Performance, Time, and Financial Risks in Internet Banking Adoption: A Case of Emerging Economy

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Abstract: The aim of the current study is to measure the perceived performance, time, and financial risks of Internet Banking (IB) Adoption in emerging economy of Pakistan. Data were collected from 500 internet banking users through a structured questionnaire about the resistance people face in IB adoption. This study utilized the structural equation modeling technique to examine the relationship between exogenous and endogenous variables. A path analysis technique used to examine the impact of performance, time, financial risks on internet banking adoption. Reliability analysis showed that the Cronbach's alpha values for all the variables were lying within the acceptance range. Results of the study show that all variables retain significant negative relation with the IB adoption. Further, the results also revealed that end-users move away from the adoption of IB as they assume that minor mistakes could lead to major losses while operating the new IB system.

Keywords: Internet Banking, Adoption, Financial Risk, Pakistan

Introduction

Internet banking (IB) is defined as the utilization of internet as a channel of delivery for banking industry, which includes prevailing services such as fund transfer, balance enquiry, printing services and new services as electronic bill payment as well as presentment without go to banks (Frust, Lang, &

Nolle, 2000; Chan2004).The intensive growth and popularity of the internet open new rooms of opportunities and threats to organizations in varying sectors, as it alters the way firms operate traditionally and emphasis them to mold delivery of their products and services through the internet as a distribution channel (Mukherjee & Nath 2003). Researchers have endorsed the significance of the internet for financial institutions more than other sectors (Tan & Teo, 2000; Chau & Lai, 2003).

The core of internet banking includes cost repression by lessening operating costs, revenue evolution through value addition and non-financial services, performance enhancement through making services accessible all the time, and end-users convenience through modified service (Martins et al., 2014). On the other hand, internet banking employs a convenient approach for customers to manage their finances from anywhere (Amit, 2013). Recent years show significant growth of IB users across the world. However, the number of transactions carried out through internet banking remains low (Roy & Sekhon 2016). It is articulated that end-users either do not embrace internet banking or do not utilize it continually after adoption.

Perceived risk theory can be described as less trust in a product or service with its potential disadvantages which may impact the purchase of this product (Littler et al., 2006). By utilizing this theory, different researchers have described perceived risk theory as an amalgamation of numerous extents. These extents embrace social, physical, performance, security, financial, psychological, and privacy risks (Jacoby & Kaplan, 1972; Kaplan, Szybillo, & Jacoby, 1974; Roselius, 1971). Perceived-risk theory was utilized as a basic notion in this study.

According to the payment system review report, published in March of the fiscal year, 2020 by State Bank of Pakistan (SBP) registered internet banking users are up from 1.8 to 3.8 million in 2015-2020 third quarter with a growth of 47.4% (SBP, 2020). Although this increase in internet banking users is lower than other Asian economies, (Bashir & Madhavaiah 2015). Besides this, Pakistan yet retains the potential to increase its number in a couple of years.

It is recommended that financial institutions, particularly banks need to survey customers' demand on usual basis to comply with factors that retaliate end-users toward internet banking adoption (Podder 2005). Previously, academic literatures have highlighted several factors such as trust, satisfaction, innovation, and security, customer loyalty, brand image, website design, etc. parallel to internet adoption studies. (Raza and Hanif, 2013; Rahi et al. 2019). However, no one yet conclusively draws a pattern on IB adoption in the case of Pakistan. Therefore, this study was proposed to measure the significant effect of performance, financial and time, risks on the internet banking adoption in Pakistan.

Literature

<u>Background of Internet Banking</u>

The role of the internet is important for organization across the world, as it is providing the capacity to access, communicate and organize information in a more efficient way, that developing the relationship between consumers and firms. (Masoud, 2013). Currently, companies prefer to adopt entrepreneurial feature aligned with internet technology. Online banking system involves the electronic dissemination of numerous banking products and services to their customers which consist of ATM transfers, mobile banking, electronic account opening and bank exchanges. (Burnham,1996;Liao et al., 1999; Duclaux, 1996). Arthur (2000) highlighted that internet banking directly aligned with customer loyalty, endorsed by (Currie, 1999; Lam & Burton, 2005). The development in the field of e-commerce provided platform to its stakeholders to gain competitive edge and achieve high market share (Crespo, Del

Bosque, & de los Salmones Sánchez, 2009). It is the fact that with advancement of technology, its benefits and challenges are increasing parallel, there is a dire need to overcome them to gain benefits at best level.

<u>Theories of Internet Banking Adoption</u>

Internet banking adoption have studies in three groups which are descriptive, comparative, and relational. Research reveals that key heads of the internet banking adoption are descriptive and relational. Sathye (1999) conducted study on internet banking adoption in Australia considered as pioneer, revealed that the absence of consciousness in relation to internet banking adoption and unreasonable prices, and security concerns are main elements for non-adoption of internet banking.

Technology Acceptance Model (TAM) focus on new technology adoption and backed by theory of Reasoned Action that pays attention to the intentions and attitudes of customers (Davis, Bagozzi, & Warshaw, 1989). TAM based on two fundamental believes that are perceived ease of use and usefulness. The focus of perceived ease of use is on the degree which is expected by the users to have the target system which allows them to be free of effort. It can be said that consumers are likely to be willing to accept internet technology if they are easy with its use and it is also reducing their effort for doing a particular task. Perceived usefulness has its focus on user's subjective probability which is using the specific system to increase the performance of the users in a particular activity. This notion of TAM has been interpreted as use of computer innovation is determined by behavior intention (Ariff, Sylvester, Zakuan, Ismail, & Ali, 2014; Hassan, Kunz, Pearson, & Mohamed, 2006).

There are two direct determinants of intentions of consumers: perceived usefulness and attitude toward a particular technology. Perceived usefulness has an impact on the consumer attitude. On the other side, attitude toward a particular technology leads to follow beliefs and values while adopting the technology. This attitude may be positive or negative and it may have its distinct basis and factors which are likely to affect it and make potential changes in these intentions as well. On contrary, studies indicate that there could not have been always the role of intentions, beliefs, and attitudes to shape the behavior toward the acceptance of technology (Aldás-Manzano, Lassala-Navarré, Ruiz-Mafé, & Sanz-Blas, 2009). Consumer perceived risk is recognized as the variable to be formed from two factors including importance attributed toward potential losses, and probability of loss for some consequences (San Martín &Camarero, 2009). Later, in context of e-commerce studies support TAM (Zheng, Favier, Huang, & Coat, 2012). Consumer perceived risk in e-commerce has its negative impact on consumer shopping behavior on the internet, attitude toward usage behavior, intention to adopt online shopping, and perceived usefulness of the target system. After wards, it is identified that some other risks also have impact on the internet adoption like time, social, performance, economic and psychological risks (Li & Huang, 2009; Yang, Pang, Liu, Yen, & Tarn, 2015). The negative influence of the perceived risk (economic, performance, and financial factors) on e-commerce adoption has been reported (Crespo et al., 2009). The usefulness of internet technology can shape good consumer behavior. The level of experience to use technology is likely to shape the consumer adoption behavior regarding e-commerce (Chang & Tseng, 2013). Experienced users of technology are likely to be encouraged to use e-commerce solutions with a low level of marketing effort. Electronic customer relationship management refers to the comprehensive marketing strategy which is obliged to involve the integration of process, technology and business activities around the consumers which may be offered by companies on their sites (Wu & Ke, 2015). Consumer satisfaction plays a crucial role to shape positive behavior among the customers to move toward internet technology adoption. Online customers are expected to be more concerned with the received quality in return for the price paid and time of delivery (Wang, Wang, & Dong, 2010). It

has been reported that E-CRM is obliged to develop a good level of mechanism for forming active and passive relationships with customers. The role of ECRM is primary to develop a good level of attitude among the customers to adopt internet technology. (Samadi & Yaghoob-Nejadi, 2009; Sims & Xu, 2012). It can be argued that when there will be potential adoption of the internet technology then there will be high chances of getting control over the potential outcomes. All the areas are likely to be managed systematically via making a connection over the internet technology. Howcroft, Hamilton, and, Hewer, (2002) identified factors, encourage internet banking adoption with significance of time, lower fees, quality services. Other factors which are discussed in the literature are user experience, accuracy, transaction rapidity, customer friendliness, customer convenience and involvement (Liao & Cheung, 2002), privacy and bank trustworthiness (Akinci, Aksoy, & Atilgan, 2004). Gerrard, Cunningham, and, Devlin, (2006) conducted content analysis to examine the non-adoption of internet banking in Singapore and identified pricing concerns, risk, technology fatigue, less information about service offered, unreachability, less observed need, inertia and lack of "human touch" are key elements to non-internet banking adoption.

Perceived Risk Theory describes that consumer behavior as risk decreasing and risk increasing behavior technique (Roselius, 1971). In this regard, Kim, Ferrin, and Rao, (2008) defined the customers belief and action with a probability for a product having opposing consequence and output in electronic and online purchasing. By utilizing this theory, different researchers have described perceived risk theory as an amalgamation of numerous extents. These extents embrace performance, time, security, financial, and privacy risks (Jacoby & Kaplan, 1972; Kaplan, Szybillo, & Jacoby, 1974; Roselius, 1971). Later, Hanafizadeh and Khedmatgozar, (2012) described the key aspect which differentiates it from other models. Like previous theories just discuss the positive aspects that support the adoption of the internet banking, while this model particularly describes the negative aspects. Martins, Oliveira, and Popovič, (2014) designed a model which combined two theories named "Unified theory of acceptance" and "Use of technology," also described as (UTAUT). It is combined with the perceived risk phenomenon for explaining usage behavior and behavior intention of the internet banking adoption. Further, Fadare, (2015) investigated the perceived risk intention to utilize internet banking adoption and concluded that time risk, performance risk, and financial risk negatively impact intention of utilizing internet banking facilities. Lee (2009) found that performance, time, and financial risks have negative impact on IB adoption. In the same light Rawashdeh (2015) argued performace, time, privacy and financial risks impact the internet banking adoption. Luo et al., (2010) highlighted that extrinic factors i.e., performance, time and financial risks negatively affects the customers intention towards IB adoption. Later, Roy & Sekhon, (2017) endorsed results of Lee, (2009); Luo et al., (2010); Martins, Oliveira, et al., (2014); Rawashdeh, (2015); Yang et al., (2015).

Further, Khedmatgozar and Shahnazi, (2018) examined factors influencing the corporate internet banking adoption (CIB) concerning perceived-risk theory. The hypothesis of the study was analyzed by utilizing (CFA) "confirmatory factor analysis." There was a significant association found between all risks taken in the study with CIB. The main elements reducing the intention to adopt internet banking services involve financial, performance, and time risks. By keeping an eye, on the literature, current study has followed the Perceived-Risk Theory.

In context of Pakistan previous literature heighted the major factors to analyze internet banking adoption in Pakistan like according to Raza and Hanif, (2013) perceived ease of use, government support, and intention to use security and trust later, Raza et al., (2015) trust and quality of transactions as major influencing factors , further, Rahi et al., (2017) assurance as the most influencing factor. Rahi

et al., (2019) advocated customer loyalty, brand image, website design, and customer service as significant factors for IB adoption. Their results significantly contributed to the banking literature however, no one yet conclusively draws a pattern on IB adoption in the case of Pakistan. This notion grasps our attention to investigate the effect of performance, financial, and time risks on the internet banking adoption in Pakistan, and we conceptualized that performance risk, time risk, financial risk, negatively impact internet banking adoption.

H1: Performance risk has a negative impact on internet banking adoption

H2: Financial risk has a negative impact on internet banking adoption

H3: Time risk has a negative impact on internet banking adoption

Methodology

The current study is quantitative and explanatory in nature. Data is collected from both internet banking users and non-users to examine an insight of behavior toward IB adoption. To investigate the significant relationship among variables we have conducted a self-administered questionnaire adapted from (Aydın, 2014; Khedmatgozar, & Shahnazi, 2018; Roy, et al., 2017).The questionnaire consisted of the demographic and variable values of the study. A five-point Likert scale was used to collect the data and the scale is ranging from "strongly disagree=1" to "strongly agree=5" Total of 44 items are used to measure all variables.500 self-administered questionnaires were delivered in person and through mail to collect the data.

The target population of the study consisted of cities of Punjab Province namely, Okara, Sahiwal, and Pak Pattan. A total of 500 internet banking user were selected for the study through convenience sampling method. Raosoft Inc calculator is used to selecting the sample size at the 95% level of confidence and keeping the 5% error margin we choose the minimum 377* sample size as supported by (see for instance Raosoft.Inc, 2004; Rao & Rao, 2009). Although 377 respondents are enough for identification of phenomenon as advocated by Rao and Rao, but current research selected 500 internet banking users. For pilot testing 55 questionnaires were delivered only 51 questionnaires were received for pilot testing.

Structural equation modeling technique was usedto examine the relationship between exogenous and endogenous variables.SEM is based on two assumptions (Ferdinand, 2006). First, SEM must fulfill the need to test the research model. Most importantly, it deals with the normality of data. To check normality in data values to Kurtosis and skewness are checked, the values of Kurtosis and skewness lie between -2 to +2 and -1 to +1, respectively (Santos, 2007). The second assumption of SEM is multicollinearity. For this, the Variance inflation factor is analyzed if it is conclusively more than 4. It predicts that variables have a relationship (Douglous, et al., 2011).A two-step procedure is assumed in SEM to run path analysis. First, confirmatory factor analysis (CFA) is run to examine all study variables concurrently in the model. Thus, there is no differentiation among CFA variables, i.e., dependent, independent, mediator, and moderator, because study suppose that all variables are interconnected (Hair & Black, 1998). Furthermore, CFA is directed in the measurement model to analyze the correlation among unobserved, observed, and construct latent variables, but SEM also examines association among latent variables only (Byrne, 2010). Torun preliminary data analysis, reliability test and path analysis technique were used to examine the impact of performance, time, and financial risks on internet banking adoption. The sampling technique's appropriateness was tested through Kaiser-Meyer-Olkin (KMO) and Bartlett's test was used for Elementary Factor Analysis (EFA) as followed by Mukherjee & Nath (2003).

Fitness indices as GFI, SRMR, and AGFI were used to analyze the model's fitness hypothecated in the study and concluded that our results for these indices our model is good as supported in (Hair, et al., 2006b).

Results

Response Rate

The target population of this study was male and female, students, teachers, employed, unemployed bankers, and non-bankers, and so on from Sahiwal, Okara, and Pakpattan of Punjab, Pakistan. Total 500 questionnaires were distributed through person-administrated and via web survey 484 (96.8%) questionnaires were received in which 477 were filled and 7 were incomplete.

Demographic Characteristics

Data was gathered by using questionnaires on the independent and dependent variables. Respondents were of different age groups, there were 26 respondents of 40 and above, 200 respondents were from the 28-37 age group while 197 lies between 18-27 age group, and 54 were from the 38-47 age group.

The study sample consists of 477 respondents who retains varying qualification i.e. 11 of them hold metric or under metric qualification, twenty-five of them hold an intermediate degree and 132 of them were undergraduate. Interestingly, 64.65% of sample retains master and higher degrees and it is quite influential that these respondent faces sever risks from adopting internet banking.

Table 1. Demographic Analysis

Demographics	Frequency	Percentage (%)
Age		
18-27	197	41.3
28-37	200	42.1
38-47	54	11.3
47 and above	26	5.3
Qualification		
Matric or lower	11	2.2
Intermediate	**25**	5.3
Bachelor	132	22.5
Masters	305	63.9
Higher Education (PHD)	4	0.75
Occupation		
Student	35	7.5
Employed	373	78.2
Unemployed	8	1.5
Retired	0	0.0
Self-employee (Business)	61	12.8
Gender		
Male	408	85.7
Female	69	14.3
Income Status		
15000-30000	104	21.8
31000-45000	122	25.6
46000-60000	136	28.6
61000-75000	40	8.2
76000 and above	75	15.8
Total	477	100

It is noted that most respondents earn up to 60000 and just 75 of 477 earn more than 76000 a month. To minimize gender bias author included both male and female respondents. However, 85% of them were male and the rest of the sample consisted of female respondents from different classes and education as well as income levels.

Interestingly, about 86% of study's respondents are having bachelor's and master's degrees and about 53% earn from 31-60000. It is revealed that educated people are well known of the risk associated with internet banking. As per previous literature, it could be assumed that either most of them are yet not connected with the IB or are not usual users of IB. Further, it exposes the way stakeholders portray IB adoption. On contrary to this, demographics reveal that 76% of respondents just earn to meet their basic desires as their income level remains at 60,000.

Reliability Analysis

Our results show significant values of alpha as both endogenous and exogenous variables have values more than 0.70. Reliability analysis showed that the Cronbach's alpha values for all the variables were lying within the acceptance range i.e. .704 to .811 (Table 2A).

Table 2A. Reliability Analysis

Sr. no	Variables	Cronbach's alpha (α)
1	Internet Banking adoption	0.864
2	Performance Risk	0.852
3	Time Risk	0.709
4	Financial Risk	0.838

Multicollinearity Analysis

The variance inflation factor (VIF) explains the fluctuation in regression variance by retaining R^2 zero. VIF is normally used to meet the basic assumptions of data normality. This test reveals the multicollinearity issues among independent variables. The study reveals that all variables have VIF values less than 4 (table 2B). Therefore, it is argued that over data is normally distributed and there is no multi-issue in the dataset (Gujarati, 2009).

Table 2B. Variance Inflation Factor

Sr. No.	Variables	Tolerance	VIF
1	Performance Risk	.794	1.259
3	Financial Risk	.881	1.136
4	Time Risk	.752	1.329

CFA (Confirmatory Factor Analysis)

Analysis of Confirmatory Factor Analysis (CFA) reveals that the items used to measure the latent variables are good indicators for the constructs. CFA was performed to calculate the validity of the scale. Convergent and discriminant validity of all unobserved variables have been computed.

Table 3. Confirmatory Factor Analysis

Variable Name	Measures	Factor Loading	AVE	√AVE
Internet Banking Adoption	IBA1	.877	0.6208	0.7841
	IBA2	.770		
	IBA3	.778		
Performacne Risk	AF1	.846	0.6429	0.8042
	AF2	.817		
	AF3	.815		
	AF4	.818		
	AF5	.812		
	AF6	.748		
	AF7	.742		
Financial Risk	FR1	.875	0.6701	0.8016
	FR2	.761		
	FR3	.745		
	FR4	.771		
Time Risk	TR1	.908	0.6526	0.7931
	TR2	.571		
	TR3	.534		

Model Fit Indices

To evaluate the model fitness is a very difficult task in SEM because this fit is connected with the model of study, its empirical data, and method to analyze the estimates, model fit indices are developed after a long period of study (Caster, 2009). According to Jaccard and Wan (1996) different indices values are analyzed to check the model fitness.

Table 4. Model Fit

Model Indices	Recommended	Obtained
CFI	> .95	.99
CMIN/df	< 3	1.372
GFI	> .95	.970
IFI	> .95	.957
NFI	> .95	.962
RMR	< 0.10	.003
RMSEA	< .10	.058

Path Analysis

Results of the study show that the variables retain significant negative relation with the IB adoption while one of five rejected to support the proposed variable. Particularly, privacy risk has a negative impact on IB adoption as the β coefficient is -0.212 and lies in the critical region of -4.119 with a p-value of 0.00. It is revealed that customers do not avoid banking adoption as they perceive that IB adoption is good in performance and time management and no financial risk involved in IB adoption. Further, study results endorse perceived risk theory see for instance (Khedmatgozar, & Shahnazi, 2018; Roy, et al., 2017).

Table 5. Path analysis results with coefficient and their associated p-values.

			Estimate	S.E.	C.R.	P	Supported
IBA	<⋯	AF	-.321	.059	-5.433	***	Accepted
IBA	<⋯	FR	-.267	.083	-3.221	***	Accepted
IBA	<⋯	TR	-.335	.101	-3.303	***	Accepted

Secondly, end-users move away from the adoption of IB as they assume that minor mistakes could lead to major losses while operating the new IB system. Time risk has shown a higher β coefficient as -0.335 with 0.101 as standard error and significant p-value. IB users avoid opting for the new system as many of the respondents reveal that they have no time to understand the new operating system. While answering the questions, they responded that the new IB system may need more time to understand as it is quite difficult from paper as well as other modes of banking. Further, they reveal that in case of any hurdle, misconception, an issue they need much time to understand and resolve. It is acceptance of our hypothecated objective as time risk restricts customers from the adoption of the new internet banking system. These results are also supported through an extensively discussed theory of perceived risk as well technology acceptance model (TAM) which is advocated as adoption of the theory of reasoned action (TRA) (see, for instance, Bashir, & Madhavaiah, 2015).

While responding to financial risk, they reveal that we do not adopt IB as it can create a loss of amount due to entrance of wrong account number, transaction error, and hacking of accounts. This may serve to severe loss to their low incomes. These results are also supported by both prevailing literatures as well as the theory of PRT see for example (Moradi, Ghomian, & Sarjanian, 2012; Alam, Musa, & Hassan, 2009).

Finally, answering to performance risk it was argued that due to technological advancement, unique products, and trust it is difficult to adopt IB. It is also revealed that lack of trust in transaction patterns rigid their behavior toward IB adoption. Results of the study reveal that these risks demoralize non-users and thus, users restrict themselves from IB adoption.

Overall, these results are an indication of a significant relationship between internet banking adoption and predictor variables. The structural model also provides a correlation between predictor variables. It is presented that no predictor variable has a correlation coefficient of more than 0.60.

Discussion and Conclusion

This study investigates the impact of performance, privacy, social, time, and financial risk on internet banking adoption. Internet banking is considered a modified mode of banking channel that reduces cost and makes it efficient for both individuals and businesses. IB adoption gains significant popularity in both academic as well as banking markets.

This study is deductive, and we have utilized the structural equation modeling technique to analyze the relationship between predictor and dependent variables. Our results reveal that all data sets are normally distributed as skewness and kurtosis values meet the threshold of ± 1 and ± 2, respectively.

Results of the study revealed that coefficient values are less than 0.6 that depicts no issue of autocorrelation among predictor variables. The p-value shows the significant relationship among predictor as well as dependent variables. Further, performance risk, financial risk, time risk, privacy risk has a negative relationship with the internet banking adoption as supported by Khedmatgozar, &Shahnazi, (2018). While social risk is insignificant to the IB adoption.

To analyze the reliability and validity of the data, we run factor analysis, i.e., CFA and EFA. To perform the EFA, we run KMO and Bartlett's test, and the results revealed a .782 KMO value above the threshold of 0.50 for KMO. Bartlett's value was also significant, with a p-value of 0.000. EFA eigenvalues were found greater than 1, and the percentage of variance remained more than 60%. Further, the value of Cronbach's alpha meets the threshold of 0.7, as suggested in the academic literature.

The research revealed that end-users move away from the adoption of IB as they assume that minor mistakes could lead to major losses while operating the new IB system. Time risk has shown a higher β coefficient as -0.335 with 0.101 as standard error and significant p-value. Time is the key factor in banking adoption patterns. While answering the questions, they responded that the new IB system might need more time to understand as it is quite difficult from paper and other banking modes. Further, they reveal that in case of any hurdle, misconception, issue, they need much time to understand and resolve it. Furthermore, the time factor retains a positive association as the β coefficient of time risk is 0.22 and has a 0.038 standard error of the estimate. TR lies in the critical region and has a significant p-value at 90% of the confidence interval. Accepting our hypothecated objective as time risk restricts customers from adopting a new internet banking system. These results are also supported through an extensively discussed theory of perceived risk as well technology acceptance model (TAM), which is advocated as adoption of the theory of reasoned action (TRA) see for instance (Bashir, & Madhavaiah, 2015).

Results of the study reveal that data is normally distributed, and there is no outlier in the data. Conclusively, privacy, financial, performance, and time risks reveal negative significant relation with internet banking adoption as supported by the literature.

In this study, the author examined that financial, and time are the major risks, that resist customers to opt internet banking system. In this regard, researcher recommends that the banking sector draw their attention toward a five-point policy, i.e., "SAISR."

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