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RISK MANAGEMENT IN E-BANKING CUSTOMERS SERVICES: A CASE STUDY OF KARNATAKA BANK LTD (KBL)

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Abstract

The banking sector plays dynamic and predominant role in Indian economy. After demonetization the customers are shift towards traditional banking practices to E-banking practices. The rapid growth of electronic banking customer services which leads to occurrence of risk management in e-banking customer services. In connection with e-banking involves a variety of risks, the main risks are the monitored operational risk, legal risk, security risk, strategic Risks etc. Frequently, the customers faced operational risks are more compared to the other categories of risk that should be effect on the optimal activity between bank as well as customer transactions. The aim of the study is to understand the theoretical background of different categories of risk management in e-banking customer services in Karnataka Bank Ltd and to examine the demographic profile of e- banking users of Karnataka Bank Ltd. and to analysis the operational risks faced by the customers while using e- banking services and also to assess the legal risks faced by the customers while operating e- banking services in Karnataka Bank Ltd. Finally the last part of the study covers security risks faced by the customers while accesses e-

banking services in Karnataka Bank Ltd, the sample size for study was only 75 E-banking users of KBL. For the purpose of analysis of data based on normality test applied for non-parametric tests such as, mean, standard deviation, Wilcoxon Singed Z– Rank Test and Kruskal Wallies Z-Test. Finally this study results majority of the respondents has been positively opined that break down and time our services machines, lack of technological awareness, authentication of customers and confidentiality integrity of transaction and also privacy protection for banking transaction are the major operational and legal security risks faced the customers of Karnataka Bank Ltd.

KEY WORDS: Risk Management, E-banking services, Demographic Profile, Security Risk.

INTRODUCTION

The rapid development of e-banking in parallel with the widespread use of the internet led to the emergence and development of payment mechanisms through the Internet grew rapidly and became an important part in the products and services offered by various institutions, especially e- banking services are available to all customers, who can perform banking transactions 24 hours a day, seven days a week, anywhere in the world where there is an Internet connection, providing mobility and comfort and transactions take place online and in real time having the same degree of protection in e- banking services.***(Tanse 2010)***[1] with this connects the electronic bank extends scope and extension of the traditional banking, open network financial services expose new security problems of the bank. Prudence principle and measures of risk management according to traditional business still applies to electronic banking business, the former risk management system must have the proper necessary supplement according to the change of environment and operation mode. Therefore risk assessment is increasingly conducted by many groups within an banks to fully variety of business and regulatory requirements on guidance framework for conducting the risk assessment of e-banking customer

services.*(Vlasta Svatá, 2014)*[2] Therefore this study focused on Karnataka Bank Ltd customers faced different categories of risk management in e-banking services.

The **Karnataka Bank Ltd** is a major banking institution based in the coastal city of Mangalore in Karnataka. It has been established on 1924 in India. The Reserve Bank of India has designated Karnataka Bank Limited as an A1+ class Scheduled Commercial Bank. Karnataka Bank Limited currently has a network of 776 branches, 1393 ATM's and 123 e-lobbies/mini e-lobbies across 22 states and 2 Union territories. It has over 8000 employees and 8.2 million e- banking customers throughout the country. *(Official website of Karnataka Bank)*[3]

Therefore Karnataka introduced the self-service channels, which is available 24 hours a day and 365 days a year in an absolutely simple, friendly but secured environment. Customer can carry out banking transactions with the safety, anywhere and anytime. **The following are the e-banking services provided by the Karnataka Bank Ltd.**

SI. No.	E-Banking Services	SI. No.	E-Banking Services
1.	Fund Transfer (Self/Within Bank/ NEFT/RTGS)	10.	Online fixed Deposit (FD/ACC/RD) account opening facility
2.	Account Statement	11.	Online Debit card blocking facility
3.	IMPS Fund Transfer	12.	Facility for customers to update the user id of his/her choice
4.	Mobile/DTH Recharge	13	Personal financial management
5.	Credit card Bill Payment	14.	15G/15H, interest certificate, TDS form download facility etc.
6.	Utility Bill Payments	15.	"E-Hundi"- for making donation through Money
7.	Bulk uploads facility to corporate customer	16.	Payment option for Online booking of tickets of Indian Railways through IRCTC
8.	Aadhaar seeding facility to the Account	17.	Online Trading
9.	Loan repayment/Monthly payments facility to RD account	18.	Online Shopping

Source: www.Karnataka Bank Ltd.

Risk Management in E-Banking:

The E-banking services provide benefits to the consumer in terms of convenience, and to the provider in terms of cost reduction and greater reach. The Internet itself however is not a secure medium, and thus poses a number of risks of concern to regulators and supervisors of banks and financial institutions. Risks associated with internet banking are categorized into eight categories as follows:

Categories of Risks in E-Banking

SI. No.	Risks in E-banking	Concepts of risk in E-banking
1.	Security Risks	Internet is a public network of computers which facilitates flow of data / information and to which there is unrestricted access. Therefore banks using this medium for financial transactions must have proper technology and systems in place to build a secured environment for such transactions
2.	Legal Risks	Legal risk arises from violation of, or nonconformance with laws, rules, regulations, or prescribed practices, or when the legal rights and obligations of parties to a transaction new nature of Internet banking, rights and obligations in some cases are uncertain and applicability of laws and rules is uncertain or ambiguous, thus causing legal risk.
3.	Operational Risk	Operational risks refer to in accurate processing of transactions, non- enforceability of contracts, compromises in data integrity, data privacy and confidentiality, unauthorized access. intrusion to bank's transactions
4.	Reputational Risk	Reputational risk is the risk of getting significant

		negative public opinion, which may result in a critical loss of funding or customers. Such risks arise from actions which cause major loss of the public sanctions for non-compliance with "know your customer".
5.	Money Laundering Risk	As Internet banking transactions are conducted remotely, banks may find it difficult to apply traditional method for detecting and preventing undesirable Criminal activities. Application of money laundering rules may also be inappropriate for some forms of electronic payments.
6.	Strategic Risks	This risk is associated with the introduction of a new product or service. Degree of this risk depends upon how well the institution has addressed the various issues related to development of a business plan, availability of sufficient resources to support this plan, credibility of the vendor
7.	Cross border risks	Internet banking is based on technology that, by its very nature, is designed to extend the geographic reach of banks and customers. Such market expansion can extend beyond national borders. This causes various risks. It includes legal and regulatory risks, as there may be uncertainty about legal requirements in some countries
8.	Traditional risks	Traditional banking risks such as credit risk, liquidity risk, interest rate risk and market risk are

		also present in Internet banking. These risks get intensified due to the very nature of Internet banking on account of use of electronic channels as well as absence of geographical limits

Source: (Shapoor Zarei, 2015).

To overcome of the above mentioned categories of risks Karnataka bank introduced the following security tips in conducting e- banking transactions. **Therefore the customer may adopt the following practices.**

1. Avoid using key board to enter login details while some one is close by. It is recommended to use virtual keyboard in login page.
2. Please log out completely from the account and close the browser after you finish your transaction.
3. Karnataka Bank provides two passwords (login and transaction password) for your safety. Maintain distinct passwords for each and keep them changing periodically.
4. Maintain login and password confidentiality and avoid writing down in places which are accessible to others.
5. Please contact your branch immediately or Call to our Customer Care Centre at 18004251444, if you see any discrepancies in the account statement.

REVIEW OF LITERATURE:

A lot of research work has been carried out in different parts of the world to know the risk management in E-banking customer services:

Tanse (2010), this study was undertaken on operational risk and E-banking sector. This paper revealed on Basel II, the main risks are the monitored credit risk, market risk and operational risk. This study focused on past experience of credit institutions has shown that operational risk is an important cause of financial losses in the banking sector. Operational risk is generated by a complex of factors that manifests

primarily as a result of direct customer interaction with the credit institution. Finally this study suggests that provisions of e-banking services reduces direct contact with bank customers and thus reduce potential losses arising from operational risk in E-banking services.

Rawashdeh (2012), this study was conducted on information technology role in reducing E-Banking services risk in Jordanian banking sector. This study aims to highlight the role of information technology in reducing risk of electronic banking services in the Jordanian banking sector. In this study has been covered on three banks as a sample representative of the Jordanian banking sector. Through the study, it will be clear that Jordanian banks committed to the standards of the Basel committee on safety and security of electronic banking services. This study results showed that Jordanian banks showing highest attention toward risk management of e-banking, through their commitment to Basel Standards on risk management in banking sector.

Ndlovu (2013), this study was emphasized on benefits and risks of e-banking: case of commercial banking In Zimbabwe. This research paper sought to analyze the benefits and risks of electronic banking for commercial banks in Zimbabwe. The study showed that the major benefits of e-banking are improved convenience to customers, cost reduction and an improvement in customer loyalty. This study come out with the results revealed that e-banking in Zimbabwe has five critical success factors which are the use of e-banking for cutting costs, to enhance customer loyalty, to offer convenience, to improve profitability and competitive marketing and finally this study imply that banks should invest more in improving customer awareness of e-banking products and reduce perceive risks of e-banking.

Abdou (2014), this study was revealed on an investigation of risk management practices in electronic banking: the case of the UK banks. This paper investigates the risk management practices in e-banking of major UK banks, using the framework of principles introduced by the Basel Committee on Banking Supervision

(BCBS).These study finds out from the questionnaire indicate that the UK banks have successful risk management systems. This study also suggests that to ensure they keep up-to-date security systems to reduce the security risk to different parties and that staff members are fully trained on legal, operational risk and reputational risk management practices in UK banks.

Zarei (2015), this study was focused on risk management of internet banking. This paper discussed a set of generic risks on the basis for formulating general risk control guidelines. These risks are classified into eight categories involving security risks, legal and ethical risks, reputational risks, operational risks, money laundering risk, strategic risks, cross border risks and traditional risks. This study find outs Iranian banks compete to get a better position in the banking system and banks should apply risk management strategies not only to get the better position but also to increase customer acceptance related to e-banking customer services in Indian banks.

Shankarrao (2016), this study was conducted on critical study of E-Banking: their risks and mechanisms of risk management. This research paper will introduce to e-banking, giving the meaning, functions, types, advantages, risks, limitations and their management of e-banking. However, it having their inherent risks due to its nature, legal framework system, hackers interfere and frauds etc. In order to overcome these issues there is urgent need of consistence legal framework, strong implementing and responsible legal controlling authority which should be able to provide risk free conducive environment for having more banking services to the customers by using e- banking services.

Hussain (2017), this study was evaluates on e-Banking challenges in Pakistan: An empirical Study. This research article explores the current trends in the e-banking uprising that has set a goal in the Pakistani banking sector to provide any easy interface to their customers which avail the e-banking services without any physical presence in the bank vicinity. This empirical study was carried out in Pakistan which

indicating the current issues encounter by the e-banking application in various banking industries. Finally in this paper further reveals that approachability of internet in banking sector makes customer reluctant to access their bank accounts electronically and distribution channel and transactions channel must be secure and the usage of e-banking significantly affects the customer trust due to unavailability of cyber security.

Objectives of the Study:

The following are the major objectives of the study:

1. To understand the theoretical background of different categories of risk management in e-banking customer services in Karnataka Bank Ltd.;
2. To examine the demographic profile of e- banking users of Karnataka Bank Ltd.;
3. To analysis the operational risks faced by the customers while using e- banking services in Karnataka Bank Ltd.;
4. To assess the legal risks faced by the customers while operating e- banking services in Karnataka Bank Ltd.;
5. To study the security risks faced by the customers while accessing e- banking services in Karnataka Bank Ltd.; and
6. To offer findings/suggestions in the light of the study.

RESEARCH METHODOLOGY:

The present study has been collected from both primary and secondary sources. The primary data was collected by on the basis issue of questionnaire. The study area has been identified Karnataka Bank Ltd branches in Mysuru city. The questionnaire was designed and contained several questions for collection of data from the customers or E-banking users. The overall population or sample size for study was only 75 respondents form Karnataka Bank Ltd. The method of sampling used is simple random sampling. The secondary data was collected from related research publications in books, journals and periodicals, dailies and annual reports of Karnataka bank available on the chosen topic. And also collect information on

website to develop theoretical background of risk management of e-banking customer services. For the purpose data analyze applied test of normality of data.***A significant test means the sample distribution is not shaped like a normal curve (p >0.05)***. The sample size is small **N=17** therefore to test the normality of data used **Shapiro-Wilks W test (P=0.001).** Therefore the data is abnormally distributed we applied non parametric test mentioned, mean, standard deviation, Mann-Whitney U-Test, Wilcoxon Singed – Rank Test and Kruskal Wallies Z-Test to prove the hypotheses of the study to measure the reliability of data.

Hypotheses

The study is based on the following hypotheses.

H1: There is a significant difference between demographic profiles e- banking users of Karnataka Bank Ltd

H2: There is a significant difference between operational risks faced by the customers while using e- banking services.

H3: There is a no significant relationship between legal risks faced by the customers while operating e- banking services.

H4: There is no significant variation between security risks faced by the customers while accesses e- banking services.

ANALYSIS AND INTERPRETATION:

1. Demographic Profile of the E-Banking users:

Table No.1 visualizes the demographic profile of the E-banking users of Karnataka bank Ltd. in Mysuru city. The overall respondents were numbering 75 customers out of that 45 respondents are belongs to male category and 30 respondents are belongs female category this shows male customers more used e- banking users compared to female customers. In the context of age pattern, majority of the respondents numbering, 30 customers belongs to age group of between 30-40 years, this shows younger and middle age generations were more used e- banking services compared to adult generation. Further the educational background of the respondents majority

numbering, 26 and 31 respondents were graduates and post graduates respectively. In the context of occupation of customers, majority numbering, 30 and 28 respondents were belongs to private employee and businessmen respectively. Majority 32 respondents were full aware of e-banking customer services. In the context of monthly income level of the customers, Majority numbering, 22 and 32 respondents were belongs to monthly income level of between ₹ 20,000 to ₹ 30,000 and above ₹ 30,000 respectively.

Table No.1

Demographic Profile of the E-Banking users

Particulars	**Frequency**	**Chi-Square**	**P-Value**	**Hypothesis (H0)**
1. Age Pattern:				
a) Less than 30 years	27	3.107	0.002	***Significant***
b) Between 30-40 years	30			
c) Above 40 years.	18			
2. Gender:				
a) Male	45	2.531	0.058	***Not Significant***
b) Female.	30			
3.Educational Background:	08			
a) SSLC	10	4.284	0.000	***Significant***
b) PUC	26			
c) Graduation	31			
d) Post Graduation				
4.Occupation:				
a) Government	17			***Not***
employees	30	2.198	0.067	***Significant***

b) Private employees c) Business	28			
5.Awareness about E-Banking: a) Fully aware b) Partially aware	 42 33	2.007	0.005	***Significant***
6. Monthly Income Level: a) Less than 10,000. b) Between 10,000 to 20,000 c) Between 20,000 to 30,000 d) Above 30,000	07 14 22 32	3.728	0.078	***Not Significant***

Source: Primary data.

To calculate, chi –square test for data of age pattern of the, the table value of $\chi 2$ for degrees of freedom at 5% level of significance, The calculated P value is 0.002, which is less than the Alpha Value of 0.05 it was found to be significant. Therefore the results indicate that the stated null hypothesis to be accepted. In the context of gender profile of the respondents, the table value of $\chi 2$ for degrees of freedom at 5% level of significance, The calculated P value is 0.058, which is more than the Alpha Value of 0.05 it was found to be not significant. Therefore the results indicate that the stated null hypothesis to be rejected and alternative hypothesis to be accepted. Further the data of educational profile of the respondents, the table value of $\chi 2$ for degrees of freedom at 5% level of significance, the calculated P value is 0.000, which is less than the Alpha Value of 0.05 it was found to be significant. Therefore the results indicate that the stated null hypothesis to be accepted. In the context of the data of occupation of the respondents, the table value of $\chi 2$ for degrees of freedom at

5% level of significance, the calculated P value is 0.067, which is more than the Alpha Value of 0.05 it was found to be not significant. Therefore the results indicate that the stated null hypothesis to be rejected and alternative hypothesis is accepted. Further the data of awareness about e-banking services of the respondents, the table value of $\chi 2$ for degrees of freedom at 5% level of significance, the calculated P value is 0.005, which is less than the Alpha Value of 0.05 it was found to be significant. Therefore the results indicate that the stated null hypothesis to be accepted. Further the data of monthly income level of the respondents, the table value of $\chi 2$ for degrees of freedom at 5% level of significance, the calculated P value is 0.078, which is more than the Alpha Value of 0.05 it was found to be not significant. Therefore the results indicate that the stated null hypothesis to be rejected and alternative hypothesis is accepted.

2. Operational risks faced by the customers while using e- banking services:

Table No.2 indicates that operational risks faced by the customers while using e-banking services in Karnataka bank Ltd.

Table No. 2

Operational Risk in E-Banking Services

SI. No.	Risk Factors	Frequency
1.	Break down and time our services machines	21 (28.00)
2.	Lack of knowledge e-banking user menu	16 (21.23)
3.	Lack of understanding e-banking applications	18 (24.00)
4.	Lack of technological awareness	20 (26.77)

	Total	**75 (100.00)**
	Wilcoxon Singed Z– Rank Test	***Wilcoxon Singed Z– Test =4.183 Asymp. Sig.(2-tailed)=0.000 Mean Rank = 16.27 Degree of Freedom=03***

Source: Primary data.

The operational risks has been categorized as follows, break down and time our services machines, lack of knowledge e-banking user menu ,lack of understanding e-banking applications and lack of technological awareness. Majority of the customers numbering, 21 and 20 are opinioned break down and time our services machines and lack of technological awareness are the major operational risk faced the customers of KBL while using of different categories of E-banking customer services.

Table No.2, shows that Wilcoxon Singed Z– Rank Test, it's a category of nonparametric test. describe to test the significant difference between operational risk faced by the customers while using e-banking services , the P value (Sig 2-tailed) is 0.000, which is less than the Alpha value of 0.05, it was found to be significant. Therefore the results indicate that the stated null hypothesis is accepted.

3. Legal risks faced by the customers while operating e- banking services:

Table No.3 represents that legal risks faced by the customers while operating e-banking services in Karnataka bank Ltd. In this study legal risks has been classified as follows, significance security breach, incident response and management, poor software silencing for E-banking data base and privacy protection. Majority of the customers numbering, 24 and 19 are opinioned privacy protection and significance

security breach are the major legal risk faced the customers of KBL while operating of different categories of E-banking customer services.

Table No. 3

Legal Risks in E-Banking

SI. No.	**Risk Factors**	**Frequency**
1.	Significance security breach	19 (25.33)
2.	Incident response and management	15 (20.00)
3.	Poor software silencing for E-banking data base	17 (22.66)
4.	Privacy protection	24 (32.01)
Total		**75 (100.00)**
Kruskal – Wallies Z-Test		***Kruskal –Wallies Z-Test =3.742 Asymp. Sig.(2-tailed)=0.001 Mean Rank =14.53 Degree of Freedom=03***

Source: Primary data.

Table No. 3, depicts, the Kruskal –Wallies Z-Test it's a category of nonparametric test. Describe to test the significant difference between the legal risks faced by the customers while operating e- banking services, the P value (Sig 2-tailed) is 0.001, which is less than the Alpha value of 0.05, it was found to be significant. Therefore the results indicate that the stated null hypothesis is accepted.

4. Security risks faced by the customers while accesses e- banking services:

Table No. 4 shows that security risks faced by the customers while access of e-banking services in Karnataka bank Ltd. The security risks have been divided as follows: authentication of customers, confidentiality and integrity of transactions, application and data base Security and internet infrastructure and security monitoring. Majority of the customers numbering, 25 and 22 are opinioned authentication of customers and confidentiality and integrity of transactions are the major security risk faced the customers of KBL while access of different categories of E-banking customer services.

Table No.4

Security Risks in E-Banking

SI. No.	**Risk Factors**	**Frequency**
1.	Authentication of customers	22 (29.33)
2.	Confidentiality and integrity of transactions	25 (33.33)
3.	Application and data base Security	15 (20.00)
4.	Internet infrastructure and security monitoring	13 (17.34)
Total		**75 (100.00)**
Mann-Whitney U-Test		***Mann-Whitney U-Test =2.783 Asymp. Sig.(2-tailed)=0.873 Mean Rank = 19.27 Degree of Freedom=03***

Source: Primary data.

Table No. 4, revealed, the Mann-Whitney U-Test, it's a category of nonparametric test. Describe to test the significant difference between the security risks faced by the customers while accesses e- banking services, the P value (Sig 2-tailed) is 0.873, which is more than the Alpha value of 0.05, it was found to be non-significant. Therefore the results indicate that the stated null hypothesis to be rejected and alternative hypothesis is accepted.

FINDINGS OF THE STUDY:

The following are the major findings of the study:

- The overall respondents were numbering, 75 customers out of that 45 respondents are belongs to male category and 30 respondents are belongs female category.
- In the context of age pattern, majority of the respondents numbering, 30 customers belongs to age group of between 30-40 years.
- Further the educational background of the respondents majority numbering, 26 and 31 respondents were graduates and post graduates respectively.
- In the context of occupation of customers, majority numbering, 30 and 28 respondents were belongs to private employee and businessmen respectively.
- Majority 32 respondents were full aware of e-banking customer services.
- Majority numbering, 22 and 32 respondents were belongs to monthly income level of between ₹ 20,000 to ₹ 30,000 and above ₹ 30,000 respectively.
- Majority of the customers numbering, 21 and 20 are opinioned break down and time our services machines and lack of technological awareness are the major operational risk faced the customers,
- Majority of the customers numbering, 24 and 19 are opinioned privacy protection and significance security breach are the major legal risk faced the customers of KBL.
- Majority of the customers numbering, 25 and 22 are opinioned authentication of

customers and confidentiality and integrity of transactions are the major security risk faced the customers.

SUGGESTIONS FOR THE STUDY:

The following are the suggestions for the study:

- The bank should launch on the market of the application is based on minimum safety requirements, such as confidentiality and non-repudiation of transactions to avoid security risks in e-banking services.
- To avoid operational risk the bank should concentrate on avoiding all faults that would break the system, default losses and protection of personal data of customers.
- The banking institutions should design accurate software to maintain banking secrecy, prevention, intrusion detection and monitoring the system, restoring information system managed to avoid operational risks in e-banking.
- The banks should carry out online banking clearly explain the privacy rule and communicate it to their customers
- The banks should also create awareness among customers make a materials, vendor oversight, assignment sheet and excel spreadsheet for risk assessment for policies.
- Banks should develop appropriate incident response plans to manage, contain and minimize problems arising from unexpected events, including internal and external attacks that may hamper the provision of e-banking systems and services.
- The bank should update the privacy and security protection for each customers safety and individual transactions.

CONCULSION

The present study focused on risk management or categories of risks faced by the customers while operating e-banking customer services. In this study focused major

three categories of risk in e-banking services such as, operational risk, legal risk and security risk etc. Finally from the above study results, majority of the customers faced break down and time our services machines, lack of technological awareness, privacy protection, significance security breach, authentication of customers, confidentiality and integrity of transactions are the major risk faced the customers of KBL while access of different categories of E-banking customer services in Mysuru city. Therefore in order to overcome these kinds of risks there is urgent need of consistence legal framework, strong implementing and responsible legal controlling authority which should be able to provide risk free conducive environment for having more banking services to the customers by using e- banking facilities in Karnataka Bank Ltd.

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