

E-Banking in India: a Study with Reference to Various Financial Services

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ABSTRACT

Electronic banking and finance is the penetrating mechanism with a variety of services especially in the banking sector. Globalization and technological advancement like kiosks and internet brought many products and services like ATMs, Smart cards, Online Banking which is facilitating electronic payment, Plastic money services, Brokerages and foreign exchange transactions, which automatically leads to wide access of B2B and B2C business domains. The website technology has totally transformed the banking business. The success of Internet banking depends upon the well designed website of a bank. India has 155 scheduled banks with 99,218 ATM network (June-2012). SBI leads the pack with 22,469 ATMs followed by Axis Bank with 10,337 ATMs. In India E-Finance are governed by several acts like IT act-2000, Central bank guidelines on internet banking etc. Even it has many advantages; E-Finance in banking sector has associated with many risks like security risk, System architecture and design etc. So this paper discusses the impact of E-Finance on banking sector, its various products and services, diverse risk associated with electronic banking services and its solutions to tackle these challenges. The study is based on exploratory research mainly on qualitative analysis.

Keywords: E-Finance, Electronic banking products and services, Mobile Banking, Risk Management of E-Banking

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1. INTRODUCTION

E-Finance to banking services has been more varied across countries. It allows countries to establish a financial system without first building a fully functioning financial infrastructure by its much cheaper since it lowers processing costs for providers and search and switching costs for consumers. Internet banking is changing the banking industry, having the major effects on banking relationships. Banking is now no longer confined to the branches where one has to approach the branch in person, to withdraw cash or deposit a cheque or request a statement of accounts. In true Internet banking is increasingly becoming a "need to have" than a "nice to have" service. The net banking, thus, now is more of a norm rather than an exception in many developed countries due to the fact that it is the cheapest way of providing banking services. As of 2010 there are 15 million online banking users in India and 53 banks are providing ATM facilities across the country.

The success of Internet banking depends upon the well designed website of a bank. It needs to be informative and functional. So, the basic aim of a website is to make the electronic banking services more functional, desirable, accessible and consumer friendly. Internet banking can be provided by the banks in two ways. Firstly, an existing bank with its physical offices can establish a website and offer the internet banking services as an additional delivery channel. Secondly, the facility of e-banking can be provided solely through the internet without having any physical office.

The adoption of mobile banking has increased substantially in the past year, in a world nearly 28 percent of mobile phone users in the survey report that they used mobile banking in the past 12 months. E-banking provides enormous benefits to consumers in terms of ease and cost

of transactions, either through the Internet, telephone or other electronic delivery. Electronic finance (E-finance) has become one of the most essential technological changes in the financial industry. E-finance as the provision of financial services and markets using Electronic communication and computation in practice e-finance includes e-payment, e-trading, and e-banking.

Three major factors impacting financial services are Globalization, Deregulation (geographic and product), Advances in information technology, Massive cost reductions in technology and communications cost, In particular, the internet. As of March 2012, there were 41 foreign banks operating in India with 323 branches and 46 foreign banks had their representative offices in India. In the B2C category are included single e-shops, shopping malls, e-broking, e-auction, e-banking, service providers like travel related services, financial services, etc., education, entertainment and any other form of business targeted at the final consumer.

The internet is a vast network of individual computers and computer networks connected to and communicate with each other using the same communication protocol – TCP/IP (Transmission Control Protocol / Internet Protocol). When two or more computers are connected to a network is created; connecting two or more networks create 'internetwork' or Internet. It facilitates reduces processing and labor costs, allows for new distribution channels, allows for better and more cost effective customer stratification and personalized pricing, permits unbundling of financial products and commoditization and lowers barriers to entry

2. OBJECTIVES

- To analyze various products and services of E-Finance in direction to online Banking
- To illustrate the opportunities and challenges of E-Banking and recommendations to adherence o risks

3. RESEARCH METHODOLOGY

Qualitative research method was used in this research, based on this exploratory research methodology used for analysis Data mainly from secondary sources like RBI annual reports and other bank periodicals. The paper prepared mainly on three criteria which are product and services of E-Banking, Channels of E-Banking in India and risk associated with online banking and services. So population sample size is all banks in India.

4. E-FINANCE PENETRATION IN INDIA

By the end of the 1990s, E-Finance technology had argued affected all aspects of the business of banking and financial intermediation, with the possible exception of lending to large business. The Internet has evolved from a mere information dispensing vehicle into a robust transaction facilitating environment. New software tools and safer architecture with multiple security and access control structures have enabled banks to take advantage of Internet Technology and software protocols for devising a host of products and services which could be distributed and made available through the Internet. E-finance encompasses all financial products and services which are available to the consumer through the Internet. ICICI is the first bank to launch the website for banking in 1996, later on, in 1997 ICICI primarily started the Internet banking.

Online bill payment (1999). In India it is governed by Information Technology (IT) Act, 2000, Internet Banking guidelines of the Central Bank and India is the India is the 2nd country in Asia to initiate technology related act.

E-finance has made the greatest inroads in securities markets, especially on the retail side, where online trading has quickly taken large market shares. About 28 percent of brokerage services are now provided online in industrial countries and in some emerging markets. This rapid acceptance of e-finance in securities markets partly reflects the technology-driven nature of these markets and the ease with which consumers can switch brokers. Moreover, the low costs of introducing standalone and integrated brokerage services have permitted rapid growth around the world. The rapid spread also suggests that the technology of e-brokerage is easy to introduce and market to users, and that cost reductions are quickly being passed on to consumers.

Through various channels computers, cell phones, Kiosks, e-finance is spreading around the globe, including in emerging markets. Having computation abilities that allow the use of large database has made this possible. For consumers, the application and approval process for both mortgage and credit cards has become sufficiently automated so that it can be done without any personal contact with the lender. With respect to credit cards, their use as a medium to make payment, along with debit cards, has grown dramatically, fueled by rapid communications that allow vendors to validate a person's credit worthiness in seconds. Although there is variation by market and region in terms of the main medium used to deliver financial services, the types of services provided, and the rate of Penetration there are significant commonalities in the development

of e-finance. That trend suggests that global convergence is possible. Large and growing overseas migration of trading and capital rising complements the rapid growth in electronic delivery channels. And around the world, connectivity is increasing.

In India private and public banks are associated with internet banking. The public sector accounted with 93% and 60.7% is constituted by the private sector. Foreign Banks also play good role in website accessibility and internet banking.

Bank	Number of Banks	Number of banks with Websites	Number of Internet Banks	Internet banks as percentage
Private Sector Banks	28	27	17	60.7
New	7	7	7	100.0
Old	21	27	10	47.6
Public sector Banks	28	28	26	92.8
SBI Group	8	8	8	100.0
Nationalized	20	20	18	90.0
Foreign Banks	29	29	6	20.7
All Banks	85	84	49	57.6

Source: Annual reports of banks and website of individual banks (accessed during June 2007)

5. E-FINANCE PRODUCT AND SERVICES

All the banks are at different stages of offering e-banking services so the extent of services is also different. In order to acquire the new customers as well as to retain the existing one, banks are very much cautious about E-banking services. Banks should develop such kind of services through which customer can transact from anywhere, anytime. In some of the services like balance inquiries, transaction history, transfer of funds online, ATM services; all the banks are offering excellent services to the customers. Banks are also offering these services according to their suitability like the differentiation between corporate customers and retail customers. But such differentiation is only in case of offering internet banking services. However, mobile banking services, phone banking services and ATM services are offered in the same manner to all kinds of customers.

It is worthwhile to note that banks should encourage existing and new customers in order to make e-banking services popular among customers. But all the services are not offered in the same extent by all the banks. Banks lag behind in offering the services such as demat holding, loan details, interest rate updates, share trading, buying and selling of mutual fund, request for the debit cards etc. As the electronic banking services have recently been started by all the banks, so banks can expand these services so as to make the customer more satisfied. A part from balance inquiry, transaction history, ATM services; private sector banks are offering more advanced electronic banking services like online shopping, online loans, demat holding, loan details, mobile top-up, buy and sell of mutual fund, card to card transfer, mobile banking, phone banking services to its customers.

Among other services, most of the banks offer a simple transaction of e-banking which includes online transfer of funds (97.7 per cent), change password (95.5 per cent), customer correspondence (95.5 per cent), and request of cheque book (88.8 percent), bill payment (64.4 percent), and monthly bank account statement by e-mail (75.5 per cent).

However, the services like online tax payments (66.6 per cent), demonstration of I-banking. Consumers attracted to online financial sties because of a desire to save time and access information rather than save money. The greatest deterrents are fears about security and confidentiality

No	Banking services	Particulars
1	Balance inquiry and statement	Checkout transaction in bank account with a real time balance
2	NEFT National Electronic Funds Transfer	It is related to funds transfer over the internet using your internet banking by using IIFSC, Indian Financial System Code (Any amount)
3	RTGS Real Time Gross Settlement	It is related to funds transfer over the internet using your internet banking. (Minimum Amt. Rs 1 lakh)
4	Buying and selling of Mutual funds	Online buying, SEBI controlled
5	Transaction history	Check out previous transactions with definite periods
6	Factoring and Forfeiting	Especially in International trading & Transactions
7	Online shopping	Pay e-shopping bills through internet banking
8	Open a Fixed deposit and Recurring deposit	Apply online to fixed deposit and recurring deposit.
9	Reissue and upgrade of ATM/Debit Card	Get an ATM / debit card reissued or upgrade current ATM/ Debit Card.
10	Deactivate/ Activate ATM/ Debit Card	Activate/deactivate ATM/ Debit Card.
11	Demat holdings	Provide to demat account details and transactions.
12	Bills Payment	Paying of bills of utility (electricity and telephone), bank credit, mobile bills and insurance premium.
13	Online tax payments	Online payment of service tax, income tax, central excise duty.
14	I-Mobile	All internet banking transactions can be done on mobile phone.
15	Demand Draft	Provided by SBI

Source: Author

6. E CHANNEL OF BANING IN INDIA

In Electronic banking many channels are used like the Internet, WAP based mobile network, automated telephone, ATM network, SMS and FAX messaging, multipurpose information kiosks Web TV and others. E-channels enable financial transactions from anywhere and allow non-stop working time. The main channels are as follows

6.1-ATMs

The ATM industry consists of a multitude of activities which is a major cause of making e-banking 24 hour service. In fact, electronic banking is profitable and possible due to services of ATMs. This service provides immense help to the customers in withdrawing cash from anywhere, anytime. The management of ATM includes loading of ATM with cash, arranging of money with the bank with which cash is loaded, service of car that delivers cash if it is offsite situated, providing insurance for all areas such as theft of cash from an ATM. Due to large expense involved in setting and situating an ATM at a particular place, these services are now days offered by independent service providers like privately owned ATMs.

ATM Facilities Providing Banks in India

Bank Group	On-Site ATMs	Off-Site ATMS	Total ATMs	Off-site ATM as percentage of total ATM
Public Sector Banks	23797	16883	40680	41.5
Private Sector Banks	8603	9844	18447	53.4
Foreign Banks	279	747	1026	72.8
Total of all Banks	32679	27474	60153	45.7

Source: Report of trend and progress of Banking in India 2010

Public Sector Banks	
Nationalized Banks	19
State Banks and its groups	6
Other public sector Banks (IDBI)	1
Private Sector Banks	
Old	12
New	7
Foreign	8
Total	53

Source: RBI report November-2013

HSBC was the first bank to introduce ATM in India in 1987. Later new private sector banks have taken the lead in introducing ATMs in a big way and the public sector banks also pursued the installation of ATMs all over the country. ATMs saw a period of inaction before they were accepted by Indian masses. For instance, in 1998 India had just 500 ATMs, but now as per the data provided by the Ministry of Finance, Public Sector Banks in India alone opened 28,039 ATMS between April 2006 and March 2010. The number of ATMs of Scheduled Commercial Banks in India is given in Table there are 60,153 ATMs in India of which 40,680 are owned by public sector banks.

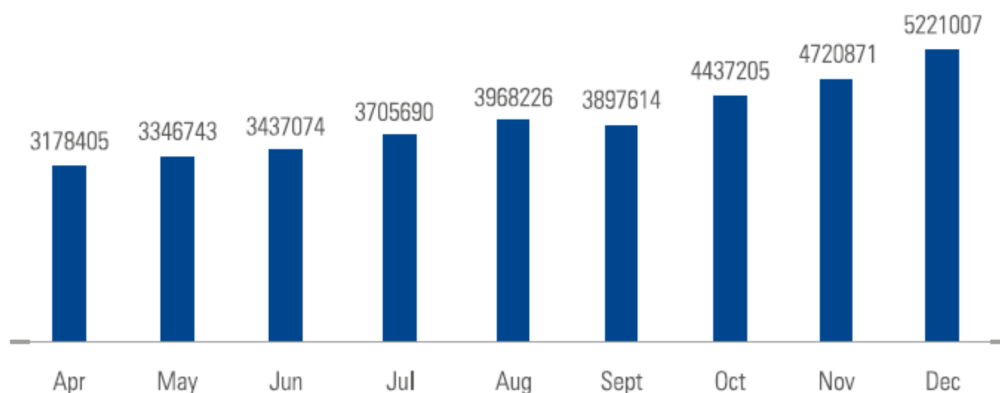
6.2-MOBILE BANING

The Federal Reserve survey defines mobile banking as “using a mobile phone to access your bank account, credit card account, or other financial account. Mobile banking can be done either by accessing your bank’s web page through the web browser on your mobile phone, via text messaging, or by using an application downloaded to your mobile phone.” The number of mobile banking transactions has doubled to 5.6 million in January 2013 from 2.8 million in January 2012. The value of these transactions increased threefold to INR 625 crore during January 2013 from Rs 191 crore in January 2012.

WAP (Wireless Application Protocol) telephony is the merger of mobile telephony with the Internet. It offers two-way

connectivity, unlike Mobile Banking where the customer communicates to a mailbox answering machine. Users may surf their accounts, download items and transact a wider range of options through the cell phone screen. WAP may provide the infrastructure for P2P (person to person) or P2M (person to a merchant) payments. It would be ideal for transactions that do not need any cash backup, such as online investments. Use of this cutting edge technology could well determine which bank obtains the largest market share in electronic banking. IDBI Bank Ltd. has recently launched its WAP- based mobile phone banking services (offering facilities such as banking enquiry, cheque book request, statements request, details of the bank’s products etc).

MOBILE BANKING TRANSACTIONS FOR BANKS (2012)



Source: RBI

7. TYPES OF RISK ASSOCIATED WITH INTERNET BANING

7.1. Security risk: Internet is a public network of computers which facilitates flow of information and to which there is unrestricted

access. Besides inadequacies in technology, human factors like negligence by customers and employees, fraudulent activity of employees and crackers / hackers etc. can become a potential source of security risk. Banks using this medium for financial transactions must ensure proper technology and systems in place

to build a secured environment for such transactions.

7.2. Operational risk: Operational risk also referred as transactional risk which is the most common form of risk associated with I-banking. It takes the form of non enforceability of contracts, inaccurate processing of transactions, compromises in data integrity, data privacy and confidentiality, unauthorized access or intrusion to the bank's systems and transactions etc. Such risks can arise out of weaknesses in the design, implementation and monitoring of banks' information system.

7.3. System architecture and design: Appropriate system architecture and control is an important factor in managing various kinds of operational and security risks. Banks face this risk because of wrong choice of technology, improper system design and inadequate control processes. Numerous protocols are used for communication across the Internet. Each protocol is designed for specific types of data transfer. A system allows communication with all protocols, says HTTP (Hyper Text Transfer Protocol), FTP (File Transfer Protocol), Telnet etc. is more prone to attack than one designed to permit say, only HTTP.

7.4. Reputational risk: It 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 bank's ability to perform critical functions or impair the bank - customer relationship. It may be due to the banks' own action or due to third party action.

7.5. Legal risk: Legal risk arises from a violation or non-conformance with laws, rules, regulations, or prescribed practices, or when the legal rights and obligations of the 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, thus causing legal risk. Cross border transaction accentuates credit risk, since it is difficult to appraise an application for a loan from a customer in another country. Banks accepting foreign currencies in payment for electronic money may be subjected to market risk because of movements in foreign exchange rates.

7.6. Strategic Risk: This risk is associated with the introduction of a new product or service. The degree of this risk depends upon how well the institution has addressed the various issues related to the development of a business plan, availability of sufficient resources to support this plan, the credibility of the vendor (if outsourced) and level of the technology used in comparison to the available technology etc.

7.7. Other risks: Traditional banking risks such as credit risk, liquidity risk, interest rate risk and market risk, which are prevailing in Internet banking. These risks get intensified due to the very nature of Internet banking on account of the use of electronic channels as well as the absence of geographical limits. However, their practical consequences may be of a different magnitude for banks and supervisors than operational, reputational and legal risks. The open nature of the 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 with a rival bank's system.

8. RIS MANAGEMENT AND ADHERECE OF RISK IN ELECTRNIC BANKING

Here the risk management is the process of identification, analysis and either acceptance or mitigation of uncertainty electronic banking. For this purpose there are many strategies which are Risk avoidance, Risk prevention, Risk retention, Risk transfer and Risk insurance. For reducing risk, banks need to conduct a proper survey, consult experts from various fields, establish achievable goals and monitor performance. Also, they need to analyze the availability and cost of additional resources, provision of adequate supporting staff, proper training of staff and adequate insurance coverage. Due diligence needs to be observed in the selection of vendors, audit of their performance and establishing alternative arrangements for the possible inability of a vendor to fulfill its obligation. Besides this, periodic evaluations of new technologies and appropriate consideration for the costs of technological up gradation are required. These are some methods to overcome the risks which includes

1. **Management Oversight of E-Banking Activities.** The Board of Directors or senior management should establish effective management as per the risks associated with E-banking activities, including the establishment of specific accountabilities, policies and controls to

manage these risks. In addition e-banking risk management should be integrated within the institutions overall risk management processes.

2. **Comprehensive Security Control Process.** Banking institutions should establish authorization privileges, logical and physical access controls and adequate infrastructure security to maintain appropriate boundaries and restrictions on both internal and external user activities and properly safeguard the security of E-banking assets and information. Security in Internet banking comprises both the computer and communication security. The aim of computer security is to preserve computing resources against abuse and unauthorized use, and to protect data from accidental and deliberate damage, disclosure and modification.
3. **Segregation of Duties.** The Board of Directors and senior management should make certain that appropriate measures are in place to ensure proper segregation of duties within e-banking systems, databases and applications.
4. **Clear Audit Trail for E-Banking Transactions:** The Board of Directors and senior management should ensure that a clear audit trail exists for all e-banking transactions.
5. **Authentication of Any Entity, Counterparts or Data.** It is a process of verifying claimed identity of an individual user, machine, software component or any other entity. For example, an IP Address identifies a computer system on the Internet, much like a phone number identifies a

telephone. It may be to ensure that unauthorized users do not enter, or for verifying the sources from where the data are received. It is important because it ensures authorization and accountability.

6. **Accountability for E-Banking Transactions.** Banking institutions should ensure non repudiation to hold users accountable for e-banking transactions and information.
7. **Integrity of E-Banking Transactions, Records and Information.** Banks should prevent unauthorized changes; ensure the reliability, accuracy and completeness of e-banking transactions, records and information.
8. **Appropriate Disclosures for E-banking Services.** In order to avoid legal and reputation risk, including those associated with cross-border activities, banking institutions should provide their customers adequate disclosures within their websites, in order to assist them in making informed choices.
9. **Confidentiality and Privacy of Customer Information.** Banking institutions should take appropriate measures to preserve the confidentiality of customer information and ensure adherence to customer privacy requirements. Measures taken to preserve confidentiality and privacy should commensurate with the sensitivity of the information being transmitted.
10. **Incident Response Planning.** Banking institutions should develop incident response plans to manage, contain and

minimize problems arising from unexpected events, including internal and external attacks that hamper the provision of e-banking systems and services.

11. **Access Control:** It is a mechanism to control the access to the system and its facilities by a given user up to the extent necessary to perform his job function. It provides for the protection of the system resources against unauthorized access. In establishing a link between a bank's internal network and the Internet, we may create a number of additional access points in the internal operational system. In this situation, unauthorized access attempts might be initiated from anywhere. Unauthorized access causes destruction, alterations, theft of data or funds, compromising data confidentiality, denial of service etc.
12. **Data Confidentiality:** The concept of providing for the protection of data from unauthorized disclosure is called data confidentiality. Due to the open nature of Internet, unless otherwise protected, all data transfers can be monitored or read by others. Although it is difficult to monitor a transmission at random because of numerous paths available, special programs such as "Sniffers", set up at an opportune location like Web server, can collect vital information. This may include credit card number, deposits, loans or password etc. Confidentiality extends beyond data transfer and includes any connected data storage system, including network storage systems. Password and other

access control methods help in ensuring data confidentiality.

13. **Data Integrity:** It ensures that information cannot be modified in unexpected ways. Loss of data integrity could result from human error, intentional tampering, or even catastrophic events. Failure to protect the correctness of data may render data useless, or worse, dangerous. Efforts must be made to ensure the accuracy and soundness of data at all times. Access control, encryption and digital signatures are the methods to ensure data integrity.

9. CONCLUSIONS

E Banking plays a vital role in E-financing, which allows countries to establish a financial system without functioning financial infrastructure by its much cheaper since it lowers processing costs for providers and search and switching costs for consumers. Globalization, Deregulation (geographic and product), Advances in information technology

are imparting Massive cost reductions in technology and communications cost, In particular, the internet. The success of Internet banking depends upon the well designed website of a bank. It needs to be informative and functional. In Electronic banking many channels are used like the Internet, WAP based mobile network, automated telephone, ATM network, SMS and FAX messaging, multipurpose information kiosks Web TV and others. E-channels enable financial transactions from anywhere and allow non-stop working time. The adoption of mobile banking has increased substantially in the past year, in a world nearly 28 percent of mobile phone users in the survey report that they used mobile banking in the past 12 months. There are many risks associated with internet banking like operation risk, security risk, system architecture and design risk, legal risks etc. To overcome these challenges, regulatory bodies and banks have to take risk management strategies, Clear Audit Trail for E-Banking Transactions, Comprehensive Security Control Process, Integrity of E-Banking Transactions, Records and Information, etc. Needless to say Electronic banking and finance will be tremendous dimensions in growth and development country by providing diverse financial and customer services.

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