

PERCEIVED RISK DIMENSIONS & ITS IMPACT ON INTENTION TO USE E-BANKING SERVICES: A CONCEPTUAL STUDY

Sangeeta Arora*, Simarpreet Kaur**

Abstract *E-Banking has emerged as a channel to provide banking services to customers electronically via banks' websites. Although e-banking services have gained a lot of attention due to its enormous advantages, many consumers are still not willing to use them because of the risk involved in conducting transactions online, hidden charges, lack of trust and system failure. There is a plethora of research conducted on the positive utility gains attributable to e-banking adoption or usage but the measures of potential negative utility (perceived risk) have been ignored. In the present study, the diverse literature available worldwide on perceived risk factors in e-banking has been explored by using interpretative approach, viz. objectives, research methodology, sample, respondents and the results of the study for further enquiry. This study builds up a strong conceptual framework for the researchers by thoroughly analyzing the empirical studies on perceived risk in different countries. The current research adds value to the existing literature and also leads to discussion addressing further areas for open debate and research. Our approach has meaningful implications for managing risk in the e-banking sector. The banks should put more emphasis on implementing e-banking risk management practices in order to increase usage of e-banking services among consumers.*

Keywords: *Perceived Risk, E-Banking, Security Risk, Intention to Use*

INTRODUCTION

In today's era of digitization push by the government of India, role of internet has increased significantly in the changing banking scenario. It has provided an electronic platform for banking transactions through which various services like online payment, online fund transfer, online stock trading and online shopping has become possible (Chohan, 2015). According to Basle Committee Report on Banking Supervision (1998), "E-Banking refers to the provision of retail and small value banking products and services through electronic channels". It involves providing facilities such as accessing accounts, funds transfer, electronic bill payment, enabling integrated sales of additional process and access to other financial services such as investment and insurance (Dhananjay & Chandra, 2015). In electronic banking, information is available in digital format. Farzianpour et al (2014) define e-banking as a tool for performing banking operations through centralized computer systems and networks which are not limited in time and space. It is a system which delivers banking services directly to the customers that can be used with different electronic devices such as personal computer, mobile phone with a browser or desktop software (Choudhry & Chouhan, 2015). That's why, some authors use the following terms interchangeably when

referring to electronic banking, PC banking, internet banking, mobile banking, online banking and virtual banking.

THEORETICAL FRAMEWORK

The concept of E-Banking in India:

In India, E-Banking emerged in mid-nineties as newly introduced private sector banks came up with a new business model revolving around a strong information technology (IT) backbone. E-Banking in India was initiated by ICICI bank, a private bank, in 1996. 1996 to 1998 marked the adoption phase, while usage increased only in 1999, owing to lower Internet Service Provider (ISP) online charges, increased PC penetration and a tech-friendly atmosphere (Jindal, 2015). Recent development shows that most of brick and mortar banks have evolved themselves by shifting their focus towards up gradation of their own new e-banking capabilities. And internet banking services are progressively turning as "need to have" rather than "nice to have" (Kesharwani, 2012). Indian Banks offer to their customers various e-banking products and services like ATM, Debit Cards, Credit Cards, Electronic fund transfer (EFT), E-cheques etc. During the previous few years, e-banking has made a remarkable growth in India. Table 1 exhibits a

* Professor, Department of Commerce, Guru Nanak Dev University, Amritsar, Punjab, India.

** Research Scholar, Department of Commerce, Guru Nanak Dev University, Amritsar, Punjab, India.
Email: ksimarpreet38@gmail.com

few facts and figures related to ATM, POS (Point of sale) and electronic cards (credit and debit cards) deployed and issued by the commercial banks in India as on March 2017. According to it currently 208354 ATMs, 2529141 Point of sale devices, 29.84 million credit cards and 854.87 million

debit cards are working in India and it also shows the growth rate of these banking channels in five years (i.e. from 2012 to 2017) and it seems to be great in the Indian context. Table 2 shows the growth rate of NEFT and RTGS transactions during these five years.

Table 1: Various E-Banking Delivery Channels

Type of electronic channels	No. of channels		Growth in%
	March 2012	March 2017	
No. of ATM deployed	95,686	208,354	117.74
No. of POS deployed	660,920	2,529,141	282.66
No. of CREDIT CARDS issued	17,653,818	29,842,235	69.04
No. of DEBIT CARDS issued	278,282,839	854,874,586	207.19

Source: www.rbi.org.in

Table 2: NEFT and RTGS Transactions

Transaction type	No. of transactions (in millions)		Growth in%
	March 2012	March 2017	
NEFT	27.11	186.70	588.67
RTGS	6.34	12.53	97.63

Source: www.rbi.org.in

According to IAMAI-IMRB Report, Urban India with an estimated population of 444 million already has 269 million (60%) using the Internet but Rural India, with an estimated population of 906 million as per 2011 census, has only 163 million (17%) Internet users. Another report, titled “ENCASHING ON DIGITAL: Financial Services in 2020” further added that out of 269 urban internet users, only 45 million are active e-banking users which constitutes around 16% of urban population. With the ongoing digital drive in India and increased government focus on digital infrastructure, although number of internet users are increasing rapidly but hardly one-fourth of them use internet banking in India. This may be due to lack of trust, fear of hidden charges, fear of account being hacked or complicated information provided among others. So, this study is an effort to determine the risk factors which prevent customers to use e-banking in India.

PERCEIVED RISK IN E-BANKING

Risk is a function of the magnitude or extent of goals that a person tries to reach and the seriousness of the atonement that one must endure while not reaching them (Mitchell, 1999). Stone and Winter (1987) defined risk as an individual expectation of potential losses. The higher probability of a loss, the more risk is perceived by the individual (Farzianpour et al, 2014). Perceived risk is considered a fundamental concept of consumer behavior and is often used to explain

customers' risk perceptions and reduction methods (Mitra *et al.*, 1987; Shin, 2010). Bauer (1960) initially presented the idea of perceived risk. He characterized risk as far as the instability and outcomes connected with a consumer's activities (Farzianpour et al, 2014). The importance of perceived risk has also been examined in Information System research, especially in Internet banking literature (Gerrard & Cunningham, 2003; Lee, Kwon, & Schumann, 2005; Littler & Melanthiou, 2006; Pikkarainen, Pikkarainen, Karjaluoto, & Pahnla, 2004; Sathye, 1999). Research by Ho and Ng (1994) and Lockett and Littler (1997) empirically support the notion that the use of electronic banking involves risk. Consumers perceive that the use of electronic banking as a risky decision because technology-enabled services exhibit pervasive technological, unfamiliar and ambiguous stimuli (Davidow, 1986). Therefore, when consumers decide to use electronic banking, they are exposed to uncertainties such as the availability, compatibility, and performance of electronic banking channels (Sarin, Sego, & Chanvarasuth, 2003; Manzano et al, 2010). According to Featherman and Pavlou (2003), perceived risk is defined as “the potential for loss in the pursuit of a desired outcome of using an e-banking service”. In the online context, past studies suggest the inclusion of perceived risk due to its importance in influencing online consumer behaviour (Cunningham *et al.*, 2005; Pavlou, 2003; Salam *et al.*, 2003; Schlosser *et al.*, 2006) and more so in the area of e-banking (Cunningham *et al.*, 2005; Wong et al, 2014). In the research on consumers'

behavior, perceived risk is claimed to be a multidimensional construct. (Mitchell and Harris 2005; Crespo, Del Bosque, and Sanchez 2009; Damghanian et al, 2016). Kaplan et al. (1974) identified five dimensions of perceived risk: performance, physical, financial, psychological and social. Roselius (1971) added time loss (Hoyer and MacInnis,

1997). However, research has tended to confirm that the dimensions of perceived risk may vary according to the product (or service) class (Featherman and Pavlou, 2003; Littler and Melanthiou, (2006). The table below summarizes the different dimensions of perceived risk in e-banking as discussed by other researchers:

AUTHOR & YEAR	Security Risk	Financial Risk	Time Risk	Psychological Risk	Social Risk	Performance Risk	Privacy Risk	Physical Risk	Functional Risk
Bazgosha et al (2012)	√	√	√	√	√				
Beikzad et al (2011)		√	√	√	√	√		√	
Zhao et al (2008)	√	√	√	√	√	√	√	√	
Cunningham et al (2005)	√	√	√	√		√		√	
Demirdogen et al (2010)	√	√		√					
Fadare et al (2016)	√	√	√		√	√			
Farzianpour et al (2014)	√		√		√	√	√		
Featherman & Pavlou (2002)		√	√	√	√	√	√		
Hanafizadeh & Khedmatgozar (2012)	√	√	√		√	√	√		
Kassim & Ramayah (2015)		√	√		√			√	√
Lee (2009)	√	√	√		√	√	√		
Littler and Melanthiou (2006)	√	√	√	√	√	√			
Manoranjana et al (2012)		√	√					√	√
Manzano et al (2011)	√		√		√	√	√		
Moradi et al (2012)	√	√	√	√	√			√	
Roy et al (2016)		√			√	√	√		
Okeke (2013)	√	√	√	√				√	
Wang et al (2014)		√	√	√		√	√		

Source: Compiled from various studies

According to the results of these studies and by summarizing the concepts of the dimensions of the perceived risk in them, the dimensions of the perceived risk can be categorized into different groups: time, financial, performance, social, security, and privacy. These dimensions have been explained in terms of e-banking:

Financial Risk

Financial Risk, also termed as economic risk, is the possibility of monetary loss while purchasing a product or service online (Lim, 2003; Demirdogen, 2010; Fadare et al, 2016). It also includes the maintenance cost of the product (Featherman & Pavlou, 2002; Beikzad & Zamini, 2011). In case of e-banking, customers are concerned about the potential for financial loss which may arise due to fraud (Featherman & Pavlou, 2002), entering incorrect specifications of a transaction such as account number,

amount of money or losing control of personal account (Hanafizadeh, 2012). They usually face difficulties in asking for compensation when transaction errors occur (Kuisma et al., 2007; Lee, 2009).

Security Risk

Security risk is the core hindrance while making use of e-banking. Security risk arises when customers worry that money transfer from their accounts or their private financial information can be seen by others without their permission; this worry creates security risk (Littler and Melanthiou, 2006; Demirdogen, 2010). There are other cases which provide this risk such as internet theft, hacking bank sites and intrusion (Littler & Melanthiou, 2006; Bazgosha et al, 2012). This not only leads to loss of money but also violate users' privacy (Lee, 2009).

Psychological Risk

This risk can be defined as the potential loss of self-esteem and ego frustration when purchasing experience does not correspond to the customers' expectations (Featherman & Pavlou, 2002). This often causes anxiety or stress among the customers (Demirdogen, 2010). They may experience feelings of harm to their self-image from the frustration of not achieving their buying goals (Featherman & Pavlou, 2002; Littler, 2006). It may often lead to embarrassment before one's social group in case a fraud or failure arises (Beikzad & Zamini, 2011).

Time Risk

Time risk is the combination of time lost and effort consumed in acquiring any product or service (Murray and Schlacter, 1990; Demirdogen, 2010; Fadare, 2016). It is related to time spent by customers in performing e-banking transactions (Hanafizadeh, 2012). Customers may have to devote a lot of time in learning how to access banking services over the internet (Demirdogen, 2010). In e-banking, customers may lose time dealing with erroneous transactions, filling required information and waiting for site responses such as website confirmation, internet server, download speed etc. (Littler & Melanthiou, 2006; Kesharwani, 2012).

Performance Risk

Performance risk is the possibility of the product malfunctioning and not performing as it was designed or advertised and therefore failing to deliver the desired benefits (Featherman & Pavlou, 2002; Beikzad & Zamini, 2011). In internet banking, performance risk arises when customers are concerned about transferring money on time or accessing the web page (Littler and Melanthiou, 2006; Demirdogen, 2010). The system may not perform well due to low download speed, server breakdown, or website maintenance operations (Hanafizadeh, 2012).

Social Risk

Social risk may be defined as a risk which is generated from the negative opinion of friends, family or work group. It is possible that social fame of a customer is influenced by the perceptions of family or friends and this, in turn has a favorable or unfavorable impact on the perception of customers (Lee, 2009; Littler and Melanthiou, 2006). It may also result in potential loss of status in one's social group in case of errors or frauds (Featherman & Pavlou, 2002).

Table 2: Dimensions of Perceived Risk

Dimension	Definition
Performance risk	The possibility of the product malfunctioning and not performing as it was designed or advertised and therefore failing to deliver the desired benefits.
Social risk	Potential loss of status in one's social group resulting from the negative opinions of family or friends.
Financial risk	The probability that a purchase results in loss of money as well as the subsequent maintenance cost of the product.
Security risk	Potential loss of control over personal information, such as when information about you is used without your knowledge or permission. The extreme case is where a consumer is "spoofed" meaning a criminal uses trusted identity to perform fraudulent transactions.
Time risk	Consumers may lose time in learning how to access e-banking services and dealing with erroneous transactions, filling required information and waiting for site responses.
Psychological risk	Potential loss of self-esteem or ego frustration based on feelings about oneself.

All these dimensions act as a barrier in the usage of e-banking services. The empirical literature focusing on the perceived

risk dimensions and its influence on adoption or intention to use e-banking services has been shown in the table below:

Earlier Research on Perceived Risk in E-Banking

AUTHOR & YEAR	COUNTRY	OBJECTIVES	SAMPLE & RESPONDENTS	TECHNIQUES	FINDINGS
Featherman and Pavlou (2002)	USA	This study integrates the perceived risk factors with the basic TAM variables (perceived usefulness and perceived ease of use) to propose a comprehensive model of e-services adoption.	214 respondents	CFA, Regression	Results indicated that e-services adoption is adversely affected primarily by performance-based risk perceptions, while perceived ease of use of the e-service reduces risk perceptions.
Munene et al (2002)	Australia	The aim of this study was to explore the perceived risks associated with the use of online banking to improve our understanding of the barriers to adopting service delivery innovations.	1700 potential respondents in the different regions of Western Australia.	principal components analysis	The results demonstrate that consumers using online banking transactions may experience various forms of perceived risk including performance, psychological, and financial risks
Cunningham et al (2005)	France	To investigate the premise that purchasing e-banking services is perceived to be riskier than purchasing traditional banking services. This study also examines the dynamics of perceived risk throughout the various stages of the consumer buying process.	159 respondents	Multiple regression	The analysis indicates that financial risk drives the risk premium while psychological, physical and time risk play ancillary roles as risk drivers at certain stages of the consumer buying process.
Zhao et al (2008)	China	To identify risk factors that discourage Chinese consumers from adopting internet banking services and to compare cultural difference between Chinese consumers' and Western consumers' risk perception.	504 respondents from southern China	Exploratory factor analysis	Results clearly revealed that the significant risk barriers identified are influenced by culture and do not simply follow predominant Western patterns.
Lee (2009)	Taiwan	To explore and integrate specific risk facets – financial, security/privacy, performance, social and time risk with the technology acceptance model (TAM) and theory of planned behavior (TPB) model which explain customers' intention to use online banking.	368 users of e-banking	Structural equation model	The results indicated that the intention to use online banking is adversely affected mainly by the security/privacy risk, as well as financial risk and is positively affected mainly by perceived benefit, attitude and perceived usefulness.
Wong et al (2009)	Australia	To investigate the role of a customer's perception of risk in the internet as a moderator on the relationship between trust and the customer's willingness to use e-banking.	Non-probability sample of 218 respondents	Moderated regression	Results revealed that a consumer's willingness to use e-banking depends on the consumer's perception of risk in transacting on the internet. Trust of the specific e-banking website was found to be the moderator instead.
Demirdogen et al (2010)	Turkey	To assess differences in risk perceptions between customers using internet and those not using the internet and to determine levels of customer risk perceptions among users of internet banking	350 respondents	Correlation analysis, variance analysis	There is a significant difference between risk perceptions of users and non-users in terms of financial risk, psychological risk and security risk while there is no significant difference between users and non-users in terms of performance risk, time risk and social risk
Beikzad et al (2011)	Iran	To investigate the comparison of customers' perception of risk in E-banking process and traditional banking process in the branches of Tabriz Karafarin bank.	360 customers	Paired t-test	Results indicated that there is a meaningful difference between customers' risk perception in E-banking process and traditional banking process in the branches of Tabriz Karafarin bank.

AUTHOR & YEAR	COUNTRY	OBJECTIVES	SAMPLE & RESPONDENTS	TECHNIQUES	FINDINGS
Kesharwani and Bisht (2011)	India	To extend the technology acceptance model (TAM) in the context of internet banking adoption in India under security and privacy threat.	619 respondents	exploratory factor analysis, confirmatory factor analysis, SEM	The findings revealed that perceived risk has a negative impact on behavioral intention of internet banking adoption and trust has a negative impact on perceived risk.
Manzano et al (2011)	Spain	To analyze the role of satisfaction, trust, frequency of use and perceived risk as antecedents of consumer loyalty to banking websites.	254 Spanish internet banking users	CFA, Hierarchical Regression analysis	The results indicated that satisfaction correlates positively with loyalty but the effect is significantly less intense with high levels of perceived risk while trust correlates more positively with high levels of perceived risk.
Bazgosha et al (2012)	Iran	To explore the effect of consumers' perception of risk and uncertainty on the rate of using internet banking as a new service and enhancing knowledge scope in this area.	200 customers from the branches of Saderat bank in Mashhad city	Correlation coefficient analytical method along with multiple regression method	Statistical tests indicated that risk and uncertainty components have negative significant relationship with the rate of internet banking usage.
Hanafizadeh and Khedmatgozar (2012)	Iran	To examine whether bank customers' awareness of the services and advantages of IB is effective in reducing the negative effect of customers' perceived risk on their intention of IB adoption.	414 respondents	CFA, Structural Equation Model	It was found out that except for social risk, other dimensions of the perceived risk have significantly negative effect on the intention of IB adoption. Further, it was concluded that the dimensions of customers' perceived risk play a mediating role in the positive effect of IB awareness on IB adoption intention.
Manoranjan et al (2012)	India	The purpose of the study was to explore, describe and get a better understanding of the role that risk perception plays in consumers' adoption of the Internet banking.	260 bank customers	Independent t-test, Factor Analysis, Regression analysis	Results revealed that physical risk, financial risk, time risk, functional Risk negatively influences internet banking adoption.
Moradi et al (2012)	Iran	The main aim of this study is investigating the effect of customers' perception of risk and uncertainty on the rate of using Internet Banking.	200 respondents	Correlation analysis, multiple regression analysis	The findings indicated that the components of risk and uncertainty have negative significant relationship with the rate of Internet Banking usage.
Okeke (2013)	Nigeria	To ascertain which of the perceived risk/security factors of psychological risk, quality risk, time-loss risk, financial risk, physical risk and security that are dominant in classifying e-banking customers on the basis of high and low involvement.	908 respondents	Discriminant analysis	The results revealed that time-loss risk and security are the most dominant in classifying e-banking customers though these two factors are the dominant the discriminant structure matrix showed that the seven factors are important as they all contribute to the classification.
Farzianpour et al (2014)	Iran	To investigate the effect of perceived risk factors on the usage online banking services and to analyze the influence of total perceived risk and consumers' willingness to embrace innovation on online banking services adoption.	384 customers of MELLAT Bank	confirmatory factor analysis, Spearman test, Structural Equation Modeling (SEM)	Results revealed that the consumer's total perceived risk and willingness to accept innovation both have a direct effect on online banking services adoption, while willingness to adopt innovation has no significant influence on the consumer's total perceived risk.

AUTHOR & YEAR	COUNTRY	OBJECTIVES	SAMPLE & RESPONDENTS	TECHNIQUES	FINDINGS
Martins (2014)		To integrate unified theory of acceptance and use of technology (UTAUT) with perceived risk factors to explain behaviour intention and usage behaviour of Internet banking.	249 respondents	Structural equation model	The results supported some relationships of UTAUT, such as performance expectancy, effort expectancy, and social influence, and also the role of perceived risk as a stronger predictor of intention.
Siraye (2014)	Ethiopia	To analyze factors that influence customers' intention to adopt e-banking service channels in Ethiopia.	211 customers from six commercial banks	Regression analysis	Results revealed that the variables included in the models (attitude, subjective norms, perceived behavioural control, perceived usefulness, perceived ease of use and perceived risk) were significant in affecting users' behavioural intention to use e-banking services.
Wang et al (2014)	Taiwan	To examine the impact of perceived ease of use, perceived usefulness and sub- constructs of perceived risk on online banking services(OBS).	594 respondents	CFA, Structure equation model	Perceived ease of use and perceived usefulness are positively related to the adoption of OBS. Furthermore, the results revealed that the assumptive impact of perceived risk construct is negatively associated with OBS adoption.
Karimi & Davood (2015)	Iran	To examine the role of innovation and risk perceived by customers in using e-banking services.	270 respondents	Structural Equation model	Perceived risk of customers had a negative effect on e-banking usage. Customer innovation had a positive influence on the use of e-banking services. Innovation reduces customers risk perception in e-banking services.
Kassim & Ramayah (2015)	Malaysia	To extend the Technology Acceptance Model by incorporating seven risk constructs into the model to understand the impact of risks on intention to use internet banking in Malaysia.	413 respondents	Structural equation model	The results clearly indicated that perceived risk dimensions are strong determinants of intention to use internet banking.
Kassim & Ramayah (2015)	Malaysia	To investigate the influence of risk dimensions on the attitude towards the use of Internet banking.	413 respondents	PLS-SEM	The results revealed that social risk, time loss risk, opportunity cost risk and perceived usefulness are significant factors influencing attitude towards intention to continue using Internet banking.
Ong & Lin (2015)	Taiwan	To explain the relationships among trust, perceived security and perceived risk and to examine the effect of these three factors on individuals' adoption of internet banking.	188 students and faculty	Smart PLS	Two results were obtained: first is that perceived security is an important antecedent of trust and perceived risk; second is that perceived security has both direct and indirect effects upon individuals' adoption of internet banking.
Damghanian et al (2016)	Iran	To examine the relationship between perceived security and acceptance of online banking with the mediating effect of perceived risk and trust in Internet banking.	395 randomly selected customers	first- and second-order confirmatory factor analysis, SEM	Perceived security and trust in Internet banking had a significantly positive impact on the acceptance of online banking and perceived risk had a significantly negative impact on trust in Internet banking.

AUTHOR & YEAR	COUNTRY	OBJECTIVES	SAMPLE & RESPONDENTS	TECHNIQUES	FINDINGS
Fadare et al (2016)	Nigeria	To examine the impact of perceived risk on intention to use internet banking. Also, to investigate the effect of performance risk, social risk, time risk, financial risk and security risk on the intention to use internet banking.	120 students studying in UUM	Pearson correlation and multiple regression analysis	This study showed that perceived risk; performance risk, social risk, time risk, financial risk and security risk negatively influences intention towards the use of internet banking in this study.
Hussein & Saad (2016)	Egypt	To examine the perceived risk and behavioral determinants of using internet banking in Egypt.	200 bank customers	Structural equation model (SEM)	Perceived usefulness and perceived ease of use had a positive impact on the intention to use internet banking whereas financial, security and privacy risks had a negative impact on intention to use e-banking.
Roy et al (2016)	India	To integrate technology acceptance model and perceived risk theory in understanding Internet banking acceptance among Indian bank account holders.	270 respondents	Structural equation model	The study revealed that both external risk and internal risk inhibit customer acceptance of Internet banking.

Source: Compiled from various studies

DISCUSSION

Most of the researchers found that perceived risk dimensions have a significant negative influence on intention to use e-banking services except social and psychological risk which come out to be insignificant in the studies conducted by Hanafizadeh (2012) and Demirdogen (2010). Kassim & Ramayah (2015) included additional risk facets i.e. information risk and opportunity risk in their study. Wong et al (2009) found that trust acts as a moderator between perceived risk and intention to use e-banking services whereas Kesharwani (2011) concludes that trust has a negative impact on perceived risk. Later on, study conducted by Ong & Lin (2015) discovered that it is the perceived security which is an important antecedent of trust and perceived risk which has both direct and indirect impact on adoption of e-banking. Other researchers also included innovation as a variable which has a positive impact on use of e-banking services. But Karimi & Davood (2015) revealed that innovation reduces customers risk perception in e-banking services. Few researchers have included variables of TAM i.e. perceived usefulness and perceived ease of use as moderators between perceived risk and usage of e-banking services. Integration of TAM and theory of perceived risk has been used in various studies to know the intention behavior. Martins (2014) used UTAUT, a model developed by Venkatesh et al (2003) which provides a comprehensive examination of eight prominent models to explain technology adoption or usage. There is a need for more research to be carried out to know the impact of perceived risk facets on e-banking usage and to find the moderators between them.

IMPLICATIONS

In the era of technological advancement, the government of India has increased its focus on digital infrastructure. Even banks are also making great efforts to encourage customers to manage their finances online. Customers are aware of the enormous benefits that e-banking offers them. But still more than 50 percent of consumers are dissatisfied with their e-banking services experience largely because of fear of hidden charges, lack of trust, complicated information provided among others and the risk of system failure. This point highlights the importance of bank managers to counter such an issue. Various risk management strategies should be adopted to reduce risk perception. This may include providing detailed and thorough information to the customers but again it is insufficient to reduce consumers' risk substantially. Reassurance programmes, e.g. an "after-sales" policy can play a more effective role in consumers' risk reduction. Banks should notify that their personal data are kept confidential and there are data encryption platforms to guarantee security in banking transactions. Also, security provisions should be posted on bank's websites in non-technical terms so that it can easily be understood by consumers. It will also enhance the reputation of banks. Banks should also provide instructions on how to use e-banking services safely and how to cope with security problems if they occur. Thus, it is need of an hour to reduce these kinds of risks in order to enhance the use of banking services online because the development of e-banking is critical for the success of 'Digital India'.

REFERENCES

- Lifen Zhao, A., Hanmer-Lloyd, S., Ward, P., & Goode, M. M. (2008). Perceived risk and Chinese consumers' internet banking services adoption. *International Journal of Bank Marketing*, 26(7), 505-525.
- Bazgosha, G., Eizi, N., Nawaser, K., & Parhizgar, M. M. (2012). Technology of E-banking: Perspective of Costumers' Perceived Risk and Uncertainty. *Indian Journal of Science and Technology*, 5(2), 2200-2208.
- Cunningham, L. F., Gerlach, J., & Harper, M. D. (2005). Perceived risk and e-banking services: An analysis from the perspective of the consumer. *Journal of Financial Services Marketing*, 10(2), 165-178.
- Choudhary, V., & Chauhan, V. (2015). Internet banking: Challenges and opportunities in Indian context. *Apeejay-Journal of Management Sciences and Technology*, 2(3), 29-40.
- Damghanian, H., Zarei, A., & Siahsarani Kojuri, M. A. (2016). Impact of perceived security on trust, perceived risk, and acceptance of online banking in Iran. *Journal of Internet Commerce*, 15(3), 214-238.
- Demirdogen, O., Yaprakli, S., Yilmaz, M. K., & Husain, J. (2010). Customer risk perceptions of internet banking: A study in Turkey. *Journal of Applied Business Research (JABR)*, 26(6).
- Dhananjay, B., & Chandra, S. B. (2015). The electronic banking revolution in India. *Journal of Internet Banking and Commerce*, 20(2), 1.
- Fadare, O. A. (2015). A survey on perceived risk and intention of adopting internet banking. *The Journal of Internet Banking and Commerce*, 21(1).
- Farzianpour, F., Pishdar, M., Shakib, M. D., & Toloun, M. R. S. H. (2014). Consumers' perceived Risk and its effect on adoption of online banking services. *American Journal of Applied Sciences*, 11(1), 47.
- Featherman, M. S., & Pavlou, P. A. (2003). Predicting e-services adoption: A perceived risk facets perspective. *International Journal of Human-Computer Studies*, 59(4), 451-474.
- Hanafizadeh, P., & Khedmatgozar, H. R. (2012). The mediating role of the dimensions of the perceived risk in the effect of customers' awareness on the adoption of Internet banking in Iran. *Electronic Commerce Research*, 12(2), 151-175.
- Hussein, A., & Saad, M. (2016). Perceived risk and behavioral determinants of using internet banking in Egypt. *Journal of Behavioural Economics, Finance, Entrepreneurship, Accounting and Transport*, 4(3), 40-48.
- Beikzad, J., Zamini, S., Gharehziaedini, A. S., & Zamini, S. (2011). The comparison survey of customers' perceived risk in E-banking process and traditional banking process in the branches of Tabriz Karafarin bank. *Proceedings of International Conference on Economics and Finance Research*, 4(1), 104-108.
- Kassim, N. M., & Ramayah, T. (2006). A measurement model of risk perception in internet banking based on Malaysian context. *ARP Journal of Engineering and Applied Sciences*, 10(23).
- Kassim, N. M., & Ramayah, T. (2015). Perceived risk factors influence on intention to continue using Internet banking among Malaysians. *Global Business Review*, 16(3), 393-414.
- Kesharwani, A., & Tripathy, T. (2012). Dimensionality of perceived risk and its impact on Internet banking adoption: An empirical investigation. *Services Marketing Quarterly*, 33(2), 177-193.
- Kesharwani, A., & Singh Bisht, S. (2012). The impact of trust and perceived risk on internet banking adoption in India: An extension of technology acceptance model. *International Journal of Bank Marketing*, 30(4), 303-322.
- Lee, M. C. (2009). Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications*, 8(3), 130-141.
- Littler, D., & Melanthiou, D. (2006). Consumer perceptions of risk and uncertainty and the implications for behaviour towards innovative retail services: the case of internet banking. *Journal of Retailing and Consumer Services*, 13(6), 431-443.
- Dash, M., Mishra, B. B., Biswal, S. K., & Mishra, S. (2012). Understanding consumers' risks perception for banking on the Internet. *International Journal of Engineering and Management Sciences*, 3(2), 146-150.
- Aldas-Manzano, J., Ruiz-Mafe, C., Sanz-Blas, S., & Lassala-Navarre, C. (2011). Internet banking loyalty: evaluating the role of trust, satisfaction, perceived risk and frequency of use. *The Service Industries Journal*, 31(7), 1165-1190.
- Aldás-Manzano, J., Lassala-Navarré, C., Ruiz-Mafé, C., & Sanz-Blas, S. (2009). The role of consumer innovativeness and perceived risk in online banking usage. *International Journal of Bank Marketing*, 27(1), 53-75.
- Martins, C., Oliveira, T., & Popovič, A. (2014). Understanding the Internet banking adoption: A unified theory of acceptance and use of technology and perceived risk application. *International Journal of Information Management*, 34(1), 1-13.
- Moradi, M., Ghomian, M. M., & Sarjanian, Z. (2012). Investigation of the effect of customers' perceived risk and uncertainty on the usage of the internet banking (A case study of Saderat Bank of Mashhad). *World Applied Sciences Journal*, 18(5), 617-623.

- Munene, C., Mizerski, K., & Pettigrew, S. (2002). Online banking and perceived risk. In *Proceedings of ANZMAC*.
- Ndlovu, I., & Sigola, M. (2013). Benefits and risks of e-banking: Case of commercial banking in Zimbabwe. *The International Journal of Engineering and Science*, 2(4).
- Ong, C. S., & Lin, Y. L. (2015). Security, risk, and trust in individuals' internet banking adoption: An Integrated Model. *International Journal of Electronic Commerce Studies*, 6(2), 343.
- Pennathur, A. K. (2001). Clicks and bricks: e-Risk Management for banks in the age of the Internet. *Journal of Banking & Finance*, 25(11), 2103-2123.
- Rawashdeh, B. S., Abu-Errub, A. M., Areiqat, A. Y., & Dbbaghieh, M. (2012). Information technology role in reducing e-banking services risk in Jordanian banking sector. *Journal of Computer Science*, 8(3), 374.
- Mwesigwa, R. (2010). *Consumers' attitudes, perceived risk, trust and internet banking adoption in Uganda* (Doctoral dissertation, Makerere University).
- Roy, S. K., Balaji, M. S., Kesharwani, A., & Sekhon, H. (2017). Predicting Internet banking adoption in India: a perceived risk perspective. *Journal of Strategic Marketing*, 25(5-6), 418-438.
- Santoso, S., & Murtini, U. (2014). Usage and risk perception of Internet banking: Case study in Yogyakarta special region, Indonesia. *European Scientific Journal, ESJ*, 10(34).
- Siraye, Z. (2014). Customers' adoption of electronic banking service channels in Ethiopia: An integration of technology acceptance model and perceived risk with theory of planned behaviour. *International Journal of Electronic Finance*, 8(1), 21-34.
- Okeke, T. C. (2013). Perceived risk/security and consumer involvement with electronic payments in Nigeria: A discriminant analysis. *IOSR Journal of Business and Management*, 14(6), 57-67.
- Wang, S. W., Hsu, M. K., Pelton, L. E., & Xi, D. (2014). Virtually compatible or risky business? Investigating consumers' proclivity toward online banking services. *Journal of Marketing Channels*, 21(1), 43-58.
- Wong, D. H., Loh, C., Turner, B., Bak, R., & Yap, K. B. (2009). Risky business: Perceived risk, trust and the use of e-banking. *Australian New Zealand Marketing Academy ANZMAC*, 1-8.
- Xavier, A. J., & Devi, M. M. K. A Study of Determinants of Consumers' Perceived Risk in E-Banking Services. *SAARJ Journal on Banking & Insurance Research*, 6(5), 47-57.