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CONTENTS

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    INTRODUCTION
    REVIEW OF LITERATURE
    NEED/IMPORTANCE OF THE STUDY
    STATEMENT OF THE PROBLEM
    OBJECTIVES
    HYPOTHESES
    RESEARCH METHODOLOGY
    RESULTS & DISCUSSION
    FINDINGS
    RECOMMENDATIONS/SUGGESTIONS
    CONCLUSIONS
    LIMITATIONS
    SCOPE FOR FURTHER RESEARCH
    REFERENCES
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- Bowersox, Donald J., Closs, David J., (1996), "Logistical Management." Tata McGraw, Hill, New Delhi.
- Hunker, H.L. and A.J. Wright (1963), "Factors of Industrial Location in Ohio" Ohio State University, Nigeria.

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- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, Kurukshetra University, Kurukshetra.

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- Garg, Bhavet (2011): Towards a New Natural Gas Policy, Political Weekly, Viewed on January 01, 2012 http://epw.in/user/viewabstract.jsp

RISK MANAGEMENT IN E-BANKING: ISSUES AND CHALLENGES

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ABSTRACT

Technological advancements keeps broadening the frontier of possibilities in all human endeavors and thus more e-banking services are being developed and introduced. The increasing competition among the banks to penetrate in new market segments is also one of the reasons for emerging of e-banking. It is an electronic connection between bank and customers in order to manage and control financial transactions. While, implementing e-banking, several risks arises like; operational risk, security risk, reputational risk, etc., and also various challenges like; cost, technology, lack of knowledge of e-banking, etc. for the successful implementation of e-banking the risk should be reduced. Therefore, this paper is focused on various aspects of risk mitigating measures and the technology, strategies to face the challenges. This paper highlighted experiences of various countries implementing e-banking throughout the globe drawn conclusions and made suggestions for the success of e-banking.

KEYWORDS

e-banking, risks, ICT, e-banking challenges, India.

INTRODUCTION

The traditional banks alone are no longer enough to offer services to meet the need of today's high demanding customers. Electronic or online banking is the latest delivery channel to be presented by the retail banks and there is large customer acceptance rate which means delivery of banking services to customers using electronic technology either at their office or home. The development of e-banking service has encouraged the adoption of a decentralized approach to give banks more needed flexibility to distribute online access to a much larger number of employees and potential customers. (Harris, 2000, Beckett, 2000). E-banking came into being in UK and USA. Now days it has been estimated that around 40 percent of banking transaction would be done through internet. The e-banking offers huge opportunities in every sphere of business as the competitive advantage, member/client retention, increased revenues and reduced costs because of the use of advanced ICT. Understanding clients, organizational elasticity, availability of resources, system security, reputable brand name, having multiple integrated channels, e-channel specific marketing, support from top management and good client services are the vital factors for the success of e-banking. Apart from those e-banking provides convenience, comfort, confidentiality and security to the customers, they can operate from their homes by using internet or other networks, television, telephone/modems.

Now-a-days banks are increasing their customer base with the help of multiple e-delivery channels like ATMs, credit/debit/smart cards, internet banking, mobile banking, tele-banking, etc. E-banking is offered by many banking institutions due to pressures from global competitions. In case of delay of services, in the internet they might lose their market share. To be successful, banks have to offer services through e-banking facility which is subjected to risks involved in it. Hence, the study made an attempt to identify various risks and challenges involved in e-banking. Finally, the study identified various risks and suggested various risk mitigating measures and also made suggestions for facing challenges in e-banking.

REVIEW OF LITERATURE

Banks should provide their customers with convenience, meaning offering service through several distribution channels (ATM, Internet, physical branches) and have more functions available online. To access a financial institution's online banking facility, a customer with internet access would need to register with the institution for the service. Today many banks are becoming as e-banks. But they should differentiate themselves by offering better extensive online banking features. E-banking is fast becoming a norm in the developed world and they are succeeded. The main reason is the numerous benefits it can provide, both to the banks and to customers of financial services.

There is a difference in gender in the use of e-banking. Gefen& Straub (1997) found that, gender has a direct influence on adoption of technology with men and women having different rates of computer technologies adoption. There is a difference in information processing exists between men and women and as such both genders will have different rate of technology acceptance (Putrevu 2002).

Increased customer satisfaction is one of the benefits that banks experience when using e-banking. The major benefits of e-commerce adoption not anticipated by the sector are business, efficiency, improved image, competitive advantage, increased automation of processes and increased business turnover (Joze, Julie & Angela, 2002). Now a day's e-banking is facing so many challenges and risks the review on those is given below.

Roshan Lal, et. all (2012) stated that in years to come e-banking will not only be acceptable mode of banking but preferred mode of banking. The proliferation of internet and computer usage, the electronic delivery of e-banking service has become ideal for banks to meet customer expectations (Maheswari, 2011). Sharma (2011) said to address the concerns of customers quickly, banks must put in place concrete development plans and a system of controls and security that boosts competitiveness and ensure further progress.

Mohan (2006) remarked that Indian banking is at the threshold of a paradigm shift and a significant development has been achieved by banks in offering a variety of new and innovative e-banking services to customers today, which was not thought of before. India has 205 million internet users and ranks third among the internet penetration of 12.6% after China and US (Singh, 2013). Raghavan (2006) opined that, at present, over 85% of the finished payment transactions are electronic and traditional way of doing banking at the branch level has relatively little importance to electronic banking users.

Internet banking is facing several risks. The major risks of e-banking are operational risks (e.g. security risks, system design, implementation and maintenance risks); customer misuse of products and services risks; legal risks (e.g. without proper legal support, money laundering may be influenced); strategic risks; reputation risks (e.g. in case the bank fails to provide secure and trouble free e-banking services, this will cause reputation risk); credit risks; market risks; and liquidity risks (Duran, 2001, Mohammad, 2009).

Several challenges are persistent to the e-banking. In spite of being a boon for the customers the internet banking is not free from complexities and poses a set of unique challenges to banking organizations (Sikdar et. al, 2013). Kumar and Sinha (2009) identified various instances of hacking and phishing attacks reported

throughout India. They remarked that, cyber crimes prove that e-banking has several loopholes that can be easily exploited and users need to be extra cautious while making online transactions. Security is one more challenge various studies suggested security tips for customers which include: changing password frequently, abstaining from revealing PIN either via mails or phone, avoiding cyber cafes for net banking etc. (Srinivas, 2009).

To avoid those challenges the possible ways are: internet banking users are advised not to reply to any mail, phone call or letter, asking for the internet banking information like login id or password, and not to click on any link provided in any mail, claiming to be the link for the bank's website are the important tips, among others (Mishra, 2011).

NEED OF THE STUDY

With the increase of the competition among the banks, every bank has to increase its business size and attract more customers by providing variety of banking services, which are more convenient and comfortable to the customers. In view the customers need and their convenience the banks have adopted information and communication technology (ICT) and providing variety of new services through e-banking. While implementing e-banking the banks are facing several problems, risks and challenges. Keeping in view the risks and challenges of e-banking the study was undertaken to give right solutions for the problems faced by the banks.

OBJECTIVES OF THE STUDY

The primary objective of the study is to identify the risks involved in e-banking and to analyse those risks. The other objectives are:

- To study the major issues and challenges of e-banking.
- To identify the major risks involved in e-banking
- To identify the risk mitigating mechanism.

RESEARCH METHODOLOGY

The study mainly focused on the theoretical aspects of identifying the risks involved in e-banking. For this the available secondary data sources were used. The available information on internet regarding the e-banking has been extensively used to complete the study.

ANALYSIS

With the expansion of internet usage, e-banking has become one of the most revolutionized components of today's economic growth. E-banking is powerful value added tool to attract new customers and retain the existing ones. With the proliferation of internet and computer usage, the electronic delivery of e-banking service has become ideal for banks to meet customer expectations. The potential competitive advantage of e-banking lies in the areas of cost reduction and satisfaction of consumer needs. Internet banking is changing the banking industry and is having the major effects on banking relationships. In true Internet banking, any inquiry or transaction is processed online without any reference to branch (anywhere banking) at any time. Providing Internet banking is increasingly becoming a "need to have" than a "nice to have" service.

E-BANKING BENEFITS

General consumers have been significantly affected in a positive manner by E-banking. Many of the ordinary tasks have now been fully automated resulting in greater ease and comfort.

- Customer's account is extremely accesses able with an online account.
- Customer can withdraw at any time through ATMs that are now widely available throughout the country.
- Customers can also have mini banks statements, balance inquiry at these ATMs.
- Internet banking is enabling the customers to operate their accounts while sitting in their offices or homes. Thus helping them to move the paper less environment.
- Payment of utility bill is a great use of e-banking.
- The growth of credit card usage also owes greatly to e-banking. The customers can shop worldwide without any need of carrying paper money with him.
- The growth of e-banking has greatly helped the banks in controlling their overheads and operating cost.
- Many repetitive and tedious tasks have now been fully automated resulting in greater efficiency.

E-BANKING - INTERNATIONAL EXPERIENCE

Banks have established e-banking system in all most all countries. Unfortunately, data on Internet banking are scarce, and differences in definitions make cross-country comparisons difficult. Even so, one finds that Internet banking is particularly widespread in Austria, Korea, the Scandinavian countries, Singapore, Spain, and Switzerland, where more than 75 percent of all banks offer such services. The study identified the e-banking experiences of some countries in the world and mentioned below:

ASIA

In Asia, the growth of e-banking is remarkable. But the major factor of restricting growth of e-banking is security, in spite of several countries being well connected via Internet. Access to high-quality, e-banking products are an issues as well. Majority of the banks in Asia are just offering basic services compared with those of developed countries. Still, e-banking seems to have a future in Asia.

EUROPE

In Europe, the Internet is accelerating the reconfiguration of the banking industry into three separate businesses: production, distribution and advice. Though e-banking in Europe is still in the evolutionary stage, it is very clear that it is having a significant impact on traditional banking activities. Unlike in the US, though large banks in the Europe have a competitive edge due to their ability to invest heavily in new technologies, they are still not ready to embrace e-banking. The e-banking usage is highest in Iceland (91 percent), Norway (89 percent) and Finland (86 percent). Finland was the first country in the world to take a lead in e-banking, which was launched in the year 1996. Internet banking is particularly widespread in Austria, Korea, the Scandinavian countries, Singapore, Spain, and Switzerland, where more than 75 percent of all banks offer such services.

The Scandinavian countries have the largest number of Internet users, with up to one-third of bank customers in Finland and Sweden taking advantage of e-banking.

UNITED STATES OF AMERICA (USA)

USA is the country which is having large e-banking network. Fifty-one percent of U.S. adults or 61 percent of internet users bank online. Thirty-two percent of U.S. adults or 35 percent of cell phone owners banking by using their mobile phones (Pew Research Center-2013).

UNITED KINGDOM (UK)

UK is one more developed country using large network of internet for banking. About 92 percent of the individuals use internet, 76 percent use internet banking in Britain. In 2013, 36 million adults (73 percent) in Great Britain accessed the Internet every day, 20 million more than in 2006, when directly comparable records began. Access to the Internet using a mobile phone more than doubled between 2010 and 2013, from 24 percent to 53 percent.

AUSTRALIA

In 2010-11, the internet accessing people at home were 13.3 million in this country. The top three reported activities were: e-mailing (91percent); research, news and general browsing (87 percent); and paying bills online or internet banking (64 percent). It is estimated that 11.4 million Australians were banking through online.

E-BANKING - INDIAN EXPERIENCES

To cope with the pressure of growing competition, Indian commercial banks have adopted several initiatives and e-banking is one of them. India is still in the early stages of e-banking growth and development. Competition and changes in technology and lifestyle in the last five years have changed the face of banking. The traditional model for banking has been through branch banking. Only in the early 1990s there has been start of non-branch banking services. The good old manual systems on which Indian banking depended upon for centuries seem to have no place today. The credit of launching internet banking in India goes to ICICI Bank. Citibank and HDFC Bank followed with internet banking services in 1999. The Government of India as well as the Reserve Bank has been taken several initiatives to facilitate the development of e-banking in India. The Government of India enacted the IT Act, 2000 with effect from October 17, 2000 which provided legal recognition to electronic transactions and other means of electronic commerce. The Reserve Bank is monitoring and reviewing the legal and other requirements of e-banking on a continuous basis to ensure that e-banking would develop on sound lines and e-banking related challenges would not pose a threat to financial stability.

India scores highest (8.5) on the happiness quotient of its banking citizens in the Asia-Pacific region with facilities like online banking, transaction efficiency, and easy access to ATMs and local branches keeping users content, but out of all these the internet banking penetration still stood at 19.2 million of total internet user population. The internet banking household penetration is 7.2 percent, whereas the total number of households in 2012 was 268 million. However, efforts are now being made in various quarters to convert internet users to internet banking users as well. For this, the banks are now engaging themselves in offering services online for 24 hours in a day and seven days in a week availability and convenience to its customers. So the challenge today to the banking industry in India is to expand the Internet banking user base and slowly increase the range of services customers use.

One of the major problems in e-banking is its services other than ATM's still does not account for a significant portion of total transactions in suburban and rural India due to the lack of awareness about all e-banking services provided by bank (Rao, 2013).

STATISTICS RELATED TO e-BANKING IN INDIA

Number of Banks in India	Public sector banks-27, private sector banks-19, foreign banks in India-25, foreign banks with branches in India-29, foreign banks with representative offices in India-32
Number of E-banking users in India (2013)	205 million users
Number of ATM's in India (end of October 2014)	Onsite-91,967 Offsite-81,730
Point of Sale (end of October 2014)	On line-11,11,228 Off line- 348
Number of mobile banking users (2013-2014)	35.5 million
Number of transactions through mobile banking (2013-2014)	94 million
Value of mobile banking transactions (2013-2014)	224 billion
NEFT (2014)	Number of transactions- 873.02 million Amount of transactions- 55,339.15 billion
RTGS (2014)	Number of transactions - 89.6 million Amount of transactions- 7.45 Lakhs (Rs. billion)
Credit cards (Nov 2013-Oct 2014)	Number of outstanding cards as at the end of the month- 19.9 million Number of transactions - ATM- 35.73 lakh POS- 568 million Amount of transactions - ATM - 19,608.75 (Rs. Million) POS- 16.15 lakh
Debit cards (Nov 2013-Oct 2014)	Number of outstanding cards as at the end of the month- 441.6 million Number of transactions - ATM- 6.69 billion POS- 709.4 million Amount of transactions - ATM- 21.3 million (Rs. Million) POS- 11.06 lakh

Based on the above global and Indian experiences it is identified that, the coverage in India is very less. The security problems through the globe are high. To avoid this problem new security measures are required. It is also observed that, the awareness and usage of internet is low in India. More education and awareness creating programmes are needed in India.

RISKS INVOLVED IN E- BANKING

During the provision of electronic banking services and the use of electronic money banks are faced with a certain set of specific risks, such as:

OPERATIONAL RISK

Operational risk, also referred to as transactional risk is the most common form of risk associated with e-banking. Operational risk arises from potential loss due to deficiencies in the system reliability and integrity. Operational risk may arise due to the abuse by clients or improper designed or implemented electronic banking or electronic money system. Different forms of operational risk are: security risks (reliability and integrity of the system), the risks of designing, implementing and maintaining the system, the risks of misuse of products or services by customers.

SECURITY RISK

Security risk appear in relation to control of information with which the bank interacts with the environment, electronic money transfers, as well as prevention of fraud or forgery. Example of a possible security risk is unauthorized access to the system and hackers who enter the internal systems. This means that confidential information may be overjoyed by unauthorized persons. To manage this risk banks can apply certain measures like implementation of communication security measures, such as "fire wall", passwords, encryption technology and authentication of users.

RISK OF DESIGN, IMPLEMENTATION AND MAINTAINING

Risks of design, implementation and maintenance of the system have an important impact on the development of electronic banking and electronic money. This risk may be slow down the system which can have negative consequences to clients of the bank. It is not uncommon for banks to take foreign providers and experts for the implementation, operation and support which provide smooth conducting electronic banking and electronic money activities.

RISK OF MISUSE OF PRODUCTS AND SERVICES

Misuse of products and services by customers, whether intentional or unintentional, is another source of operational risk. The risk increases due to inadequate education of customers, by banks, on security measures during the verification of electronic money transfers. Personal information of bank customers who participate in electronic banking (credit card number, bank account number, etc.) must be specially protected during the electronic money transactions.

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 confidence in the banks' ability to perform critical functions or impair bank-customer relationship. It may be due to banks' own action or due to third party action. The main reasons for this risk may be system or product not working to the expectations of the customers, significant

system deficiencies, significant security breach (both due to internal and external attack), inadequate information to customers about product use and problem resolution procedures, significant problems with communication networks.

LEGAL RISK

Legal risk arises from violation of, or non-conformance with laws, rules, regulations, or prescribed practices, or when the legal rights and obligations of parties to a transaction are not well established. Given the relatively new nature of Internet banking, rights and obligations in some cases are uncertain and applicability of laws and rules is uncertain or ambiguous, validity of some agreements formed via electronic media and law regarding customer disclosures and privacy protection causing legal risk.

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. Thus banks expose themselves to the money laundering risk. This may result in legal sanctions for non-compliance with "know your customer" laws.

CROSS BORDER RISKS

Banks accepting foreign currencies in payment for electronic money may be subjected to market risk because of movements in foreign exchange rates. 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 and jurisdiction ambiguities with respect to the responsibilities of different national authorities. Such considerations may expose banks to legal risks associated with non-compliance of different national laws and regulations.

STRATEGIC RISK

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 (if outsourced) and level of the technology used in comparison to the available technology etc.

CREDIT RISK

It is the risk that a counter party will not settle an obligation for full value, either when due or at any time thereafter. Banks may not be able to properly evaluate the credit worthiness of the customer while extending credit through remote banking procedures, which could enhance the credit risk. Presently, facility of electronic bill payment in Internet banking may cause credit risk if a third party intermediary fails to carry out its obligations with respect to payment.

LIQUIDITY RISK

It arises out of a bank's inability to meet its obligations when they become due without incurring unacceptable losses, even though the bank may ultimately be able to meet its obligations.

RISK OF UNFAIR COMPETITION

Internet banking is going to intensify the competition among various banks. The open nature of internet may induce a few banks to use unfair practices to take advantage over rivals. Any leaks at network connection or operating system etc., may allow them to interfere in a rival bank's system.

RISK MITIGATING MECHANISM

To use any risk mitigating measure the risk assessment is necessary. It is a permanent process which takes place in three phases. In the first phase it is necessary that the bank identifies and quantifies the opportunities and risks. The second phase determines the potential for banks in the level of risk tolerance, based on the assessment of loss that the bank will be able to submit. In the third stage it is necessary to assess whether the risk exposure within the range limit. After the evaluation of risks and determine their levels of tolerance, the bank's management should start with risk management and their control. The study identified several risks mentioned above. The problem is how to reduce those risks? There are different ways and means to reduce the risks those are given below.

For operational risk mitigation banks' system must be technologically equipped to handle these aspects which are potential sources of risk. Appropriate system architecture and control is an important factor in managing various kinds of operational and security risks. The education of the staff as well as users, avoid operational risk. Managing the operational risk include access control, use of firewalls, cryptographic techniques, public key encryption, digital signature etc.

Possible measures to avoid reputational risk are to test the system before implementation, backup facilities, contingency plans including plans to address customer problems during system disruptions, deploying virus checking, deployment of ethical hackers for plugging the loopholes and other security measures.

There should be a privacy rule from the bank and this must be communicated to all prospective clients. Also client permission should be sought before dissemination of information to external parties to reduce legal risk. To avoid money laundering risk, banks need to design proper customer identification and screening techniques, develop audit trails, and conduct periodic compliance reviews, frame policies and procedures to spot and report suspicious activities in Internet transactions.

For reducing strategic risk, banks need to conduct proper survey, consult experts from various fields, establish achievable goals and monitor performance. Proper evaluation of the creditworthiness of a customer and audit of lending process are a must to avoid such risk. It is important for a bank engaged in electronic money transfer activities that it ensures that funds are adequate to cover redemption and settlement demands at any particular time. Failure to do so, besides exposing the bank to liquidity risk, may even give rise to legal action and reputational risk.

The risk management frame work consists of risk identification, risk managing strategies and risk monitoring. It means identifying various kinds of risks involved in the project. Then measuring the level of risk it is nothing but quantifying the risk. Finally, ranking the all risks based on level of existence. The risk mitigated techniques or strategies generally used are: reduction of risk, retention of risk and risk transfer.

E - BANKING MAJOR ISSUES AND CHALLENGES

The basic features of e banking (and e-commerce in general) carry a number of challenges for risk management (electronic banking group) they are:

1. The major challenges that electronic banking is facing is the security variability, lack of knowledge of end users, failure of bank transitions, user interface etc.
2. The competitive pressures to prepare new business applications. The competition is intensifying challenges for management to ensure that adequate strategic assessment, risk analysis and security research carried out before implementation of new applications.
3. Transnational e-banking integrated as possible into existing computer systems to achieve immediate processing of electronic transactions to reduce human errors and frauds that occur with manual processes.
4. Increase of technical complexity for many operational and safety issues and the continuing trend towards greater number of partnership arrangements, outsourcing and alliances with third parties, of which many are subjected to regulation.
5. The challenge of security, data protection, procedures and standards of diary keeping privacy of clients. Because, the internet is global open network which can be accessed anywhere in the world of the unknown, routing messages through unknown locations and via wireless devices that are developing fast.
6. Technological issues including costs, soft ware, infrastructure, managerial challenges of people and organistional issues, business challenges of customers services and legal issues.

The key challenges are cost, knowledge of e-commerce and managing change. To address these, the banks must develop cost effective technology, customer awareness programmes, etc.

CONCLUSION

To meet the expectations of customers, banks must have effective capacity, business continuity and plans for every eventuality. Banks should develop appropriate plans for responding to incidents, including communication strategies, which ensure business continuity, control of reputation risk and limiting the obligations under the disturbances in their e-banking. Identification of risk is possible in several ways; the most common methods are related to empirical

experience of banks, as well as the exchange of experiences between the commercial banks. Risks in banking are an integral part of the job. E- Banking provided significant benefits to the bank and its clients. E-banking need to be consistent and should provide timely services in accordance with high customer expectations. Banks must be able to provide e-banking services to all end users and to be able to maintain such availability in all circumstances.

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