Chapter-02

REVIEW OF LITERATURE

PART I: FOREIGN STUDIES

2.1 Review of Foreign Studies

2.1.1 Studies on ICT Adoption in Banking

2.1.2 Studies on E-Banking

2.1.3 Studies on the ATMs

2.1.4 Studies on Mobile Banking

2.1.5 Study on Tele-Banking

2.1.6 Studies on Online and Inter-Net Banking (IB)

PART II: INDIAN STUDIES

2.2 Review of Indian Studies

2.2.1 Studies on Banking

2.2.2 Studies on Technology in Banking

2.2.3 Studies on E-Banking

2.2.4 Studies on Internet Banking
REVIEW OF LITERATURE

As a part of this research various libraries, institutions and websites were visited. Considerable research has been carried out and is still continuing on the adoption of Information and Communication Technology (ICT) in banking in India and elsewhere in the world and also in other fields like banking productivity, banking sector reforms and so forth, by economists, academicians, researchers and institutions individually outside the banking system and also by institutions within the field of banking system. A review of the existing literature on the subject has been useful in getting an insight into the topic of study. However, the review made cannot be claimed to be an exhaustive one.

This chapter is divided into two parts: Part-I deals with review of foreign studies and Part-II deals with review of Indian studies.

PART I: FOREIGN STUDIES

2.1 Review of Foreign Studies

The foreign studies are categorised under different heads as stated below. They are studies on technology adoption in banking, E-banking, ATMs, mobile banking, Tele-banking, and online/inter-net banking.

2.1.1 Studies on ICT Adoption in Banking

The study by Oscar, L. and Herrera, V. (2002) examined the Guatemalan banking technology from 1995 to 2001 in order to provide evidence about the
existence of scale and scope economies. According to the results, important
diseconomies were found for smaller banks, few economies of scale for medium
banks and important economies of scale for larger banks. The paper concludes that
for the banking system as a whole, the group of larger banks is the only one that is
operating efficiently in its average cost curve¹.

Shirley J. Ho and Sushantha K. Mallick (2006) in their study on the impact
of IT on the banking industry empirically analysed how the IT related spending
can affect bank profits via competition in financial services that are offered by
banks. The study examined differential effects of the IT in moderating the
relationships between costs and revenues and concluded that the IT may reduce
cost and may have positive effect on market share but increased spending on IT
may also lower bank profits².

Okunoye, A., Bada, A.O. and Mark Frolick (2007) in their study on
innovations and e-service delivery investigated the process through which new
technological innovation is adopted in the service sector in developing countries
and the advantages offered to the customers through its adoption in Nigeria. The
study found that the banks are being driven by customer’s need, availability of
technology, competition to adopt the IT and apply it to service provision³.

¹ Oscar, L. and Herrera, V. (2002), Guatemala: Banking Technology and its Characteristics a Scale
² Shirley J. Ho. and Mallick, S.K. (2006), The Impact of Information Technology on the Banking
³ Okunoye, A., Bada, A.O. and Mark Frolick (2007), IT Innovations and E-service Delivery: An
exploratory Study, In: Proceedings of the 9th International Conference on Social Implications of
Computers in Developing Countries, Sao Paulo Brazil May.
The study of Seyed M. Mehdian, Mark J. Perry and Rasoul Rezvanian (2007) calculated several efficiency and productivity indices to assess the efficiency of small and large US commercial banks in 1990 and 2003 and measured the technological and efficiency changes of both groups of banks. Contrary to the expectations that domestic product and geographic deregulation, along with globalization would have a positive effect on banks’ overall efficiency, especially for large banks, the results of this study indicate that the overall efficiency of the US commercial banks declined between 1990 and 2003.

The study of Agboola, A.A. and Salawu Rafice Oyesola (2008) on the use of ICT in Nigerian Banks attempted to identify the application of the ICT for various services and found that the rate of adoption of the ICT between the old and new generation banks varied and the adoption rate was higher among the new generation banks for most products, and the new generation banks appeared to be more efficient in utilizing the ICT to enhance performance. The study recommended the banks to intensify investments in ICT products to facilitate effective performance in payment and delivery systems to provide accurate services.

Costas Lapavitsas and Paulo L. Dos Santos (2008) held the view that commercial banks have been thoroughly transformed during the last three decades... as technological innovation was adopted. According to the study, the

---


new developments in ICT have changed the money dealing and general deposit managing operations of banks. More significantly, the researchers argued that generally reducing the cost of transactions per unit, automation of money dealing has not improved cost efficiency of banks but new technology has made it possible for banks to engage in financial market mediation, and also altering bank management of risk. On the negative side since transactions have become automated, there is corresponding loss of relational give and take with customers.

Osabuohien Evans, S.C. (2008) in his study on the anticipated role of the ICT in enhancing the operations of selected Nigerian banks in the light of reforms established the following: the gender of the bank customer does not affect efficiency in ICT use; customers’ age, educational qualification, computer literacy and type of ICT gadgets, were significant in influencing the intensity of ICT usage and also ICT was found to impact positively on the speed of banking service delivery, as well as productivity and profitability. In a study Thomas Ogoro Ombati, Peterson Obara Magatu, Stephen Onserio Nyamwange and Richard Bitange Nyaoga (2010) established the relationship between technology and service quality in the banking industry in Kenya. The study recognised the direct relationship between technology and service quality in the banking industry and argued that the use of technology enhances the service offered to the customer.

---


The study of Madueme Ifeoma Stella (2010) assessed the impact of the ICT on the efficiency of 13 commercial banks in Nigeria. The study revealed that the adoption of the ICT had improved the efficiency of the banks. The author recommended an increased investment in ICT by banks and diversification of software packages for greater operational efficiency.\(^9\)

Andrew Musiime and Fayth Biyaki (2010) in their paper analysed the relationship between the level of information technology usage, effective service delivery and customer satisfaction based on a primary survey in Kampala District of Uganda and concluded that the level of IT or its innovations in the banking sector will directly impact on the degree to which the bank customers are satisfied and held that a bank that has an effective IT infrastructure will reduce complaints and increase customer satisfaction levels.\(^10\) Zuhal Tanrikulu and Tuna Ozcer (2011) examined three major Turkish banks in terms of compliance with internationally accepted system development and software engineering standards, and the common process problems of banks. The study traced the common problems of the sample banks and identified various other problems in different areas. Taking the observed problems of the banks into consideration, the study concluded that the banks can improve their existing system development processes and reach higher project success rates.\(^11\)


2.1.2 Studies on E-Banking

The study of Balachander Krishnan Guru et al. (2001) examines the evolution of E-banking in Malaysia, analyses various electronic delivery channels utilized by local banks and assesses consumers’ reactions to these delivery channels. According to the study the ICT has introduced new delivery channels for commercial banks’ products and services, which include the ATM, Tele-banking and PC banking. Among these the ATMs are the most widely accepted and highly utilized delivery channels. The general conclusion of the study is that the Malaysian banking customers still patronize the bank branches and human tellers. The study of Ahmad Zakria Siam (2006) examines the effects of E-banking services on bank profitability in Jordan. The major finding of the study is that the effect of E-banking services on bank profitability is negative in the short period. Most of the banks will benefit greatly from providing electronic services only in the long run. Further, the banks could suffer financial difficulties such as insufficiency of revenues from its electronic services because the Jordanian people in general prefer walking to the bank branches.

J. Yang, Whitefield, M. and K. Boehme (2007) in their study investigated the recent trend and development of the application of E-banking in rural areas and its economic impact on local financial institutions in middle Georgia and surrounding states. The results reveal that those small and community banks had a

---


much lower percentage of E-banking customers. The researchers argue that lower percentage of E-banking customers is not a result of unawareness of E-banking services, but rather lack of effective promotion efforts of the small banks. The research also reveals that the E-banking operation is still in its infancy for most of the banks\textsuperscript{14}. In a joint study on the spread of E-banking in Malaysia, Wai-Ching Poon and Booi-Chen Tan (2008) found that the major factors influencing the growth of E-banking are convenience of usage, awareness, security concerns, reluctance of customers to use E-banking, and government support. The results show that all the factors are significant with respect to customers’ willingness to use E-banking services\textsuperscript{15}.

In a study Ahmad Kaleem and Saima Ahmad (2008) examined bankers’ perceptions of E-banking in Pakistan\textsuperscript{16}. The study assesses the potential benefits and risks associated with electronic banking. The results of the bank employees’ perceptions suggest that the banks in Pakistan perceive electronic banking as a tool for minimising inconvenience, reducing transaction costs and saving time. Further, the public bank employees feel that minimising transaction cost is the most important and reducing human resource requirement is the least important benefit of electronic banking. The private bank employees perceive time saving and minimising inconvenience as the major benefits of electronic banking.


In his study Zaigham Mahmood (2009) attempted to report the opinions of the general public on the use of electronic banking in England. The analysis with respect to the provision and use of E-banking found that approximately half of the population is using E-banking and concluded that in course of time their use of E-banking services will increase. The respondents mentioned two main issues of traditional banking, 48 per cent noted the need to queue as the main complaint and another 47 per cent mentioned wastage of time as the main drawback.

In a comparative study on E-banking services between developed and developing nations, Yang, J., Cheng, L. and Leo, X. (2009) provide important empirical and insightful guidelines for the future development of E-banking industry among the young consumers of two nations: China (as a developing country) and the USA (as a developed nation). It was found that Chinese customers are more willing and open to new E-banking services though non availability of proper services and inferior service quality are two critical problems, owing to a low competitive banking industry in China. The findings also show that majority of respondents (82%) in the USA indicate that they have used E-banking services. In contrast, only less than half (46%) of the respondents in China have any E-banking experience. The findings regarding the awareness of M-banking show that more Chinese respondents (30%) know about m-banking services, whereas only about 20 per cent of the US respondents indicate that they are aware of such services. Chinese respondents show a more positive attitude to

---

using m-banking services than their US counterparts. This is a clear empirical
evidence to confirm the gap between the two nations in E-banking development.

An investigation of recent trends and developments in the application of E-
banking in a typical developing country- Bangladesh by Jiaqin Yang and Kh.
Tanveer Ahmed (2009) showed that 90 per cent of the banks reported that the
benefits of E-banking outweigh the associated costs$^{19}$. The research has shown
that even in a least developed country the application of E-banking can help their
local banks to reduce related operating costs and provide a better and fast service
to their customers. The study by David, H. Wong et al. (2009) investigates the
influence of consumers’ perceived risk in E-banking on their trust of a bank’s E-
banking website and willingness to use E-banking in Australia$^{20}$. The results
showed that the consumers who have low perceived risk of transacting on the
internet and also trust their bank’s E-banking website are generally more willing to
use E-banking. The study suggests the need for banks not only to employ
mechanisms to build trust for their specific E-banking website, also to take
measures to educate their customers and manage general consumer perceptions of
the risks of E-banking.

The study taken up by Asma Mobarek (2009) published in an edited
volume to evaluate E-banking adopted by selected commercial banks in Botswana,
a sub-Saharan African country involves four commercial banks in Botswana$^{21}$.

$^{19}$ Yang, J. and Ahmed, K.T. (2009), Recent Trends and Developments in E-banking in an
pp. 115-132.

$^{20}$ David H. Wong, Claire Loh, Kenneth B. Yap and Randall Bak (2009), To Trust or Not to Trust: The

$^{21}$ Rudra Prakash Pradhan (Ed) (2009), Forecasting financial markets in India, Allied Publishers Private
Limited, pp. 76-84.
The focus of this study is on four delivery channels namely: ATM, internet banking, telephone-banking and manual banking. The results show that 98 per cent of the respondents perceive the ATM usage to be important, 38 per cent of the respondents find telephone-banking is important, and 78 per cent of the respondents perceive Internet Banking is important.

Krishnamurthy, M. (2010) in his study on technology adoption by Bank Muscat suggested that the technology driven services with state-of-the-art facilities of electronic fund transfer and electronic mail services should be effectively utilized to satisfy the customers. The study identified the insufficient work experience of the employees of the Bank Muscat to be the major cause of worry and the customers grumble about the delay in services and also the unfriendly attitude of the employees.\(^{22}\)

The study of Joyce Wangui Gikandi and Chris Bloor (2010) on Electronic Commerce felt the need for the government to constantly review and adopt clear and relevant regulation that addresses the dynamic nature of E-banking in Kenya.\(^{23}\) Cost reduction and customer related factors have emerged as the main drivers of E-banking adoption in Kenya and internet security remains a major threat in E-banking. The study concludes that E-banking sector will continue to evolve as banks continue to venture into rapidly changing and emerging

---


technologies to enable them expand their customer horizon through differentiated products, increased consumer awareness, choices and enhanced security.

In a study on E-banking and customer satisfaction Jannatul Mawa Nupur (2010) examined the impact of variables of E-banking on customer satisfaction in Bangladesh. The study found that reliability, responsiveness and assurance have a larger impact on customer satisfaction of E-banking services in Bangladesh. The joint study of Ahmed Audu Malyaki and Sany Sanuri Mohd Mokhtar (2010) investigates the relationship between the effects of electronic banking facilities, employment sector and age-group of customers on their choice of banks. The study found that the availability of electronic banking facilities such as ATM, online operations and telephone banking does not have significant influence on customers' choice of banks. Age-group on the other hand, has a significant influence on their choice of banks. The study has also established that there is a significant relationship between the sector in which customers are employed and their choice of banks.

Gloria Owusu Amanfo (2010) in the study on the role of E-banking and its relation to customer satisfaction in the banking Industry of Ghana observed that E-banking has had a positive impact on the productivity and profitability of the banking industry. Findings of the study indicate that customers to a large extent were satisfied with the services provided through electronic delivery channels by

---


banks. The study by Adesina Aderonke, A. and Ayo Charles, K (2010) focuses on the factors determining the level of users' acceptance of electronic banking services and investigates the factors that determine users' behavioral intentions to use electronic banking systems in Nigeria. The results of the study show that ATM still remains the most widely used form of E-banking service.

2.1.3 Studies on the ATMs

The joint study of Brian L. Dos Santos and Ken Peffers (1993) evaluates the impact of early adoption of ATM Technology by banks on demand deposit market share and employee efficiency. The analysis show that for some banks, ATM adoption increased employee productivity and early adoption resulted in market share gains. Efficiency gains were greater for larger banks, while early adoption resulted in market share gains in states with certain banking regulations.

Hanudin Amin (2010) investigates the factors affecting the decisions of Tabung Haji customers in Malaysia to use the ATM banking. The study extends the applicability of the Technology Acceptance Model (TAM) to Tabung Haji ATM banking and includes perceived credibility and religiosity in addition to...
perceived usefulness and ease of use. The outcome of the study is that perceived ease of use, perceived credibility, and perceived religiosity are significantly related to usage intentions. Further, perceived ease of use is significantly related to perceived usefulness, which, in turn affects usage intentions. The study of selected banks in Minna Metropolis on the Challenges of the ATM usage and fraud occurrences in Nigeria by Adelowo Solomon Adepoja and Mohammed Enagi Alhassan (2010) analyses the cases of the ATM usage and fraud occurrences in some banks. The study shows that customers are much comfortable with the electronic banking system, of which the ATM is just a segment of the various services of E-banking. The researchers put across their view that the adoption of the ATM in Nigerian banks for financial transactions was growing.

Abdul Wahab, L. (2010) in his research found that the respondents use the ATMs frequently due to advantages of accessibility and convenience of the services offered by it. Despite a few challenges, majority of the respondents are comfortable with the usage of the ATMs and transaction charges. The study also revealed that the middle aged use the ATMs more frequently than the aged which implies that age is considered the most important factor that influence the ATM adoption. The researchers argue that providing concrete policy guidelines concerning the design of the ATM by the service providers might increase the use of the ATMs by older people.


2.1.4 Studies on Mobile Banking

Ki Soon Lee, Hyung Seok Lee and Sang Yong Kim (2007) studied the factors influencing the adoption behavior of mobile banking in South Korea\textsuperscript{33}. The study introduced ‘perceived risk’ and trust in the model to reflect a consumer’s need to use mobile banking. The study found that trust had a stronger influence on the adoption behavior than perceived usefulness. The consumer’s trust of the bank, telecom provider, and wireless internet had significant influence on their using mobile banking.

Ali Haider Mohammad Saifullah Sadi, Imran Azad and Mohamad Fauzan Nooruddin (2010) in their study investigated the level of adoption of the ICT in the banking sector and assessed the prospects of mobile banking in Oman. The study observed from the responses that 96.7 per cent of the respondents own mobile phones and 41.8 per cent of the respondents acknowledged that they use their mobile phones for banking services. The study revealed that security was the major concern of the respondents which stood at 60.2 per cent, while 16.3 per cent considered it as complicated to use and 44.9 per cent felt it to be costly. The study recommends that in order to expand mobile banking services some coordinated approach has to be adopted by the financial services providers and telecommunication companies\textsuperscript{34}. The joint study of Witold Chmielarz and Alojzy Nowak (2010) assessed the usefulness of mobile payments used in Poland as


compared with card payments and bank transfers found an unexpected result that is bank transfers obtained the highest score followed by SMS premium as it was characterised by the greatest availability and can be used by every owner of a mobile phone with an active SIM card. The third place was taken by m-pay, which works virtually on every model of mobile phone.

2.1.5 Study on Tele-Banking

Agbool, A.A. (2006) made a study of electronic payment systems and Tele-banking services in Nigeria and found that there has been a modest move away from cash. Absolute volumes of cash transactions have declined. Among 36 banks studied, 35 banks had fully networked their systems. Lack of enabling environment to be provided by electricity providers in the country has reduced the assimilation of the services and systems. The study concludes that Tele-banking is capable of broadening customer relationship, retention of customer loyalty and enables banks to gain commanding height of market share, if their attendant problems are taken care of.

2.1.6 Studies on Online and Inter-Net Banking (IB)

Margaret Tan and Thompson S.H. Teo (2000) recommend the banks to organize demonstrations at bank branches to showcase the user-friendliness of the IB services. A research framework based on theory of planned behavior and

---


diffusion of innovations is used to derive the factors. The framework postulates that a person’s intension to adopt the IB in Singapore is determined by attitude (person’s perception), subjective norms (social influence) and behavioral control (necessary resources and opportunities). The findings of the study show that intension to adopt the IB services can be predicted by attitudinal and perceived behavioral control factors, but not by subjective norms.

The study of Karen Furst, Willian W. Lang and Daniel E. Nolle (2000) provides knowledge about IB landscape found that customer use of IB is disproportionately concentrated among few large banks. Using information from the survey of national banks this study presents the data on the number of national banks offering IB and the products and services being offered. The study also examines extent to which the newly chartered national banks embrace IB technology. The study found that only 20 per cent of national banks offered IB, but only 7 per cent of smallest size banks offered it and institutions with IB out performed non-internet banks in terms of profitability.

The study of Ramayah T Muhamad Jantan, Mohad Nasser Mohd Noor and Koay Pei Ling (2003) examines the receptiveness of the IB by Malaysian Consumers. The study found that although the awareness is high, this has not translated into actual use as only 23 per cent have had IB experience. Security, availability of infrastructure and complexity of technology were the main concerns.

reported by the respondents which is hindering the migration from traditional banking to the IB. Perceived ease of use (PEU), perceived usefulness (PU) have been found to be significantly related to intension to use the IB and perceived usefulness is the driver of the intension to use.

In a comparative study of internet banking in Malaysia and Thailand Mohamad Rizal Abdul Hamid et al. (2007) found Malaysian banks were more sophisticated and better in offering the IB to their customers. For the purpose of comparison and analysis five banks from each country were investigated. The results of the study point out that banks located in Malaysia and Thailand were currently offering the same standard of services. None of the banks in Malaysia offered any sort of language options, compared to their counterparts in Thailand. The study observed that improvements were taking place in both the countries though low level of connectivity and concern over security impede the growth of the IB. The study recommends the investments by banks in upgrading and improving the quality of their service and requires them to be more responsive on security issues.

The study entitled ‘An Analysis of Web Navigability in Spanish Internet Banking’ made by Blanca Hernandez Ortega, Julio Jimenez Martinez and Ma Jose Martin De Hoyos (2007) analyses the navigability of the websites of Spanish

---


41 Note: A navigable website is one which allows the users to find the information they want and carry out their operations quickly.
financial entities. The study made an empirical analysis of all the Spanish Banking entities with a presence on the internet and measured the level of Navigability in the sector. The results obtained about the level of Navigability of the Spanish Internet Banking sector, show that, in general, there is a high level of Navigability (71.9%). The study suggests that, for an entity to be successful in the electronic market, it must design a navigable website that allows fast interaction with its customers. The Navigability of a website makes users feel comfortable and secure when browsing it.

The study by Yahya Dauda, Shanthaparaj A.S., David.A., and Murali Raman (2007) addresses the perceived e-commerce security influence on adoption of the IB in Malaysia and the role of national environmental factors such as attitude, subjective norms and perceived behavioral control factors towards adoption, and compares these factors with Singapore. The results of the study shows that the cost of internet access is higher in Malaysia than in Singapore and about 51 per cent of Malaysians surveyed said their banks charge for some IB transactions compared to only 6.1 per cent in Singapore. The findings of the study show that in both Malaysia and Singapore the IB adoption is predicted by internet experience and banking needs. The results also reveal that the banks in Singapore offer debit cards but not those in Malaysia.

---


According to Sven Christian Berger and Sonja Gensler (2007) riskier products like mutual funds or stock are of greater interest for online customers. The study analyses the profile of online banking customers and their banking behavior. Findings of the study indicate that online banking customers are used to the internet and appreciate the convenience of this channel and online banking customers are more willing to accept certain risks in exchange for higher interest rates. Further, online customers are using payment products to a higher extent when compared to the others due to the fact that credit cards are still one of the most common methods of payment on the internet. The study observed that; in contrast to the presumption that online banking customers are well informed, independently deciding risk takers, they express a strong interest in personal consultancy from a bank officer via telephone or brick and mortar branch.

The study of Muniruddeen Lallmahamood (2007) explores the impact of perceived security and privacy on the intension to use internet banking. The study found that perceived usefulness is a critical factor in explaining users' intension to use internet banking. The study also found that convenience, ease and time saving are the main reasons for the adoption of the IB, whereas security, trust and privacy appear to be the top main concerns for non internet banking users. The use of local language did not contribute to the ease of use of IB.

---


Rigopoulos George and Dimitrios Askounis (2007) measure the Greek bank customers' attitude towards online electronic payments\(^{46}\). The major finding of the study is that perceived ease of use and perceived usefulness will have a strong positive relationship to behavioral intention and actual usage of online electronic payments. Joao F. Proença and Marta M. Silva (2007) seek to understand in what way the new practice of the use of the IB can affect relationships that are established between banks and their customers\(^{47}\). The study found that the use of the IB is influenced by the duration and maintenance of the relationship established between the customer and the bank. The study opines that the relationship marketing approach enables the banking institution to develop a more productive tailor made and efficient interaction with its customers.

The study by Hanuddin Amin (2007) examines the acceptance of the IB among undergraduate students in Malaysia and explains the factors influencing their choice\(^{48}\). The study uses extended technology acceptance model with perceived credibility (PC), PU, PEU and computer self efficacy constructs. The study found that PU, PEU, and PC had a significant relationship with the behavioral intention for acceptance of the IB.

The survey of the diffusion of online banking research trends from 1998 to 2006 by Guosong Shao (2007) provides a picture of research trends and

---


rigorousness in online banking research. Through content analysis, it examines the frequency occurrence patterns and methodological status of previous 54 online banking articles. Their publication spanned nine years with the first article appearing in 1998 and the last one considered in the study in 2006. International journal of Bank Marketing (40%) and Journal of Internet Banking and Commerce (18.5%) had the highest proportion of all online banking research articles. The findings of this study reveal a dominance of articles dealing with attributes of online banking and the characteristics of adopters. Further, there is an imbalance in publication sources, research perspective, research methods and sampling techniques in online banking.

The study of Daniel Nilsson (2007) on the correlation between the use of a third party and the use of the Self Service Technology (SST) indicates that the more the consumers contact a third party for assistance with the SST, the less the consumers use the SST. The study showed that the consumers' usage of the SST is influenced by whom they contact for assistance. The analysis of data revealed significant correlations between the use of assistance and use of the SST.

A preliminary empirical investigation of Brick-to-Click banking presence in the United Arab Emirates by Bruce Budd and Daniel Budd (2007) investigates the extent of development and quality of electronic banking in the United Arab Emirates (UAE). The research shows that the majority of banks in the UAE are in

---


the early stages of developing E-banking facilities. Only 18 banks out of 46 banks in this emerging country have well developed E-banking facilities, though not predominantly at the advanced stage as many western banks. The survey also revealed that 4 out of 28 brick banks reflect a reluctance to wholeheartedly brace E-banking at the moment because of the customer share and security infiltration fears.

Abdullah S. Al. Mudimigh (2007) made a case study of E-Business Strategy on online banking services offered by City Bank. The study evaluates the E-business model and E-business strategy implemented by City Bank in the United Arab Emirates in offering its retail Internet Banking services. The study observed that the number of active users of the IB increased from 2 per cent in the second year of launch (launched in 2001) to 6 per cent in 2004. The transaction values too increased indicating that the customers feel more comfortable in managing their funds on the internet and concluded that City bank online is proving to be a successful revenue generating channel.

Murali Raman et al. (2008) in their study investigated customer perceptions on quality of E-services and internet banking in Malaysia. It was found that 72 per cent of the respondents mentioned that they have already adopted the IB and 50 per cent of the respondents pictured themselves as occasional users of the IB. The IB is perceived by the users as a quite useful tool to manage their financial

---


matters. The research proposes the implementation of E-service quality as an integral constituent to maintain and increase the IB users’ retention. According to the comparative study of Yazan K.A. Migdadi (2008) there are no significant differences between clicks and mortar banks in Jordan and clicks and mortar banks in the United Kingdom (UK). The study tried to identify the differences in the internet banking service quality between the different IB models in Jordan and the UK.

In a joint study Jason Dong and Michael Bliemel (2008) examined the benefits of online banking and how Canadian banks accommodate various financial activities through different service channels. The study found that even with the advent of the online banking, the branch has still managed to maintain its status as a valuable asset to each of Canada’s major financial institutions. The study concluded that the position of financial institutions as an invaluable distribution channel is unlikely to change in the future. However, with a changing Canadian financial services industry which is seeing an increasing amount of competition from abroad and online banking, the major institutions need to maintain their distinctiveness. The researchers argue that opportunities such as individual kiosks and remote conferencing should be explored to ensure that


activities which are most efficiently done online stay that way, while still addressing present client expectations and preferences.

Huam Hon Tat et al. (2008) investigated the predictors of intention to continue using the internet banking services among the current users found that among the three predictors tested—namely trust, compatibility and ease of use—trust was found to have the strongest positive influence on the intention to continue using the IB services, followed by compatibility and ease of use. The study suggests that to increase the retention rate of current IB users, it is imperative that banks in Malaysia ensure a secure IB system. In a joint study on the IB versus other banking channels, Fethi Calisir and Cigdem Altin Gumussoy (2008) examined how young consumers perceive the IB in relation to other banking channels. The analysis indicates that the IB, ATM and Phone banking substitute one another. The results also show that the IB is considered to be efficient for ease of use and access, and the users of the IB lack confidence in the security of the websites.

The study of Christos Floros and Portsmouth (2008) examined the performance of Greek IB Websites. The study was made on 15 banks which offer banking services over the internet. The results show that 5 largest Greek banks attract more IB users than any other bank in Greece. However, the percentages were very low when compared to other European banks offering

---


banking services over the internet. The study suggests that Greek banks need to follow an investment plan to improve the customer relationship and increase the quality of their banking services over the internet. In a study on the impact of IB on bank profitability in Turkey, Ceylan Onay, Emre Ozsoz Asli and Deniz Helvacrolu (2008) examined the impact of IB on financial performance of 13 banks that have adopted online banking in Turkey. The results of the study provide the evidence that E-banking is a gradual process and the IB variable has had a positive effect on the performance of the banking system in Turkey in terms of returns to equity with a lag of just two years.

In the study Tahir Masood Qureshi, Mohammad Khaquan Zafar and Mohammad Bashir Khan (2008) tried to evaluate the customer acceptance of online banking in Pakistan. The study concludes that usefulness, security and privacy are the main perusing factors for majority of the customers and the other factor is the amount of information which is provided to the customers by different means like advertisement through print and electronic media, about online banking, to accept online banking system in Pakistan.

Yazan K.A. Migdadi (2008) in his study on the quality of internet banking service encounter recommended that, the speed and navigation dimension of internet banking should be developed in future by decreasing the home page and increasing the number of internal and external links attached with the websites.

---


The purpose of the study was to identify the quality of the IB service encounter of the retail banks in Jordan, and to identify the quality dimensions that should be improved or sustained. A total of 16 Jordan banks’ websites were observed. The web assessment indices of retail banks indicate that the quality of the IB service encounter was significantly positive. Further, the banks’ websites are rich in informational content and navigability.\(^{61}\)

A study by Heman E. Riquelme, Khalid A. Mekkaoni and Rosa E. Rios (2009) determines customer satisfaction and identifies the difference between the satisfied and less satisfied customers.\(^{62}\) The study shows that despite the level of satisfaction with the IB, customers are still using multiple channels to conduct their banking transactions. The findings suggest that satisfaction can be generated through improving courtesy, timeliness, services and products offered, and that the majority of the customers in the sample are satisfied and highly satisfied with the service and online system attributes.

The research by Guangying Hua (2009) investigates the acceptance of the online banking and how users’ perception about the online banking is affected by perceived ease of use of website and the privacy policy provided by the online banking website in China.\(^{63}\) The study distinguished privacy and security and demonstrated that both the factors play an important role in the acceptance of


online banking. Egwali Annie Oghenerukeybe (2009) analyses users’ perception of factors influencing the effective implementation of existing security indicators and evaluates the effectiveness of Security Indicators in the banking web browsers. The study revealed that security indicators are not very effective at alerting the users from revealing sensitive information to spoofed sites. The study suggested that banks need to develop effective security strategies for the future of electronic banking in Nigeria.

The joint study by Dube Thulani and Chitura Tofara Runyowa Langton (2009) sought to explore the extent of adoption and usage of the IB by commercial banks in Zimbabwe and investigated the challenges they faced in the adoption of it. The results of the study showed that while the majority of the banks in Zimbabwe have adopted the IB, usage levels have remained low, as not many customers are using this innovation in Zimbabwe. Regarding the challenges faced by banks in the adoption of internet banking, compatibility with existing legacy systems, cost of implementation and security concerns ranked high.

Dalia El Kasheir, Ahmed S. Ashour and Omneya M. Yacout (2009) in their study examined the impact of perceived ease of use, perceived usefulness, perceived risk, and social norms on customers’ continued intension to use the internet banking in Egypt. The study found that perceived ease of use was the only significant predictor of intension to continue usage of IB services. Perceived
usefulness, perceived risk, and social norms were not found to have any significant effect on the intention to continue usage of the IB services\textsuperscript{66}. The study by Bora Aktan, Edip Teker and Pervin Ersoy (2009) examined the usage of the internet to make a basic investigation for the financial institutions in Turkey. The study found that the internet usage with its young population has continued to grow dramatically in financial services. The study views those E-banking applications which include automated teller machine, telephone banking, mobile banking, debit and credit cards, IB etc, which became one of the main battlefields of the banking industry\textsuperscript{67}.

A study by Malek Acar Boyacioglu and Tavfik Nadi Hotamis Huseyin Cetin (2010) attempted to examine the performance of Turkish banks in terms of providing banking products and services through their websites. The results proved that the Turkish banks were performing well in the IB and the entire customers who found the IB easy had been using it for a long time. But all of the participants who did not use the IB felt it was difficult and did not know how to use it or found its service insecure and unclear. It was observed that the levels of education and income were the major factors that affected the use of the IB\textsuperscript{68}.

Nafis Alam \textit{et al.} (2010) in their study investigated the challenges faced by Sudanese banks in implementing online banking. The study puts across the view

---

\textsuperscript{66} Dalia El Kasheir, Ahmed S. Ashour and Omneya M. Yacout (2009), Factors Affecting Continued Usage of Internet Banking Among Egyptian Customers, \textit{Communications of IBIMA}, ISSN 1943-7765, Vol. 9, pp. 252-263.


that if the online banking is implemented, it will offer convenience, efficiency and effectiveness and speed in banking operations. The results of the analysis indicated that none of the banks in Sudan provide online banking. The most common reason cited for this was Sudan’s poor infrastructure which does not support online banking implementation. At the same time 95 per cent of Sudanese banks believe that their banks’ performance would be enhanced with the usage of online banking. Lack of skilled staff is hampering accomplishment of online banking, and 70 per cent of banks strongly agreed that training those inexperienced employees would be a costly matter.69

Another empirical study on the IB by Norazah Mohd Suki (2010) examines the factors influencing the internet banking adoption among Malaysian consumers. The results show that hedonic oriented website was found to be the most important adoption factor that affect the consumers’ intention to use the IB. Perceived importance of the IB to banking needs significantly affect its adoption. The study of Nauman Zahid, Asif Mujtaba and Adnan Riaz (2010) organized in the three renowned universities of Rawalpindi and Islamabad areas investigates the effects of perceived usefulness, security, privacy and quality of internet connection on the

---


acceptance of the online banking in Pakistan. The study found that the major factor that influences the consumer acceptance of the IB in the twin cities of Pakistan is perceived usefulness. Further, the researchers argue that security concerns and internet connection do not have any significant impact on the IB acceptance.

In a research paper Elisha Menson Auta (2010) examined the impact of E-banking on Nigeria’s economy. The paper explores the major factors responsible for the IB adoption, based on respondents’ perception on various E-banking applications. The results showed that, out of the total respondents about 88 per cent agreed that E-banking is a convenient and flexible way of banking and it also has various transaction related benefits. Based on the study, the researcher argues that providing E-banking is increasingly becoming a matter of need to banks to continue to compete in a globalised world and gain competitive advantage. The Deutsche Bank Research (2010) found that 80 per cent of all the new contracts for financial services were signed at branch premises and just fewer than 11 per cent were concluded online in 2009. The customers choose the online channel with average frequency for straightforward easily understandable products like instant access saving accounts, credit cards and fixed term deposits. At the same time they

---


use the branch for obtaining advice on complex products. The study shows the relevance of the branches even in the modern technological environment.

In their study Mamode Khan, N. and Emmambokus (2011) assessed the factors contributing to the adoption of the IB in Mauritius and observed that six explanatory variables namely age, income, risk, usefulness of the IB, frequency of checking bank accounts, and internet location are significant in adoption of the IB in Mauritius. The study concluded that the above six explanatory variables are significant in adoption of the IB and non adopters of the IB are quite ignorant about this service and they prefer branches or ATMs. A study by Abdullah Bin Omar, Naveed Sulthan, Khalid Zaman, Nazish Bibi and Abdul Wajid Khalid Khan (2011) examined the customer perception, preferences and problems about online banking in Pakistan. The study found that majority of the respondents prefer the IB services over branch banking due to reliability, convenience, speed, safety and security, cost effectiveness, user friendliness and error free system. The study reveals that the major issues in the IB services are security, safety and lack of trust especially in the ATM machines. The study recommends that in order to rebuild the trust of the customers, banks should take strong security measures in every aspect of the IB.

---

PART II: INDIAN STUDIES

2.2. Review of Indian Studies

The studies made in India by the researchers, academicians, and other experts are categorized as studies on banking, technology in banking, E-banking, ATMs, online and IB.

2.2.1 Studies on Banking

According to Purohit, H.C. and Pathardikar, A.D. (2007) all the services provided by the Indian public sector banks were rated as good by the respondents except for loan interest and mortgage facilities. The study evaluates the services of the public sector commercial banks and measures the satisfaction level of the customers about the services of banking institutions. The sample of users of banking services was drawn from Oriental Bank of Commerce, United Bank of India, Bank of Baroda, and State Bank of India from the eastern part of Uttar Pradesh.

The study by Rayappan, E.K., and Shunmughan, R. (2008) found that there is a significant relationship between the customer satisfaction (dependent variable) and the age, number of years of operation, marital status, frequency of visits, annual income, account with other banks, number of years of education and gender (independent variables). The study was made to ascertain the level of satisfaction of customers in Canara Bank at Gobichettipalayam taluka in Erode.

---

District of Tamilnadu. It highlights the bank’s marketing strategies and measures the satisfaction levels of customers.

In a joint study of the customers of the public sector and the new private sector banks in two cities of Jabalpur and Indore of Madhya Pradesh, Aruna Dhade and Manish Mittal (2008) found that the customers of private banks are more satisfied than those of the SBI\(^78\). The study found that the customer services provided by the public sector banks changed after the entry of the private sector banks because the respondents consider customer service as one of the most important factors for selecting a bank.

The study by Mahajan A.C. (2009) opined that the financial system in the pre-reform period was highly regulated and financially repressed \(^79\). The system was characterized by a complex administered interest rates structure, low efficiency in fund utilization, high levels of statutory preemption, directed lending, low organisational efficiency and lack of competition. Consequently these factors, together with poor lending strategy and inadequate risk management practices impeded banking growth and affected the viability and profitability of banks.

The study by Gaurav Jaiswal, Praveen Sahu and V.K. Pandey (2009) examined the effect of service quality and trust on consumer preference in the banks of Gwalior region\(^80\). Multiple regression technique was applied between


\(^80\) Gaurav Jaiswal, Praveen Sahu and Pandey, V.K. (2009), Service Quality and Trust as Predictors of Banking Industry, *JIMS 8M*, July-September, pp. 4-9.
service quality and trust (independent variables) and consumer preference (dependent variable) for analysis. The results of regression analysis indicate that independent variables have significant impact on the dependent variable. It has been concluded that service quality and trust play a very dominant role in developing consumer preference in a bank.

The joint study by Raj Kamal and Debashish Sengupta (2009) on the job satisfaction of bank officers which ascertained the degree of overall job satisfaction prevailing among the bank officers and the various factors affecting the overall job satisfaction found that none of the respondents was highly satisfied. The sample was drawn from 28 branches of a leading nationalised bank from Western Uttar Pradesh and Lucknow. As per the results of the study regarding the challenge of changed banking due to technology adoption, 88.75 per cent of the respondents felt that the changed banking is a real challenge to their administrative activities. The results also show that overall job satisfaction in the case of officers is not very high. A large majority of the respondents (76.38%) were just satisfied, 10 per cent were satisfied in some aspects, 7.5 per cent were more satisfied and 6.2 per cent were not at all satisfied.

In a study Zhao, T. et al. (2010) found that the Indian banking industry experienced sustained productivity growth during the period 1992-2004, mainly due to technological progress. They also found that increased competition does impact total factor productivity growth. They argued that foreign banks have added competitive pressure in the banking market through technological

---

Chapter-02

Review of Literature

innovations\textsuperscript{82}. Shikha Jain (2010) assessed the impact of reform program on human resource management practices of the public sector banks in India. The study was made under the premise that productivity of the employee is crucial for the overall efficiency of the banks. Majority of the respondents in the study agreed that the primary reasons for the improved productivity in the post-liberalization period were use of IT infrastructure, competition in the market place and outsourcing back office functions\textsuperscript{83}.

In a study Bharathi Kamath, G. (2010) attempted at measuring service quality in banks and has shown that expectations of the customers are greater than performance, indicating that perceived quality is less than satisfactory. The data for the study were collected from 243 bank customers of Mangalore city to measure the service quality of banks. The analysis of the data suggests that a slight change in the orientation of bank’s policies can make a huge difference in the level of customer satisfaction\textsuperscript{84}. The study by Dogra, S.K., (2010) on the factors affecting customer satisfaction in retail services of the Indian banks concluded that in order to provide customer satisfaction, attain impressive growth in the competitive environment, the banks are now required to continually improve the quality of service and technology\textsuperscript{85}. The study based on the customers of the public sector and the private sector banks revealed that innovative services,


customer care, network access, comfort and image are some of the factors responsible for customer satisfaction.

Manoj Kumar Paul and Arup Barman (2010) explored the customer satisfaction in the context of rural banking of Assam. The study was on a sample of 22 branches of Cochar Grameen Bank. The study observed that all the customers are dissatisfied with the service quality of the bank under study. On the basis of the satisfaction index it was observed that 94.8 per cent are dissatisfied and 5.19 per cent are strongly dissatisfied. The study concludes that the perception of the customers about the bank is not satisfactory and the bank is incapable of rendering satisfactory services to its customers.

According to the comparative study by Puja Khatri and Yukti Ahuja (2010), the private sector banks seem to have satisfied their customers with good services and they have been successful in retaining their customers by providing better facilities than the public sector banks. The study compares the Indian public sector and private sector banks in terms of customer satisfaction and the variables of service quality from respondents in Delhi. The researchers argue that customer centric orientation is immensely important and the bank that builds long term strategic relationships with its customers will succeed. The study opines that the private sector banks have been successful in achieving such relationship with customers, however, the public sector banks have to improve in this area. Uma

---

Shankar Mishra, et al. (2010) in their study attempted to make a comparative analysis of the service quality of the Indian public sector and private sector banks. The study revealed that there exists a small perceptual difference among customers regarding the overall service quality with their respective banks. The expectations exceeding performances are visible with all the Indian banks.

According to Uppal R.K. (2011) there exists a direct relationship between service quality and customer satisfaction. He calculated the customer satisfaction index of public sector banks, new private sector banks and foreign banks and found that customer satisfaction was the lowest of the public sector banks (66.35%), average of the new private sector banks (72.42%) and was the highest of the foreign sector banks (77.71%) in all the three bank groups. Pumendu Paul, Swapan K. Bose and Rizwan S. Dhall (2011) in their empirical study attempted to measure the relative efficiency of the Indian public sector banks on overall financial performance and found that increases in Non Performing Assets (NPAs) tend to be followed by decreases in measured efficiency, suggesting that NPAs cause banks to increase spending.

The study of Malhothra D.K., Raymond Poteau and Rahul Singh (2011) found that competition in the Indian banking industry has intensified, net interest margin has improved and though cost of intermediation has actually been rising,

---

89 Uppal, R K. (2011), Service the Competitive Edge in Banking, Kunal Books, New Delhi, pp. 1-32.
banks are responding to increased cost with higher efficiency levels\textsuperscript{91}. The study found that both the public and the private sector banks have shown healthy capital adequacy ratios throughout the sample period and the study points out the changing face of the Indian banking industry. Mubarak Ali E., David Sam Kumar G.S., and Senthil P.L. (2011) investigated the different service quality dimensions of the Indian Banks in the Tanjavur District of Tamil Nadu\textsuperscript{92}. The study found that the variables like tangibles and assurance were having positive response and suggests that the banks need to improve upon reliability, responsiveness and empathy of services.

K.V.N. Prasad, D. Maheshwara Reddy and A.A. Chari (2011) in their study evaluated the performance of public sector banks in India and found that the Andhra Bank is ranked at top position followed by the Bank of Baroda (BOB), the Indian Bank, the Corporation Bank (COB), and the Punjab National Bank (PNB). The State Bank of India (SBI) was at the 20\textsuperscript{th} position and the Central Bank of India was at the bottom most position. The study measures each of the important parameters like capital adequacy, asset quality, management efficiency, earning quality and liquidity\textsuperscript{93}. The study of Uppal, R.K., and Bishnupriya Mishra (2011) investigated the extent of gap between desirability and availability of service quality parameters in the banking sector in the emerging new competition. The


study revealed that desirability of all the parameters is high as compared to availability of banking services\textsuperscript{94}.

2.2.2 Studies on Technology in Banking

Off-site Monitoring and Surveillance Division of the Department of Banking Supervision (2002) made a study of select expenditure to income ratios of banks operating in India and their initiatives in acquiring ICT as one of the means of raising efficiency and reducing transaction cost for the period from 1996 to 2000\textsuperscript{95}. The study was based on the responses received from 62 banks (24 public sectors, 12 old private sector banks, 4 new private sector banks and 22 foreign sector banks). The study found that New Private Sector Banks (NPSBs) and Foreign Banks (FBs) had gone for total networking and connected almost all their branches with networking as on 31 March 2000, whereas the pace of networking of branches was slow in case of the Public Sector Banks (PSBs) and the Old Private Banks (OPBs). The number of networked branches was less than 1 percent as on 1-3-2000. The study observed that the PSBs and the OPBs are slow in setting up ATMs. The study concludes that increased IT investment is one of the many factors which could lead to improved performance of banks.

The study of Uppal, R.K. (2006) revealed that the young generation in particular and the bank customers in general are more satisfied with the new


\textsuperscript{95} Off-site Monitoring and Surveillance Division of the Department of Banking Supervision (2002), \textit{RBI Bulletin}, pp. 849-867.
techniques adopted by the banks. He has undertaken a comprehensive study of productivity, profitability, and customer satisfaction of fully-computerized and partially-computerized banks. His analysis found that employee productivity, branch productivity and total productivity are very high in internet using banks and fully computerized banks. The profitability analysis of the banks has shown that overall the fully computerized and internet using banks are quite better than partially-computerized banks.

The study by Ravi, R.A., (2008) compares the public sector banks and the private sector banks in terms of the user perception of their retail banking services in Bangalore of Karnataka State found that the public sector banks were perceived better than the private sector banks with respect to the method of imposing service charges and safety of investments. Some of the areas where significant differences between the two types of banks are observed specifically are the following parameters: handling customer grievances, mobile banking and use of latest technologies, speed and accuracy, banks’ network, communication and prompt information and customer support. The parameter-wise analysis of data indicates that though the customers’ perception is positive for both public sector banks and private sector banks, comparatively private sector banks score over the public sector banks in all parameters, except for the method of imposing service charges and safety of investments.

---


Daddihal, V.S., and Kulkarni (2008) in their joint case study of Housing Development and Finance Corporation (HDFC) Bank on technology in banks made a survey of the various facilities provided by the HDFC Bank. It was observed that the bank sends e-mail statements to its customers free of cost from time to time, offers round the clock mobile recharge over internet and at the ATMs, cash back offer on debit card use, petrol surcharge waiver, higher card limits for both shopping and ATM withdrawals, zero liability on fraudulent transactions on debit cards, no transaction charges and only annual charge of Rs 250/ for debit cards. E-age banking is another facility with the features like free Payable at Par Cheque book, International Debit Card, three free cash transactions on SBI/Andhra Bank ATMs, free unlimited transactions on HDFC Bank ATM network, free phone banking, free mobile banking, free instant alert, bill pay, intercity/inter branch banking, average quarterly balance requirement and online investment in Mutual Funds.

In a study on IT Based Banking Services, Maian, K.V.S., (2009) observed that the use of IT in banking in India is a phenomenon one can essentially attribute to the last two decades. The adoption of IT in India started with the computerisation of branches and then expanded to channels like ATM, net banking, phone banking, mobile banking etc. During this period, the banking industry has essentially focused on technology as an enabler to provide improved

---

service delivery. Core banking systems have enabled banks to deliver anywhere banking solutions.

In a research paper on alternative banking, Kumbhar, V.M. (2009) opined that IT revolution in the Indian economy has made steady inroads into the banking institutions\(^{100}\). The IT revolution brought about significant changes in many aspects such as computerization of transactions, new delivery channels such as internet banking, phone banking, ATMs, EFT, electronic clearing services, and electronic data interchange and so forth. These new features in the banks are helping them to work more efficiently and swiftly. He recommends enhancing service quality of alternative banking services to increase customers’ satisfaction so that they adopt them.

Narendra Kumar Bhashin (2009) examines how technology has played an important role in the development of an efficient and secure payment system\(^{101}\). The study found that Indian customers are aware of emerging payment options and are willing to move away from cheque based payment to electronic payments. The effectiveness of technology has dramatically improved the efficiency of operations in banks, leading to increase in productivity and profitability. In his study Abdul Mannan (2010) made an analysis of the customers’ perception of implementation of technology in Indian banks and recommended spreading the awareness of


E-banking services among the common people. The study was based on the data gathered from 17 nationalised banks, 17 private banks, 05 foreign banks and 07 Kerala based banks in the state of Maharashtra. The data analysis revealed that all the respondents have acknowledged the awareness of E-banking. 92.1 per cent of respondents agree that the electronic services are more convenient and suitable in present life. It was found that only educated, well to do persons, especially, the male form the majority of the users. Large numbers of bank customers do not prefer to use E-banking services.

In a study Sourabh Sharma and K.S Thakur (2011) observed that the computerisation in banks has increased their productivity and profitability. The study examined various factors with reference to the effects of computerisation in public and private sector banks and the advantages of adopting IT in the four major banking operations, i.e. information technologies' strategic advantages, technological knowhow and organizational capacity, decision making process and motivations towards IT. The results showed that ICICI bank was found to be the most efficient in all indicators, followed by HDFC bank. Uppal, R.K. (2011) in his study analyses the performance of major banks in terms of productivity and profitability in the pre and post E-banking period. From the analysis of data it was found that the performance of all the banks under study was much better in

---

102 Abdul Mannan (2010), Technologies in Indian Banks Customers' Perception an Empirical Study in Maharashtra. Paper presented in International Conference on Business and Information at University of Kelaniya- Sri Lanka.


the post E-banking period. Further, foreign banks are at the top position where as the performance of public sector banks are comparatively very poor.

2.2.3 Studies on E-Banking

According to the study of Rajeev Kumra and R.K Mittal (2004) on growth drivers of IT enabled banking in India, the foremost thing required for the growth of IT enabled banking to happen is more usage of IT enabled channels compared to the branch banking by the customers. The study also observed that if the IT enabled banking has to be successful, it would depend largely on the human resources deployed by the banks.

The study of Ramakrishna, Y. and Venkoba Rao, D. (2006) showed that overall the customers expressed satisfaction with the ATM banking and telephone banking services. The study was conducted in the city of Hyderabad. The study was focused on telephone banking, Automatic Teller Machine (ATM), Internet Banking and Integrated Voice Record System (IVRS). The overall satisfaction level of internet banking was found unsatisfactory and customers were not satisfied with IVRS. Gupta S. and Neetu K. (2007) in their study on electronic banking published in an edited volume showed that 71 per cent of the respondents are satisfied with the quality of the services provided by their particular banks, 26 per cent are somewhat satisfied and those who are somewhat satisfied complain regarding unreliability of software, non-regular working of ATMs and extra

---


processing charges imposed by banks. A few respondents consider fault in the services of their particular bank to be responsible for their dissatisfaction\textsuperscript{107}.

Kamakodi, N. and Basheer Ahmed Khan, M. (2008) in a joint study of customer expectations and service level in E-banking showed technology alone cannot give a sustainable competitive advantage for the bank. When all banks introduce IT, it will lose its position as a differentiator. Beyond a point, IT along with personal touch will be necessary for the banks to retain existing customers and to attract new ones\textsuperscript{108}. In an empirical study Sam Luther, C.T. (2008) found that the foreign banks functioning in India are fast emerging with their excellent customer service, supported by superior technology, strong capital base and competitive price, when compared to their counterparts. The study observed that technology has enabled banks to overcome the barrier of time and space in extending their services to customers through the emerging innovative channels such as internet banking, ATM, debit cards, mobile banking and so forth. This study concluded that the competition created by the foreign banks will surely force the Indian banks to offer additional customer choices through the introduction of new products, better services and price options. Only banks that can adapt themselves to this change will survive, otherwise they will be swept away by the current created by the foreign banks\textsuperscript{109}.


\textsuperscript{109} Sam Luther, C.T. (2008), Emerging Foreign Banks: Customer Service is the Key Factor, \textit{Professional Banker}, pp. 27-33.
In a case study of the Industrial Credit and Investment Corporation of India (ICICI) Bank, Sohani, A.K. and Srikanta Kumar Padhi (2008) discussed the various innovative strategies adopted by ICICI Bank\textsuperscript{110}. The study found that the ICICI Bank is a real time example for its innovative approach and it has addressed the concept of innovation through its unique and continuous innovation in products, services and technologies. The study concluded that ICICI bank has realized the need and importance of innovation and used all available resources and adopted a smart approach in the overall process of innovation, which has made it the pioneer in innovation.

The study by Sumeet Gupta (2008) in Jaipur city of Rajasthan on customers’ perception towards E-banking found that 70 per cent of the respondents are aware of E-banking facilities and 68 per cent of respondents consider E-banking facilities as absolutely safe, while 64 per cent of respondents preferred branch banking\textsuperscript{111}. In his study on customers’ perception of ATM services, Sakthivel N (2008) found that 36 per cent of the ICICI bank ATM customers and 39 per cent of SBI ATM customers were highly satisfied\textsuperscript{112}. It was also found that high minimum balance requirement is the most important problem faced by the customers of both the banks. The study was made in Gobichettipalayam Taluka in Erode District of Tamil Nadu. The study found that convenience is the most important factor which influenced the customers to opt for ATM services.

\footnote{Sohani, A.K. and Srikanta Kumar Padhi (2008), ICICI Bank pioneers in Innovation, \textit{Professional Banker}, pp. 66-74.}
\footnote{Sumeet Gupta (2008), A Study of Customers’ Perception towards E-Banking with Special Reference to Jaipur City, \textit{Professional Banker}.}
In a study Joshua A.J. and Moli P. Koshy (2009) found that ATM was the most frequently used electronic banking channel followed by internet banking. The study found that the highest level of satisfaction with overall banking services was for the public sector banks, whereas the satisfaction with automated banking services was the highest for the foreign banks. The study also found that the overall banking satisfaction varies significantly with the bank groups. Further, there was a significant difference between the customer satisfaction of the public sector banks and the private sector banks, but the satisfaction levels of the private sector banks and the foreign banks were similar.

Turan, M.S. and Himani Sharma (2010) in their joint study on E-banking services in Chandigarh, Delhi and Haryana found that there was a significant gap between the desirability and availability of E-banking services. The study found that actual delivery of E-banking services by the banks falls short of the expectations of the customers. The results of the study further make it clear that E-banking service provided by the foreign banks and the private sector banks are better than those of the public sector banks. In a joint study on the acceptance of E-banking among adult customers in India, Neha Dixit and Saroj K Datta (2010) investigated the factors which are affecting the acceptance of E-banking services among adult customers and also the level of concern regarding security and

---

113 Joshua A.J. and Moli P. Koshy (2009), Adoption of Technology Enabled Banking Self-Service: Antecedents and consequences, Ph.D., Thesis submitted to School of Management Studies Cochin University of Science and Technology Cochin.

114 Turan, M.S. and Himani Sharma (2010), Customers’ Perspectives on E-Banking Services, JIMS 8M, pp. 45-50.
privacy issues in the Indian context\textsuperscript{115}. The study found that the factors like security, privacy, awareness level and trust increase the acceptance of E-banking services and in spite of their security and privacy concern, adult customers are willing to adopt online banking if banks provide necessary guidance.

In a study Sandeep Ghosh Hazra and Kailash B.L. Srivastava (2010) examined the strength of association between service quality, customer satisfaction, customer loyalty and customer commitment and also explored the differences in the perception of these variables between the public and the private sector banks. The study showed significant differences between public and private sector banks with regard to customer satisfaction and commitment. The results of the study suggest that customers were better satisfied in private sector banks than public sector banks\textsuperscript{116}.

In a joint study Kulwanth Singh Pathania and Mamatha Sharma (2010) examined the adoption rate of the banking technologies and found that the awareness of ATM is quite higher, as compared to the other banking channels. The study was made on different services from different banks operating in public and private sectors of Shimla and Solan districts of Himachal Pradesh. The results of the study showed that the SBI leads in almost all the attributes of the quality of banking services, followed by the ICICI bank and the PNB. According to the study 56 per cent of the respondents are somewhat satisfied; where as 26 per cent are extremely satisfied from the banking services. ATM was the only channel that


was extensively used followed by personal visit to banks and the use of other channels was very low.

The study of Thamaraiselvan Natarajan, Senthil Arasu Bala Subramanian and Shivagnana Sundaram Manickvasagam (2010) on customers’ choice amongst self service technology channels in retail banking, explores the factors influencing customer choice of self service technologies in Tiruchirapalli. The result analysis revealed that on the whole ATM is found to be the most preferred channel followed by internet banking and mobile banking with more or less equal weights. When it comes to the various purposes for which Self Service Technologies (SST) are used, the internet banking is widely used, followed by mobile banking and ATMs. For avoiding risk associated with SST, ATM is the most preferred channel. The study opines that the benefits perceived equal, amongst the SST channels, the patronage for internet banking and mobile banking can be improved if the risk perception is reduced.

In a study Seranmadevi, R., Latha Natarajan, M. and Saravanaraj, M.G. (2011) analysed the credit card system and E-banking services in Indian banking sector and found that the frequency of usage of credit cards was limited among the Indian customers; they preferred to make purchases using credit cards only 50

---


The ICICI bank holds the first place in the respondents’ ranking followed by the Indian Overseas Bank (IOB) and the State Bank of India. On the whole, the study found that most of the respondents were satisfied with the credit cards of various banks. Further, the study also revealed that among the E-banking services the ICICI bank was ranked first followed by the IOB.

In a comparative study of e-delivery channels of the HDFC bank and the PNB, Uppal R. K. (2011) examines customer perception towards e-delivery channels and future of e-delivery channels in India and he predicts that every aspect of banking will be transformed by the new technology. According to the study, customer friendly products, delivery channels, dependency on IT systems and competitive pricing would be the driving forces. The study also predicts that the vast differences in the ambience presently noticed among different bank groups would be noticeably narrowed down and banks will have to drive services via new channels to attract customers, and not leave it to the technology alone.

2.2.4 Studies on Internet banking

In a comparative study of the Punjab National Bank (PNB) and the HDFC bank Sonal Chawla (2004) investigated internet banking and its adoption and implementation and found that many of the services which were offered online by

---


the HDFC bank are not offered by the PNB; and therefore, the HDFC bank has a competitive edge over the PNB\textsuperscript{121}.

The study on internet banking by Geethika, Tanuj Nandan and Ashwini Kr. Upadhyaya (2008) analyses the concept of internet banking, perception of internet bank customers’ and non-customers and issues and major concerns in internet banking in Allahabad \textsuperscript{122}. The analysis found that there is not much difference in the basic internet banking services offered by various banks. The analysis of the websites of various banks revealed that the design of the website, technological up-gradation, security features, consumer friendliness and value added services vary from bank to bank. There is a lot of emphasis on security by all banks. The customers look for ease in performing banking transactions along with more and updated information when adopting internet banking. Those banks whose websites are complex will face a setback. The users weigh different reasons before choosing a particular banking service and the users of e-baking give utmost importance to excellent services. There is greater concern for security among non-users.

In a study Sofri Yahya, Harshid and Thakur Rajendar Singh (2009) found that computer proficiency, education and banking literacy have a positive impact on the acceptance of internet banking in the city of Hyderabad \textsuperscript{123}. The analysis

\textsuperscript{121} Sonal Chawla (2004), Internet Banking in India: A glimpse of its adoption and implementation in India through case Studies, \textit{IADIS International Conference}, pp. 612-618.


showed that various facilities provided by the banks, apart from security, have a very strong positive relationship with the acceptance of IB and banks themselves have a major role in ensuring that more customers adopt IB. Khan, M.S., Mahapatra, S.S. and Sreekumar (2009) in a study evaluated the quality of internet banking services in India from customers’ perspective. The analysis showed that the customers are satisfied with the quality of service on four dimensions such as reliability, accessibility, privacy and responsiveness, but least satisfied with user friendliness. The study provides guidelines to bankers to focus on user friendliness to improve upon internet banking.\textsuperscript{124}

Gunajith Sarma and Pranav Kumar Singh (2010) in their joint study on the applicability of biometric technology for authentication in internet banking observed that technologically implementing web based banking to customers is challenging.\textsuperscript{125} The focus of the study was on providing banking services to customers using web with highly secured technology. The study found that biometric technology has played an important role in controlling the risk factors through authentication system. The study argues that careful planning is a prerequisite for technology implementation if full benefits are to be realized.

Vijay M. Kumbhar (2011) in a study of the determinants of internet banking adoption in Indian banking showed that demographic characteristics,

internet access, awareness, customer education, cost effectiveness and service quality were the most important factors in the adoption of internet banking\textsuperscript{126}. The study identified the attitudinal, cost, service quality and awareness factors that are significant in explaining the intentions to adopt internet banking services in India. This empirical investigation was undertaken on public and private sector banks in Satara and Kolhapur city of Maharashtra. Rahmath Safeena, Hema Date and Abdullah Kammani (2011) in a study of the factors influencing the consumers' adoption of internet banking in India investigated the influence of PU, PEU and PR on the use of internet banking\textsuperscript{127}. The study examines the Indian consumers' perspective of internet banking adoption and observed that PU, PEU and PR were found to be the influential factors in explaining the use of on-line banking services. PU and PEU are positively related and PR is negatively related with internet banking use.

A brief review of the studies undertaken in this chapter indicates that many studies have been conducted in different aspects of technology-adoption in banking in different countries of the world including India. But no comprehensive study has been undertaken regarding the customer satisfaction and employee satisfaction of technology driven-banking service offerings and hence this study is devoted to fulfill this research gap and add up to the existing knowledge.
