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Safety and Security of Digital Transactions of Banking Sector: An Analytical Study

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Abstract

Banking sector plays an important role in the development of the economy of the nation. As a financial institution, banking sector has established itself an essential financial institution which provides various financial services to all economic classes of people. The majority percentage of people prepare their financial plan based on the various financial policies rendered by banks. All classes of people deposit their meager earnings irrespective of values in the bank on the object that their money will be more secure there. Now a question may arise whether their deposits are secured or not in the bank.

The banking transactions and the scope of their functions are widely spread out day by day in worldwide, now-a-days, the people are facing varieties of problems while handling transactions with the banks. The banking frauds at present are creating a panic, and since that the public money has not been lying with the banks in the safe custody. Hacking of accounts is one of the major common problems. Although, the RBI using modern techniques and technologies is trying to overcome this problem, yet it has not gone to the fullest. The Government of India is also trying to sort out the drawbacks and also taking initiatives to overcome this situation. Under these circumstances, it is much essential to sort out how far the banking sector is taking all initiatives to keep their customers in safe and secure position. This study also focuses on the various problems that the customers are presently facing. The study is based on both primary and secondary sources of information. It can be concluded that the steps taken by the appropriate concerns to prevent hacking and all other fraud related issues are still unable to satisfy the Indian citizens. The awareness of most of the common people is still in a dark and are not aware of new technologies.

Key words: *Banking sector, Meager earnings, Hacking, Fraud related issues.*

Introduction

With the introduction of ATM card services in 1987 by the Hongkong and Shanghai Banking Corporation in Mumbai, the Indian banking system had got a revolutionary change in providing hassle free banking services at lower transactions. Customers could get all sorts of banking services any time any where throughout the world. Not only had that, with the innovations of ATM technology, customers' receptivity enhanced tremendously. Having observed this excellent success by the foreign banks in the Indian banking sector, the public sector banks moved ahead to win against the race for expansion of ATM networks. The State Bank of India launched a floating ATM in 2004 on a ferry moving between the jetties of Vypeen and Ernakulam. Again, this bank introduced ATM facilities in Leh to serve the benefits of the Indian army. The frequent strikes by the intractable unions of the public sector banks enhanced the demand for ATMs since the last several decades. Customers do not require visiting the bank branches to perform the daily banking transactions such as cash deposits and withdrawals, cheque deposits, balance enquiry, fund transfers, etc. Gradually, with intense competition and advancement of technologies, banking services have become easier and hassle free at just a fingertip. Now-a-days, anyone can get access to all banking services at any time, anywhere having a mobile device with internet. This advancement of innovative technologies led to the introduction of Internet Banking.

But, this enhancement of technological innovations has led to serious threats like financial frauds via hacking of bank accounts, suspicious calls from unknown numbers asking for verification of bank details, personal details, ATM card details, that put a question mark on the security of banking transactions in recent times. Although, the Reserve Bank of India, using modern techniques and technologies is trying to overcome this problem, yet it has not gone to the fullest. Gradually, the benefits of using ATM cards and internet banking are getting overlapped by its serious drawbacks. This threat has become a major issue, especially for rural populace who are incautious of the unsafe and unsecured banking transactions. The illiterate customers are unaware of the up gradation of websites performed by banks on a periodic basis and use fake websites or even respond to suspicious calls or messages that led to the loss of their earnings.

Literature Review

Black et. all (2001) conducted a qualitative exploratory research to analyze the customer perception towards internet banking facilities provided by several banks in recent days. The study examined that education, gender and age play a crucial in the usage of online banking. The study recommended that up gradation of technical skills will increase the usage of internet banking.

Saluja and Sohi (2006) in his research study analyzed the customers' perception on preference of e-banking. He focused on the major barriers of e-banking like hacking problems, legal and security issues, etc.

Safeena et.al, (2011) in their research study examined the crucial factors that influence the adoption of online banking by potential customers in India. They also analyzed the advantages and security issues related to online banking.

Paul (2013) conducted a survey on customers of various commercial banks of Odisha. She investigated on the prevailing technological rebellion that altered the traditional banking services to e-banking.

Hakkeem and Sha (2015) in their research workmentioned that customer satisfaction is highly influenced by the awareness and convenience of online banking services. So, banks need to improve their facilities to retain customer loyalty on their services.

Khanna and Gupta (2015) in their research study explained the dependence of factors like technological acceptability, safety, user friendliness, etc. on the demographic profile of the population. Increasing the efficiency of marketing decisions can be maintained by means of such demographic factors.

A.Samsunisa (2015) in his study observed that customer perception of online banking services depends on the age group of customers. He also recommended that the banks must focus on all such age groups for the advancement of banking services.

Objectives of the Study

The objectives of the study are:

- To give an elaborate idea about the various services provided by the banks to make the transactions easier in the name of digitization.
- To identify the problems faced by the customers in general.
- To summarize the initiatives taken by the government for rectifying those problems.

Research Methodology

Selection of sample

Gobindapur village of Jagatballavpur block is one of the most densely populated villages in Howrah district of West Bengal. Islampur, Maju, Jujarsha, Shankarhati-I and Shankarhati–II are the nearby villages of Gobindapur. This village is nearby the border of Howrah and Hooghly district. This village has a total population of 11,665 with 2,468 households. 50% of the households, i.e., 250 households have been selected for this research work based on purposive sampling method, who are availing ATM facilities.

Data Collection

This study is based on both secondary and primary sources of information. The secondary sources of information have been collected mainly from the official website of Reserve Bank of India and several other websites of banks via the internet, like State Bank of India, ICICI bank, several renowned journals, publications, books, etc. Primary data have been collected from the respondents which have been selected for the sample of the study. A total of 250 households from the selected village, i.e., Gobindapur village (approximately 50% of 2,468 households) has been considered here for this study. Opinions have been taken from them in developing the study.

Statistical tools used

Frequencies and percentages of the information so collected have been calculated using statistical tools i.e., SPSS software. To test the profile of the respondents, the Chi-square test has been used. Simple regression analysis has been done in two stages, taking two regression models for analyzing the influence of problems related to usage of ATMs, online banking and suspicious calls received by the respondents on financial frauds. All the tests are carried out at 5% and 1 % level of significance. Several charts and diagrams like bar charts and column charts, line diagrams, pie charts, etc. have been used to interpret the data.

Data Analysis and Interpretation

Section I: E-Services provided by Indian Commercial Banks

In the present era of innovations in technology, usage of ATM facilities and online banking feeds the hunger of performing faster banking transactions any time anywhere. Banking services have got more convenient, cheaper and faster due to the application of modern technology. Different Payment and Settlement systems like Structured Financial Messaging System (SFMS), Centralized Fund Transfer System (CFTS), Real Time Gross Settlement System (RGSS) has undergone massive changes due to the enhancement of technological innovations. The National Payments Corporation of India introduced Interbank Mobile Payment Service (IBMS) on 22nd November 2010 in order to provide immediate fund transfer service anytime throughout the year. With these banking innovations, customers do not require standing in long queues at bank branches to perform their day to day banking transactions. Banking transactions can be performed successfully via a desktop or a laptop or a smart phone with high speed internet access just applying login confirmation or One Time Password authentication from the registered mobile number.

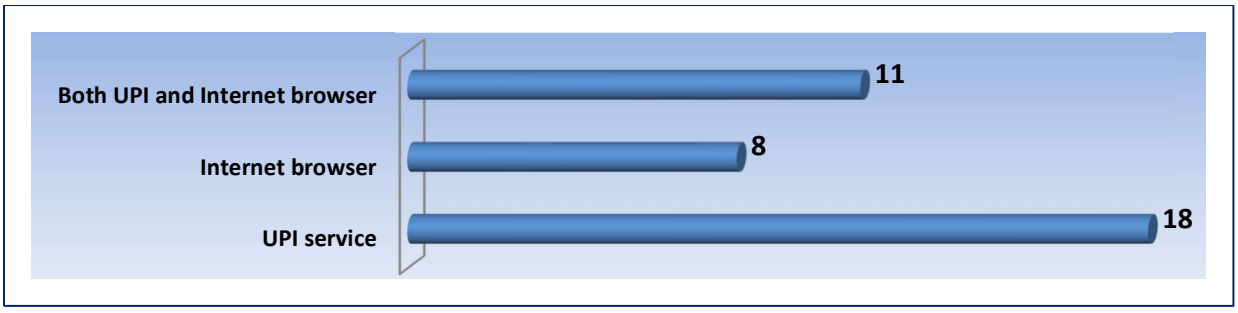
Apart from the regular banking transactions, the different online services provided by the Indian banking sector are:

- Bill payment services: Presently, any type of payments like tax payments, energy bill payments, mobile bill payments, landline tele3phone bill payments, shoppers bill payments, etc. can be madea few seconds throughonline banking.
- Prepaid Recharge:Direct mobile recharges otherwise called DTH (Direct to Home) Set Top Box recharges can be completed successfully within a second using the online bank's portal or mobile applications.
- Shopping: With a vast range of all products, customers can acquire their requisite products at any time from the online shopping sites by online Bill Payment Desk or mobile applications. Not only that, offline shopping can be also done via debit cards or credit cards.
- Any Ticket booking: Travel from one place to another covering any distanceall over the world or even planning for entertainment at theatres can be fulfilled by means of booking tickets online using internet banking from banks' websites or debit cards and credit cards.
- Restaurants: Fulfilling the desire for dining out at restaurants with family, friends, office purpose, etc. has been made cheaper and hasslefree by using online banking.
- Investments: Apart from all the above mentioned facilities, customers can also invest in securities and trade in the stock market or invest in mutual funds.

Section II: Problems faced by customers in the era of Digitization

In the present study, only 37 respondents (14.80% of total respondents) are using online banking facilities. Most of the surveyed populace use ATM cards only for cash withdrawals (67.60% of total respondents) and a very few respondents (32.4%) use ATM cards, both for cash withdrawals and shopping purposes. Neither of them uses ATM cards for dining at restaurants or for other purposes. In case of usage of online banking, most of them use online banking fortnightly (20 respondents), while only 2 respondents use once a week and 15 respondents use once a month. Not only that, most of these online banking users prefer online shopping (20 respondents) than for investment purposes (4 respondents) or preferring both online shopping and investment purposes (13 respondents).

Figure 1: Mode of using online banking



(Source: Primary data)

The surveyed respondents generally prefer to use a UPI service of availing online banking services. This might be due to the fact that UPI services can be availed even at poor internet availability via smart phones or multimedia phones, without the need for using banks' official applications or via internet browsers (Figure 1).

It has also been observed that only 5 respondents are credit card users, where most of them use it for online shopping (4 respondents) than for any other purpose.

Using innovative ideas, technology creates several critical hazards like financial frauds through hacking of accounts, suspicious calls or fake messages from unknown numbers mentioning as bank employees. This hampers mostly the rural illiterates than the urban civilized citizens of Indian economy.

Figure 2: Types of problem faced at ATMs

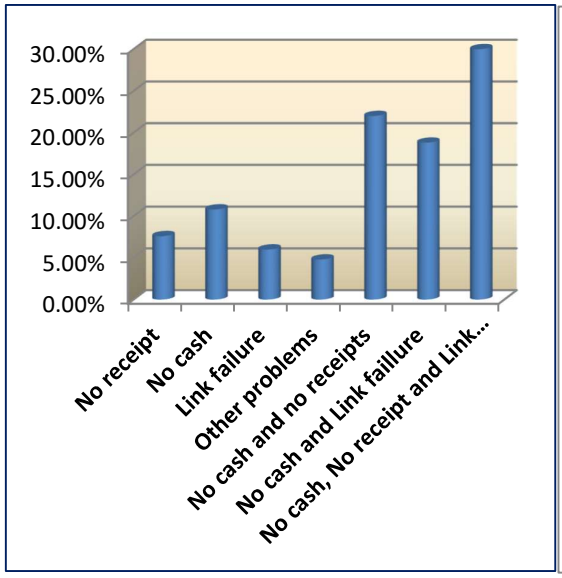
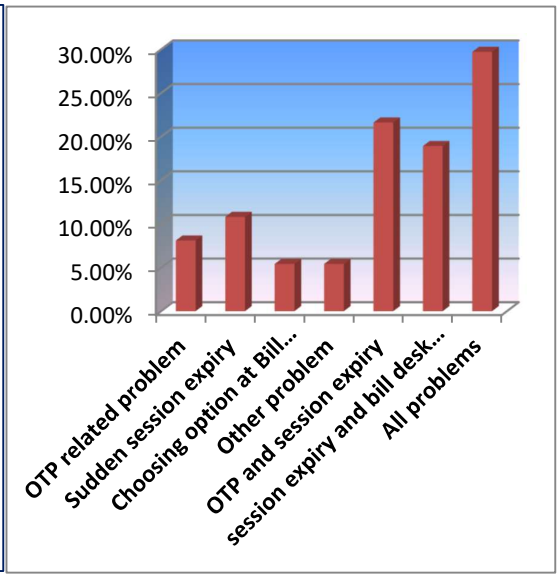


Figure 3: Types of problem faced using e-banking



(Source: Primary data)

Among all the problems faced by the respondents at ATMs, most of them faced all types of problems, viz., no cash, no receipts and link failure. But a major portion of these respondents also faced both no cash and no receipts for banking transactions performed at the ATM kiosks (Figure 2).It has also been analyzed that most of the online banking users faced all types of problems like OTP related problems, sudden session expiry, choosing the appropriate option at Bill Payment Desks (Figure 3).

Further, most of the respondents received fake calls or messages from unknown numbers. In most of the cases, the callers mentioned themselves as bank employees and cheat the rural populace asking for ATM card details verification and personal details verification (Table 1). All these factors led to financial frauds several times by mischievous hackers. The same scenario has been portrayed here also, where 145 respondents (58%) faced financial frauds.

Table 1: Frequency and purpose of receiving calls or messages

Frequency of receiving calls or messages	Frequency	Percent	Purpose of receiving calls or messages	Frequency	Percent
no call or sms received	21	8.4	no call or sms received	5	12
receive one call	34	13.6	non-payment of loan	7	17
received call twice	95	38.0	request to attend customers meeting	9	23
received calls and sms more than twice	100	40.0	personal details verification	20	49
Total	250	100.0	atm card details verification	32	80
			both personal and atm card details verification	27	69
			Total	100.0	250

(Source: Primary data)

In order to check whether there exists any relationship between the problems faced by the respondents at ATM kiosks and in online banking, fake calls or SMS received by them and the financial frauds faced by them, Chi-square test has been conducted using the following hypotheses:

Case 1: H_{0A}: problems faced at ATMs have no influence on financial frauds

H_{1A}: problems faced at ATMs have significant influence on financial frauds

Case 2: H_{0B}: problems faced by receiving fake calls or SMS have no influence on financial Frauds.

H_{1B}: problems faced by receiving fake calls or SMS have no influence on financial Frauds.

Case 3: H_{0C}: problems faced while using online banking have no influence on financial frauds

H_{1C}: problems faced while using online banking have no influence on financial frauds

Now, the test results statistics are displayed in the following Table 2.

Table 2: Crosstab and Chi-square values

Case 1: Types of problem faced at ATMs										
Particulars			no receipt	no cash	link failure	other problems	no receipt and no cash	no cash and link failure	no cash, no receipt and link failure	Total
whether faced financial fraud	disagree	Count	19	26	12	12	0	0	0	69
		Expected Count	5.2	7.5	4.1	3.3	15.2	13.0	20.7	69.0
	agree	Count	0	1	3	0	55	47	75	181
		Expected Count	13.8	19.5	10.9	8.7	39.8	34.0	54.3	181.0
Total		Count	19	27	15	12	55	47	75	250
		Expected Count	19.0	27.0	15.0	12.0	55.0	47.0	75.0	250.0
Chi-Square Tests: Pearson Chi-Square			Value		df			Asymptotic Sig. (2 –sided)		
			233.170		6			.000		

	Case 2: Whether received any call or SMS from unknown numbers					
Particulars			no call or SMS received	receive one call	received call twice	received calls and SMS more than twice	Total
Whether faced financial fraud	disagree	Count	24	15	2	28	69
		Expected Count	6.6	9.9	25.1	27.3	69.0
	agree	Count	0	21	89	71	181
		Expected Count	17.4	26.1	65.9	71.7	181.0
Total		Count	24	36	91	99	250
		Expected Count	24.0	36.0	91.0	99.0	250.0
Chi-Square Tests: Pearson Chi-Square		Value	df		Asymptotic Sig. (2 –sided)		
		95.930	3		.000		

Case 3: Types of problem faced in online banking											
Particulars			Donot use online banking	OTP related problem	sudden session expiry	choosing appropriate option at bill payment desk	other problem	otp and sudden session expiry	sudden session expiry and choosing option at bill payment desk	otp, session expiry and bill payment desk problem	Total
Whether faced financial fraud		Count	69	0	0	0	0	0	0	0	69
	Disagree	Expected Count	58.8	.8	1.1	.6	.6	2.2	1.9	3.0	69.0
	Agree	Count	144	3	4	2	2	8	7	11	181
		Expected Count	154.2	2.2	2.9	1.4	1.4	5.8	5.1	8.0	181.0
Total		Count	213	3	4	2	2	8	7	11	250
		Expected Count	213.0	3.0	4.0	2.0	2.0	8.0	7.0	11.0	250.0
Chi-Square Tests: Pearson Chi-Square			Value			Df			Asymptotic Sig. (2 –sided)		
			16.555			7			.021		

(Source: Primary data)

It has been observed that in all the three cases, the observed counts are far different from the expected counts and the Chi-square values are also highly significant (at less than 5% level of significance), leading to rejection of null hypotheses. This states that there lies a high degree of significant relationship amongthe factors related to the problems faced at ATMs, usage of online banking services, receiving fake calls or SMS and occurrence of financial frauds.

In order to check how far the problems faced by the respondents at ATMs and the fake calls or text messages received by the respondents are dependent on the occurrence of financial frauds, multiple regression analysis has been conducted, which is written in an equation as:

$Y_i = b_0 + b_1X_i + b_2X_2 + u_i$.

Using the dependent and independent variables mentioned in this study, the multiple regression model is: Financial frauds faced= constant + (regression coefficient x Problems faced at ATMs) + (regression coefficient x Calls or messages received) + error term. Running the regression in SPSS, the results are displayed in Table 3A, 3 B and 3C. It has been unable to examine statistically how far the problems faced

while using online banking are dependent on the occurrence of financial frauds as the sample size of respondents using online banking are too small to be included in the regression analysis.

Table 3A: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.868[a]	.753	.751	.224	.718
a. Predictors: (Constant), problemsfaced at ATMs, calls or messages received					
b. Dependent Variable: financial frauds faced					

(Source: results computed by researchers)

From the model summary Table 3A, it has been observed that 'R', simple correlation among financial frauds faced, problems faced at ATMs and Calls or messages received, is 0.868 and the value of R^2 is 0.753. R^2 tells that Problems faced at ATMs and Calls or messages received can explain about 75.30% of the variation in occurrence of financial frauds.

Table 3B: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	37.609	2	18.805	376.194	.000[b]
	Residual	12.347	247	.050		
	Total	49.956	249			
a. Dependent Variable: financial frauds faced						
b. Predictors: (Constant), Problemsfaced at ATMs, calls or messages received						

(Source: results computed by researchers)

In order to get a prescribed conclusion about the goodness of fit of the model, F-test is also performed as shown in the above table. From ANOVA table, it is investigated that F-stat is 376.194 with a p-value of less than 1%. So, it can be concluded with more than 99% level of confidence that this regression model has a goodprognostic power in analyzing the variation in occurrence of financial frauds.

Table 3C: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.362	.052		-6.905	.000
	Calls or messages received	.047	.016	.101	3.017	.003
	Problemsfaced at ATMs	.189	.008	.830	24.884	.000
a. Dependent Variable: financial frauds faced						

(Source: results computed by researchers)

R^2 and ANOVA examines whether the multiple regression model overall significantly predicts the dependent variable or not. But to investigate whether each independent variable can have a significant predictive power or not, it is required to highlight on the coefficients. From Table 3C, it can be observed that the coefficients of Calls or messages received and the Problems faced at ATMs are highly significant (Sig. value less than1%). Thus, it can be clearly concluded that the respondents receiving fake calls or messages and facing problems at ATM kiosks generally face financial frauds by means of hacking of bank accounts, etc.

Section III: Government initiatives on mitigation of ATM and Online Banking frauds

New technologies are now introducing in banking sectors for the benefit of hassle free transactions of the customers, the authorities and the employees are also using various modern techniques to make the transactions easier in all aspects.This has made the customers easier to handle the banking transactions for all classes of people. From the discussion in Section –II, some of the problems the customers are facing tremendous, which may threaten the general public. As some section of people are not so financially literate enough, sometimes they face most of the problems. In these cases, the efforts of the government fail to reduce the risk on some good number of people. In view of these, the government has taken some initiatives to mitigate the frauds occurring in the Indian banking sector which are:

- Government instructs the banking authorities to open Grievance Redressal cell.
- 100 % ATM kiosks must be secured by security personnel.
- Passwords and other linking codes are more secured than previous occasions.
- Old ATM cards that are comparatively less secure were completely replaced by Chip based ATM cards.
- Formed a task force to look after the security of deposits and payments.
- Managed information and tools to prevent financial frauds and detection thereon.
- Provide support for banking education, awareness and sharing all sorts of information.
- Monitoring the security and review the same.

Conclusion

The entire study is completely related to the customers using ATM cards of various banks in the rural area. From the study, it is observed that most of the online users of banks faced at least one problem in their entire period of holding the cards. The major affected card holders are those who used the cards more casually. They do not maintain the security at all. They share their secret passwords to the hackers who somehow forced them to disclose secret details to them. Again, it is also evident from the study that financial literacy is also a part of the effective banking system. Under these observations, it can be

concluded that the governments should take drastic action to prevent such frauds for the benefit of the bank customers. The persons who are internally engaged with the banking personnel for stealing the secret information of the customers should be handed over under the court of law. Literacy programmes should be conducted frequently, particularly in the rural areas.

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