Role of Perceived Security and Financial Attitude in Shaping Behavioral Intention under the Moderation of Financial Literacy

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Abstract

The study was conducted to investigate the role of consumer behavior in stimulating the intention to adopt e-banking services under the moderation of financial literacy. Further it aimed at gaining an in-depth view of the factors that lead to e-banking implementation, such as perceived security, financial attitude, and financial literacy. Using a deductive approach, the study collected data through a structured questionnaire given to 140 internet banking users in Lahore, who had been sampled using a convenience sampling method. Structural equation modeling was utilized to investigate the research hypotheses and to examine customer behavior and levels of financial literacy. The investigation throws much emphasis on the role of financial literacy as a moderating variable in technology adoption models. By explaining its significance in the acknowledgement of e-banking services, the research provides meaningful insights into consumer behavior within the realm of digital banking, therefore aiding in the formulation of successful strategies for e-banking adoption. Findings indicate that security perception, financial attitude, and financial literacy directly impact the intention to use an online banking service. With higher financial literacy, better financial attitudes will contribute positively to the adoption of e-banking, and improving the financial knowledge of customers will act as a stimulating agent for the usage of e-banking services.

Keywords: Technology, Electronic Banking, Perceived Security, Financial Attitude, Financial Literacy, Consumer Behaviour.

Introduction

The banking sector lies at the core of performing financial transactions through deposits, loans and remittances that are crucial to economic growth. Although banks do not directly produce value, they form an integral part of the resource allocation system and distribution system that supports investment and encourages consumption. Banks attract people to save more by offering them an attractive rate of interest on savings as well as term deposits, thus making capital available for useful investments (Ozili, 2018). Such investments lead to job creation, rising incomes and better

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livelihoods (Garg et al., 2021). Financial services have already been revolutionized by digital technology-enabled transactions where users can accomplish a transaction electronically and do not need to go to bank branches, which has opened the doors of banking for faster, convenient and larger sections of people (Wewege et al., 2020).

Curiously, digital banking in Pakistan too has seen sharp growth over the years especially with online transactions, ATMs and mobile banking platforms gaining popularity (Ali & Puah, 2019). Establishment of the state bank has developed a strong banking infrastructure, in which State Bank of Pakistan plays a very important part (Hussain et al., 2017). In rural areas, while internet dispersion is still undeveloped, e-banking powered by remittances and business has been increasing (Priya et al., 2018). Obviously, any move to digital banking raises security as a major issue and keeping the financial data and personal information in place is more important than anything (Kumar & Gupta, 2020). Banks took to encrypting their data and using fraud detection systems and other methods for secure logins, in effort to make users feel safer (Angusamy et al., 2022). Further, financial attitudes appear to be important drivers for the diffusion of e-banking as indicated by perceived security, trust in the banking system and utility of digital services significantly influence the adoption and continues usage of digital-banking among individuals (Carranza et al., 2021). Higher financial knowledge is also a critical determinant of these behaviors and those are more likely to use digital banking services who have high financial literacy levels (Nustini & Fadhillah, 2020).

Problem Statement

E-banking has had a major impact on the economy of Pakistan, making different sectors much better and efficient. This move has significantly improved customer experience by offering 24/7 access to financial services, saved banks considerable labor costs through automation and eliminated much of the need for physical presence or branches (Ahmad, 2021). Transparency is also enhanced with this digital transformation type decreasing the potential for financial fraud and corruption by allowing secure verifiable transactions. E-banking also enabled better collection of data, this has allowed banks to provide personalized products and drive innovation and competition in the industry (Rehman et al., 2021).

But the fact remains that use of e-banking in Pakistan has seen limited adoption which is particularly true in rural areas where absence of responsiveness, low levels of financial literacy and safety/privacy concerns still exist. The prime objective of the study is to investigate features that impact e-banking adoption and how these adoption process could be strengthen by considering financial literacy as a moderating factor in depth.

Research Objectives

1. Investigate the impact of purchasers concerns about security on purpose of using web-based banking offers.
2. To study the impact of financial attitude on behavior motive of using net-banking offers.
3. To investigate how financial literacy affects the relationship between security and ambition to utilize e-banking offers.
4. To determine the role of financial literacy on the relation among financial attitude and objective to utilize mobile banking offers.

Research Questions

1. What is the impact of security on the determination to examine by consumer electronic banking provide?'
2. How does one's financial attitude impact their intentions to use virtual banking?
3. In what respect does the connection between security and intent to utilize digital financial institutions depend on financial literacy?
4. What moderation role does financial literacy play in financial attitude toward adopting online banking?

Significance

The research reveals the significant roles that security and financial literacy play in the circulation of e-banking, thereby emphasizing their importance for consumer behavior (Chauhan et al., 2019). Without strong security (like encryption and fraud detection), users perceive lack of trust on their transactions. User trust about the Banking system, perceived benefits and concerns around security are key factors that determine whether users adopt the digital banking service (Granic & Marangunic, 2019). This research also emphasises that the best way to ensure a feel-positive financial attitude is through enhanced security protocols along with thoughtful communication of such measures, and that a positive financial attitude will be beneficial in greater adoption of e-banking (Asif & Sarwar, 2023).

Literature Review
Perceived Security (PST)

Information Technology (IT) generally refers to methods, tools, and staff employed by organizations to protect their digital assets. In other words, IT security deals with all the assets and services that are protected against unauthorized access, theft or misuse resulting to human errors and threats. It may be intentional or unintentional and can come from within the organization (internal threats) or from other companies which means external threats (Afroze et al., 2021).

E-banking services include security measures to protect users' sensitive personal and financial information from unauthorized access or cyber-attacks. Strong security needs to be felt by users while using e-banking platforms. By offering stronger security, people are more willing to agree and use these services as they are now certain that their information will be secured (Aribake et al., 2020).

Most security research in the behavioural stream focuses on security perceptions as they have a direct effect on consumers objectives and behaviours (White et al., 2017). Perceived safety of portable apps means that users trust developers do something reasonable to protect their data from being accessed by others while communicated over a portable built device (Johnson et al., 2018). Perceptions of security can have direct and indirect influence on end-users in the context of their attitudes and primary behaviors. As an instance, Modabberniya et al. (2020) showed the relationship between a user's perception of security and trust (indirect) in any e-commerce transaction was essentially stated as being based on the trust. This then can impact how users intent to behave (directly) e.g. willing to give personal information to sites (Bansal et al., 2015).

Regarding the mobile payment applications, Jibril et al. (2020) be able to demonstrate that their intention of using these apps is influenced by everything concerning security perception. The research considered factors such as perceived privacy risk, visibility (the extent to which users experience using the same or similar content) and trialability (the ability to try out the technology) in revealing how users assess mobile payments safety (Saprikis et al., 2022). Apaua et al. (2022)

has also proven that user satisfaction and trust in using mobile banking app is highly influenced by security perceptions while using it. Similarly, Ooi and Tan (2016) showed that behavioral intentions to use smartphone credit cards, one of the major mobile app features, are mainly determined by security perceptions.

The Security and Privacy also plays main role in the adoption of electronic Banking. An observed integrity (PST and PR) has a significant positive relationship with the behavioural intentions to accept digital banking. It provides further robust evidence for the proposition that users' adoption or acceptance intentions in electronic banking can be better predicted and explained through perceived integrity. In addition, a study of consumer willingness to adopt online banking through TAM found that safety played a huge role in the adoption of digital banking (Patel & Patel, 2018). Perhaps most importantly, security is a major determining factor on trust. It is vital to establish the perceived security measures as well as their relationship with trust in a mobile context. Trust is also highly influenced by consumers' sense of security in terms of personal information management. Behavioural intention of consumers significantly influence trust, the most important factors that affect beliefs are website privacy and security features as well as shared values (Rahayu, 2022; Kumar et al., 2018).

Financial transactions over the IT tools are a more specific threat to user when they allow quick non-physical criminal activity. Since digital banking solutions involve security and protection, a lot of users are afraid to start using them. When it comes to ST and PR concerns, the banking sector is better trusted than regular financial institutions (Khatoon et al., 2020). The major reason for not liking online banking is its concerns regarding ST & PR. As most financial services operate online and on smartphone apps, clients are increasingly worried about security. Data types and means of collecting, by what objectives, time period for which data are currently used monitored by the customers reason being privacy and security have proven to be hurdles (Malinka et al., 2020). The results indicate that sensitivity around ST and PR is the main barrier to Internet banking usage. In addition, problems with data security in the use of digital banking apps have been pointed out as distinct hurdles for their greater use. Hence, ST and PR are usually assumed to be the key factors preventing consumers from adopting virtual banking (Ogedengbe, 2020). Furthermore, there is also another kind of insecurity and risk introduced for users with mobile banking. Categories Classifications of Virtual/Wireless Environment Security: IT safety, System safety, and e-payment-enabling security operations (Mogos & Jamil, 2021).

H$_1$: Perceived Security has encouraging impact on behaviour purposes to use E-banking.

Financial Attitude (FAT)

Attitude is about user's perspective of, thoughts about, and feelings toward some concept or object; the negative view or judgment of an idea, entity, organism or situation. Specially in developing countries the thing that matters the most is attitude about technology utilization (Howe & Krosnick, 2017). An individual decision to accept it technology is informed by that person's subjective understanding of the system, conditioned by assessments of utility and usability. The system is also a question of how much someone likes or dislikes it, with an evaluation type approach gearing towards motivation to employ the information systems. Consumers perception with regard to service delivery, adaptation of easy access and usage, service budget, cost effectiveness, services benefits or values, risk minimization and protection aspects to safety demand incorporation will be somewhat different in such electronic banking offering (Inegbedion, 2018).

The personal attitudes have significant effect on the acceptance of technology (Inder et al., 2022). Attitudes of customers are a basic model in predicting acceptance and use of technology. Underlying attitudes predict technology adoption and usage (Lai, 2017).

However, financial attitude can be defined as the ability to strategize and save for the future that counts (Rai et al., 2019). Bhushan and Medury (2014) concluded that to increase financial literacy across generations, it would better to focus on positive financial attitudes and behaviours of a nation's citizens. And only then, these financial education programme will bring the real benefits. Established that financial attitudes are results of a specific behaviour of a decision-maker and an attitude can be ingrained based on their economic and non-economic beliefs. The survey also found that education can increase what researchers refer to as a "bottom-line" approach toward money and that this could decrease the need of credit cards. Financial attitudes are similar to financial behaviour in affecting financial well-being. Past research shows that youth are interrelated through financial literacy and financial attitudes (Heuberger et al., 2018). Attitude towards money can also depicts about the financial literacy of the youth. As a consequence, to some extent, a reaction from students related to Finance and Money might influence their behavior about Financial Literacy and enhance considerably their financial knowledge. However, a bad attitude might severely impact the financial decision-making process (Ameliawati & Setiyani, 2018). Literature Review above supports the theme that a financial attitude is one of the vital factors which forms the decision in a person's financial literacy and also limits the extension of it.

H$_2$: Financal Attitude positively impact behaviour intention to adopt e-banking.

Financial Literacy (FLT)

Financial Literacy is the ability of an individual to apply certain financial principles in a particular situation and make informed financial decisions (Susdiani, 2017). Moreover OECD (2013) defined FLT because the characteristics, conduct, focus, attitudes, and expertise one calls for in facilitating informed choice-making on financial problems thereby contributing to or improving stability in economics. regarding this aspect, this type of definition recognizes three factors that need to be incorporated to observe monetary literacy: monetary expertise, economic conduct, and financial attitude.

Instead, FLT is a stand-in for the ability to use financial resources and records of them providing you with income security in the long run (Pertiwi & Purwanto, 2021b). Research has also confirmed a positive relationship between financial behaviour and FLT (Tyagi, 2019). Since digital banking demands continual maintenance and linkage to other devices it may necessitate easiest level of consumer involvement (Maulidya & Putra, 2023). The following concepts were based mostly on the above clearly agreed concept. Various documentation indicates that FLT has a helpful impact on progressed financial decision-making.

The more financial literate users are likely to contribute in the stock markets, earn better returns on their savings account and not easily suspectable to frauds or exploited easily (Andreou & Philp, 2018; Deuflhard et al., 2019). Although there have been many studies on FLT, a full investigation of the linkage between FLT and e-banking in patron utilization of electronic financial services is still not advanced inside the contemporary literature. Consequently, this research provides two contributions: (i) it analyzes the depth and width of financial literacy among various consumer sociodemographics. The article further elaborates on how shifting levels of financial literacy impact e-banking behavior. Besides, the article presents further information about the diploma of the influence of the changes in the degrees of financial literacy to e-banking behavior by analyzing the diploma. The literature mentioned above served as the basis for the following hypotheses.

H₃: Financial Literacy will be the mediator variable in a relationship between perceived security and purpose of use for digital banking.
H₄: Financial Literacy is the moderating variable between Financial Attitude and Intention of implementation of digital banking.

Figure 1: Research framework

Research Framework
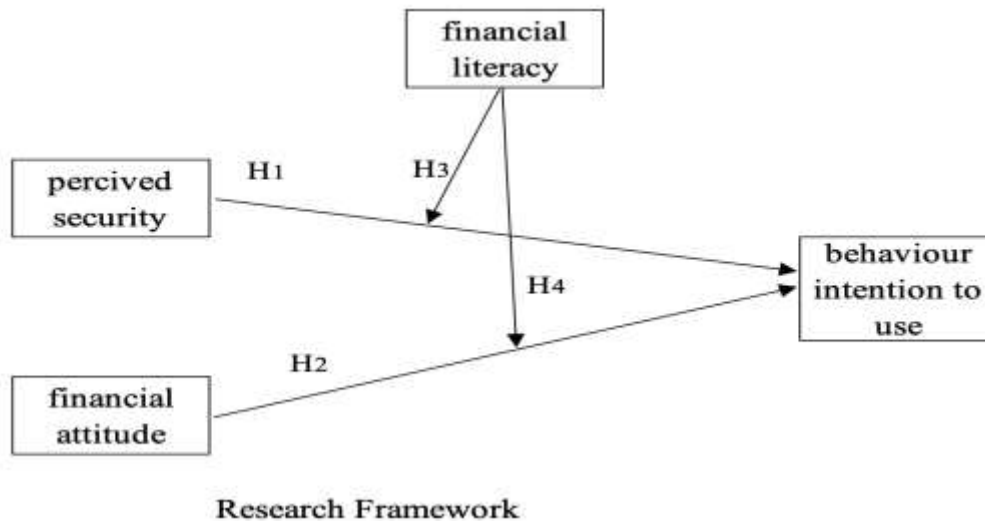
Methodology
Population and Sampling
The population includes all individuals, places, or objects with certain common characteristics. This study is based on the users of e-banking services in Lahore i. e. individuals who are using these services for their financial transactions and also, they have good command over online banking system. The research focuses on the e-banking behavior of respondents 18-years-old and above, so younger or those with less experience in e-banking are not included in the study.

After population identification, a sampling frame is constructed. Simply sampling is when a group of people/things are selected from the entire population to be in the study (Rahman, 2015). This subset, referred to as a sample, is intended to include the larger population and allows for inferences from the sample be made concerning the whole group.

This is the step and stage where researcher have collected out existing facts and given that particular or proper records here in this point researcher most probable inferred that there no any other entire authentic listing of e-banking customers from Lahore.

This study employed the methodology used by Scarlata et al. (2016) essentially using a snowball-sampling methodology for this study. In this method, the potential participants are recruited from personal contacts of the first respondents who recognize other qualified individuals and so on until one reaches a desired sample size (Parker et al., 2019). While there are countless statistical models that could be employed in sample size calculation (Sharma, 2017), the study followed Anderson et al. (2017) which suggests a minimum of (n/10) observations per variable. The study has four factors with 14 items, and these were previously detailed. Hence, the least sample size will be 14 items * ten =140.

Measurement of Variables

This investigation encompasses four variables, based on the necessary demographic variables. This research includes one predicted variable namely Behaviour intention to use (INT) and two predictor variables named as Perceived Security (PST), Financial Attitude (FAT) and remaining one variable is moderator named as Financial Literacy (FLT). All these scopes are measured using 14 items scales and three demographic variables to confirm accurateness and objectivity.

Table 1: Number of Scale Items

Variables	Item Count	Source
Behaviour Intention to Use	3	Davis et al (1989) and Davis (1993)
Perceived Security	3	Carlos Flavia and Miguel (2006)
Financial Attitude	3	Rahi et al (2017)
Financial Literacy	5	Lusardi and Mitchell (2011b)

This study throughout explores the factors impacting the purpose to use digital banking, considering key elements such as Perceived Security (PST) and Financial Attitude (FAT). Considering financial literacy as a moderating factor, this examine provides a deep understanding of how different consumer variances in financial knowledge can impact adoption behaviours. This method allows for detailed and complete investigation of consumer behaviour in digital banking context.

Perceived Security

This means that security refers to the protective measures often established within the electronic banking services in protecting the financial and personal information of users from unauthorized access and cyber threats. Security is an important consideration for one or another when thinking of signing onto the e-banking services. Strong security measures reassure them on the safety of their data, which increases their confidence and likelihood of using the services. Therefore, this research assesses security on a three-point scale adapted from the study by Carlos Flavián and Miguel Guinalíu (2006).

Table 2: Perceived Security Scale

Variable Measures
"Internet banking systems provide sufficient security."
"I have raised my concern that information that has been sent through the websites of banks would be intercepted by unauthorized people, like hackers, to alter the contents."
"I am worried about the provision of my credit card details or going online for banking services."

Financial Attitude

Finance attitude may impact on intention to perform the corresponding action. Willingness to adopt it, Greater likelihood of adoption the more positive attitude someone have about online banking. In particular, attitude derived from research work over time, PEOU, PU extraneous factors; community norms and advertisement. Customer's Attitude towards e-banking: It stands

for customer dominator it consists of while forming, "I practice the use and banking modes", I think electronic banking is a good idea. We utilized a scale from Rahi et al., 2017 within this study.

Table 3: Financial Attitude Scale (FAT)

Variable Measures
"In my opinion, it is desirable for every customer to use internet banking".
"My attitude towards internet banking usage is positive".
"Using internet banking is a wise idea".

Behaviour Intention to Use

The size of the behavioural intention-to-use scale is important to your research methodology. It will provide measurable level chance that consumers can adopt the service of e-banking with all the factors involved, such as PST and FAT. The measure and assessment of the Behavioural intention could lead to the improvement of the targeted measures into increasing usage of e-banking, guiding the strategic decisions for the financial institution, and having a deep insight into consumer behaviour. In the current study, the scale used was an adaptation of three items from Davis et al. (1989) and Davis (1993).

Table 4: Behaviour Intention to Use (BINT)

Variable Measures
"I will do in the next few months engage with e-banking technology."
"I expect I will use the system in the next few months."
"I plan to make use of electronic banking technological services the next month."

Financial Literacy

FLT was operationalized in this study as financial decision-making ability, which is the extent to which people can make sound decisions with their money knowledge. This concept of FLT is more formally described elsewhere (Lusardi and Mitchell 2011). But this research is included in FLT over scales as follows. In addition, this study uses 5-item scale that explains Lusardi and Mitchell (2011). The first three questions are for basic FLT, and the last two questions measure the advanced FLT. Table 5 FLT describes the adapted Big Five model used in this study.

Table 5: Financial Literacy Scale (FLT)

Perspectives	Details
Earned Returns	"Suppose you had 10,000 rupees in your savings account with an annual interest rate of 2%. How much would be in the account after five years if you lease the money grow?"
Cost Inflation	"Suppose that your savings account provided an annual interest of 1% whereas the inflation is 2% per year. After one year, how much of purchasing power would money in this account have?"
Risk Spreading	"Is the following statement is true or false." "A single company tends to offer a much more secure return as compared to a stock mutual fund."

Fixed Income Valuation	"What normally happens to bond prices when the interest rate rises?"
Secured Loan	"A 15-year loan typically pays more over a month than a 30-year loan, but one pays less in interest after the maturity of the loan."

Results and Discussions
Measurement Model Analysis

Quality analysis consists of a series related to quality attributes including e.g., Factor loading, Construct reliability and validity are the main part in checking this model (Steps in data science). The bar of factor loadings is 0.70; if dropping these items gets the reliability and validity up even higher than enough then you can get rid of them. Furthermore, a value of 0.70 is assigned for the construct reliability using Cronbach Alpha and Composite reliability. For the last part, they took Heterotrait-Monotrait Ratio and Fornell & Larcker Criterion for discriminant as well as convergent validity to make sure AVE > 0.50

Cross Loadings
Table 6: Cross-Loadings

Variables	Item	BINT	PST	FLT	FAT
Behaviour intention to Use	BINT_1	**0.803**	0.432	0.472	0.432
	BINT_2	**0.863**	0.512	0.542	0.532
	BINT_3	**0.853**	0.602	0.542	0.542
Perceived Security	PST_1	0.482	**0.823**	0.512	0.512
	PST_2	0.532	**0.863**	0.502	0.572
	PST_3	0.552	**0.833**	0.482	0.552
Financial Literacy	FLT_1	0.432	0.442	**0.712**	0.542
	FLT_2	0.512	0.452	**0.793**	0.602
	FLT_3	0.432	0.432	**0.743**	0.542
	FLT_4	0.542	0.502	**0.783**	0.592
	FLT_5	0.492	0.472	**0.833**	0.552
Financial Attitude	FAT_1	0.482	0.523	0.512	**0.813**
	FAT_2	0.532	0.663	0.502	**0.773**
	FAT_3	0.552	0.533	0.482	**0.763**

When cross-loadings are taken into consideration, researchers study a number of alternatives to ascertained who is loading highly on a particular construct as well as those that are loading across multiple constructs. To have discriminant validity at the item level, items under one construct should strongly correlate with each other; however, items under different constructs should correlate weakly. This is an overly simplistic approach. The approach lacks theoretical and empirical bases as well (Henseler et al., 2016).

The cross-loadings in the table 6 for BINT_1, BINT_2, BINT_3 0.80, 0.86, 0.85; PST_1, PST_2, PST_3 0.82, 0.86, 0.83; FLT_1, FLT_2, FLT_3, FLT_4, FLT_5 0.71, 0.79, 0.74, 0.78, 0.83; and FAT_1, FAT_2, FAT_3 0.81, 0.77, 0.76 can be interpreted in a way that all the constructs have higher loadings on their respective variables than on their cross-loadings. It, therefore, means that all the constructs are deemed appropriate for the variables assigned to them. Items produce a high loading on the said constructs, as their values are above 0.7, thus confirming reliability.

Convergent Validity

Table 7: Convergent Validity

Variables	Item	Factor Loading	Cron. Alpha	CR	AVE(Average Extracted)	Variance
Behaviour Intention to Use	**BINT_1**	0.803				
	BINT_2	0.863	0.798	0.830	0.729	
	BINT_3	0.853				
Perceived Security	**PST_1**	0.823				
	PST_2	0.863	0.765	0.748	0.785	
	PST_3	0.833				
Financial Literacy	**FLT_1**	0.712				
	FLT_2	0.793				
	FLT_3	0.743	0.861	0.827	0.763	
	FLT_4	0.783				
	FLT_5	0.833				
Attitude	**FAT_1**	0.813				
	FAT_2	0.773	0.820	0.825	0.732	
	FAT_3	0.763				

Attainment of convergent validity takes place when different measures are said to be associated with a single construct within a particular model. This therefore suggests that measures need to be inter-correlates for their validity to be established (Rehman et al., 2019). The result for convergent validity (cross-loadings, AVE and composite reliability) in Table 7. The value of AVE and Factor loading to be above 0.50 but CR should more than.70 Items with object loading considerably lower than 0.5 may be dropped to get the optimal goodness of fit for that conceptual model. Consequently, it must not consist of something more than 0.50 AVE as its element loading along with every construct used in the model, CR needs to be greater than 0.7

Fornell-Larcker Assessment

Table 8: Fornell-Larcker

	BINT	PST	FLT	FAT
BINT	**0.781**			
PST	0.764	**0.821**		
FLT	0.723	0.742	**0.801**	
FAT	0.729	0.693	0.643	**0.772**

The Fornell-Larcker criterion is probably the most popular method used in assessing the discriminant validity of a measurement model. Such a method asserts that the square root of the variance extracted for a given construct should be higher than the correlations that exist between the construct and any other construct. For a result to be regarded as valid, it leads to an inference that discriminant validity exists (Fornell & Larcker, 1981). From the table 8 shown above, if

diagonal entries (0.781, 0.821, 0.801, 0.772) are greater compared to their respective rows and columns' associated values it is a signal that the discriminant validity is satisfied as per the Fornell-Larcker criterion.

Structural Model Analysis

Testing a structural model requires the description of interconnection relationships among variables in the theoretical framework. Such an objective can be achieved with path analysis, which supports hypothesis testing and, most importantly, the strength and direction of the relationships between variables involved (Mitchell et al., 2023). In this study, PLS-SEM proved particularly appropriate for example when it allowed us to test and describe the theoretical model while still respecting the specific characteristics of our data.

It has effective capabilities to deal with incomplete or missing data through imputation. PLS-SEM is also optimized to manage non-normal data distributions, thus being suitable for cases where the data are far from the assumed conventional statistical characteristics (Afthanorhan et al., 2020).

This is to say that integration of path analysis and PLS-SEM helped us perform an all-round assessment of our model to extract meaningful insight into variable relationships in our proposed theoretical framework. This enables us to refine our model to an even greater understanding of the phenomenon being investigated and contribute to the knowledge base as a whole in our discipline.

Table 9: Structural Model Analysis

Sr. #	Code	Paths	Original Sample (O)	Std. Error (SE)	T Stat (|O/SE|)	P-Values	Decision
1	H_1:	PST -> BINT	0.480	0.210	2.286	0.000***	Supported
2	H_2:	FAT -> BINT	0.379	0.180	2.106	0.000***	Supported
3	H_3:	PST*FLT->B INT	0.752	0.370	2.032	0.004***	Supported
4	H_4:	FAT*FLT->B INT	0.630	0.280	2.250	0.004***	Supported

A procedure for validating the structural model is considered through the inspection of the direction coefficients "ß", which indicate the value of R2 that relates the proportion of total variation explained by unbiased factors and intensity of the correlations between the predicted and predictor variables (AlSomali et al., 2009). Findings generated from the structural equation model showed a good fit with the outer model, which means once again an acceptable fit of the data by the applied criteria of the outer model to assess the goodness-of-fit of the proposed framework. We then proceed to investigate the hypothesised relationships in the model below.

Hypothesis 1 (H_1). Security (PST) is directly correlated with the intention to use e-banking (SEC -> BINT) at a t-value of 2.286 and above the critical value of 1.96. Hypothesis 2 (H_2). Attitude (FAT) is spuriously correlated with intention to use e-banking (FAT -> BINT), which is supported by a t-value at 2.106 that is above the limit set as 1.96.

Hypothesis 3 (H_3): Interaction effect of security (PST) on the intention to do e-banking with a moderate interaction between financial literacy acting as an important moderator (SEC*FLT BINT), which was found to have the t-value at more than the 1.96 threshold value stood at 2.032. Then Hypothesis 4 (H_4) indicates that attitude has a middle-level correlation coefficient with the intention to use e-banking where financial literacy is a significant moderation variable (FAT*FLT -> BINT), and its t-value value was 2.250, which again exceeds 1.96.

Discussion

The degree of loss of control because of frauds or violations of privacy among digital banking consumers is an essential security indicator for e-banking. The scope of digital banking is more or less directly concerned with financial transactions (Liao et al., 2011). Illegal activities are committed in electronic financial transactions seriously, as it is easy to gain access and less direct involvement is needed. Therefore, most of the customers avoid online banking due to security reasons. The level of trust concerning safety issues required in digital banking is much higher than that in traditional banking. Electronic and mobile service-based channel leads to most of the dissatisfaction with online banking services due to security challenges. In recent times, users have become more concerned about their security with the ever-growing adoption of banking services. These are real hindrances as they compel the clients to ask questions about what type of information is collected, why it is collected, for how long, and how it is being processed (Yoon & Steege, 2013).

Among them, security concerns have been identified as the most important barrier to the adoption of e-banking (Koskosas, 2011; Liao & Wong, 2008; Polasik & Piotr, 2009; Yoon & Steege, 2013). In addition, data privacy and security concerns have also been perceived as significant barriers to adopting and using e-banking services. Thus, in this context, security is regarded as the most important factor that prevents the acceptance of Internet banking among clients.

Intention results from a person's ability to execute an intended act related to one form of technology. According to definition, attitude is the perception by a person of the benefits of a given system. As perceived in the Theory of Planned Behavior, attitude for instance, serves to either encourage or discourage the formulation of the intent of a person to use a financial product or service. The perceived view by customers drives their intention in adopting online banking; Lai & Li (2005). Cheng et al. (2006) proved that the intention to use e-banking is greatly influenced by the trust towards online banking. Behavioral factors involve beliefs, opinions, and perceptions about online financial services facilities and features determining whether a person will adopt a given technology or not. Personal, social, psychological, and functional elements form part of these factors often influencing and playing a crucial role in the interaction of behavior among individuals. Although the IBS have services like payment, basic beliefs about risks and security indirectly affect the attitudes of customers. Therefore, attitudes are more strength-generating in the context of online banking adoption.

Financial literacy has also substantial effects on the PST-FAT-BINT relationships within the context of online banking usage. Financial literacy has been considered to be knowledge of financial concepts and the ability of an individual to apply such knowledge in his or her life for the purpose of making right financial decisions (Susdiani, 2017). Financial literacy can also be perceived as the potential ability to utilize financial knowledge in managing resources so that, in the long run, one might attain financial stability. Financial literacy has positively been associated with financial behavior (Tyagi, 2019).

There is a high level of engagement on the part of consumers required by digital banking, which demands continuous monitoring and interaction with several tools (Kolodinsky et al., 2004). The more financially literate consumers are likely to understand and value trust and security measures that would lead to positive attitudes and use of digital banking services, thereby strengthening the relationship between PST and FAT and their intention to use online banking services. This group may have less confident and secure consumers with difficulty in understanding the issues of trust and security and creating negative attitudes wherein the impact of PST, and FAT on their intention to use e-banking services become weaker.

Conclusion

The banking sector plays an imperative role in the promotion of economic growth via services like deposits, loans, and remittances that facilitate resource allocation, investment, and consumption. Digital technology has further transformed the financial scenario by enabling users to execute electronic transactions, thereby improving convenience and accessibility (Lottu et al., 2023). In Pakistan, digital banking has notably gained pace with the advent of online transactions, ATMs, and mobile banking; however, security concerns remain a considerable constraint. Other issues leading consumers to seek trusted banks include the safety of personal and financial details, which banking institutions introduce through encryption, fraud detection, and other security measures. Among these are perceptions of security, confidence in electronic services, and overall attitudes toward finance-all contributing factors in the adoption of e-banking in areas with low financial literacy (Ekanayaka, 2021).

This research, therefore, underlines apprehensions of security as the major barrier to the adoption of electronic banking, since individuals are hesitant to engage in online banking activities because of fraud fears and data privacy breaches. Additionally, positive financial perception and trust in the security of digital structures stand as important factors influencing a user's behavior. Financial literacy will play a moderating role, where more financially literate users will be well-prepared to understand the security measures which would increase further confidence in using digital banking (Andreou & Philip, 2018). Otherwise, lower financial literacy weakens the relation between perceived security and the intention of adopting e-banking (Jain, 2023). It is worth therefore to improve Pakistan's financial literacy to address the problem of security concerns towards the expansion of digital banking usage in rural areas of Pakistan.

Recommendations and Future Directions

1. Conduct research in diverse geographical and socio-economic environments.
2. Employ longitudinal research methodologies to monitor alterations in user behavior and security apprehensions across temporal spans.
3. Investigate the effect of government regulations and public policies on the adoption of e-banking.
4. Explore emerging technologies (e.g., blockchain, AI) to enhance security and user trust.
5. Analyze the effectiveness of targeted interventions implemented to improve financial literacy in vulnerable populations.

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