CHAPTER - 2
CHAPTER 2

REVIEW OF LITERATURE

The first chapter traces the genesis, growth and development of the subject under the research and its online banking service i.e., adoption across the globe and its relevance to the Indian contexts. Besides, it also briefly spells out the background of the research, the statement of the problem and the justification, the objectives and limitations. The outline of the research methodology adopted in this research has also been clearly stated in the introductory chapter. This second chapter is designed in such a way that it presents the extensive review of relevant literature pertaining to the subject of research, that have been gleaned from the literary works carried out in and outside India. This process has helped the present researcher to have an insight into the various nuances, relating to the research problem. In addition, this effort has also helped the present researcher to identify the research gaps, and the influencing variables pertaining to trust, security, risk and privacy as evidenced in earlier research works carried out on the subject of research and to formulate the theoretical framework in approaching the distinguished aspects of the research problem. These things are systematically organized and presented in the ensuing pages, detailed below.

The research paper entitled “Electronic Banking the Customers’ perception towards it and its impact on the Malaysian Banks’ profitability before and after its implementation” by Teo Tzeng Yee (2001), attempted to address the various issues on customers’ perception. The main focus of this study was on e-banking users and non-users. Also, focused on four local banks offering e-banking services in order to identity the impacts on performance levels. In pursuing the above objective, with the help of primary and secondary data obtained from ninety two sample respondents, using SPSS 10.0 version. During the course of analysis, the use of, linear regression
analysis and one tailed t-test was made. Further, financial tool i.e., ratios were used to measure the profitably on the service provided before and after implementing e-banking and the customers’ perception levels thereof. Besides, the study included both the users and non-users as sample respondents to participate in the research and found the high level perception towards the adoption of OLB services.

**Ziqi liao and Michael tow cheung (2002)** empirically explored using the multiple regression model under which the attributes affecting consumer satisfaction in the existing internet banking services. In particular, the core subset includes reliability, security, responsiveness and service improvement, in addition to the conventional concerns about perceived usefulness and ease of use. Therefore, banks should pay attention to these factors and consistently enhance their service operation. In pursuing the problem of consumer perception of internet banking services, the authors developed a new research model by combining the original models developed by Parasuraman, Zeithmal and Berry using SERQUAL multiple item survey instrument for measuring the service quality. The empirical study suggests that future research effort could be directed towards assessing the marginal significance of considering additional attributes. Further, research could be usefully applied towards disaggregating the data to distinguish between preference and perceptions on the part of individuals who are currently using internet banking and internet seasoned potential users who may be attracted to such services, this study insisted upon.

**Tittrade Cristina, Ciolacu Beatrice and Pavel Florentina (2002)** analyzed the impact of risk and security factors on e-banking transactions using debit and credit cards for electronic fund transfer (EFT) telephone banking, direct bill payment, online trading, short message service banking (SMS), mobile banking and interactive TV banking across some randomly selected respondents of banks in UK. The findings reveal that the security and the risk factors had emerged as the major threat among most of the participants while comparing with the traditional banking services. The
respondents were found to be very much satisfactory upon substantial reduction in overall cost and time factors that are involved in online banking services. The study suggested for the adoption of system based security management, monitoring tools and strong information security control. There is a huge scope for conducting further studies as to know how these cost and time elements play a major role in deciding the positive or negative attitude of the internet banking service, the study concluded finally.

Ayodeji Akinolu Agboola (2003) examined the impact of electronic banking on customer services in Lagos. Ninety questionnaires were administered to the customers of six commercial banks to elicit information on their satisfaction or dissatisfaction upon the services rendered by their banks. Administration of the questionnaire was based on grab sampling. Five major areas were focused on to determine the effects of electronic banking services, which includes accuracy of record, convenient business hour, prompt and fair attention, faster services and possibility for home and office banking. It was found that the induced effect of computer electronics on banking as perceived by the customers that led to accurate records, convenient business hour, prompt and fair attention, faster services and possibility for home and office banking. About 98% of customers agreed it facilitates accurate records. The study also revealed that a lot of changes were brought to the technique of delivering banking services and the range of products through automated devices. The most difficult problem of electronic banking as perceived by the sample respondents was frequent system breakdown. Others included black out and power failure, posting errors and manipulation of figures and lack of cordial interaction with the bank employees.

The study of Siriluck Rotchanakitumnuai and Mark Speece (2004), entitled “Corporate customer perspectives on business value of Thai internet banking” examined the four benefits and three barriers that influence the corporate customer
adoption across users and non users of internet banking services. The results of the study revealed information sharing and distrust of the web are the two drawbacks of internet banking adoption. It suggested that the banks need lower the barriers to internet banking adoption to provide actual benefits to corporate customers. The four benefit factors that have been analyzed are information quality, information accessibility, information sharing, and transaction benefits while three major barriers are related to trust, legal support, and organization barriers. In this endeavor the study was conducted on some 195 sample respondents covering financial, accounting managers and officers of customer companies who deal with banks, selected using judgment sampling technique. The questionnaires were weighed using Likert’s five point scaling technique, ranging from strongly agrees (1) to strongly disagree (5). The pretesting was conducted before carrying out the actual study on limited sample size to validate the questionnaire. In the analytical process the study has employed factor analysis. For the purpose of testing the null hypotheses chi-square test was carried out. The profile of the respondents the user and non user, age, gender, education, etc. The respondents were selected at random from a wide spectrum of industries i.e. real estate, energy& cement, trading, insurance, hotel & tour, food & agriculture, telecom & computer, airlines, garment & textile, finance & securities and pharmaceuticals. The nature of e-banking transactions considered in this study are also found to be exhaustive i.e. check balance, request statement , transfer money, pay expense, pay loan, apply loan,trade (e.g. open l/c), exchange money, request report, bank clearing advice, check exchange rate, customer payment, cash management etc. This piece of literary evidence is found to be useful for the present research also as this study has concentrated on the exhaustive list of variables, customers’ type and e-banking transactions.

“How to make online banking secure” is the study of Ahmed Nasir Mohd Zin and Zahuri Yunos (2005), analyzed the security issues pertaining to online banking transactions across twelve banking and financial institutions in Malaysia. In this
endeavor, the study has obtained the information relating to the methods of security breaches such as Trojan attack, man in the middle attack with reference to security control, in terms of passwords, smart card and biometry. The study identified that there is no formal processes being put in place to determine the level of security provided by these providers and to what minimum standards they should be. This study suggested further that the providers of internet banking services must be more responsive to security requirements. While there is no doubt that internet banking transaction should have layered protection against security threats, the providers should approach security considerations as part of their service offerings. However, this is indeed a serious matter that needs to be looked into by the relevant authorities in this country. In the long run, the cost involved to implement better security will be worth it and beneficial to the banking industry. This study had a main focus on a single factor i.e., security factor only and left huge scope for further studies to incorporate the other distinguished factors that influence the OLB adoption.

The study of Engin Kirda, Christopher Kruegel (2005), analyzed the trust related variables of online banking transactions. In the present day context, the mistrust in online banking transactions is the major worry among the Internet users. One of the common cybercrimes in net banking is Phishing. Phishing is a form of online identity theft that aims to steal sensitive information such as online banking passwords and credit card information from users. Phishing scams have been receiving extensive press coverage because such attacks have been escalating in number and sophistication. According to a study by Gartner, 57 million US Internet users have identified the receipt of e-mail linked to phishing scams and about two million of them are estimated to have been tricked into giving away sensitive information. This paper presents a novel browser extension, AntiPhish that aims to protect users against spoofed web site-based phishing attacks. To this end, AntiPhish tracks the sensitive information of a user and generates warnings whenever the user attempts to give away this information to a web site that is considered untrusted, as
per the research conducted on nine hundred online transactions across the city of Vienna, Austria. Like, the previous literary evidences cited above, this study also had a focus on single factor only i.e., trust factor, that influence the internet banking adoption.

On pursuing the research problem pertaining to “Usable Security and e-banking” across six Danish based electronic banking system, the results indicate that systems have serious weaknesses with respect to ease of use. The security requirements are among their causes and that weakness may in turn cause decreased security, are the findings of the research conducted by Morten Hertzum, Niels Christian Juul, Niels Jørgensen, Mie Nørgaard (2005). Their study also identified the existence of conflicting role between ease of use and security in the context of usable security, intended to match security principles, demand against use of knowledge and motivation. In this endeavor the above study had considered a single e-banking service (i.e) transfer of money. The variables studied are user authentication, data confidentiality, user awareness, ability to successfully perform the security sub task such as installation, log on, money transfer, log off using private keys and public key infrastructure for maintaining the secrecy of information. This study is silent on the sampling procedure and adoption of analytical tools and the demographic characters of the respondents.

The study of Eduardo Diniz, Roseli Morena Porto and Tomi Adachi Escola de Administração de Empresas de São Paulo (FGV-EAESP), Brazil (2005) attempted to evaluate the virtual business environment from the users point of view by developing a three dimensional model across three large banks in Brazil in his research entitled “Internet Banking in Brazil: Evaluation of Functionality, Reliability and Usability”. In this attempt the evaluation of business websites by incorporating three major dimensions e-banking services viz functionality, reliability and usability. These three major factors incorporated a wide range of variables to
define the different dimensions of these factors. While evaluating the functionality i.e.
set of services offered, main focus was given to three key elements such as
 dissemination, transaction and relationship. While the reliability dimension included
the variables such as integrity, confidentiality, availability, privacy, non repudiation
and authenticity to define the reliability dimension. The usability dimension included
the variables such as layout, data entry and user on command. The systematic analysis
has helped the above researcher to have an in-depth insight into the problem and
concluded that internet banking still has weakness on the non repudiation and client
authenticity items; user friendliness are the must for usability dimension, this study
insisted further.

The study of Almogbil, abdula M.A (2005), entitled “Security perception and
practices challenges facing adoption of online banking in Saudi Arabia” explored
security perceptions and practices across four hundred and seventy three respondents
selected at random, covering bank’s customers, bank’s managerial employees, bank’s
technical employees and bank’s legal employees in Saudi Arabia covering select
demographic classifications such as gender, age, income, educational background
and occupation, using online banking services. In this effort, the researcher adopted
the printed questionnaires to get the required information. The absolute aim of this
research was to examine the perceptions and variance across demographics of online
banking participants to find out the challenges in existence of wide spread adoption of
online banking. Variables pertaining to security issues cultural and social variables
were considered. During the analytical processes, the study has adopted the
parametric statistic such as t-test, ANOVA, factor analysis, and pearson’s correlation
and non parametric statistic such as Spearman, Mann Whitney, Wilcoxon, chi-square,
median and sign test to generalize the finding of this research. The study finally found
that the educational level, professional background and technical competence of the
participants turned out to be the major factors of influence in their perceptions of
online banking. Further, this study has identified the fact which is contrary to most
theories of pedagogy; the respondents with higher educational background expressed more concern about the security of online banking. The above study over emphasized on security perceptions and risk related issues attached with online banking transactions. It fails to address the concerns of the bank customers in terms of trust factors. The finding of this research would have limited applications only. The omission of trust in the above study created a huge scope for carrying out further study by incorporating the trust factor, which is done in the present research.

“Enhanced authentication in online banking” is a study carried out by Gregory D. Williamson (2006) which portrays a clear picture of the need for enhanced authentication in online banking transactions such as complete money transfers, pay bill and access critical information online. The main focus was given to security concerns and criminal activities that are driving the need for stronger authentication, as well as showing the growth of the online channel that is being driven by consumers and financial institutions. This study simplifies and provides a resource for understanding the many options available when implementing enhanced authentication in the online banking environment. It also analyzed many authentication solutions available, as well as a set of guidelines for selecting and implementing enhanced authentication, based on the learning and knowledge of industry experts and the consumer. Further, the findings of this research suggested the need for stronger user authentication in an online banking environment which is necessary to ensure customer security, confidence, and acceptance of this widely used channel for financial institutions. The standard means of user authentication, such as username and password, are no longer enough to ensure appropriate access control to customers’ accounts and personal information. Financial institutions must be able to strengthen user authentication in the online environment to protect their customers and maintain the confidence. They must also ensure that stronger authentication does not negatively impact the users’ online banking experience. In the above attempt, the study examined the research problem by incorporating variables such as convenience,
cost, customer service, competitive advantage, trust, risk, security, privacy and authentication and obtained the opinion thereon across one hundred and nineteen sample internet users selected at random. The study also pursued the authentication of customers logging into their online service which is a crucial concern of all financial institutions only and suggested the possibility for further studies covering the to other vital factors that determine the online banking services adoption.

The study of **T.C. Edwin Cheng, David Y.C. Lam and Andy C.L. Yeung (2006)**, investigates how customers perceive and adopt Internet Banking (IB) in Hong Kong. The study has developed a theoretical model based on the Technology Acceptance Model (TAM) with an added construct Perceived Web Security (PWS), and empirically tested its ability in predicting customers’ behavioral intention of adopting IB. They designed a questionnaire and used it to survey on randomly selected 203 sample customers from eight industries occupying different positions across the age group of below 18 to above 60 belonging to different gender groups. This study has given due weight age for some select independent variables viz perceived ease of use, perceive usefulness, perceived web security, attitude, and one dependent variable i.e., intention to use. During the analysis, the study has employed huge number of statistical models such as confirmatory factor analysis, exploratory analysis, t-test, chi square test, SEM and AMOS using SPSS version 10.0. The results provided support of the extended TAM model and confirmed its robustness in predicting customers’ intention of adoption of IB. The findings of this study contribute significantly to the literature by formulating and validating TAM that predicts IB adoption, which is useful for bank management in formulating IB marketing strategies. This study identified some new variables such as perceived web security and attitude in the OLB adoption.
Convenience in terms of time saving has emerged as the single most factor that significantly influences the adoption of internet banking among the customers in Australia, is the finding of the research carried out by Sharman Lichtenstein Deakin and Kirsty Williamson (2006), in their research entitled “Understanding consumer adoption of internet banking: An interpretive study in the Australian banking context”. The findings also reveal that security, privacy, trust and risk concerns are the major detractors of adoption of internet banking choices among the sample respondents. In this attempt they considered some select 32 sample respondents covering the wide spectrum of demographics such as gender, age, employment, education, income level, place of residence, computer ownership and home internet access. The main focus was given to the factors that influence the adoption of internet banking operations such as previous internet experience, convenience in terms of time saving, security, privacy, risk, trust, cost, service quality, knowledge of technology, its acceptance, supporting and service system from bankers. The sample respondents for this study were selected at random on the grounded theory approach suggested by Henwood and Pidgeon 1993 and Charmaz 2003 across the different demographic classifications cited above. The data that were gleaned from the sample respondents were analyzed using descriptive statistics. This piece of literary evidence is found to be useful for the current study as it has adopted a wide spectrum of demographics and some new variables such as previous internet operations, convenience in terms of time saving, TAM and banks support and service delivery system. Since, the study is an extensive one conducted across the banking population using internet services in Australia. The sample size of 32 can be justified as insufficient one despite its validation by renowned authors on statistics.

The study of John Reynolds (2007), retrospectively examined e-banking technology services industry customer loyalty survey data results in order to improve marketing resources allocation for corporate e-banking products and services. Primary customers were delineated by bank size (small, medium and large) and single versus
multi product purchases. MANOVA and independent t-test as statistical measures were applied on 684 survey reports gathered. The results indicated that statistically significant and lower ratings of loyalty existed among the small and single product banks. Quality ratings were differentiated between six sub categories (loyalty, quality, trust, willingness to renew, willingness to recommend and willingness to expand). Trust, willingness to recommend and willingness to expand subcategories of quality were also rated significantly lower among the small and single product banks compared with medium and large multi product banks. Additionally, quality categories of general quality and willingness to renew were not statistically significant between the various banks delineations. These results provided the basis from which to complete additional research and begin the process of making changes in resources allocation related to optimizing e-banking customer centric business. The above study was carried out across three sizes of the sample organizations. The demographic profile of the respondents was not reported in the above research, is a deficient aspect.

Muniruddeen Lallmahamood (2007) explored the impact of perceived security and privacy on the intention to use Internet banking. An extended version of the technology acceptance model (TAM) suggested by Davis (1989) was used here to examine the level of perception pertaining to security privacy and risk. In order to pursue the above objective, the author has adopted a survey method considering 187 respondents selected at random, mainly from the urban cities in Malaysia. The findings of this research agreed that security and privacy are still the main concerns while using Internet banking. The research model explained over half of the variance of the intention to use Internet banking \( [R^2 \text{ adjusted} = 0.532] \), the unexplained 47 percent of variance suggested that the model may have excluded other possible factors influencing the acceptance of Internet banking. Interaction in the local language did not have an impact on the ease of use of Internet banking. Internet security, Internet banking regulations and customers’ privacy would remain future challenge of Internet banking acceptance, this study entitled “an examination of individual’s perceived
security and privacy of the internet in Malaysia and the influence of this on their intention to use e-commerce: using an extension of the technology acceptance model”, emphasized further. In the above endeavor, before conducting the final research, pre-testing was conducted across 10% of the sample size. The reliability score using cronbach alpha was found to be 0.83 on an average for all the dependent and independent variables. The multiple regression model, Pearson’s correlation co efficient, F-test, t-test and multi collinearity tests were carried out to have a meaningful inference, in this research.

The findings of the research entitled “Adoption Issues of Internet Banking in Pakistani’ Firms” carried out by Saadhulla Khan (2007), Lulea University of Technology, found the greater level of worry among the respondents regards the trust factor. It also reveals that respondents did not have confidence to make any big financial transaction over internet, and have no satisfaction from internet banking services. Therefore the lack of system security concerns as a prime reason for the slow adoption rate of internet banking in Pakistani firms. In this attempt the author had a main focus on trust related issues consisting of some five sub issues such as security, reliability, perceived risk, slow response time, privacy. The sample size was only sixty three, the respondents were chosen at random from three different Pakistani firms each one from private (Indus Media Group), public (Unilever Pakistan) government (Pakistan International Airlines), covering CEOs, directors, branch managers and executives etc. The very purpose of this research was to explore and analyze the issues that influence Pakistani firm’s intentions towards internet banking adoption. The empirical data were collected from the sample respondents using printed questionnaires. The case study analysis approached the research problem using statistical models such as factor analysis, cluster analysis, discriminant analysis and multiple regressions. The encouraging factor in the above research is the inclusion of a new variable i.e., slow service response time. This study did not focus on demographic classification of the respondents as the trust level may differ from
respondent to respondent. Further, this study was conducted on one Pakistani firm in each of the three classifications viz private, public and government. The sample size of this research is only 63. These are the deficient aspects of this research. The present research would seal this research gap and pursue the distinguished aspects of OLB adoption through this piece of research work.

**Rajesh Kumar Srivastava (2007)** conducted “A study on customers’ perception on internet banking”. This research was carried out to validate the conceptual model of internet banking. The causes were identified and researched through correcting the causative factors so that internet banking can be used by more people. This will help banking operations to be more cost effective. The research is focused on what are the customers’ perceptions about internet banking and what are the drivers that drive consumers. How consumers have accepted internet banking and how to improve the usage rate were the focus of the research area in this study. Qualitative exploratory research using questionnaire was applied. Five hundred respondents covering 285 non users and 215 users were selected at random belonging to different demographic classifications such as education, gender, income, culture and religion for the study after initial screening. They were all customers using internet banking services across all the public and private sector banks in India. The factors considered in this study were trust factors, cost factors, security factors etc. For the purpose of identifying the association between the demographic classifications across the independent variables, the use of chi square test was made in this research. The variance in consumer perception across these gender classification and independents variables also tried through F-test. This study has included cost factor in its research ambit as one of the new determinants of online banking services. The study found the important role of education, gender in the usage of internet banking. Factors such as trust, culture, religion, security, and cost were found to have a minimal effect in the consumer mindset towards internet banking.
The study of Paul H.P. Yeow, Yee Yen Yuen, David Yoon Kin Tong and Nena Lim (2008) entitled “User acceptance of Online Banking Services in Australia” investigated both positive and negative factors that influence user acceptance of online banking services (OBS) in Australia. A research framework was developed based on the Unified Theory of Acceptance and Use of Technology (UTAUT). One hundred and ninety sample respondents in Australia have participated in the survey to record their perceptions towards online banking services. The results of the detailed analysis using descriptive statistics, factor analysis and multiple regression show that though respondents strongly believe that using online banking services would benefit their daily life; many issues, such as security concerns and technology anxieties reduce their self-efficacies. This study has finally insisted upon the safe, efficient and conducive environment for the adoption of online banking services across Australia. In this attempt, the study has incorporated behavioural intention to use online banking services as a dependent variable and performance expectancy, effort expectancy, social influence, facilitating conditions, self-efficacy, anxiety, attitude toward using online banking service, perceived credibility as independent variables that determine the user acceptance. The structured questionnaire was adopted as an instrument for data collection with five responses weighing five points ranging from strongly disagree (1) to strongly agree (5), suggested by Likert’s five point scale validated by the alpha chronbach value of 0.70. The inclusion of an exhaustive list of variables that determine the online banking adoption is an encouraging one, in this piece of literary evidence. However, the sample size of this research is only one hundred ninety but the popular authors on research methodology suggest that a sample of more than five hundred would be an ideal one in larger studies that focuses on the extensive use of online banking services, is a deficient aspect of the above research.
Majority of the respondents agreed that internet banking is convenient and flexible ways of banking and it also have various transactional related benefits, is the findings of the study carried out by Divya Singhal and V. Padhmanabhan (2008) entitled “A Study on customer perception towards internet banking: Identifying major contributing factors”. Therefore, providing internet banking service is increasingly becoming a need to have than a nice to have service, this study emphasizes. The authors made a sincere attempt to explore the major factors responsible for internet banking based on respondent’s perception on various internet applications. In pursuing the above objective, the study had identified some standard variables that are in use across the globe in the study of consumer’s perceptions. These variables were gleaned from an extensive survey of literature. The variables studied in this research are convenience, flexible virtual banking system, reliability, time factor, real time access to information, saving transaction cost, on-line bill payments, digital signature for security, faster transfer, easy to use, user friendly, low transaction fees, anytime and anywhere banking facility, access to current and historical transaction data, facility of fund transfer to third party. The required information were obtained using structured questionnaire with five responses whose weights are ranging from 5 to 1 suggested by Rennis Likert’s five point scale, from 61 respondents covering users and non users across some select demographic classifications such as gender, age, occupation, using convenience sampling method. These variables were reduced into five factors by factor analysis process as data reduction technique, further, KMO process and Bartlett’s test of sphericity were carried out to validate the extraction of sub factors and rotated these factors under varimax rotation, using SPSS version 16.0. The use of convenience sampling procedure for this study is the lacuna since convenience sampling procedure may not reveal the fair representation. Besides, the sample size for this study is found to be only sixty one the larger studies should have a sufficient number of sample size as suggested by renowned authors of research methods. The positive aspect of this study is the inclusion of exhaustive list of variables that influence the customer perception towards internet banking.
The study entitled “drivers of customer intention to use online banking; An empirical study in Vietnam” by Jau Shyong Wang and Thien Son Pho (2009), found that numerous Vietnamese banks have launched online banking services to offer improved services to existing customers and attract new ones. However, online banking was new to the people of Vietnam, and rate of adoption of online banking was also low. This study focuses on this issue and attempts to identify the determinants of customer intention to use online banking. A research framework based on the DeLone and McLean information system success model for assessing website quality and the literature on brand credibility was developed to identify the factors that could affect customer intention to use online banking. This study considered customers of the financial industry in Vietnam and collected one hundred and sixty four valid questionnaires. Partial least squares method was applied in the investigation. The analytical results indicated that brand credibility can affect customer intention to use online banking. In this endeavor, the study had incorporated some five select variables such as system quality, service quality, information quality and complimentary relationship. These critical factors were derived by combining sub factors. While designing the questionnaire, SERVQUAL suggested by Landrum and Prybutok 2004 with Seven Point Likerts’ scale as a measure of response.

The study of Kyung Kyu Kim, Bipin Prabhakar, Sung Kook Park (2009) attempts to examine and specify the relationship among the core constructs surrounding the issue of trust such as risk and trusting behaviour. The context of Internet banking adoption is used to develop a conceptual model that incorporates the direct effects of trust and perceived risk on trusting behaviour as well as the mediation of the relationship between trust and trusting behaviour by perceived risk. The findings of this research show that perceived risk mediates the relationship between trust and trusting behaviour. Specifically, trust in the Internet as a banking medium significantly influences the adoption of Internet banking both directly and indirectly
through perceived risk of Internet banking. Trust does not significantly influence the 
trusting behaviour through perceived risk of Internet banking. This study, thus, 
extends research on trust in e-commerce by simultaneously examining the influence 
of trust and perceived risk on e-commerce adoption. In this endeavour, the study has 
conducted a survey on two hundred and sixty six samples comprising of hundred and 
eighty net banking adopters and eighty six non adopters of internet banking across 
Midwest Bank in USA, using structured questionnaire with seven point scaling 
technique suggested by Rennis Likert. The information that have been gleaned from 
the respondents were analyzed using chi square test for testing the hypotheses set for 
this study, factor analysis for measuring the variables and to extract the prominent 
factors and multiple logistic regression to identify the mediation effects as statistical 
tools. This study also has developed a new model by combining the models of 
Jarvenpaa and Todd (1998), Schneider (1998) and Cynnubgs and Vrinuket 
(1996) using Structural Equation Modeling (SEM) based statistical software (EQS 
Structural Equation Modeling Software) suggested by Bentler (1995). Besides, 
pretesting was also carried out on restricted sample size, the alpha cronbach value of 
which validated the questionnaire for carrying out the study, further. Unlike the 
earlier studies on the subject of the present research, this study has incorporated some 
fifteen distinguished variables, consolidated under three major factors, viz trust in 
bank (seven variables), trust in internet (five variables) and perceived risk (three 
variables) that determine the trusting behaviour and adoption of internet banking. The 
positive aspect of the above piece of literary evidence is that the adoption of some 
new variables and provided the vital input to approach the different dimensions of the 
present research problem.

The research paper of Jiaqin Yang and Li Cheng (2009), compared the issues 
of the current e-banking services among the young consumers between two nations 
China vs USA. As the attitude and usage of young customers would be a good 
indicator for the trend of e-banking service in the future and different cultures and
traditions would play a role in the development of e-banking industry among different nations. This comparative study provides an insight and suggested guidelines for the development of e-banking industry in both the nations and worldwide. In this attempt, the study analyzed the influence of factors such as transaction security, value added content of net banking services, differentiated services, customers IT awareness, equipment compatibility, security and privacy and technology acceptance that influence the internet banking adoption using the service quality assessment model. The primary data for this research were collected through a well designed questionnaire covering the demographic profile such as age, gender, educational background and income level across one hundred and thirty five young participants drawn from China and 101 drawn from USA totaling the sample size of 236 covering both users and non users of e-banking services. These variables were correlated with e-banking services including online enquiry, e-payments and e-transfers. The users and non users were found to be reluctant to adopt e-banking services due to unaware of service, clueless operating process, user unfriendly, insufficient customer support, poor internet connection are emerged as the deterrent factors of online banking adoption, the study finally concluded. The findings of the study have also provided several important and insightful guidelines for the future development of e-banking services in both nation and worldwide. The sample size used in this research is relatively small. Hence, further research is immense to generalize the findings by incorporating cultural and tradition variables so as to measure the differences in the adoption of net banking services.

Security is the most impo factor influencing the users adoption of online banking is the findings of the study of Guangying Hua (2009) entitled “An experimental investigation of online banking adoption in China”. The study had a main focus on some three select independent variables such as privacy factors, security factors and ease of use factors and the online banking adoption as dependent variable. The researcher attempted to measure these variables using Likert’s 7 point
scale ranging from 1(no important) to 7(very important) to test the relevance of technology acceptance model in this research. The size of sample for this study was 110, drawn at random from only two demographic characters viz gender and age across the students pursuing under graduation in Chinese universities. During the analytical processes, this study has adopted descriptive statistics viz t-test and f-test to validate the hypotheses set for this study. This study had found to have adopted one new independent variable i.e., ease of use factor unlike the earlier studies that used only variables such as trust factors, security factors, privacy factors, is the encouraging factor of this research. This study did not focus on respondents pursuing post graduation, research and professional degrees. The demographic characters were also restricted to age and gender only. Another important lapse in this study is that the target respondents are under graduation students only. Probably, it can be inferred that they may adopt only a single online banking transaction viz payment of fees but in reality the types of online transactions are too many in numbers.

**K. T. Geetha and V. Malarvizhi (2009)** empirically investigated the factors which affect the acceptance of e-banking services among the customers and examined the level of concerns pertaining to security, risk, privacy and trust issues consisting of sub factors such as transparency, awareness, familiarity, technology, easy to use, time saving measures, convenient measures, etc. Primary data were collected from randomly selected two hundred respondents across the demographic characters such as gender, age, qualification and income, through a structured questionnaire. Descriptive statistics was used to explain demographic profile of respondents. Factor analysis and multiple regression models were used to measure the degree of influence of the factors affecting e-banking services among the respondent customers of some select Indian banks. The findings revealed that factors like security, privacy and awareness level increased the acceptance of e-banking services upon the respondents. The results also suggested that if banks provide the required safety measures of their accounts, more customers would be willing to adopt e-banking services.
Perceived ease of use was found to be the strongest predictor of intentions to continued usage of internet banking services among the Egyptian customers, is the findings of the research conducted by Dalia El-Kasheir, Ahmed S. Ashour and Omneya M. Yacout (2009), entitled “Factors affecting continued usage of Internet Banking among Egyptian customers”. This study has also found that there is no relationship between perceived risk and customers continued intention to use the internet banking services. In this attempt, they perused the relevance of the well known behaviourialistic models such as theory of recent action (TRA), the theory of planned behaviour (TPB), the theory of decomposed planned behaviour (TDPB), the technological acceptance model (TAM), and the diffusion of innovation theory (DIT) that provided the researcher to identify the variables such as perceived risk, perceived usefulness, perceived ease of use, subjective norms, intention continuance. The survey was conducted on three hundred and eighty four sample respondents whose respondents’ rate was only 17%. Pre-testing was conducted across a limited sample size whose validity and reliability score was found to be 0.70. During the analytical process, the well known branch of multi-variate technique of factor analysis, multiple regressions, ANOVA were employed to have a statistical inference and meaningful interpretations thereon. The study has based on only 17% of the original sample size which is a discouraging factor in this research, in addition to incorporating only five variables relating to the risk factor that influence the online banking adoption. In reality, the non-adoption or adoption of online banking services is associated with very many factors such as trust factors, security factors and privacy factors that are not considered in this research. The exclusion of the above vital factors in this research purview is considered to be an incomplete one, since these factors have a significant role in some way in the adoption of online banking services. These factors have been incorporated in the present research.
Customer adoption of online banking is associated with substitution, primarily a most costly self-service delivery channels (automated teller machine and voice response unit); (2) augmentation of service consumption in more costly service delivery channels (branch and call center); (3) a substantial increase in total transaction volume (4); an increase in estimated average cost to serve resulting from the combination of points (1)–(3); and (5) a reduction in short-term customer profitability are the findings of the study carried out by Dennis Campbell (2009), entitled “Cost structure, customer profitability and retention implications of self-service distribution channels: evidence from customer behavior in an online banking channel”. It is also found that use of the online banking channel is associated with higher customer retention rates over one-, two-, and three-year horizons. The documented relationship between the use of online banking and customer retention remains positive even after controlling for self-selection into the online channel. Besides, it finds evidence that future market shares for our sample firm are systematically higher in markets with high contemporaneous utilization rates for the online banking channel. This finding holds even after controlling for contemporaneous market share, suggesting it is not simply the result of increased market power leading to the acquisition of online banking customers. In this attempt, this paper uses the context of online banking to investigate the consequences of using self-service distribution channels to alter customer interactions with the firm. Using a sample of retail banking customers observed over a 30-month period, i.e., December 2004 to May 2007 at a large U.S. bank. The study tested whether changes in service consumption, cost to serve, and customer profitability are associated with the adoption of online banking. The strenuous efforts put in by the authors comprising of the primary data including a random sample of 100,000 customers who enrolled in the online banking channel during 2006. To examine the customer retention effects of online banking, the study used second data set consisting of a random sample of 100,000 customers drawn from the population of all National Bank customers (both online and offline) at the end of December 2003. This second data set consists of
these customers’ online channel enrollment status, number of online transactions performed during 2003, tenure, age, number of accounts, and balances by product type. In this second data set, all these variables are defined as of year-end 2003. However, it observed each customer’s relationship status (e.g., retained or defected) as of year-end 2004, 2005, and 2006. This process has helped the researcher to investigate customer retention over a multiyear horizon.

The research paper of Pooja Malhotra, Balwinder Singh (2009) explored the current state of Internet banking in India and discussed its implications on the Indian banking industry. In specific, it focused on examining the impact of Internet banking on banks’ performance and risk. Using the information drawn from the survey of 85 scheduled commercial bank’s websites covering five hundred and ninety six respondents from public sector, private sector and foreign banks, using Internet and not using Internet, during the study period of 1998-2006. The performance variables measuring profitability, operational efficiency and financing pattern. It also covered the variables that define the risk factors, involving in Internet banking transactions. The univariate analysis indicates that Internet banks are larger banks and have better operating efficiency ratios and profitability as compared to non-Internet banks. Internet banks rely more heavily on core deposits for funding than non-Internet banks do. However, the multiple regression results revealed that the profitability and offering of Internet banking did not have any significant association, on the other hand, Internet banking has a significant and negative association with risk profile of the banks.

Elisha Menson AUTA (2010) empirically examined the impact of e-banking in Nigeria’s economy using Kaiser-Meyar-Olkin (KMO) approach and Bartlett’s test of sphericity which support the use of factor analysis in order to extract the weights of independent variables that are associated with e-banking transactions, across twenty five select banks covering seven hundred and fifty respondents in Nigeria, using SPSS
Before carrying out the final research, the pretesting was carried out and the alpha value was found to be 0.754 that validated the structured questionnaires set for this study, using Likert’s five point as a scaling technique to weigh the responses. The paper also explored the major factors responsible for internet banking based on the customer’s perception on various e-banking applications for internet banking adoption. Due to the emergence of global economy, e-business has increasingly become a necessary component of business strategy and a strong catalyst for economic development. E-banking has become popular because of its convenience and flexibility, and also transaction related benefits like speed, efficiency, accessibility, etc. The systematic analysis using various statistical tools and the results show that e-banking serves several advantages to Nigerian banking sector. The customer’s perception is that e-banking provides convenience and flexible advantages. It also provides transaction related benefits like easy transfer, speedy transaction, less cost and time saving. However, the study shows that the Nigerian customers have security, access, and no enough knowledge regarding e-banking services rendered by banks in Nigeria. Further, the study also suggests that critical infrastructure like power and telecommunication should be provided and with high level stability to ensure the application of e-banking in Nigeria. The relative skewed nature of banks location mostly in urban area should be addressed to ensure spread and accessibility by rural dwellers, this study finally claims.

The comparative study of Qadar Bakhsh Baloach and M. Imran Khan, Adnan Alam (2010) aims to provide a better understanding of how online banking services between Islamic and conventional commercial banks are prevailing in Pakistan. The above purpose is achieved via one research question which focuses on how the bank’s online services can be described. A multiple case study strategy is adopted and focused on two banks such as Islamic bank namely Meezan bank and other conventional commercial bank namely Citibank of Pakistan. Data were collected via observation and interaction with the websites, getting feedback from the
customers using different websites. On analyzing the information, the findings show that the main benefits included lower costs, efficiency and time saving retention. The Islamic banks should concentrate more on professional and technical skills, this part of analysis suggests. Websites should have clear and accurate information in order to instill faith and confidence and trust among the customers, the study further emphasises. This is also considered to be one of the vital inputs for the present research as it considered some seven new variables, such as Trust Worthiness (Cai & jun 2003) (security, trust, risk and privacy), Communication (Cai & Jun 2003) (communication tools, frequently asked questions, information upload and information understandable), Convenience / Accuracy (Jospeh, McClure & Joseph, 1999) (convenient, accurate and easy to use), Feedback/Complaint Management (Joseph, McClure & Joseph, 1999) (feedback service, friendly environment and complaint management), Efficiency (Cai & Jun, 2003) (menu options, demo, exchange rate conversion and calculators), Accessibility (Joseph, McClure & Joseph, 1999) (connectivity, special service for disables and language options) and Customization (Joseph, McClure & Joseph, 1999) (personalized service).

“Application of electronic banking in Bangladesh – An overview” is the study of Syeedul Al Amin and Sk. Saifur Rahman (2010), which had a main focus on examining the performance, problems and prospects of e-banking in Bangladesh. The study recommends that a comprehensive e-banking will be possible only when there will be political commitment with better IT infrastructure, internal network, country domain and above all, high speed fiber optic link to the information superhighway. This descriptive study collected data through personal interview method across city bank group operating in Bangladesh which provides e-banking services such as ATM, debit card, credit card, point of sale, home banking, retail automated house services, wire services, corporate automated clearing house etc. The net banking adoption determinants like security measures, encryption, decryption, and authentication are also analyzed. This study finally identified lack of adequate knowledge and technical
skill, software copyright protection, poor telecommunication infrastructure, low level computer literacy as the major constraints of internet adoption in Bangladesh and suggested the better IT infrastructure, internal network, and high speed fiber optic link to lead information superhighway, as a way out.

The aim of the research carried out by Nasim Z. Hosein (2010), entitled “Internet banking: understanding consumer adoption rates among community banks” attempted to identify those areas in which banks could improve or modify their services to increase the adoption rate of internet banking. The study identified trust in IB, website navigation, organizational support and in-person banking as critical independent variables and internet experience, computer knowledge, computer usage, incentives and security and privacy as independent external variables grouped under two major factors such as perceived ease of use (PEOU) and perceived usefulness (PU), suggested in Technology Acceptance Model (TAM) and Theory of Reasoned Action (TRA), that determine the internet banking services (IBS) adoption. The required data were gathered from randomly selected three hundred and twenty five sample respondents through an undisguised questionnaire and the same were pre-tested for its validity and reliability, using partial least square and chronbach alpha. The participants were drawn from six demographic variables such as gender, age, educational level, employment, income and accessibility. The information gathered were systematically analyzed using regression coefficient, t -test and R values. The research model was developed using structural equational modeling (SEM) that consisting of path analysis, supported by path coefficients. The results indicated that the respondent customers have some level of Internet usage and some degree of Internet experience have led to an increase in the adoption of internet banking across Mid West regions of USA. Like other pieces of literary evidences, this study have also identified some unique variables covering the wide spectrum of demographic characters of the sample respondents and considered as a useful literary evidences, in pursuing the distinguished aspects of internet banking adoption.
The study of Andre Rdlinghuis and Chris Rensleigh (2010), tested the customer perceptions on internet banking information protection. In this attempt the customers perception was tested with the help of a close ended questionnaire served on some 138 randomly selected respondents covering banking service quality and delivery, internet banking functionality, internet banking cost, internet banking convenience and relationship, internet banking trust, internet banking security and technology. Service reliability and quality are found to be the key areas where the banks should invest to win the confidence and positive perception, are the findings of this empirical study. Further study is a compelling factor so as to bring out the distinguished aspects of e-banking adoption by incorporating the significant factors that are left out in this research.

Bank account hacking has caused million dollar losses around the globe. Mohd Khairul Affendy Ahmed, Rayvieanna Vera Rosalim, Leau Yu Beng, Tan Soo Fun (2010), attempted to find a solution for the intrusion of banking system and pursued the two research questions, i.e., How this could happen? and Was there any obvious weakness in the banking system that make it easily expose to threat?, theoretically. The security issues are explored in terms of denial of service which includes errors, delays, unavailability of information and the unauthorized access towards the system information or the banking systems, data breach, malware, Transmission Control Protocol (TCP) / Internet Protocol (IP) spoofing, File Transfer Protocol (FTP). This research paper identified the lapses on the part of the institutions and the service providers for the system intrusion suggested measures to check into the banking intrusion by the adoption of reliable Intrusion Prevention System (IPS) advocated by McAfee Network Security Platform which not only protect the banking system network, servers and desktops but also offering other advantages. Like other research evidences, this piece of literature also has focused on security issues alone but failed to address the concerns of the IBS users in terms of
risk, trust and privacy factors, which can be a scope for the adoption of new research approach to explore the different dimensions of the subject of online banking transactions through a further study.

Factors like security, privacy, trust, innovativeness, familiarity and awareness level increase the acceptance of e-banking services among the Indian customers. Inspite of their security and privacy concerns adult customers are willing to adopt online banking if banks provide him necessary guidance, are the finding of the study carried out by Neha Dixit (2010) in his research entitled “Acceptance of e-banking among Adult Customers: An Empirical Investigation in India”, the absolute aim of this research is to investigate the factors which are affecting the acceptance of e-banking services among adult customers pertaining to security and privacy issues in Indian context. In pursuing the above objective, the study has considered some randomly considered 200 sample respondents belonging to the age group of above 35 years. The primary data were collected across the sample respondents using a structured questionnaire on analyzing the data the author has employed descriptive statistics to explain the demographic profile of the respondents and also the factor analysis to measure the trend of internet use and factors affecting e-banking services among adults customers in India. Further, the study emphases that banker should provide necessary guidance regarding the use of online banking. The study had a main focus on the age group of above 35 years, gender, qualification, income, level of computer literacy and preferred method of banking transactions. But in reality, the age groups of below 35 years have a significant role to play in the internet banking usage. The study was also restricted to some select five variables such as security and privacy, trust, innovativeness, familiarity, and awareness that influence the internet banking adoption. Since, the study is considered as a larger one in nature, it would be better in generalizing the findings if the size of the samples was more than five hundred.
The review of Loannis Koskosas (2011) in internet banking seeks to show an alternative to banking through “bricks and mortar” and provide an understanding of the pros and cons of going online. Bank fees often strike fear in the heart of the average banking customer. According to a survey by Bank-rate, a company that reports on banks and banking, customers continue to get smashed with higher fees, ranging from ATM charges to minimum-balance fees. In addition, some customers are even charged a commission fee just to speak to a real live bank teller. In a recent checking account pricing study, it was found that interest-bearing checking account customers worst charged. The average interest charging for checking account earns only 0.27 percent interest while account holders pay $10.86 on an average in monthly fees. Many traditional banks offer some online services, but the very cheapest choices some will find are internet-only banks, which operate specifically online. Customers can get the same services online that are used from traditional banks, such as checking and savings accounts, CDs, and other financial products and services. Those who are interested in paying lower fees for better customer service, they should investigate internet banking. The above study pursued the impact of cost factor alone, attached with some select traditional banking services that results in adoption of internet banking services. Besides, the study did not focus on other factors such as security, risk, trust, privacy and other factors that are considered to be very much immense in the adoption of internet banking, in reality. These factors are incorporated in the present research so as to explore the different dimensions of internet banking adoption.

The study of Amtul Fatima (2011) examined the relevance of biometry as a security measure for online internet banking transactions. According to this exploratory and descriptive research, the providers of Internet banking services must be more responsive towards security requirements. While there is no doubt that Internet banking transaction should have layered protection against security threats, the providers should approach security considerations as part of their service
offerings. Biometric based authentication and identification systems are the new solutions to address the issues of security and privacy. Using biometric for identification restrict individuals from access to physical spaces and electronic services. An effective authentication method should have customer acceptance, reliable performance, scalability to accommodate growth, and interoperability with existing systems and future plans. In this study, the security threats in Internet banking, its solutions in biometrics and its acceptance in the consumer market are studied using descriptive and exploratory research. The methods of descriptive research are used to obtain information concerning the major security issues in e-banking. The research was completed on the basis of secondary data (online databases, scientific journals, surveys, news), using the security related variables such as personal identification numbers (PINs), digital certificates using a public key infrastructure (PKI), physical devises such as smart cards, one-time passwords (OTPs), USB plug-ins or other types of “tokens”, transaction profile scripts, biometric identification, etc carried out on unknown sample size. Like the study of Loannis Koskosas, this study has also focused only on security related issues and suggested the use of biometry as a solution. It is also found that the other factors such as trust, risk, cost, and privacy that influence the internet banking adoption, are not considered. Therefore, the above gap is sealed by incorporating these vital factors in the earlier studies, in this present research to bring out the distinguished aspects of these factors.

Three non adopters groups differ significantly with respect to usage, value and image barriers. On the other hand, risk and tradition barriers did not show any statistical significance. However, risk barrier received the highest overall mean. Significant relations between usage, risk and image barriers with the gender and level of education are findings of the research of Rehaballah Elabadravy and Rasha Abdel Azis (2011), entitled “Resistance to Net Banking Adoption in Egypt: A Cultural Perspective”. The very objective of this study is to explore the reasons for resisting net banking services in Egypt and whether it differs with regards to these
customer groups, i.e. non adopters such as postponers, opponents and rejectors. In this endeavor, the authors considered some two hundred and twenty nine respondents selected at random considering five determinants of resistance for adoption of net banking services such as usage barriers, value barriers, risk barriers, image barriers and tradition barriers across some four socio-demographics such as gender, age, income and education with Likerts’ five point scale as a measure. In the analytical processes, this study has employed well-known statistical tools such as chi-square test, the Kruskal-Wallis H test and one-way analysis of variances (ANOVA) for the purpose of validating the hypothesis set for this study. The unique feature of this research is pursuing the research problem in terms of resistance to adopt net banking transactions.

The study entitled “The antecedents of internet banking services adoption in Jordan: using decomposed theory of planned behavior”, by Malek Mohammad Al-Majali, (2011) explored the IBSA across Jordan. It is found that, there is a limited empirical research on internet banking services in this country despite being a necessity to adopt research on internet banking services. This quantitative study has empirically attempted to determine the significant antecedents of internet banking services adoption (IBSA) antecedents of attitude, antecedents of subjective norm and antecedents of perceived behavior control as well as to explain how the decomposed theory of planned behavior (DTPB) is being used in determining the antecedent of IBSA in Jordan. The research framework consists of sixteen latent variables, twelve exogenous variables and four endogenous variables. This study has adopted a structured questionnaire as an instrument for data collection using seven point likert scale. Out of 700 samples in four universities located in three areas (south, middle, north) 517 respondents (76% response rate) were eventually used for further analyzes of data, using structural equation modeling (SEM) to investigate casual and mediating relationships between latent variables. The findings of the research reveal that attitude, subjective norm, and perceived behavior control are significant and positive.
antecedents of the IBSA. It also indicates that perceived usefulness, trialability, trust and awareness are significant as well as positive antecedents in terms of attitude of customers towards IBSA, while perceived risk is significant and a negative antecedent of attitude towards IBSA. Further, the perceived ease of use and compatibility are insignificant antecedents of attitude towards IBSA. The results of the findings indicate that subjective norm has two significant antecedents- family influence and mass media influence. It also shows that self efficacy and government support seem to be significant and positive antecedents of perceived behavior control whereas technology support is insignificant. DTPB is found to be a good and suitable underpinning theory to explain IBSA antecedents in Jordan by achievement of model goodness of fit for the GOF index, this study finally concluded.

The study entitled “Customers’ preference for e-Banking services: A case study of select banks in Sierra Leone” carried out by A. Gbadeyan and O. O. Akinyosoye – Gbonda (2011), found the Information and Communication Technology have brought about a lot of changes in almost all facets of life. In the Banking Industry, it has been in the form of online banking, which is now replacing the traditional banking practice. Online banking has a lot of benefits which add value to customers’ satisfaction in terms of better quality of service offerings and at the same time enable the banks gain more competitive advantage over other competitors. There are some associated risks identified in the study that seem to hinder the success of e-banking services and thus constitute major concern to both financial institutions and customers. This paper therefore, examines, if customers’ choice of banks is influenced by the quality of e–banking services provided. Stratified sampling was used; while the survey instrument was a developed questionnaire comprising open ended and Likert type of questions. The Likert type questions have a 4 point scale (indicating 1 = very comfortable and 4 = uncomfortable) divided into two (2) sections: personal details and customers’ e-banking preference in Sierra Leone. The instrument contained 36 items and was administered to about 400 respondents, while
360 completed and returned their questionnaire. The statistical techniques used for the analysis were the chi–Square and correlation. The chi–Square analysis revealed that the quality of e–banking services offered by banks have significant influence on their customers at 95%, 3 degree of freedom. The paper recommends that various measures should be put in place to ensure more security such as installation of encrypted software, verification system of customer’s identification cards, frequent change of password, examining test questions and using mixed password such as the use of alphanumeric amongst others. The paper concludes that e –banking has become important phenomenon in the banking industry and it will continue as more progress and innovations are made in information technology.

The research paper of **N.D. Oye, M.A. Shakil and N.A. Iahad (2011)** has focused on the operational issues relating to e-banking as well as customer’s perception on usage of e-banking - a case study of Askari Bank, Pakistan. The participants consisting of forty bank employees and four customers each are selected as sample for this study. Both qualitative and quantitative methods are used to present the results. Descriptive statistics is applied to describe the demographic variables while for operational problems correlation was used. Finally, the cross case analysis present customers’ perception about e-banking practices. Analysis shows that customers are not ready to adopt new technology that is why their satisfaction level with e-banking is low. Internet speed and government policies are not supportive for e-banking in Pakistan. Due to lack of trust on technology and low computer literacy rate, customers hesitate to adopt new technology. The paper recommended that in order to promote IT culture in Pakistan, government has to reduce the internet rate, and promote the benefits of e-banking on media so that more users will embark on e-banking services. Technology Acceptance Model (TAM) model developed by Davis et al. (1989), was used to judge the perception of customers to accept or reject technology, using five variables viz service awareness, perceived benefits, trust,
support and data record and privacy that influence the e-banking services adoption across the whole of Pakistan.

The study of **Andrew Musiime and Malinga Ramadhan, (2011)** attempted to determine the factors that influence consumer adoption of Internet banking services as well as examined the relationship between Internet banking service, customer adoption and customer satisfaction, in their study entitled “Internet banking, consumer adoption and customer satisfaction” The major instrument for the data collection was a structured questionnaire with Likert’s five point scale served to a randomly selected sample of two hundred and seventy comprising of two hundred and thirty individual clients and 40 corporate clients. The required data that have been gleaned were edited and processed for analysis using SPSS version 16.0. The authors had carried out pretesting to cross verify the validity and reliability of the questionnaire using a restricted sample size. The research problem was approached using three major classifications of internet banking services, consumer adoption and consumer satisfaction. These factors covering a wide range of variables in each of the above three factors viz access to account, control of account, usage of Account(internet banking services) awareness, interest, evaluation, usage(consumer adoption) commitment, loyalty, retention, referrals or recommendation of service (consumer satisfaction), that were considered to determine the influence of internet banking adoption are access account, control account, informed about IBS existence (awareness), advantages and good features of IBS (interest), cost and time effectiveness (evaluation), useful and easy to use. In addition, the level of satisfaction upon these determinants was also tried in this research. The systematic data analysis using pearsons correlation and F-test as a statistical measures, established that there was a significantly positive relationship between internet banking and customer satisfaction which is consistent with the findings of **Al-Hawari and Ward (2005)**. The study recommended that more emphasis and efforts be laid on targeting individual clients. In addition, internet banking service providers ought to look out for
indicators of innovative ways of creating awareness about the service through participation in trade organizations, exhibitions as well as adoption of new technologies of internet banking.

Dr. Himani Sharma (2011) empirically investigated the bankers’ views regarding e-banking. It covered the bankers’ perspectives on e-banking activities of respondents, impact of e-banking and promotional measures used by banks to promote e-banking facilities. The survey method was adopted to collect the required data from northern region of India by administering to one hundred and ninety two sample bankers. The findings reveal that customers generally adopt the e-banking services on persuasion of bankers. The results also reveal that user-ship is mostly concentrated on professionals, business class and males in the middle age group. The bankers are convinced that e-banking helps in improving the relationship between bankers and customers and that it would enhance the overall performance rate of the banks. So far as promotional avenues are concerned, print media is at the top. In this attempt, the survey tried to include the relevance of e-banking adoption across only three demographic characters of the respondents such as age, gender and occupation. In the analytical process, this study has adopted only descriptive statistics to narrow down the findings. This study has considered only three demographic characters of the respondents but the demographic profile such as educational background, income, previous experience in using online banking services play a vital role in the efficient usage of online banking services. These demographic characters left in the above research are covered in the present research.

The study of Rahmth Safeena, Hema Date and Abdullah Kammani (2011) entitled “Internet banking adoption in an emerging economy: Indian consumer’s perspective”, investigated the intensity of the factors in influencing consumers adoption in internet banking in India, using three major determinants viz perceived usefulness, perceived ease of use, perceived risk consisting of nine, five, and eleven
variables respectively in each of the three determinants. In this attempt, the researcher
considered some 116 student respondents across three demographic classification viz
gender, age group and class, using convenience sampling method. The survey
instrument was a structured questionnaires measuring Likerts’ 5 point scaling
technique ranging from strongly disagree (1) to strongly agree (5). The pretesting was
done to determine the reliability of the data using cronbach alpha co-efficient, before
carrying out the final study. This study has adopted well known branch of multi
variate technique of factor analysis that follows principal component analysis for the
factor extraction and varimax with KMO process for factor rotation. The Bartlett’s
test of sphericity was adopted for the factorability of the correlation matrix. Besides
the regression analysis was conducted to reveal how different factors affect the use of
online banking. The hypotheses were tested using statistical models such as chi-
square, t-test, and F-test were used to validate or reject the hypotheses set for the
study. In this analytical process the SPSS version 12.0 was in use. The above research
is considered a vital input for the present research as it covered the entire spectrum of
research in full wavelength. The only deficient aspect of this research is the sample
organization and the study was an educational institution and the sample respondents
were students who use internet banking in a limited way.

The study of Jayaraman Munusamy, Sanmugam Annamalah and Shankar
Chelliah (2012) entitled “A Study of users and non-users of internet banking in
Malaysia”, attempted to identify the perceptual differences between internet banking
adopters and non-adopters especially in the Malaysian retail banking sector. It
examined whether the level of perception varies between adopters and non-adopters
on the adoption factors such as easy to operate, convenient to use, hassle free, reliable,
safer to use and requirement for good internet connections. This study employed a
quantitative approach using a structured questionnaire across 207 sample respondents
selected at random from sample banks under the study in Malaysia. The results of the
study indicate that there are significant differences in perception levels between
internet banking adopters and non-adopters with the help of six hypotheses set and tested using statistical models such as Mann whitney-U test, wilcoxon W test, Z-test, and paired t-test. Before carrying out the final study the authors carried out a pilot study across 10% of the sample size of 300 respondents to confirm the validity and reliability. The questionnaires were developed and measured using 5 point scale suggested by Rennis Likert ranging from strongly disagrees to strongly agree. The above research has considered some new variable such as convenient to use, hassle free, requirement for good internet connections as the motivating factors that influence the adoption of internet banking services, unlike the earlier studies. Once again, the variance in perception level of internet banking adoption across these variables with respect to different demographic classifications of sample respondents was not tried in the above research.

The study of Majid Karimzadeh and Dastgir Alam (2012) entitled “Electronic banking challenges in India: An empirical investigation” pursued the objective of identifying the challenges of e-banking from the perspective of employees and bank customers. The present investigation has shown that legal and security issues, socio-cultural barriers, and management-banking issues are accepted as challenges for e-banking development in India. Socio-cultural barriers were rated as the most important challenge followed by legal, security issues and Management-banking. Knowledge, economic and infrastructural barriers are the least important according to both staff and customers. This paper provides a possible six factor model, viz infrastructural barrier, knowledge barrier, legal and security issues, socio-cultural barriers, economic factors and management and banking issues that determine the internet banking adoption. The randomly selected two hundred sample respondents were surveyed using structured questionnaire, covering three demographic characters such as education level, job experience and job position in the final study that preceded the pilot study whose alpha cronbach value was 0.809, to validate the questionnaire. In the course of analysis, statistical tools such as
correlation coefficient, t-test, one way ANOVA, post-hoc test and Friedman test were employed so as to have an insight into the intensity of the variables that influence the internet banking adoption. Like the study of Kyung Kyu Kim, Bipin Prabhakar, Sung Kook Park, this piece of research work also provides some new variables that are detrimental to the adoption of internet banking.

Er. Vishal Mohan Goyal and Mrs. Gania Goyal (2012) analyzed the “Customer perception towards internet banking with reference to private and foreign banks in India”. The objectives set for the study are to identify the perceptual mapping of internet banking users, to identify why customers are not using internet banking and to know which age group of customers is using different e-banking facilities. Determinants focused and incorporated in this study are access, website interface, trust, attention and credibility for the e-banking adoption. Around one hundred and fifty sample respondents using e-banking services are selected using convenient sampling technique, covering six banks. In the process of data analysis, complex statistical tool such as exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), multidimensional scaling technique and multiple regression fit are employed, using SPSS 11.0 version to have an insight into the research problem and to generalize the findings of this research. The customers still have a fear of hacking of accounts and thus do not go for internet banking, this study concludes. Banks should try their level best by providing the best security options, this study finally suggests.

The study of Hamidreza Saeednia and Hamideh Abdollahi (2012) aimed to determine the factors affecting client trust in the context of online banking. It also examined the effect of variables such as security, privacy, usability, and reputation, perceived by customers, on client trust in online banking. Since the commitment is a critical role in establishing long term relations, it included association between trust and commitment in the context of online banking. It adopted the descriptive-survey
as a basis of data collection method from one hundred and thirty randomly selected customers of Saman bank and analyzed the same, using descriptive and inferential statistics pertaining to factors that affect client trust in online banking across Iran. The study identified a significant association between trust and variables such as security, privacy, usability, and reputation. Besides, it also found that the association between trust and commitment of clients is direct. This study finally concluded that the trust as a mediator or intervening variable to promote affective commitment of the clients pertaining to online banking.

The findings of the study conducted by Mallika Rani (2012) reveals that 60% of the internet banking users show a positive perception towards e-banking services. In spite of the positive perception upon e-banking services among the sample respondents, only 52.9% are found to be the frequent internet users. The findings also reveal that the highest used e-banking services are found to be ATM and bill payment across the different income groups among some select eight e-banking services, viz ATM, bill payment, fund transfer, online investment, online shopping, credit card, e-ticketing, bank statement. In this paper, consumer perception toward the usefulness and willingness to use e-banking are identified and measured. Customer satisfaction level towards the e-banking has been identified. A structured questionnaire was served across the some three hundred respondents selected at random in Ferozepur District, using e-banking services. The use of ANOVA was made during the analytical process so as to have a meaningful inference, interpretations thereon and to generalize the findings of this research. The determinants of the adoption of e-banking services considered in this research are found to be time saving, ease of use, frequency of e-banking usage, safety and security, accuracy of e-banking information, availability of e-banking services and cost of e-banking services, etc. The deficient aspect of this research is that the usage of income level as a single demographic character of the respondents. In reality, the other demographic profiles such as
gender, age, educational background, occupation, etc have also account for a major deviation both in perception levels and satisfactory levels.

Ali Saleh Al-Ajam and Khalil Md Nor (2013) empirically verified the relevance of Theory of Planned Behaviour (TPB) in Yemen upon the internet banking services provided by the banks and financial institutions. This study has based on a sample of one thousand two hundred eighty six bank customers comprising of different gender groups, age groups, educational backgrounds, occupation, income levels, knowledge in internet banking operations and internet awareness, etc, Structural equation modeling (SEM) was applied in analyzing the data. In this endeavour, the study has adopted Likerts’ seven point scaling technique ranging from strongly agree (7) to strongly disagree (1) as a measure of responses for the select psychological variables such as intention to use, quality of IB service, risk and security perceptions, attitude and perceived behaviour that influence the adoption of online banking services. The obtained information are analyzed by employing huge number of sophisticated statistical models like multi-variate techniques of confirmatory factor analysis (CFA), goodness of fit index (GFI), normed fit index (NFI), incremental fit index (IFI), comparative fit index (CFI), tucker-lewis Index (TLI), using AMOS software 18.0 version, after carrying out pre -testing on the restricted sample size that confirmed the cronbach alpha coefficient of 0.90 to validate the reliability of the questionnaire, set in this study. The results strongly support the TPB model. Attitude, subjective norms and perceived behavioral control have a positive effect on individuals’ significantly and confirms the intention of the respondents to adopt the internet banking services. Besides, the study has advocated the need for further research by incorporating other significant factors that influence the adoption of online banking services, as this study had a main focus only on behavioural aspects of respondents for online banking adoption.
Security concern is a strong factor that relate to the use of internet banking. Security emerged to be a significant factor associated to lack of trust in internet banking services among the bank customers in developing countries in general and bank customers in Nigeria in specific, is the finding of the research conducted by Popoola Nainmat.F, (2013), in his research entitled “The effect of trust in adoption of internet banking, a case study of Nigeria”. In this attempt the researcher has considered some select forty sample respondents comprising of twenty users and another twenty non users of internet banking services. This qualitative research has adopted semi structured interview method for obtaining the relevant information pertaining to internet banking transactions. The two categories of respondents such as students and professionals alone were considered for the participation in this research. Constant comparative method was adopted so as to comprehend the customer’s sensitivity towards the electronic commerce trust during the analytical processes. The deficient aspects of the above study are the sample size was restricted to forty only. Though the authors on statics books insist that any sample size more than 30 is large, this sample size is considered to be insufficient for large studies as most of the authors on research methodology suggest that any sample size above 500 would be ideal for larger studies. This study has also focused on some select four factors such as security issue, bank reputation, information technology, and institution based trust as the factors that influence trust in adoption of internet banking. But in reality, some other factors such as risk factors, transparency, leakage of information etc are also influencing the adoption of internet banking services, which are not considered in this study. Besides, the classification of respondents were found to be two categories only viz students and professionals. This study has also excluded the frequent users of internet banking services such as business people, corporate customers, and household customers and so on. In this present research the above deficient aspects are given due weights.
Yitbarek Takele, Zeleke Sira (2013) in their research entitled “Analysis of factors influencing customers’ intention to the adoption of e-banking service channels in Bahir Dar city: An integration of TAM, TBP and PR” analyzed the factors that influence customers’ intention to adopt e-banking service channels in Bahir Dar city. A conceptual framework was developed by integrating theory of planned behaviour consisting of three independent variables, viz attitude (ATT), perceived behavioural control (PBC) and subjective norms (SR) and theory of acceptance model consisting of another three independent variables, viz perceived usefulness (PU), perceived ease of use (PEOU) and perceived risk (PR) to identify the influence of these variables on dependent variable intention to use (INT) online banking services. Some two hundred and eleven respondents were selected at random covering different demographic characters such as gender, age, occupation and education. The information gathered from the respondents were analyzed with the help of descriptive statistics, correlation, multiple regression, t-test and ANOVA, using SPSS version 15.0. The findings revealed that attitude, subjective norm, perceived behavioral control, perceived usefulness and perceived ease of use and perceived risk were significant in affecting users’ intention to use e-banking service channels. The construct perceived behavioral control emerged as a dominant factor followed by attitudes and perceived usefulness in predicting an individual’s intention to adopt e-banking service channels. Finally, attitude is jointly predicted by perceived behavioral control, perceived usefulness, perceived ease of use and perceived risk while perceived ease of use contributed more for the variation in attitude. The above study has overemphasized on the outcome variables and the risk factor. The vital factor such as trust factors, privacy factors and security factors are not given weightage since these variables also have significant influence in the online banking adoption, in reality. This distinguished study has provided the present researcher with vital inputs as to how the TAM and TPB models could be combined together and to identify the influential characters of the six independent variables suggested in the above two models.
Saibaba and Murthy T. Naryana (2013) attempted to examine the factors that determine the adoption intentions of customers using internet banking services in India. The research model called ‘Internet banking acceptance model’, using structural equation modeling, constructs of which was based on the original theory called unified theory of acceptance and use of technology and incorporated three additional variables such as awareness, trust, attitude as identified to be context-specific. The data collected for the study were from three hundred and twenty five respondents belonging to different gender, age, education, occupation and income groups, using questionnaires across individual bank customers’ in the city of Hyderabad. The empirical results using explorative factor analysis, confirmative factor analysis and goodness of fit test, confirmed the existence of close relationship between the identified latent variables and their impact on the adoption of internet banking service. The new model explained above revealed 66% variance in behaviour intention to adopt the internet banking in India.

Rajpreet Karur Jassal (2013) perused the “Online banking security flaws: a study” to find reason behind the security breaches and the participation of both customers and banks to enable the hackers or crackers to access others network. It also attempted to find various types of flaws in the security of online banking those results in loss of money of account holders and financial institutions. The study finally found that security breaches are not only because of banks faults and banks inadequate policies but customers are equally responsible for it because customers’ awareness regarding security is equally important. In pursuing the above objectives the author categorized the online security flaws into flaws in banking websites, flaws in banking policies, flaws in usability and customer awareness. The relevant information were obtained from some randomly selected 214 respondents who adopts OLB, covering various demographic characters. During the course of analysis the study has adopted both parametric and non parametric statistics to have a meaningful
inference and resultant interpretations, using SPSS package 10.0 version. This research over emphasized on flaws in security systems and flaws associated with users and service providers. The solution for the security breaches are not suggested in this research is a deficient aspect.

The study entitled “Factors influencing the adoption and usage of internet banking by consumers in Zimbabwe” by Margaret Mutengezanwa, Fungai Ngoma and Mauchi Fungai Gombarume (2014) This study was conducted at the backdrop of growth of information technology worldwide. The absolute aim of this research was that despite the growth of information technology worldwide customers in Zimbabwe continue to conduct most of their banking transactions using traditional methods. The review of literature provided an insight to address the research objectives and questions. The survey was conducted using questionnaire which are administered to a randomly selected sample of 400 bank customers in Harare, using SPSS version 12.0. It was found that the main factors influencing adoption are security, awareness, accessibility and cost, among the variables considered in this study such as time saving, convenience, accessibility, confirmation, security, safety and previous experience. In addition, the government has a role to play in making this a success through creating a legal and regulatory framework that is supportive of e-commerce. Finally, policy makers should increase investment targeted on infrastructure development and should urgently resuscitate and improve power generation, transmission and distribution capacity.

Software-based solutions involve the use of encryption algorithms, private and public keys, and digital signatures to form software packets known as secure electronic transaction used by Mastercard and pretty good privacy and kerberos as tools of security measures. Hardware-based solutions such as the smartcard and the MeChip as tools of security measures that ensures providing better protection for the confidentiality of personal information. Software-based solutions have the advantage
over the hardware-based solutions in that they are easy to distribute and are generally less expensive, are the findings of the study of **Yi – Jen Yang (2014)** entitled “The security of Electronic Banking”. The solutions to the security issues require the use of software-based systems or hardware-based systems or a hybrid of the two, this study finally suggested.

The study of **Shakir Shaik and S. A. Sameera (2014)**, entitled “Security issues in e-banking services in Indian Scenario” attempted to identify the various security issues related to e-banking services in India, theoretically. It also had a focus on identifying the lapses in the e-banking service delivery system and the frequent problems faced by the e-banking customers in India. In this attempt, the study exhaustively discussed the various security issues such as unauthorized access to computer system or networking (hacking), stealing information contained in electronic form, email bombing, data diddling, virus/worm, salami attacks, credit card frauds, the various lapses in the security systems such as access control, security of data in motion, system design, security on hostile platforms, enforcement of best practices, handing hostility or DDOS attacks, security as a responsibility, requiring an early intervention to address the security concerns of the e-banking customers. This study finally identified that banks encounter problems due to wrong choice of technology, insufficient control processes and inappropriate system design. Further, it suggests that wrong selection of technology may lead to a loss in terms of financial loss as well as loss of brand image and goodwill of the banking institutions.

**Sudesh Kumar** and **Bimal Arjun (2014)** examined the awareness level of e-banking customers, using small sampling technique covering some thirty randomly selected customers of HDFC Bank at Amritsar city. In this attempt, the study has included only four e-banking services such as personal computer (PC), personal digital assistant (PDA), automated teller machine (ATM) and touch tone telephone (TTT) in its research purview, covering five socio-economic profiles of the sample
respondents viz, gender, age, income, educational status, marital status and the users and non-users of the e-banking services. The questionnaire method was adopted to collect the required primary data. The study finally identified that more than 90% of the respondents are very much comfortable with e-banking services and the security, privacy and trust measures undertaken by the HDFC bank is good, by and large.

The study of Bichanga Walter Okibo and Ali Yattani Wario (2014) entitled “Effects of e-banking on growth of customer base in Kenyan Banks” highlights the effects of e-banking services on growth of customer base in Kenyan banks during the study period and as to know the factors that hamper the effective utilization of e-banking service and its impact on growth of customer base. The study has considered some three key variables viz card system, automated teller machine (ATM) and electronic fund transfer in investigating the research problem and analyzed the factors such as lack of technological know-how, illiteracy, unreliability, and transaction limits that hinder the growth of on-line customer base in Kenyan banks. The research adopted a descriptive research design, a survey of select Kenyan banks, using stratified random sample to ensure equal representation where one hundred and thirty five respondents were selected from various strata and banks. The results reveal that e-banking has enhanced the growth of the customer base for the banking institutions in Kenya, through enhancing banking services accessibility to a larger population in the country and recommended that the banks should embrace e-banking as a key to competitive advantage.

Wadie Nasri and Mohamed Zarai (2014), in their research entitled “Empirical analysis of internet banking adoption in Tunisia” attempted empirically to identify the factors that influence the intention to use internet banking in Tunisia. The impact of perceived usefulness, perceived ease of use, awareness, social norm, security and privacy, and computer self efficacy on intention to use internet banking was tested through structural equation modelling technique. Around 284 self-
administrated questionnaires were collected from Tunisian’s customers, using e-banking services. The findings of the study suggested that customer’s intention to use internet banking could be affected by perceived usefulness and perceived ease of use of internet banking. In turn, perceived usefulness could be affected by both perceived ease of use and influence social. Customers’ perceived ease of use can be determined by security and privacy and customers’ self-efficacy and social influence. These findings may provide for banks useful guidelines for developing Internet banking systems in order to deliver services effectively, this study suggested, further.

To sum up, the present researcher’s views and opinions are given at the end of each of the literary evidences, as a research gap, then and there. The earlier studies analysed the problem of e-banking pertaining to the trust related issues, risk related issues, security related issues and privacy related issues, separately. These studies had incorporated only some limited number of variables in each of the four e-banking issues.

Dastgir Alam (2012), Ali Saleh Al-Ajam and Khalil Md Nor (2013), Parviz Saeedi, Hormoz Mehrani, Mehdi Ehsan Bakhsh (2014) has approached the research on each of the e-banking issues, separately. In other words, none of the studies had a focus on all the four e-banking issues, together. Therefore, the present researcher made a sincere attempt by combining all the four issues, viz trust, risk, security and privacy, together, through this research, in the adoption of online banking in Chennai city.