International Journal of Contemporary Issues in Social Sciences
Volume 3, Issue 3, 2024 ISSN(P):2959-3808 | 2959-2461

AN EMPIRICAL STUDY OF THE IMPACTS OF PERCEIVED SECURITY AND KNOWLEDGE ON CONTINUOUS INTENTION TO USE MOBILE FINTECH PAYMENT SERVICES

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Received: August 01, 2024 **Revised:** August 15, 2024 **Accepted:** September 03, 2024 **Published:** September 11, 2024

ABSTRACT

Financial technology (Fintech) are becoming one of the most prevalent services in today's emerging technologies i.e., Internet of Things (IoT). The mobile payment sector is experiencing recent proliferation is also due to fintech payment services. From consumers perspective, one of the fastest growing fintech payment services are Apple Pay and Google Pay. Around the world different businesses are making full efforts to expand the usage of these services but the main concern is the security in its diffusion. The role of perceived security is of immense importance in mobile usage and unfortunately no in-depth investigation has been done so far for Fintech services. Thus, this research is determining the associations among variables like perceived security (PS), services knowledge (KNOW), confirmation (CON), perceived usefulness (US), continuous intention (CI) and satisfaction (SES). In context to Fintech services, the study as a theoretical model proposes extended post-acceptance model (EPAM). The proposed model data is collected from the service users and then validate on PLS. The results obtained from the test indicates the significant influence of knowledge and perceived security on the users confirmation and the perceived usefulness. Anyhow, there is no direct relationship found in perceived security on the users satisfaction and continual intention to use the Fintech services. The research further gives a significant relationship among confirmation, perceived usefulness, continual intention and satisfaction in terms o service usage. The practical and theocratical implications of this study have been discussed in detail.

Keywords: (Fintech, Knowledge, Satisfaction, Perceived usefulness, Post acceptance model).

INTRODUCTION

The fast pace emerging technologies in the world has started given rise to numerous new innovative forms; one of which is Financial technology (FINTECH) in the financial sector. The new information and communications systems have an intense impact on the human life, social and economic systems that one can see significant difference on what we are now and what we used to be couple of decades before (Tasca, Aste, Pelizzon & Perony, 2016). Digitalization has a very strong and sudden impact on financial the services industry as well as on other sectors. New methods of online payments can be performed without any physical interaction and trading of shares can be done in the same way. Because of new growths in information technology, the current processes of digitization (changing & transforming business models) is not only directed to growing automation of business procedures but this is in dire need of basic reorganization of the financial services value chain restructuring and replacing old traditional methods with innovative business models. Thus, the IT-made transformation and growth is reflected by this new term "financial technology" or "fintech" (Alt & Puschmann, 2012).

The latest expansions in Information Technology (IT) is bringing change in IT and their conjunction like cloud computing, IoT (Internet o Things), big data etc allows financial sector to enhance its services in businesses. This includes upgradation of old business processes and procedures. Along with this they also introduce new products, services and business models for all its concerned service providers (Thomas Puschmann 2017). Since last

few years, the uplift in electronic interface networks usage is becoming popular in clients and this has motivated the providers of financial services to reshape their companies, branches and agents to create more self-automated customer services and recognizing more of their network management towards hybrid client interaction (Nuesch R, 2015). For instance, many banks in Germany reduces branches from around 50,000 in 1990 to 34,045 in 2015 (Puschmann R. A., 2012).). Almost half of the clients do not use formal financial services, so we will answer those questions that why they don't want to use these services and we'll suggest the providers to that what are those measures that they will take to expand the number of their users or customers (McKinsey, 2010). Another major concern for Fintech companies is lending. The dislike towards bank credits make it much harder for customers to get loan for personal and business use due to financial crisis. Some old fashioned institutions are still following outdated lending practices that involves making relationships with clients with regards to the cost and efficiency of information gathered from customer during banking practices. Likewise, in current scenario if we see in the pandemic crises, mostly profitable businesses were those which are operating on line. When because of Covid-19 every system was stuck, so people mostly done transactions and shopping were online. So the number of users of fintech increased due to Covid-19. So, its more reliable way to avoid to visit banks the do the all transactions online. The question is about the understanding of fintech services that how easy to use these services are for customers. So that's why Fintech is most widespread term used for research in finance industry in present time.

Fintech is comprising five main domains that are Finance and Investment, Internal operations and Risk Management, Payments and Infrastructure, data security and Monetization and Customer Interface. The main focus of investors in the first group is financing mechanism. The second focus group area of fintech includes risk management and internal financial transactions for any financial institutions as they develop the best compliance systems for any sort of crisis and they cope up with the changes that take place after any crisis. The payments and infrastructure together have developed national electronic payments system in different fintech companies. The data monetization and security measures have made customers to be more vigilant while carrying out any financial transaction. Lastly, the interface is still one of the most essential point when it comes to outdated financial services.

From last decades, many outdated banks and other financing companies have minimized outsourcing thus making themselves specialized on their own. This specific action of resizing all operations in their back offices and moving its thrust to their front offices as well, has led to a completely new network with the appointees adding more companies from outside the financial services industry (Puschmann, 2017). Every year, Pakistan is experiencing growth and development in Fintech due to millennial generation which is holding a greater part of the Pakistani market. The fintech is further helping to use financial services in increasing the awareness of financial literacy importance in our community with many fintech users. Therefore, this study will be focusing on this research gap in the Pakistani context.

The understanding of, "users' knowledge", "perceived knowledge" and "perceived security" affect, the consistent use of financial technology payment services", through the "expectation confirmation model".

The following research questions will be answered in this study by the researcher.

- What is the relation between handlers' knowledge of fintech services and their perceived security (PS) ?
- What is the relation between PS protection, confirmation, usefulness, satisfaction, and the continuous intent of the use of financial technology services or products?
- What is the relation between confirmation, their perceived usefulness, their satisfaction with the service?
- What is the relation between perceived usefulness, satisfaction, and their consistency to use the services?
- What is the impact of satisfaction on persistent intent to use the services?

The main objective of this study is to determine the significant influence of information and perceived security on the variables like users' confirmation and perceived usefulness in mobile fintech services. However, perceived security, will

not abruptly influence users' satisfaction and persistent intention to use.

This study will make numerous academic contributions as well as and practical. Firstly, while several financial technology services seemed to be announced in last years, and in these services, end-users perceived security as very much important. This research, established on the arrangement of the security systems installed in the banking services by (Hur, 2017). The especially practical implication, the findings of this research will give understandings for Fintech service managers and different plans of actions on different security related fundamentals, and secrecy safety. End-users are very much careful about their security and they gave a high value to personal info and secrecy. As this is the key element to gain their trust over services and for the positive delivery of financial services, being acquainted to numerous online banking services, account holders should recognize useful services and very much secure. Therefore, this study will help fintech service providers as well as financial and non-financial institutions to mostly focusing on secrecy and protection of the data, transactions, and their personal information side of the services, towards users. Taking into account the widely spread security issues, this study will commend to classify into sub-groups, using the four first-order factors which are: "service", "platform", "network" and "device securities".

In 1980s, the active network theory in rooted in technology and scientific research. The theory is designed to identify the way innovations in technology are taking place. The scientific knowledge is integrated in social methods to check the practicality through explanatory actor network lens (Latour, 1987). All the human and non-human actor that are impacting all actions, reactions and decision making involves in any sort of development process are closely monitored by ANT. Social, agency theory, network theory and stakeholder theory are one of the most rival theories to ANT. Though ANT is helping to reveal the difficulties of technological driven industry via one of the very influential tool. It is observed that this theory prefers "ready-made science and technology" over to science and technology that is in making process (Latour, 1987). For the betterment of human life and make it less complicated, this theory is mostly suggested. Actor and inspiration are the major approaches that are followed in ANT. Actor approach utilizes the ethnographic and interviews whereas the inspiration is followed by communications and texts present in media (Yongwoon Shim, 2015). The research evidence in ANT regulates that financial resources, regulations, technologies and finance all work together towards the innovation of any development. We have analyzed the financial technology industry and financial technology payments in context of Pakistan.

LITERATURE REVIEW

In early 1990s, the term "Fintech" was derived by Citicorps's chairman Jhon Reed which is basically a combination of financial technology. The term was first discussed and founded in "smart card forum" (Kutler J., 1993). This term, financial technology covers IT enabled areas in financial solutions and the businesses that are coming up as start-up businesses bringing these solutions to incumbent services in financial sectors including banks and insurance companies. The three most discussed fintech publications topics are finance, services and startups which consists of IT application in them and this viewpoint is widely accepted in different literature also (Liudmila Zavolokina, 2016). The other term "financial innovation" associated to financial technology, however the financial innovation is the process of developing and promoting new finance related instruments, markets, technologies and institutions (Tufano, 2003).

It has been seen in last several years that most of the companies are motivated to strengthen their customer care service departments in order to meet customer needs and gain their satisfaction and loyalty for themselves (Kim, 2012). Therefore, companies are more actively utilizing information and communication technologies to their customers with improved services quality (Kim, 2012). In numerous industries Fintech is providing its services in sectors like insurance companies, online investments, finance, distribution, and electronic commerce payments. Nowadays there are diverse Financial technology services i.e. internet banking, digital lending, asset management companies (AMCs), insurance companies followed by several companies, with device manufactures, Information Technology

service givers, financial institutions, non-banking financial institutions.

The new production of mobile payments sector contribute to advanced mobile financial technology payments services such as "pay pal & e-payments" etc. are the indication that rapidly trending and growing sector from customers' viewpoint because you can easily make transactions with in seconds (Se Hun Lim, 2018). Non-financial institutions are providing services that escalates around very fastly because they allow PIN numbers can be used or Passwords and there is no need to install other extensions with this. Initial acceptance of financial technology payment services is a influential, initiative towards better knowing of this fintech sector because its eventual progress is dependent on customers' consistent use (Bhattacherjee, 2001). Mostly those who deliver financial services, are providing productive platforms alternatively to old financial services and improve service processes of customers experience through very relaxed and flexible quality of services. Though, from end-user's side, the security & privacy concerns are major concerns regarding their personal "financial transaction records" and their personal data is not allowed to be used without consent. Security of customers, and their concerns regarding their privacy in financial technology services are one of the major hurdle for growth. Therefore the clients concern towards their privacy and security are one of the biggest hurdle for all of the facilities (Lee, 2016). Many research studies have still analyzed the impact of variables like "perceived security" and of "service satisfaction" and "behavior intention in service utilization of Fintech. Moreover, the further research in this regard which is more of a practical research and determining perceived security effect on its end users behavior especially when they start adopting these services in context to framework of financial technology payment are still in its early phases. So, to analyze the stage of adaptation, of financial technology payment services, proposed an "Extended Post Acceptance Model" joining the "Expectation-Confirmation Theory" and a "Post Acceptance Model" given by (Bhattacherjee, 2001). Respectively, to clarify the consistent use of mobile financial technology payment services by using theoretical framework of EPAM , a model in terms of knowledge regarding financial technology services and customer's perceived concerns is proposed on security and confidentiality, viewpoint of end-users. The outflows because of mobile usage has become progressively dominant, to provide overall interpretation, of how end users perceived security and its knowledge can affect the continuous use of financial technology payment services, this study will help in this regard. The finding of this research will provide practical insight as well as theoretical contributions, to develop more effective customer services and other approaches in using "mobile fintech payment services".

H1: 'User's knowledge of fintech services" is positively related to their "perceived security of the services".

H2a/b: "Users' perceived security protection" is positively associated with their "confirmation" (H2a), the "usefulness" (H2b).

H3a/b: 'Users' confirmation" is positively associated with their "satisfaction with the services".

H4a/b: "Usefulness" is positively associated with their "satisfaction".

H5:"User's satisfaction"is positively associated with their continuous intention to use the services".

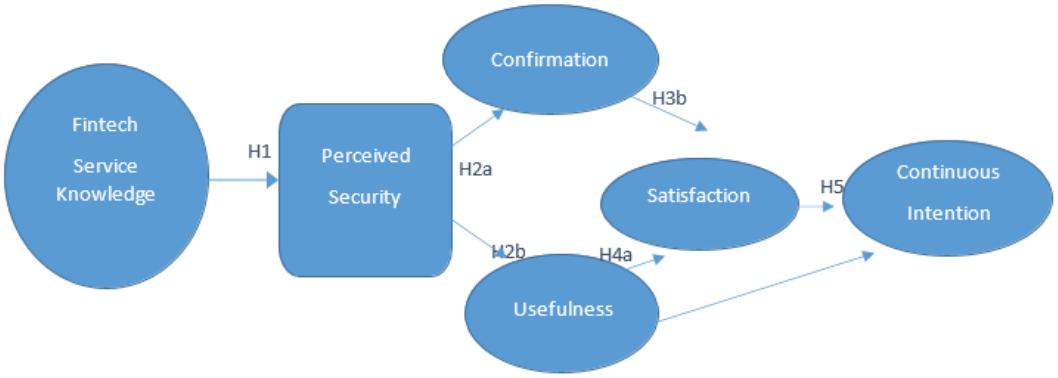


Figure 1. Research Framework

The fast growing and rapid expansion in new ideas and innovative services in the field of finance is called "Financial Technology'' (FinTech). This new emerging field is coming up with an intention of bringing significant amount of change. Fintech is actually providing new prospects to everyone by decreasing cost, no middleman, more transparency, and also making financial information accessible. The business of fintech companies has now moved from the online to the mobile platforms. The old-fashioned internet banking platform, offered by outdated financial service providers, is evolving into the modern financial services.

While a hefty amount of attention has been concerned by Fintech, continuous intention to use fintech is still doubtful. Some users are not easily convinced on continuous intention to use fintech because it has substantial risks. Customers are evaluating the projected value of using fintech, taking into account both its advantages and disadvantages. So, if the benefits are more than the risk, customer will use fintech service or product. Thus, fintech companies ask for increase the potential benefits of Fintech usage and minimizes the risk associated with these Fintech services or products. There is need to understand the behavior of users in respect to using these services. The goal of this study is to ascertain how specific fintech services can help close these research gaps. Knowledge, perceived security jointly influence continuous intention to use Fintech payment services.

The 2008 global financial crisis was a turning point, and a greater reason why Fintech is currently developing into a new paradigm. This new evolution presents difficulties and challenges for market participants and regulators alike, particularly in balancing potential risk with potential benefits of innovation.

Various financial systems are adopted by various nations in accordance with their preferences and demands. Good financial goods and services ought to be widely accepted, at the very least in the developed economies. The development of information and technology and the advancement of finance are interconnected.

These ideas are presented because we live in an era where significant technological advancements are changing the financial infrastructure. Mobile internet improves the usability and convenience of financial services, increasing access to risk, and cloud computing significantly lowers the cost as well as increases the efficiency of financial services (Chen, 2016).

METHODOLOGY

As a central theory framework, under EPAM proposed a model with hypothesis in context of specifically for the financial technology services. The research hypothesis & model and are exposed in above figure. The above model is basically comprising constructs i.e. information regarding "mobile fintech payment" services and "perceived security" disturbing behaviors and intention that contain of "confirmation", "perceived usefulness",

"satisfaction" and "continuous intention" to utilize services of Fintech. So research is basically objectify "perceived security" of financial service as a multidimensional element, in view of the fact that the element of enhancing security mechanism needs to be implanted in multiple coatings as well as device and networking. Regarding this inquiry and analysis, "perceived security" comes second in concept of order development that is formed of four first-order constructs, i.e. "service security", "platform security", "network security" and "device security".

This research is based on "ECT and PAM", suggest relationship amongst "knowledge, perceived security, confirmation, usefulness, satisfaction and continuous intention" to carry on long term mobile fintech service utilization. The post presuming model, like "ECT and PAM," discusses factors influencing consumers' desire to repurchase goods and services. This model, which describes consumer psychology, has been validated by numerous analysts and researchers of the world (Bhattacherjee, 2001; Dabolkar, 2000; Spreng, 1996; Swan, 1981).

Research Population

We have to conduct a survey in Pakistani university students and workforce members. As young generation have more information regarding technology and they are ready to adopt these technologies and familiar with financial technology. The sample size is of students in terms of general application, using students as research population has many of its advantages. Firstly, the students that are born between 1990 and 2000 are commonly known as Millennials and they are very much familiar with the technology and are digital consumers as they play more contribution to internet economy. They are also familiar with the old financial systems and their technicalities as well as with new and developed financial technology systems. The computation of each variables/construct is developed by using the items authentic from previous studies by (Bhattacherjee, 2001; Kim, 2012).

Research Paradigm

Action research, case studies, group discussion and surveys are some of the approaches by which data could be collected to respond to various research questions (Saunders et al., 2007). Description studies and exploratory studies usually are carried out using the instrument of surveys, that enables researcher to determine the direction and recommendation of its study. Both the quantitative and qualitative data can be collected via the medium of survey but it has also been found that sometimes survey fails to ascertain the required depth that can lead the researcher to the foundation of the issue they are supposed to observe (Saunders et al., 2007).

Conclusively a comprehensive perspective of the issue under consideration or investigation enables researcher to adopt a broad perspective, even if it means giving up some of their depth and sometimes not having access to the desired amount of data (Saunders et al., 2007). This study uses a quantitative research design, which involves analyzing and quantifying factors to provide the required results. It entails the use of numerical data and statistical techniques to analyze that data in order to answer questions like who, how much, etc. (Leedy & Ormrod, 2001; Williams, 2011). According to Aliaga and Gunderson (2002), who expand on this concept, quantitative research methods entail acquiring data in numerical form and evaluating it using mathematical techniques, particularly statistics, in order to explain a problem or phenomena. Descriptive statistics and PLS-SEM (Partial Least Square-Structure Equation Modeling) through SPSS and SMART-PLS, respectively, were used to evaluate the data as it was gathered through a questionnaire. As a result, this study uses a quantitative data analysis technique.

Measurement Items

The items validated from earlier studies were used to generate the measurement items for each construct. First, we modified the items reported by (Bhattacherjee, 2001) and then items are developed keeping in mind the continues intention of users to use fintech services (Kim, 2012). Secondly, the subjective perception of the user that the fintech services satisfy their expectations is referred to as confirmation as usage of fintech services. We alter the items that Bhattacherjee (2001) used to gauge consumer acceptance of financial services.

The efficacy and efficiency attained through the usage of fintech services were thirdly reflected by perceived usefulness. We alter the items used by (Bhattacherjee, 2001; Hur, 2017; Kim, 2012) to

assess the perceived value of fintech services. Fourth, customer happiness with mobile fintech services refers to user satisfaction with fintech services in general. To match the circumstances of this study, we modified the items used by Bhattacherjee (2001). It is crucial to comprehend understanding and security when using mobile fintech services, as was underlined previously. Knowledge of fintech services includes an understanding of their technology, operations, procedures, and guiding principles. We design measuring items to capture the knowledge of mobile fintech services based on Hur (2017) and Kim S. &. (2010). "To measure the security of mobile fintech services, we lastly divide security into service security, platform security, network security, and device security. While fintech service security relates to perceived security while utilizing financial services, platform security is the perceived security of a device platform for the use of internet services. Network security refers to the perceived security of the wired and wireless network for the use of fintech services, whilst device security refers to the perceived security of the device when using mobile fintech payment services. We alter the perceived security metrics used in (Hur, 2017) study on banking services with regard to four indicators of perceived security in fintech services. A five point Likert scale is used in this study's measurement. All items will be measured on a 5 item Likert scale ranging from strongly disagree to strongly agree.

Data Collection

We conducted survey in faculty and staff at universities as well as students. To validate the research model and hypothesis, 350 responses from individuals who had previously used fintech services were collected. Table 1. enumerates the traits of the survey participants.

Survey Method	Questionnaires	Frequency	Percentage
Paper-Survey	Distributed	640	
	Returned	440	68
	Not-Returned	200	32
Total Questionnaires Distributed		**640**	**100**
	Defective Response and Rejected	27	10
	Useable-Non -Defective	413	90
Total Questionnaires Received		**440**	**100**

Table 1 Summary of Response Rate

3.5 Data Analysis and Results

We used the Partial Least Square (PLS) method to analyze the data using the empirical data gathered for the study. The PLS approach has the benefit of drawing analytical findings from even a tiny sample of data (Chin, 1999). Utilizing the smart PLS 2.0 program, a measurement model analysis and the causal association between the study variables are carefully evaluated.

3.6 Data Screening

The degree to which the acquired data met psychometric assumptions was evaluated in order to support the use of PLS route modeling in this study. Because they can have an immediate impact on using the appropriate data analysis techniques, this included handling missing data, outliers, the normality of the data distribution, and common method bias.

RESULTS & DISCUSSIONS

PLS-SEM Approach

The SEM should be chosen for parameter evaluation (measurement model) and hypothesis testing, according to Chin (1998) and Rezaei (2015). (structural relationships). PLS-SEM has been widely employed in studies of consumer behavior (Henseler, 2010; Hair et al, 2011; Rezaei, 2015). PLS, for instance, is useful for describing complex relationships (Sarstedt, 2008). Additionally, PLS can manage a dataset with an aberrant data distribution (Vinzi et al., 2010). PLS is also helpful for enabling researchers to gauge path modeling heterogeneity. Chin (2010) and Henseler and Chin (2010) presented a two-stage method for doing SEM, in which the measurement model is evaluated first and then the structural relationship is analyzed (path analysis). PLS SEM was carried out by using the Smart PLS software

version 3.2.7 in this study. Figure 4.1 illustrates the details of the two-step PLS-SEM analysis process.

Measurement Analysis

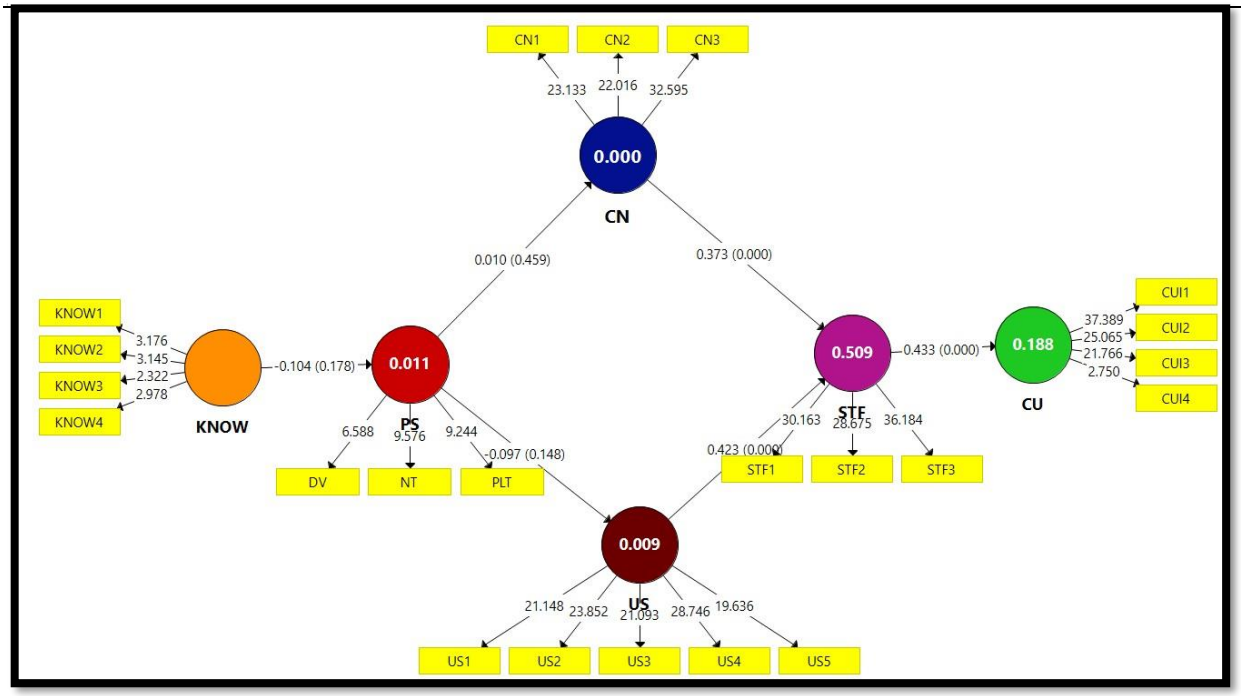
Through the content validity, reliability, and convergent validity of the measurement models, we evaluated the validity of the measurement model's suitability (Gefen, 2005). The study of the measuring variables' dependability came first. Cronbach's Alpha (CA) and Composite Reliability (CR) scores are used to analyze the reliability of measured variables (Fornell, 1981). When the CA or CR values are more than 0.7, social science research generally considers the variables to be dependable (Fornell, 1981). As shown in the table below, the CA and CR values for all variables, including confirmation, usefulness, satisfaction, continuous intention to use, knowledge, and security, exceed more than 0.7 and all AVE values are higher than 0.5. This criterion for reliability is known as the Average Variance Extraction (AVE) value. Consequently, it is believed that the constructs used in this study have adequate reliability and validity (Fornell, 1981 & Nunnally, 1994).

Additionally, factor analysis findings, comparisons of the square root values of AVE, and correlation coefficients are used to assess the discriminant validity and internal validity of research variables in the measurement model.

	Cronbach's Alpha	***Rho_A***	***Composite Reliability***	***Average Variance Extracted***
CN	0.780	0.781	0.872	0.695
CU	0.743	0.528	0.836	0.578
KNOW	0.793	0.938	0.858	0.604
PS	0.870	0.974	0.917	0.788
STF	0.800	0.803	0.882	0.714
US	0.865	0.867	0.902	0.649

DISCRIMINANT VALIDITY	***CN***	***CU***	***KNOW***	***PS***	***STF***	***US***
CN						
CU	0.705					
KNOW	0.518	0.589				
PS	0.054	0.083	0.105			
STF	0.795	0.530	0.425	0.079		
US	0.743	0.733	0.549	0.109	0.777	

COLLINERITY STATISTICS (VIF)	***CN***	***CU***	***KNOW***	***PS***	***STF***	***US***
CN					1.000	
CU						
KNOW				1.000		
PS	1.000					1.000
STF		1.000				
US					1.588	



R-SQUARE		
CN	0.000	-0.005
CU	0.188	0.183
PS	0.011	0.005
STF	0.509	0.504
US	0.009	0.004

F- SQUARE	CN	CU	KNOW	PS	STF
CN					0.178
CU					
KNOW				0.001	
PS	0.000				
STF		0.231			
US					0.229

Path Coefficients	Original	Sample Mean	S.D	T- Stats	P-Values
CN->STF	0.373	0.372	0.093	4.015	0.000
KNOW->PS	-0.104	-0.123	0.112	0.923	0.178
PS->CN	0.010	0.005	0.096	0.103	0.459
PS->US	-0.097	-0.101	0.093	1.043	0.148
STF->CU	0.433	0.445	0.083	5.228	0.000
US->STF	0.423	0.428	0.082	5.186	0.000

Assessment of Structural Model

Evaluation of the inner (structured) path model estimates is made possible by accurate and valid outer model estimations (Henseler et al., 2009). While Barclay, Higgins, and Thompson (1995) claim that this stage evaluates the statistical significance of the path loadings and path co-efficient between each construct, Hanlon (2001) claims that this compares the constructs within the model. Conversely, PLS researchers typically employ the bootstrap method to examine the association between variables (Gefen et al., 2000).Thus, in order to conduct this assessment, the degree of statistical significance and the amount of variance explained were assessed based on six criteria: I assessment of (i)collinearity; (ii) path coefficient (β) which indicates the strength of relationships between constructs; (iii) percentage of variance explained or R square (R2), which is commonly referred to as regression score; and (iv) evaluation of effect size f2.(v) Q2 effect size and predictive significance (see Figure 4.3).

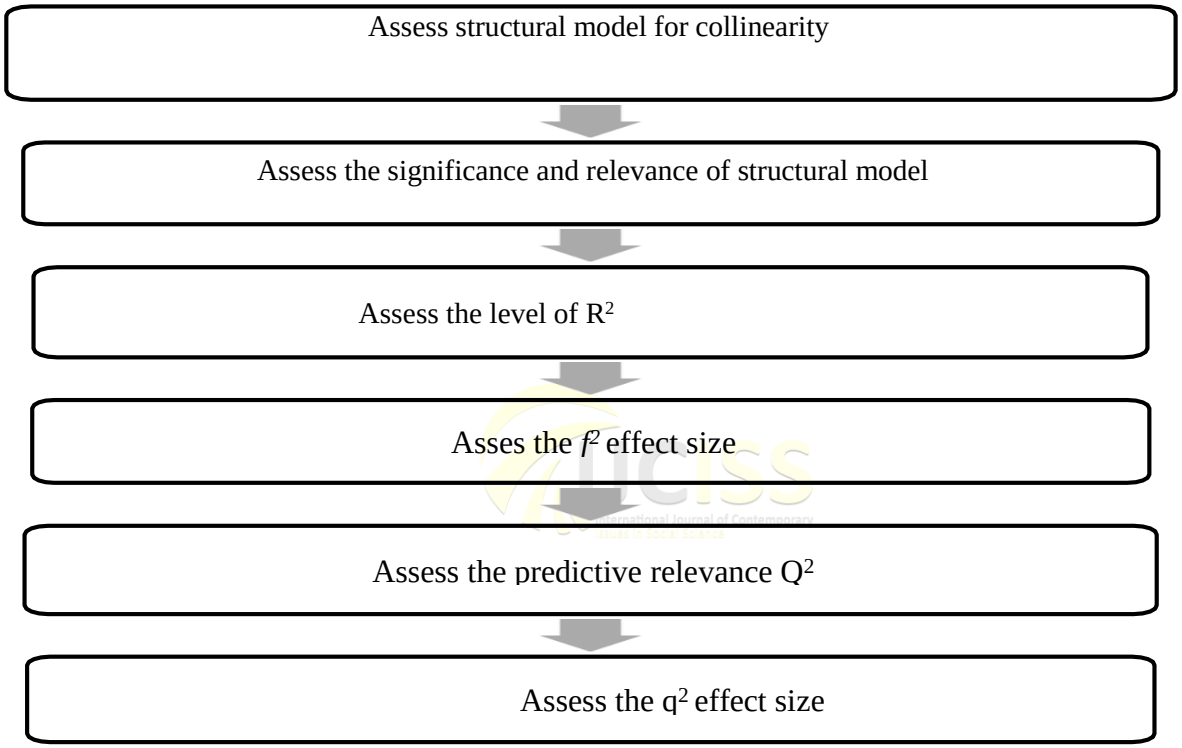


Figure Structural Model Assessment Procedure

Assessment of collinearity

Each endogenous latent variable's OLS regression on its related construct forms the basis of the PLS-SEM analysis. Therefore, it's critical to evaluate whether there is predictor collinearity. Estimates may be skewed due to the problem of predictor variable collinearity (Hair et al., 2017). Values of the variance inflation factor (VIF) are used to determine whether multicollinearity, which is produced by SmartPLS, is present. Petter et al. (2007) claim that a VIF value greater than 3.3 signs indicates considerable collinearity. The model's highest VIF value was 2.84, which was below the cutoff, as shown in the table. Therefore, collinearity among the predictors in the current model is not a problem.

	Int**ention**	Att**itude**	S**ubjective norm**	**Perceived behavioural control**
CN	2.840	-	-	-
CU	1.729	-	-	-
KNOW	2.846	2.611	-	-
PS	2.157	1.675	-	-
STF	-	-	1.944	-
US	-	-	-	1.795

Explanatory Power of Model

The coefficient of determination is used to measure the model's predictive power (R2). R2 Value is a measure of a model's ability to explain data or the sum of all exogenous factors' effects on endogenous variables. R2 has a value that runs from 0 to 1, with a greater value indicating more predicted accuracy. The acceptable value of R2 can be determined using a different general rule of thumb. The values of 0.26, 0.13, 0.02, 0.67, 0.33, 0.19, and 0.75, 0.50, 0.25 reported by Cohen (1988), Chin (1998), and Hair et al. (2017) indicate a significant, moderate, or weak level of predictive accuracy. R2 increases when a new explanatory variable is included, hence an adjusted R2 measure is employed to account for model complexity (Wherry, 1931). computed R2 values for the present study as shown in table below.

Table Endogenous Constructs and Related R2

No	Endogenous Construct	R2
1	CN	0.200
2	CU	0.614
3	PS	0.481
4	STF	0.509
5	US	0.109

For the present model, the R2 value for the confirmation was 0.00 effecting continuous intention to use fintech services. The R2 value for continuous Intention is 0.614, showing that antecedents satisfaction explains 61% variation in CU. Confirmation and usefulness explained 50% variation in satisfaction (STF). Knowledge indicates 48% variation in Percieved security (PS). The overall finding shows that (R2) value of the exogenous constructs are above 0.10 showing the model is parsimonious (Hanlon, 2001). The model showed a moderate level of predictive accuracy in continuous intention (CI).

Structure Model Analysis

Perceived service security, perceived device security, and perceived network security are produced as first-order variables in the structure model analysis while perceived security variables are constructed as second-order variables. Because the study's data set was rather small for the structural model's causality analysis, we chose the bootstrap PLS algorithm to estimate the structural path model, with a maximum iteration value of 1000. The methodology employed in this study's second-order variables analysis is (Gefen, 2005). Each first-order factor's relationship to the second-order factor is formative.

Regression Analysis/Hypothesis Testing:

H1: 'User's knowledge of fintech services" is positively related to their "perceived security of the services".

Result Interpretation:

as we can see the following table the result of this hypothesis reveals that Knowledge of Fintech services and perceived security doesn't have any significant relation ($\beta = -0.104, t = 0.923$, and $p = 0.178 > 0.05$. Hence, the hypothesis H1 is not supported.

H2a/b: "Users' perceived security protection" is positively associated with their "confirmation" (H2a), the "usefulness" (H2b).

Result Interpretation:

as we can see in the following table that thereis also insignificant relation of perceived security and confirmation as well as perceived security and usefulness ($\beta = 0.0010, t = 0.103$, and $p = 0.459 > 0.05$. Hence, the hypothesis H2a/b is also not supported.

H3: 'Users' confirmation" is positively associated with their "satisfaction with the services".

Result Interpretation:

as we can see in the table given below confirmation is positively associated with satisfaction. Their relation is significant ($\beta = 0.373, t = 4.015$, and $p = 0.000 < 0.05$. Hence, the hypothesis H3 is supported.

H4: "Usefulness" is positively associated with their "satisfaction".

Result Interpretation:

as we can see in the table that there is positive relation between usefulness and satisfaction (β = 0.423,t = 5.186 , and p = 0.000 < 0.05. Hence, the hypothesis H4 is supported.

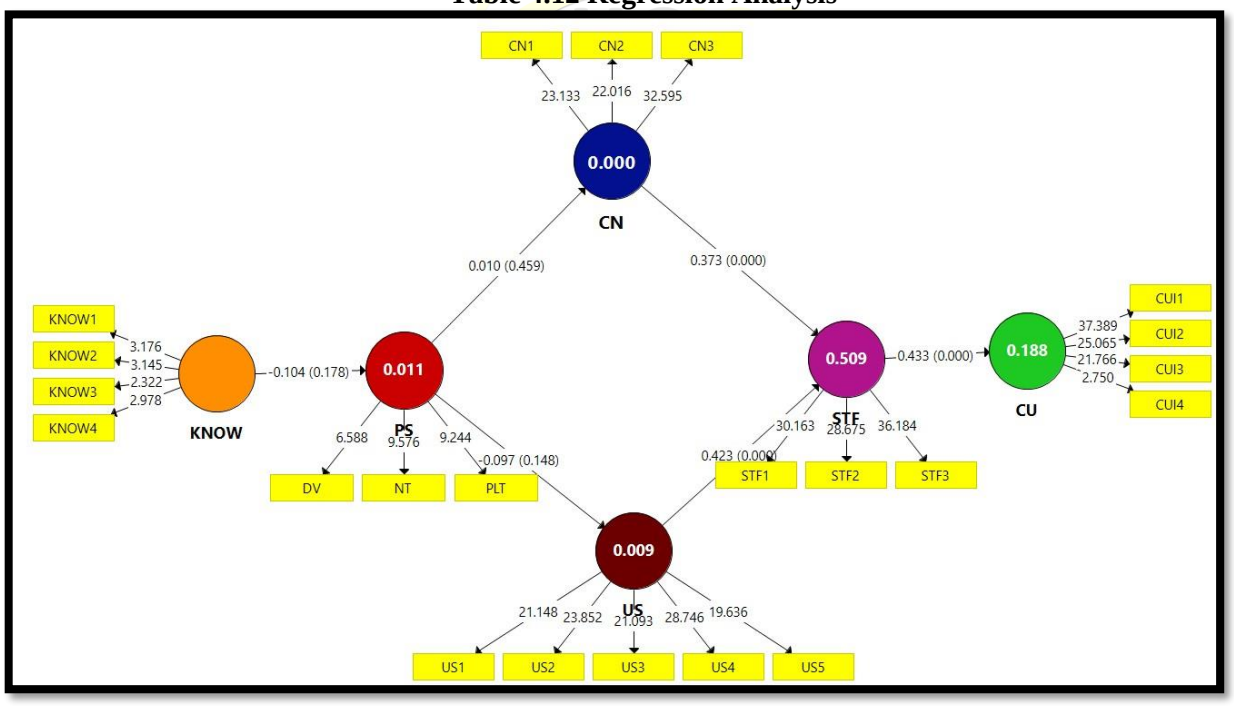
H5: "User's satisfaction" is positively associated with their "continuous intention to use the services".

Result Interpretation:

as we can see in table that there is positive relation between users' satisfaction and their continuous intention to use Fintech services (β = 0.433,t = 5.228 , and p = 0.000 < 0.05.

Constructs	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	PValues	Results
CN ->STF	0.373	0.372	0.093	4.015	0.0000	Supported
KNOW ->PS	-0.104	-0.123	0.112	0.923	0.178	Not Supported
PS -> CN	0.0010	0.005	0.096	0.103	0.459	Not Supported
PS -> US	-0.097	-0.0101	0.093	1.043	0.148	Not Supported
STF -> CU	0.433	0.445	0.083	5.228	0.000	Supported
US ->STF	0.423	0.428	0.082	5.186	0.000	Supported

Table 4.12 Regression Analysis



DISCUSSION & CONCLUSION

Discussion

We presented a research model using the (Bhattacherjee, 2001) post acceptance model as the theoretical foundation to investigate the function of perceived security in continuous intention to use the services, which is crucial for the development of the services. The study's findings firstly support

the idea that fintech services are regarded as being secure. The study's higher construct is effectively expressed by four first-order factors: service security, network security, platform security, and device security. In fintech services, we also uncover evidence supporting the relative significance of perceived service security, network security, device security, and platform security.

Second, knowledge of users as a predicate of perceived security of services has a large impact on users' perceptions of security, which in turn has a significant impact on how users develop their opinions about the services. Two key insights are provided by the results. Like other financial services, fintech services are subject to governmental authority approval and subsequent obtaining of a safe financial transaction certificate. Users' awareness that the service is secure and dependable is crucial for its spread because it is still relatively new. In order to improve client knowledge and understanding of the services, service providers must create marketing strategies.

Third, the results shows that perceived security does not affect the usefulness. Which means there is no such any significant relation among the perceived security and the usefulness of fintech services.

Finally, there is a strong correlation between customer happiness and continued intention to utilize fintech services. It implies that customers will adopt the ongoing use of these fintech services if they are completely satisfied.

Practical and Theoretical Implications

This study contributes in both theoretical and practical ways. A variety of fintech services have been launched recently and customers' perceptions of the services' security are crucial, there is little proof that security plays a significant role in the context of fintech services. Based on Hur and Lim's definition of system security in banking services, we defined consumers' perceptions of security of fintech services in this study as a new higher order construct made up of four first order constructs. (Hur, 2017). Empirical research is used to assess the first order construct's validity. We anticipate that future scholars may apply this higher order term to different scenarios.

Regarding its practical applications, this study's findings offer marketing and management insights on important element of safety and privacy protection in the fintech industry.

Users are very concerned about security because they regard their privacy and personal data alot. Users must acknowledge that the fintech services are safe and beneficial for their successful adoption as a part of online banking services. Fintech service providers must put emphasize on the security and privacy protection aspects of their services in their advertising to potential customers in order to make them feel secure. Additionally, from an organizational viewpoint, the security concerns associated with fintech services are fairly extensive. We advise leveraging the four first order factors—service, platform, network, and device security—to divide the security challenges into smaller, more manageable subgroups.

As like any other research study this study is also confronted with some research limitations and assumptions. We will first discuss the assumptions of this study. This study includes several research assumptions in which the first one is, that we assume every respondent of the research is considered to be truthful in answering every question in the questionnaire of the thesis and his behavior is considered to be unbiased but there remained a chance that respondents did the opposite (Krumpal, 2013); (Weigold, & Russel, 2013). Next assumption is about sample selected for study analysis. On the behalf of the sample selected for this study it is considered that all the respondents answered every single question with full honesty and have full knowledge about it, but unfortunately it is not the case because all the youth of Pakistan is not fully qualified but we assumed that they are supposed to be academically qualified but if not then at least they have a little bit of financial know-how for answering the questions of the questionnaire for study survey completion.

Limitations of study and Future Research

For future research, several limitations needs to be addressed. The study's sample is responsible for the first shortcoming. Although younger, better educated people comprise the majority of fintech service consumers, fintech services are currently available to a wide range of people, including students, the general public, professionals, and others. Therefore, it is prudent to generalize the study's findings to all fintech service customers. Future studies should undertake a study of different

fintech service users with a wide range of sample size.

Second, in attempting to explain continuous intention to use, this study did not consider diverse situational elements related to the services. For instance, certain aspects like perceived risk associated with fintech transactions, confidence in service providers, and others are not taken into account. Therefore, future research should consider various situational factors related to the services, service providers and transactions.

Finally, varied personal dispositions in relation to new information technologies (Kim S. &., 2010) include people that have a strong desire for new technologies like fintech technology and are therefore more likely to readily accept this technology. The tendency of end users to continually utilize the services is uncontrolled, despite the fact that research offered a thorough model on the continuing desire to use fintech services. Personal traits should be taken into account in future studies to examine individual differences.

Declarations:

Competing interests :

The authors declare that they have no competing interests.

Authors' contributions

This paper is a part of assignment in MS subject . All authors have equal contribution in this article.

Availability of Data and Materials:

The data and material can be requested from the corresponding author on the following email: abilalsiddique.buic@bahria.edu.pk

Funding:

No external or internal funding is used in publication of this article.

Acknowledgement:

The authors are thankful to the Bahria University, Islamabad for providing this opportunity for publishing of this article.

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QUESTIONNAIRE

An Empirical Study of the Impacts of Perceived Security and Knowledge on Continuous Intention to Use mobile Fintech Payment Services

Note: Please identify the importance of the following factors on a scale of 1 to 5.

5 = Strongly Agree
4 = Agree
3 = Neutral
2 = Disagree
1 = Strongly Disagree

Ser	Continuous Intention	5	4	3	2	1
1	I will continuously use the mobile fintech services (Bhattacherjee, 2001) (Kim, 2012).					
2	My intention is to continue use the mobile fintech service rather than find any alternative means (e.g., traditional payment services) (Bhattacherjee, 2001).					
3	I would like to use the mobile fintech service in the near future					
4	If possible, I would rather not to use the mobile fintech services.					

Ser	Confirmation	5	4	3	2	1
1	My experience with the mobile fintech services was better than what I expected (Bhattacherjee, 2001).					
2	. The service level provided by the mobile fintech service was better than what I expected.					
3	Overall, most of my expectations about the mobile fintech service were confirmed.					

Ser	Satisfaction	5	4	3	2	1
1	Overall, I am satisfied with the mobile fintech services (Bhattacherjee, 2001).					
2	Using the mobile fintech service gives me satisfaction in financial transactions.					
3	Using the mobile fintech service makes financial transactions more convenient					

Ser	Perceived Usefulness	5	4	3	2	1
1	The mobile fintech payment service provide real-life convenience in various personal finances (Bhattacherjee, 2001) (Hur, 2017).					
2	The mobile fintech service are useful in real life management of personal finances.					
3	In general, the mobile fintech service provide convenience in various personal financial fields					
4	In general, the mobile fintech service are accurate in managing personal finances.					
5	In general, the mobile fintech service are fast in managing personal finances.					

Ser	Perceived Service Security	5	4	3	2	1
1	Payment service security is guaranteed in the use of mobile fintech service (Hur, 2017) (Lee, 2016).					
2	When I use mobile fintech service, the payment transaction process is secure.					
3	When I use the mobile fintech service, the user authentication method is secure.					
4	In using the mobile fintech service, the financial the financial transaction authentication method is safe.					
5	The members of the team feel proud to be part of the team					

Ser	Platform	5	4	3	2	1
1	In using the mobile fintech service, the platform is secure (Hur, 2017).					
2	When I use mobile fintech service, the operating system is safe.					
3	As I use the mobile fintech service, the platform is being maintained and repaired periodically.					

Ser	Network	5	4	3	2	1
1	Wired and wireless network are safe in the mobile fintech services (Hur, 2017) (Lee, 2016).					
2	There is no communication problem when using the mobile fintech service.					
3	As I use the mobile fintech service, I will get an immediate response when a network failure occurs.					

Ser	Device	5	4	3	2	1
1	Devices for the mobile fintech are secure (Hur, 2017) (Lee, 2016).					
2	Devices provide sufficient performance in financial transaction support for the use of the mobile fintech services.					
3	The devices used in mobile fintech service were supplied by a trusted vendor certified by a specialized vendor.					

Ser	Knowledge	5	4	3	2	1
1	I have sufficient knowledge to use the mobile fintech service					
2	I have sufficient knowledge to handle any problems that may arise during the use of the mobile fintech service.					
3	I have sufficient knowledge to process a mobile fintech transaction.					
4	I am well informed about how to deal with problems caused by using the mobile fintech services. (Kim, 2012).					