IMPACT: International Journal of Research in Humanities, Arts and Literature (IMPACT: IJRHAL)
ISSN (P): 2347-4564; ISSN (E): 2321-8878
Vol. 7, Issue 1, Jan 2019, 77-84

ENHANCED SECURITY OF DEBIT CARDS IN INDIA: MYTH AND REALITY

Jubair . T

Assistant Professor, Department of Commerce, Government College Kodanchery, Kozhikode, Kerala, India

Received: 25 Dec 2018 **Accepted:** 29 Dec 2018 **Published:** 10 Jan 2019

ABSTRACT

As per the revised deadline of the directive issued by the Reserve Bank of India, magnetic stripe bank cards are to be replaced by EMV chip cards with effect from 1st January 2019 onwards. Even though it is a bold step to enhance the safety and security of debit cards and credit cards, the ultimate security of bank cards depends on the adoption of proper security measures from the part of the users. The present study is an attempt to analyse the extent to which the security measures suggested by the banks were followed by the customers while using debit cards. The study established that some of the security measures were followed by the majority of the customers while some security practices such as frequent change of PIN number is not properly done by the customers.

KEYWORDS: *Magnetic Strip Cards, EMV Chip Cards, Security Measures*

INTRODUCTION

Reserve Bank of India had issued a directive to banks in August 2015 that all new debit cards and credit cards issued with effect from 1st September 2015 shall be EMV chip cards. As per the extended deadline of the directive, the old magnetic strip based debit cards and credit cards are valid up to 31st December 2018. The decision was taken to provide cards better safety and security necessary to prevent electronic frauds. Even after three years given for the transition, the banks were not able to replace all magnetic strip cards with secure EMV chip based cards. In the last few years, number of ATM frauds, phishing attacks and other fraudulent practices were reported in various parts of the country. In this situation, it will be relevant to analyse the security features of debit cards and the security practices followed by customers while using debit cards.

EMV stands for the first letters of EuroPay, Mastercard and Visa, a global standard of authenticating bank cards. EMV chip card include a small micro chip embedded on the front of the card mostly on the left side. EMV based chip cards has been around for years and widely accepted in Europe and advanced countries. Since the EMV chip cards are very hard to clone, it is considered as a better measure to prevent electronic frauds. Apart from electronic chips, a wide range of safety tools and security features such as One Time Password (OTP), Personal Identification Number (PIN), SMS alerts etc., are built into the bank cards. Banks and payment processing companies also issued number of security tips to be followed by the customers while using debit cards and credit cards. The present study analyses the extent to which these security measures were followed by the users while using debit cards.

Significance of the Study

Security of electronic banking transactions cannot be ensured with the security and safety features implemented and incorporated by banks. In addition to the inbuilt security features, it demands proper caring and the adoption of security practices from the part of the customers while using electronic banking instruments such as debit cards, credit cards, online banking etc. Banks and financial institutions have issued guidelines for the safe usage of bank cards and precautionary tips to avoid electronic frauds such as phishing, hacking, skimming etc. However the extent to which these security practices are followed by the users is a big question and it is the subject matter of the study.

REVIEW OF LITERATURE

Number of studies has been undertaken in the area of electronic banking and related aspects in India and abroad. However, the majority of the studies were concentrated on the quality of services, customer satisfaction, customer acceptance and usage preferences. Only a few studies are available in the area of electronic banking security. Hiltgen et al. (2006), Jane Ngozi Oruh (2014), Mannan & Van Oorschot (2008), Vanessa Pegueros (2012) and Zachari et al.(2012) analysed the security elements of various electronic banking services, but it is not conducted from the point of view of customers. Further, the studies concentrating on the extent of practicing security measures by the customers while using debit cards particularly in the context of India were not found anywhere. Hence the present study which comprehensively analyses the extent to which the suggested security measures followed by the customers while using debit cards is relevant and important.

Objectives of the study

The study aims to identify the security measures to be followed by the customers while using debit cards as suggested by banks. The study also intended to analyse the extent to which these security measures were actually followed by the customers while using debit cards.

RESEARCH METHODOLOGY

The study was conducted among the customers of public sector banks in Kerala by using a well structured interview schedule. 300 respondents were selected from the customers of two public sector banks, State Bank of India and Canara bank on the basis of purposive sampling. Special care were taken to include all category of people such as urban, rural, male, female, educated, uneducated etc., in the survey.

Limitations of the Study

The study was conducted among the customers of public sector banks only. The samples are taken on the basis of purposive sampling, a non random sample method. The study is conducted on the basis of the data collected from the state of Kerala.

RESULTS AND DISCUSSIONS

Banks have issued number of guidelines and security tips to the customers to be followed while using debit cards. Replacement of magnetic strip cards with EMV chip cards, use of unique and strong PIN, frequent change of PIN numbers, memorize PIN, secret entering of PIN, check transaction SMS, and verification of the amount in transaction slip are the main security measures to be followed by the customers while using debit cards.

Replacement of Magnetic Strip Cards with EMV Chip & PIN Cards

Since the validity of magnetic strip cards expires on 31st December 2018, it is inevitable to replace old cards with chip embedded smart cards. Many banks through the available database of their customers has already replaced a lot of magnetic strip cards and sent messages to all the customers to visit the branch and to apply for new debit cards. Banks also provide facilities on internet banking to apply for new debit cards. The data relating to the receipt of notification from the bank and the proportion of customers replaced their cards are summarised in table 1.

Table 1. : Replacement of Magnetic Strip Cards

Statement	Yes	No
Received messages from the banks to apply for new cards	99%	01%
Replaced strip based cards with chip embedded cards	82%	18%

From table 1, it is clear that the almost all customers have received SMS from the banks to replace their old cards but only 82% of the customers of public sector banks in Kerala under study have replaced their old cards with chip cards. The main reason for the non-replacement of old cards is their inability to visit their branch. Some of the customers have tried to apply for new cards through internet banking, but the transactions were failed due to technical reasons. Some customers have received new EMV chip cards without request but not activated so far.

PIN Management

Customers have to take care in the management of Personal Identification Number incorporated to authenticate the debit card transactions. Frequent change of PIN number, remembering PIN rather than writing it on somewhere, strong unique

PIN and secrecy in recording PIN are the main security tips issued by banks in connection with management of PIN. Strong PIN means a 4 digit number which cannot be guessed by the hacker. It should not be popular digits such as 1234, 1111, 1010 etc., or resembled with date of birth, date of marriage etc. PIN management elements practiced by the customers are given in table 2.

Table 2: PIN Management

PIN Management Measure	Total Score	Mean Score	Median Score
Frequent change of PIN number	572	1.9	2
Remember PIN rather than writing it on somewhere	1162	3.9	4
Unique and strong PIN	1019	3.4	4
Secrecy in recording PIN	1368	4.56	5

* Significant at 5% level of significance

** Significant at 1% level of significant

The analysis made in table 2 reveals that the customers are rarely changing their PIN of debit cards, but the majority of the customers are following the other security measures in connection with PIN management. However, it is also important to note that there are people who are using weak PIN numbers and recording the PIN numbers in public without any secrecy. These people may have the possibility to become the target of the hackers in future. As the password change is not practiced by the customers properly, it will be appropriate to analyse the extent of using this measure by different classes of people. In order to check whether there is any difference in the habit of password change among male and female, urban and rural, people at different age, education and computer literacy, chi-square test is used and the result is summarized in table 3.

Hypothesis

Ho: There is no statistically significant association between the practice of PIN change and the selected demographic variables.

As the P-value in table 3 is significant for all the cases except locality, the null hypothesis is rejected for the first four variables. Therefore, the practice of changing PIN of ATM is different from male and female, respondents with different age category, education level and computer literacy. Male, young and middle aged adults, educated people and computer literates are found more security conscious while compared to others. But it is also serious to note that even tech savvy people and post graduates are not frequently changing their Personal Identification Numbers. As the P value is not significant in the case of locality, the null hypothesis is accepted. Hence it is established that there is no significant difference towards the practice of changing PIN between urban and rural people.

Table 3: Practice of PIN Change – Results of Chi-Square Test

Independent Variables	Category	Mean Value	P value
Gender	Male	1.94	0.020*
	Female	1.77	
Age	Young adults	1.93	0.000**
	Middle-aged adults	1.89	
	Old aged adults	1.55	
Education	Less than SSLC	1.38	0.000**
	Under graduates	1.58	
	Graduates	1.89	
	Post Graduates	2.14	
Computer literacy	Illiterates	1.44	0.000**
	Fundamentals	1.84	
	Tech savvy	2.12	
Locality	Urban	1.95	0.070
	Rural	1.80	

Check SMS, Statement or Balance after Transaction

It is advised that the customer has to check the SMS, statement or balance in the account after each and every debit card transactions. Transaction SMS, precautionary messages, security tips etc., are regularly sent by banks to its customers. SMS received from the bank is to be close monitored every time immediately after it is received. The actual practice of this security measure is given in table 4.

Table 4: Checking Statement or SMS

Security measure	Total Score	Mean Score	Median Score
Checking SMS after transaction	1215	4.05	4
Checking statement or account balance	1381	4.60	5

From the data given in table 4, it can be understand that the majority of the customers are giving proper attention to check the transaction statement or SMS after the transaction is done. The habit of checking SMS is low while compared to the verification of the amount in transaction slips.

CONCLUSION

The study conducted on the security consciousness of debit card users pointed out that the banks have incorporated a number of security measures in debit card transactions and suggested some precautionary measures to be followed by the customers. The study revealed that the recommended security measures except PIN change were followed by majority of the customers. At the same time, the non-adoption of security measures by some customers including educated and tech savvy make the security of card transactions as a myth. Since the security of electronic banking cannot be ensured solely with the measures adopted by the banks, the study pointed out the necessity of serious efforts from the part of policy makers and banks to spread wide publicity and awareness towards the importance of self security among the customers.

REFERENCES

1. *Archana Avasthi (2015). Impact of Technology in banking sector. Mumbai. Shroff Publishers and Distributors Pvt. Ltd.*
2. *Borzekowski, R., Elizabeth, K. K., & Shaista, A. (2008). Consumers' use of debit cards: patterns, preferences, and price response. Journal of Money, Credit and Banking, 40(1), 149-172.*
3. *Christopher Lovelock, I., Jochen Wirts, & Jayanta Chatterjee (2007). Services marketing: People, Technology, strategy. Noida, Pearson India Education Service Pvt. Ltd.*
4. *Datta, S. K & Neha Dixit. (2010). Acceptance of e-banking among adult customers: an empirical investigation in India. Journal of internet Banking and Commerce, 15(2), 1. (August 2010, vol. 15, no.2)*
5. *Hiltgen, A., Kramp, T., & Weigold, T. (2006). Secure internet banking authentication. Security & Privacy, IEEE, 4(2), 21-29.*
6. *Jane Ngozi Oruh (2014). Three factor authentication for Automated Teller Machine System. International Journal of Computer Science and Information Technology & Security. 4(6), 160-166*
7. *Kaur, Rimpi (2010). Indian banking: managing transformation through information technology problems and prospects. Patiala: Panjabi University.*
8. *Krishnaswami, O.R. & Ranganatham, M. (2013). Methodology of research in Social Sciences. Mumbai. Himalaya Publishing House.*
9. *Mannan, M., & van Oorschot, P. C. (2008, July). Security and usability: the gap in real-world online banking. In Proceedings of the 2007 Workshop on New Security Paradigms (pp. 1-14). ACM.*
10. *Nainta, R. P. (2005). Banking system, frauds and legal control. New Delhi. Deep and Deep Publications Private Limited.*
11. *Rogers, W. A., Gilbert, D. K., & Cabrera, E. F. (1997). An analysis of automatic teller machine usage by older adults: A structured interview approach. Applied ergonomics, 28(3), 173-180.*

12. *Scholnick, B., Massoud, N., Saunders, A., Carbo-Valverde, S., & Rodríguez-Fernández, F. (2008). The economics of credit cards, debit cards and ATMs: A survey and some new evidence. Journal of Banking & Finance, 32(8), 1468-1483.*
13. *Vanessa Pegueros (2012). Security of Mobile banking and payments. SANS Institute.*
14. *Zachary, B. Omariba, Nelson, B. Masese & Wanyembi, G. (2012). Security and Privacy of Electronic Banking. IJCSI International Journal of Computer Science, 9 (4), 432-446*
15. *www.idrbt.ac.in (Official website of the Institute for Development and Research in Banking Technology)*
16. *www.rbi.org.in (Official website of the Reserve Bank of India)*
17. *www.statebankofindia.com*
18. *www.canarabank.in*