
Intention to Use Online Banking	0.852	0.912						
Privacy Risk	0.695	0.637	0.891					
Performance Risk	0.118	0.115	0.127	0.816				
Security Risk	0.572	0.498	0.669	0.174	0.822			
Time Risk	-0.167	-0.203	-0.074	0.531	0.048	0.881		
Financial Risk	-0.122	-0.121	-0.115	0.676	-0.001	0.760	0.825	
Psychological Risk	0.297	0.260	0.235	0.425	0.207	0.417	0.436	0.874

Note: The diagonal values represent the square root of the Average Variance Extracted (AVE), while the other entries represent the correlations.

Structural Model Evaluation

Table 8 presents the results of the hypothesis testing. The general rule for a one-tailed hypothesis test is that the t-value must exceed 1.965 ($p < 0.05$).

The results demonstrated that attitude toward online banking has a positively significant effect on the intention to use online banking (H8). Furthermore, all evaluated risks have a significant effect on attitude, except financial risk ($p = 0.682$).

Table 8. Structural Model Evaluation Results

Hypothesis	Path	Beta	t-value	p-value	Result
H1	Privacy Risk → Attitude Toward Online Banking	0.468	11.550	0.000	Supported
H2	Performance Risk → Attitude Toward Online Banking	0.078	2.128	0.033	Supported
H3	Security Risk → Attitude Toward Online Banking	0.211	5.351	0.000	Supported
H4	Time Risk → Attitude Toward Online Banking	-0.265	6.549	0.000	Supported
H5	Financial Risk → Attitude Toward Online Banking	-0.019	0.410	0.682	Not Supported
H6	Psychological Risk → Attitude Toward Online Banking	0.229	6.691	0.000	Supported
H7	Attitude Toward Online Banking → Intention to Use Online Banking	0.852	66.517	0.000	Supported

Note: The general rule for one-tailed hypothesis testing is that the **t-value** must exceed **1.965** at $p < 0.05$. All hypotheses were supported except **H5**, indicating that financial risk does not have a significant effect on attitudes toward online banking.

It is important to note that, in addition to R^2 as a predictive criterion, authors like Leguina (2015) recommend examining Q^2 to assess the predictive relevance of the structural model. In this regard, Chin (1998) states that the predictive relevance of constructs should be positive and greater than zero. Specifically:

- Q^2 values of 0.02 are considered small,
- Q^2 values of 0.15 are considered medium, and
- Q^2 values of 0.35 or higher are considered large, indicating strong predictive validity of the model.

Geisser (1974) and Stone (1974) recommend evaluating the Stone-Geisser test as a Q^2 criterion. The blindfolding procedure in PLS was used for this evaluation. The endogenous constructs demonstrated strong predictive power, as Q^2 had a value of 0.46 for the attitude construct and 0.60 for the intention to use construct.

Structural Model

This figure illustrates the hypothesized relationships between the constructs in the structural model. The model highlights the direct effects of various perceived risks on Attitude Toward Online Banking and the subsequent influence of Attitude Toward Online Banking on the Intention to Use Online Banking.

The constructs included in the model are as follows:

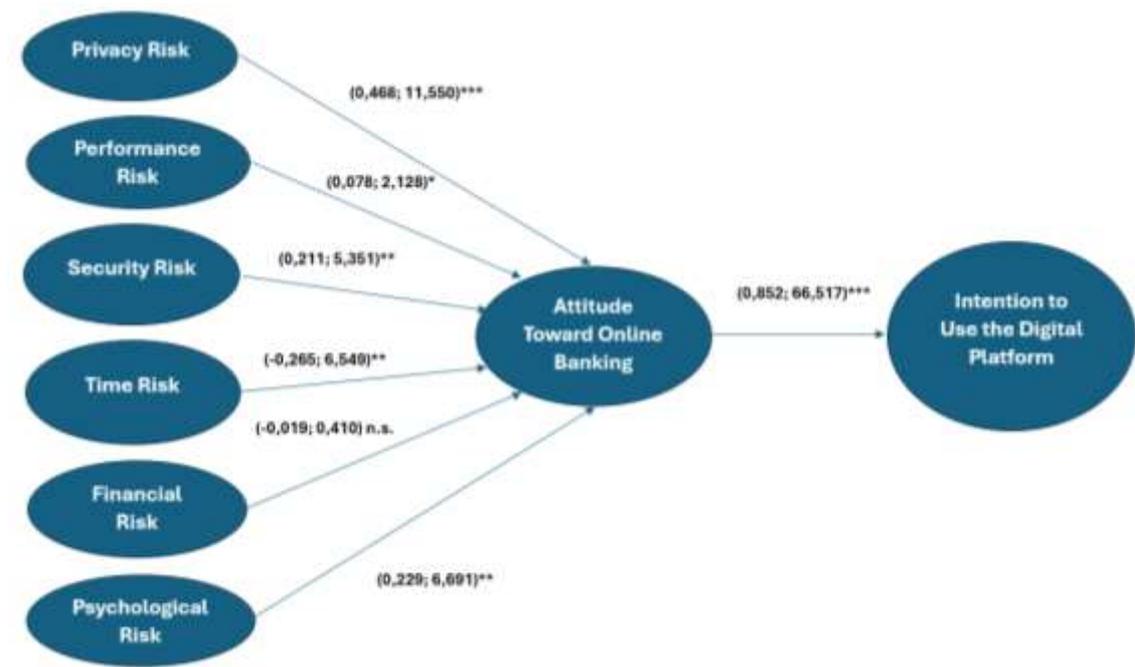
- Privacy Risk
- Performance Risk

- Security Risk
- Time Risk
- Financial Risk
- Psychological Risk

Each of these perceived risks is hypothesized to have a direct effect on Attitude Toward Online Banking. In turn, Attitude Toward Online Banking is hypothesized to have a direct and significant effect on the Intention to Use Online Banking.

The arrows in the model represent hypothesized causal relationships, with associated beta coefficients indicating the strength and direction of these effects, as derived from the structural model evaluation. The model serves as a visual summary of the theoretical framework and the empirical findings of the study.

Figure 1. Proposed Structural Model



Discussion

Researchers such as Charles (2017), Kamalul, Mohan, and Goh (2018), Chauhan, Yadav, and Choudhary (2019), Yang et al. (2015), Marafon et al. (2018), Wang et al. (2016), Reepu and Arora (2022), and Jahnavi et al. (2024) have analyzed the effect of perceived risk on the intention to use online banking, including financial, security, privacy, psychological, and performance risks. The present study focused on exploring the effect of each type of perceived risk (privacy, time, security, performance, financial, and psychological) on attitudes toward online banking, followed by an evaluation of the subsequent effect of attitude on the intention to use online banking.

The structural model evaluation results, as reported in Table 8, demonstrated that privacy risk had a significantly positive effect on attitudes toward online banking, consistent with the findings of Jahnavi et al. (2024). However, Chau and Ngai (2010) found that young people's attitudes toward online banking were

not determined by their perceptions of privacy risk, security risk, or financial risk. This study aligns with their findings regarding privacy and security risks but diverges in the case of financial risk, which will be detailed later.

To a lesser extent, psychological risk, security risk, and time risk were found to directly affect attitudes toward online banking. Although their impact was less significant compared to privacy risk, it remains relevant. Performance risk showed a direct but weaker effect on attitudes toward online banking. Bathy et al. (2023), using the UTAUT model to analyze factors influencing digital banking adoption in India, identified that performance expectancy and facilitating conditions are key determinants, while social influence had a lesser impact.

Studies by Elhajjar and Ouaida (2019) indicated that digital literacy, resistance to change, perceived risk, perceived ease of use, and perceived usefulness were the main variables affecting users' attitudes toward mobile banking adoption. The present study incorporated perceived risk into the model and confirmed that it significantly affects attitudes toward online banking, reinforcing previous research findings. Interestingly, financial risk does not have a direct effect on attitudes toward online banking. This aligns with the results of Akturan and Tezcan (2012) in their study on mobile banking adoption.

When evaluating the effect of attitude toward online banking on the intention to use online banking, the results showed a positively significant impact. Authors like Chauhan, Yadav, and Choudhary (2019) and Abrar et al. (2023) confirm the positive and significant influence of perceived usefulness, ease of use, and, most importantly, attitude on consumers' intentions to adopt Internet banking, which aligns with the findings of this study.

Consistent with Kamalul et al. (2018), perceived risk when consumers intend to make online purchases involves various risk types except social risk, which was considered insignificant. This study also confirms that social risk did not meet the necessary loadings to be considered significant and was thus excluded from the model. However, both studies agree that security risk significantly impacts user attitudes (Kamalul et al., 2018).

High levels of perceived risk can deter consumers from using electronic banking services. For example, in line with this study's findings, financial and security risks can lead to lower adoption rates and reduced usage intensity (Jerene and Sharma, 2019; Reepu and Arora, 2022). Hilal and Varela-Neira (2022) expanded the UTAUT2 model by including proactivity as an influencing factor in the intention to use mobile banking. Conducted in Lebanon, their study showed that a proactive personality positively affects all model constructs and, ultimately, the intention to adopt.

In this context, researchers like Shiu and Chang (2015) concluded that consumer innovation plays a crucial role in reducing perceived risk. Innovative consumers are more likely to adopt electronic banking services and perceive lower risks associated with these services.

Additionally, Li (2022), Srivastava et al. (2024), Gui et al. (2024), and Tariq et al. (2024) suggest that trust in the bank's website and the quality of service provided are critical factors that can mitigate perceived risks. High levels of trust can reduce the negative impact of perceived risks and increase the likelihood of continued use of electronic banking services.

Conclusions

The study demonstrates that there are various theories and models supporting the analysis of perceived risks among digital banking users. Notably, the Theory of Reasoned Action (TRA) and its extensions, as well as the more recent Unified Theory of Acceptance and Use of Technology (UTAUT), are highlighted. UTAUT is particularly useful due to its emphasis on technology use and the incorporation of factors such as facilitating conditions, which relate to technical support and ease of use—both essential in reducing risk perception. However, TRA extends its analysis by exploring how general attitudes and social norms influence adoption behaviors.

The results prominently emphasize the effect that each type of risk has on attitudes toward online banking. Privacy, performance, security, time, and psychological risks have a direct impact on attitudes toward online banking. Among these, privacy risk is the most significant factor influencing attitudes, providing clearer insights into user behavior in such services. This insight can serve as a valuable resource for financial institutions when designing strategies to improve customer experience.

When comparing the effects of the proposed risks, it is undeniable that, apart from privacy risk, the factors most affecting users' attitudes include psychological risk, security risk, and time risk. In contrast, performance risk shows a less significant effect, while financial risk has no direct effect on users' attitudes toward online banking.

The study confirmed that attitudes toward online banking are a determinant of the intention to use these services, offering clear guidelines for various stakeholders. Strategic areas are clearly identified, suggesting that fostering a favorable attitude toward the service is essential before a direct impact on the intention to use online banking can be achieved.

In summary, electronic banking has a complex impact on consumers' risk perceptions. While perceived risks—such as financial, security, privacy, social, time, performance, and psychological concerns—may deter usage, factors like consumer innovation, trust, and service quality can significantly mitigate these risks, promoting the adoption and continue use of electronic banking services.

Limitations and Future Research

This research was conducted during a global health emergency due to the COVID-19 pandemic, which brought about significant changes in consumer behavior. In Ecuador, authorities imposed strict measures, including mobility restrictions based on vehicle license plates and curfews over extended periods. Public and private sector organizations fully suspended in-person operations, and from June 2020, began phased returns to physical workplaces following national regulatory guidelines.

Many individuals, aiming to protect their health, remained at home and turned to virtual alternatives for their activities. While some were already using digital channels, others had to adapt to this new mode of interaction regardless of age or gender. Therefore, future studies in a post-pandemic context are suggested to compare results and assess changes in consumer behavior. Additionally, such research could determine the influence of different types of risks on the intention to use digital platforms.

Future studies could incorporate the variables included in this model and potentially add others, such as perceived trust, which holds significant relevance in the context of online banking. Similarly, it would be valuable to analyze differences when empirically comparing the model based on the characteristics of financial products or services offered in the market.

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