

The Impact of Value Added and Regulatory Framework on the Adoption of Internet Banking in Iran

Mohammad Ali Molaei¹, Rohollah Dehghan Manshadi², Bozorgmehr Ashrafi³

¹ Faculty of Industrial Engineering & Management, Shahrood University Of Technology, Shahrood, Iran

malimolaei@yahoo.com

² Faculty of Industrial Engineering & Management, Shahrood University Of Technology, Shahrood, Iran

rohollah.dehghan@yahoo.com

³ Faculty of Industrial Engineering & Management, Shahrood University Of Technology, Shahrood, Iran

bozorgashrafi@ymail.com

Abstract: The motivation for this study is the belief that the poor response to Internet banking in Iran springs from an inadequate regulatory framework for customer protection and the lack of initiatives on the part of the banks in promoting this new delivery channel. In addition to the two key factors mentioned above, this study also tries to examine the impact of other factors such as the customers' attitude towards risk, trust in the service provider, customers' perceived value of Internet banking, and the interface design of the bank web site on Internet bank adoption. Results showed that the scope and quality of the innovations in services provided by banks and financial institutions in their internet-banking systems ought to be reinforced if they aim to persuade their customers to apply such new services more frequently. Establishment of sufficient (as well as efficient) regulations for internet-banking can also prompt the traditional bank customers to move up to this higher technology. With regard to the significant role of the value added in facilitating the process of accepting a new technology, one may claim that exposing the customers to the advantages of internet-banking has a considerable positive effect on expanding the use of this innovative banking system.

[Mohammad Ali Molaei, Rohollah Dehghan Manshadi, Bozorgmehr Ashrafi. The Impact of Value Added and Regulatory Framework on the Adoption of Internet Banking in Iran. Journal of American Science 2011; 7(12):86-93]. (ISSN: 1545-1003). <http://www.americanscience.org>. 13

Keywords: Value added, Regulatory Framework, Bank Initiatives, Internet Banking

1. Introduction

Banks have traditionally been in the forefront of harnessing technology to improve their products, services and efficiency. They have, over a long time, been using electronic and telecommunication networks for delivering a wide range of value added products and services. The delivery channels include direct dial – up connections, private networks, public networks etc and the devices include telephone, personal computers (PCs) including the Automated Teller Machines, etc. With the popularity of PCs, easy access to Internet and World Wide Web (WWW), internet is increasingly used by banks as a channel for receiving instructions and delivering their products and services to their customers. This form of banking is generally referred to as Internet Banking, although the range of products and services offered by different banks vary widely both in their content and sophistication.

Indeed, the emergence of internet banking has prompted many banks to rethink their information technology (IT) strategies in order to stay competitive. Customers today are demanding much more from banking services. They want new levels of convenience and flexibility (Birch and Young 1997; Lagoutte, 1996) on top of powerful and easy to use financial management tools and products and services that traditional retail banking could not offer. Internet banking has allowed banks and financial institutions to provide these services by exploiting an extensive public network infrastructure (Ternullo, 1997). Despite the many potential benefits, many teething problems will need to be addressed before internet banking can become widely adopted. It is believed that, in the future, internet banking will recede in importance as a strategic application to become a competitive necessity that must be adopted by most if not all banking and financial institutions (Tan and Teo, 2000).

Despite the convenience and advantages of these new channels of delivery for banking products and services, customer adoption has been slow and not very encouraging in most parts of the world. According to Guru et al. (2000), the main reason for the cold response particularly in relation to internet banking has been the fears associated with the risk of financial loss and other privacy issues arising from the openness of the Internet.

Two points must be made about this risk perception and the system of banking industry. The first is that in spite of the risk of bank robberies and other attendant risks such as forgeries and frauds, most people seem to repose their confidence in traditional banking. The second point is that similar protection is not afforded to those operating Internet banking accounts. So the obvious question that arises in one's mind is that, whether Internet bank adoption

can be enhanced by providing adequate legal protection to the users.

Value added is the extra benefits perceived or enjoyed by consumers. Au and Enderwick (2000) found that compatibility, enhanced value, perceived benefits, adaptive experiences, perceived difficulty and suppliers' commitment affect the cognitive process, which determines an attitude towards technology adoption. Enhanced value and perceived benefits are actually the value added that one can gain from the adoption of new technology. It seems to be an important factor in influencing the adoption of new technology (Tan,S,H, 2007).

The foregoing discussion is the motivation for this study which seeks to investigate the factors that affect the adoption of Internet banking in Iran with particular emphasis on value added and regulatory framework. More specifically, this study aims to assess:

- the impact of factors affecting acceptance of internet banking in Iran
- the impact of Value Added and Regulatory Framework on the adoption of internet banking; and
- the impact of behavioural or psychological factors such as Risk Attitude and Trust on the adoption of Internet banking.

2. Background of the study

The purpose of this section is to review the literature on the factors affecting bank customers' decision to adopt Internet banking. The following table summarizes a few samples of the previous studies in this field which have mostly focused on diagnosing the factors influencing the process of accepting internet-banking on the customers' side.

Researchist	Model variables	Approach Research
Davis et al. 1989	Perceived usefulness, Perceived ease of use, Attitude Toward Using, Behavioural intention to Use, Actual System use	Regression
Suh & Han, 2002	Trust, Perceived usefulness, Perceived ease of use, Attitude Toward Using, Behavioural intention to Use, Actual System use	SEM
Klopping & Mckinney, 2004	Perceived usefulness, Perceived ease of use, Behavior Intention, Actual use, TTF Model	CFA
Wu & Chen, 2005	Perceived usefulness, Perceived ease of use, Trust, Attitude, Intention to Use, Perceived Behavioural Control, subjective norm	SEM
Cheng, Lam & Yeung, 2006	Perceived usefulness, Perceived ease of use, Percieved security from web, Attitude Toward Using, Intention to Use	SEM
Lim et al. 2006	PORTAL, Customer verification, Fiducial beliefs, Attitude, Purchase tendency, Reality purchase behavior	SEM
Lee, Kang & Mcknight, 2007	Trust, Fundament confidence, Percieved consent, Use adjustment	SEM
AL-Somali, Gholami & Clegg, 2009	Perceived usefulness, Perceived ease of use, Attitude Toward Using, Acception intent, Social affection, Awareness from service, Self-efficacy, Internet connection quality, Resistance against change, Trust, Gender, Education, Income	PLS, SEM

The majority of previous studies mentioned above had merely relied on Davis's Technology model (or, at best, one of its locally modified versions) only with an aim to generate a number of hypotheses which have, afterwards, been simply accepted or rejected.

Perceived usefulness and perceived ease of use and their relationship with other constructions can be observed in all models applied in previous studies. The two are the significant factors in real application of the system and the behavioral inclination of the customers to use them.

3. Methodology

The research framework for this study was established to study the impact of the regulatory framework and the

banks' initiatives on the adoption of Internet banking in Iran. Six factors that influence the adoption of Internet banking by customers were identified. These six factors are Legal Frameworks, Bank Initiatives, Trust, Risk Attitude, Value Added, and Interface Design. They form the main theoretical constructs (latent construct) of the research framework of this study. In line with the objective of this study, eight relationships were developed to ascertain the validity of the relationships implied by the theoretical framework. Based on the literature reviewed and research framework and the relationship of the constructs developed, Mr. Tan Swee Ho's questionnaire, cited in his PhD dissertation, has been utilized in our data collection process. Statistical analysis includes unidimensionality, reliability and validity tests were conducted. Due to the nature and complexity of this study, Structural Equation Modelling approach (SEM) is used. This approach helps to estimate a series of separate, but interdependent, multiple regression equations simultaneously. SEM process involves the validating of the measurement models and fitting the structural models. If the fits of the measurement models are found to be acceptable, then, the test of the structural model can be proceeded by comparing its fit with that of different structural models. The process helps to achieve the purposes of testing the research relationship amongst the latent constructs and explaining as many of their variables as possible with the model specified (Kline, 1998). To this extent, the impact of the value added and regulatory framework and other factors on the adoption of Internet banking in Iran can be tested, determined and explained. Hence, it meets the objective of this study.

3.1. Development of the Relationships of the Constructs

This section discusses the relationships among the six constructs identified.

3.1.1. Legal Framework and Trust

The regulators and policy makers are the parties that have been given the authority and responsibility to police and protect the banking industry, especially its consumers. The regulators and policy makers have to ensure that the legal framework set out, will serve to provide a safe and orderly environment acceptable to and in line with the consumer's expectations. In this regard, the element of trust exists. This purports that the consumers' trust in Internet banking is very much dependent on the protection afforded by the legal framework. Hence, to this extent, a relationship between Legal Framework and Trust is predicted.

3.1.2. Legal Framework and Adoption of Internet banking

Arguably, legal framework alone may influence adoption without the element of trust. In this context, the openness of Internet and concerns of security issues including fear of financial loss influence the needs of users. They certainly need a sound legal framework to protect and safeguard their interest in Internet banking. To this extent, it gives rise to the reality that legal framework is a necessity in the adoption process. Therefore, it is purported that there is a relationship between Legal Framework and Adoption of Internet banking.

3.1.3. Bank Initiative and Trust

To this extent, bank initiatives in the form of creating awareness, communicating, promoting and marketing of services creates acceptance of the services and the acceptance is a reflection of trust that the customers have in the banks (Mols, 2001). Hence, for the adoption to take place, the potential adopter has to feel comfortable with the products and services. The greater the awareness about the new products, the greater will be the familiarity. This in turn would lead to more confidence and comfort for customers when considering adoption. In this context, the element of trust comes into play. This then leads to the suggestion that there is a relationship between Bank Initiative and Trust.

3.1.4. Bank Initiative and Adoption of Internet banking

When the customers are aware of the new product, they would be more likely to try it (Storey and Easingwood, 1996). Without knowledge or awareness of the new product, adoption may not take place (Walker and Walker, 1996). It is unlikely for customers to try on something new if they are not aware of its presence. Hence, Bank initiative is important in the adoption process of Internet banking. Thus it is proposed that there is a relationship between Bank Initiative and Adoption of Internet banking.

3.1.5. Trust and Adoption of Internet banking

In this virtual environment, it is ideal for the customer's confidence in Internet banking to be built up first, thereby bringing trust into the adoption process. This argument is in line with the suggestion that trust is a prerequisite for customer relationship building (Papadopoulou, 2001). Future commitment of the customers to online banking depends on perceived trust (Mukherjee and Nath, 2003). This leads to the suggestion that there is a

relationship between Trust and Adoption of Internet banking.

3.1.6. Risk Attitude and Trust

The customers need to be perpetually convinced that the Internet banking is safe and the risk exposure is minimal, in order for them to consider adoption of the products and services offered. Therefore, when the perceived risk is brought down to an acceptable level, the customers may begin to consider making a transaction. Hence, perceived risk becomes an antecedent for trust to be operationalised. In this regard, it suggests that there is a relationship between Risk Attitude and Trust.

3.1.7. Interface Design and Trust

Like any other Internet operations, Internet banking also involves interfacing. It refers to the interaction between the Internet users and computers. This communication via the website is important in helping customers to gain trust in online transaction. The interface must be able to instill confidence or trust on the part of the user in using Internet banking. Poor in user interface design can have an adverse impact on customer confidence (Clark, 2002) and hence trust. On the other hand, if the interface design meets the expectation and satisfaction of the potential users, they will consider positively about the usage. This argument leads us to the proposal that there is a relationship between Interface Design and Trust.

3.1.8. Value added and Adoption of Internet banking

Value added is an attraction to the potential adopters to use Internet banking. It plays a crucial role in the adoption process based on The Diffusion of Innovation Theory of Everett M. Roger (1983). Acceptable value added that can fulfill the needs and desire of the customers will influence the adoption decision of Internet banking. In addition, it also influences the cognitive process that determines an attitude towards adoption of Internet banking. This leads to the postulation that there is a relationship between Value added and Adoption of Internet banking.

4. Testing of the Measurement Models

In order to decide whether each measurement model designed for corresponding constructions comply with our minimum scientific requirements or not, we needed to analyze every model separately; a total number of 16 important criteria were consequently diagnosed and analyzed. Table 1 represents samples of these criteria depicting their acceptable and reliable limits as well.

Table 1: Modified Model Fit Results of the Measurement Models for Internet banking Users

Goodness of Fit Measures	Acceptable Level	Measurement Models					
		LF	IB	T	RA	ID	VA
χ^2	Non significant (see note below)	1.95	8.61	7.42	0.005	204.9	1.154
df	-	1	4	4	1	52	1
P	$P > 0.05$	0.16	0.07	0.11	0.94	0	0.28
χ^2/df	$1.0 < \chi^2/df < 3.0$	1.958	2.153	1.855	0.005	3.94	1.154
NFI	> 0.90	0.99	0.99	0.98	0.98	0.88	0.99
RFI	> 0.90	0.97	0.97	0.97	1	0.85	0.99
IFI	> 0.90	0.99	0.99	0.99	1	0.91	1
TLI	> 0.90	0.98	0.98	0.98	1	0.88	0.99
CFI	> 0.90	0.99	0.99	0.99	1	0.91	1
PNFI	> 0.50	0.33	0.39	0.39	0.33	0.69	0.33
PCFI	> 0.50	0.33	0.39	0.39	0.33	0.71	0.33
Conclusion		GF	GF	GF	GF	GF	GF
GF denotes Good Fit							
LF means Legal Framework; BI means Bank Initiative; T means Trust; RA means Risk Attitude; ID means Interface Design; VA means Value Added							

The purpose of testing of Measurement Models is to assess the measurement properties of the observed variables (indicators) with their underlying latent variables (constructs). This is to determine whether the indicators actually measure the intended construct. In this first step of SEM process, the Measurement Models are evaluated and validated by way of Model of Good Fit assessments. The results provide evidence that all the Measurement Models have an acceptable Model Fit.

5. Theoretical Framework Analysis

In this study, the relationships between the variables in the theoretical model tested using Standardized Regression Weights. The guideline on the effect size interpretation of Standardized Regression Coefficient (β) is presented in following Table 2. The effect size is determined by the absolute values of the Standardized Regression Coefficient (β).

Table 2: Guideline on the effect size interpretation of standardized regression coefficient

Standardized Regression Coefficient (β)	Indications / Interpretation
< 0.10	“Small” effect
Around 0.30	“Typical” or “Medium” effect
≥ 0.50	“Large” effect

The statistical software used for doing SEM in this study is **AMOS** version 18.0. AMOS is an acronym for Analysis of **M**oment **S**tructure.

The analysis will focus on the relationships of the variables in the theoretical framework for internet banking users. The standardized regression coefficient or Beta Coefficient (β) of the variables for internet banking users of Iran are presented in Figure 1. From the path diagrams of the relationship and the Beta Coefficients (β - Standardized Regression Coefficient) of the constructs for Internet banking Users in Iran, analyses of the Theoretical Frameworks and the relationship between the constructs are carried out in the Section 6.

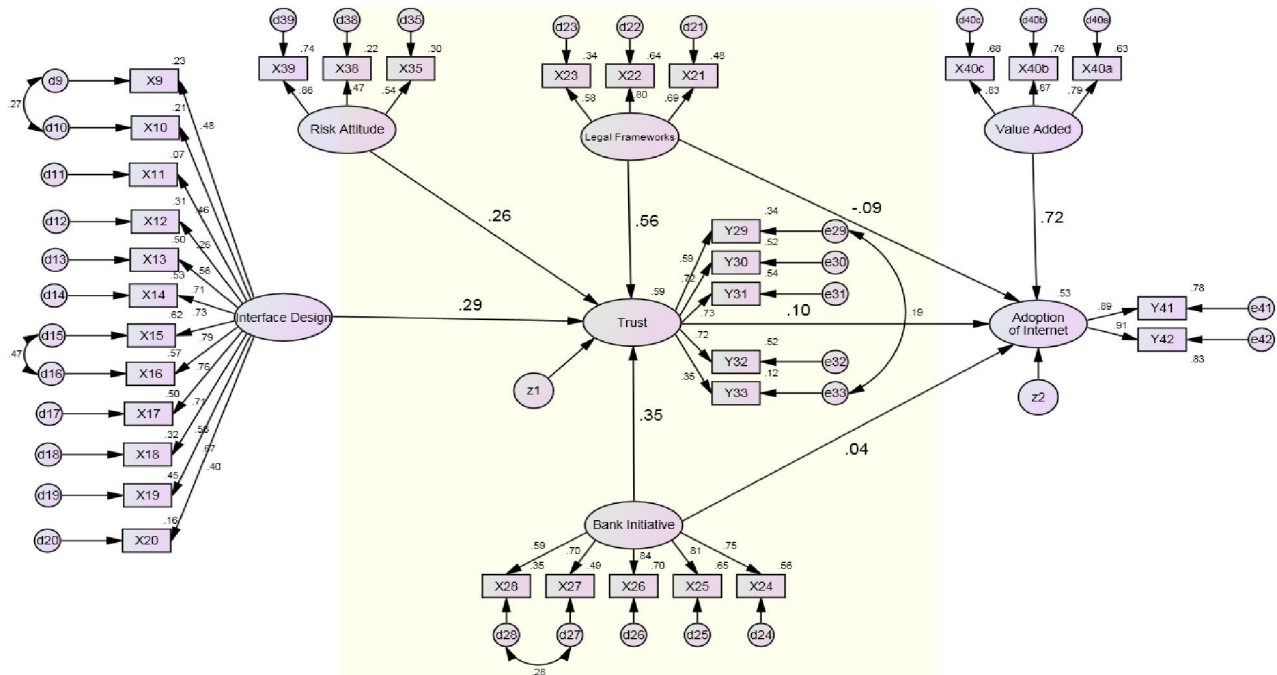


Figure 1: Relationship and Beta Coefficients of the Constructs for Internet Banking Users in Iran

6. Findings And Discussion

6.1. Legal Framework and Trust (LF → T)

The Beta Coefficient (β) of Legal Framework and Trust (LF → T) for Internet banking Users in Iran are positive with Beta Coefficient (β) of 0.56 respectively. This finding indicated that there is a positive relationship between Legal Framework and Trust (LF→T). Legal Framework appears to promote Trust in Internet banking

adoption.

6.2. Legal Framework and Adoption of Internet banking

The Beta Coefficient (β) of Legal Framework and Adoption of Internet banking (LF \rightarrow Adoption) for the Internet banking Users was negative with a value of -0.09 which was considered a “small” effect. It does not support that the Legal Framework is a necessity in the adoption process. It suggests negligible negative influence.

6.3. Bank Initiative and Trust (BI \rightarrow T)

The Beta Coefficient (β) of Bank Initiative and Trust (BI \rightarrow T) for Internet banking Users was positive with a Beta Coefficient (β) of 0.35 which was considered a “medium” effect. The findings suggest that Bank initiatives in the form of promotion, creating awareness, communication and marketing efforts are needed to promote Trust in Internet banking usage in Iran.

The results along with their medium effect sizes clearly reinforce the perception that Bank Initiative is indeed an important factor that builds Trust. The finding suggests that the efforts of Bank Initiatives seem lacking. But the fact that even the lukewarm initiatives appear to have such a significant impact on Trust for Internet banking Users, indicates that greater bank initiatives can certainly have a more profound impact on Internet banking adoption. This in fact is within the control and ability of banks to enhance Internet banking adoption and should thus be considered as a key factor that determines the adoption and further diffusion of Internet banking. In this context, effective and efficient bank initiatives in the form of promotion, creating awareness, communication and marketing effort to promote Internet banking will certainly further enhance customers trust’ building. The pertinent issue is what level of Bank Initiative is deemed to be adequate. Undoubtedly, there is a need for effective and efficient continuous communication between banks and customers to achieve this objective.

6.4. Bank Initiative and the Adoption of Internet banking (BI \rightarrow Adoption)

The Beta Coefficient (β) of Bank initiative and Adoption of Internet banking (BI \rightarrow Adoption) for the internet banking Users was positive with a value of 0.04 that indicated a rather “small” effect. It seems that there is a positive relationship between Bank initiative and the Adoption of Internet banking.

In view of the poor perception of the respondents with regard to bank initiatives, it can be concluded that bank initiatives can certainly enhance Internet banking adoption. The finding not only reaffirms that bank initiative is a key determinant of adoption of Internet banking, but also reaffirms the need for effective and efficient continuous communication between banks and customers with regard to Internet banking services. Furthermore, the finding appears to be in agreement with the suggestions of Tan and Teo (2000) and Storey and Easingwood (1996). Tan and Teo (2000) encouraged banks to promote their Internet banking services. Storey and Easingwood (1996) found effective communication to be the leading influence on sales performance in new financial services. Communication should be effective in raising awareness, and in explaining and convincing customers. This should also result in more effective advertising and promotion of services.

6.5. Trust and Adoption of Internet banking (T \rightarrow Adoption)

The Beta Coefficient (β) supports a positive relationship between Trust and Adoption of Internet banking (T \rightarrow Adoption). The Beta Coefficient (β) for Internet banking Users was 0.1, highlighting between “small and medium” effect size. It appears that it is the prerequisite for Internet banking adoption.

The findings reflect the impact of customers’ trust on Adoption of Internet banking as well as its effect as a mediating factor. Thus, it validates that Trust is an important factor in influencing the Adoption of Internet banking. To this extent, all initiatives that enhance trust can also be said to have a positive impact on adoption.

6.6. Risk Attitude and Trust (RA \rightarrow T)

The Beta Coefficient supports a positive relationship between Risk Attitude and Trust (RA \rightarrow T). This seems to highlight that perceived risk is a dimension of Trust. The customers’ fear with regard to perceived risk needs to be overcome first before a decision to transact is being made. Nevertheless, the Beta Coefficient (β) for Internet banking Users was 0.26, highlighting a “medium” effect size.

The results indicate a positive relationship between risk tolerance and trusting behaviour to varying extents as indicated by the effect sizes. To this extent, anything that enhances risk tolerance will certainly enhance trust. Trust is the willingness to rely on an exchange partner in whom one has confidence (Moorman et al. 1993). Thus, adequate legal protection and bank initiatives will surely increase risk tolerance and hence the trusting behaviour of customers both current and prospective.

6.7. Interface Design and Trust (ID → T)

The Beta Coefficient supports a positive relationship between Interface Design and Trust (ID → T). The Beta Coefficient (β) was 0.29, highlighting a “medium” effect size.

6.8. Value added and Adoption of Internet banking (VA → Adoption)

The Beta Coefficients (β) support that Value Added has a positive impact on the Adoption of Internet banking (VA → Adoption). The Beta Coefficient (β) for Internet banking Users was 0.72 which was considered a “large” effect.

The results indicate that the greater the value added of Internet banking, the greater the likelihood of customers adopting this electronic innovation. Thus, it is the role of banks to continuously innovate and find means and ways of enhancing the value added benefits of Internet banking or any new innovation for successful implementation.

6.9. Summary of the Data Analysis

The results of the statistical analysis indicated that overall the Measurement Models generally have acceptable range of unidimensionality, reliability and validity. The analysis suggests that all the Measurement Models were generally having acceptable Model Fit. The outcome of the Structural Equation Model (Theoretical Framework) Test of Good Fit also provides evidence of acceptable model fit.

7. Conclusion

The objective of this paper is also to provide policy makers, regulators and banks with an insight into public perception and appropriate effective measures that could be taken to assist them with fostering and enhancing the adoption of Internet banking.

In line with the objective of this study, the significant findings evidently suggest that the awareness and adequacy of the laws relating to Internet banking are not an important determinant of Internet banking adoption in Iran. Whereas the extent and effectiveness of the initiatives undertaken by banks in customers trust formation and promoting and encouraging the use of Internet banking is also an important driver of Internet banking adoption.

Trust formation is an important antecedent of adoption. To this extent all initiatives that enhance trust can also be said to have a positive impact on adoption. Risk attitude as indicated by risk tolerance is positively related to Trust. Thus all initiatives that increase risk tolerance would also enhance the Trust formation. Value added has a large effect on dependent variable, then the greater the value perception by customers introduce the greater the likelihood of Internet banking adoption.

Corresponding Author:

Dr. Mohammad Ali Molaei
Assistant Professor of Economics
Faculty of Industrial Engineering and Management
Shahrood University of Technology, Shahrood, Iran
Email: malimolaei@yahoo.com

References

1. Au, A.K.M. and Enderwick, P., 2000 “A cognitive model on attitude towards technology adoption” Journal of Managerial Psychology, Volume 15 Number 4 pp. 266-282.
2. Birch, D., and Young, M. A. “Financial Services and the Internet: What Does Cyberspace Mean for the Financial Services Industry,” Internet Research (7:2), 1997, pp. 120-128.
3. Clark, Lindsay, 2002, “E- biz can be ruined by poor user interfaces”, Computer weekly, 5/23/2002, p18, 1p Item: 7049855.
4. Guru, B., Vaithilingam, S., Ismail, N. and Prasad, R., 2000, ‘Electronic Banking in Malaysia: A Note of Services and Consumer Reactions’, Journal of Internet Banking and Commerce, Vol. 5, No.1, June, 2000.
5. Kline, R. B., 1998, Principles and Practice of Structural Equation Modeling. New York: The Guilford Press.
6. Lagoutte, V. “The Direct Banking Challenge,” Unpublished Honours Thesis, Middle-sex University, 1996.
7. Mols, N.P., 2001, “Organising for the effective introduction of new distribution channels in retail banking, European Journal of marketing, Vol.36, No.5/6, 2001, pp661-686.
8. Moorman, C., Deshpande, R., Zaltman, G., 1993, "Factors affecting trust in market research relationships", Journal of Marketing, 57, 1, 81-101.

9. Mukherjee A. and Nath P., 2003, "A model of trust in online relationship banking" , The International Journal of Bank Marketing, Vol. 21, No. 1 pp 5-15.
10. Papadopoulou P., Andreou A., Kanellis P., Martakos D., 2001, trust and relationship building in electronic commerce, Internet Research: "Electronic Networking Applications and Policy" Volume 11 Number 4 , pp. 322-332.
11. Roger, Em.M. 1983, Diffusion of Innovations, New York: Free Press.
12. Storey, C.D., Easingwood, C.J., 1996, "Determinants of new product performance - a study in the financial services sector", International Journal of Service Industry Management, 7, 1, 32-55.
13. Tan, M and Teo, T.S.H., 2000, "Factors Influencing the Adoption of Internet Banking", Journal of the Association for Information Systems, vol. 13, no. 5. (July 2000).
14. Tan,S,H. 2007, PhD. Thesis, "A study of the impact of regulatory framework and bank initiatives on the adoption of internet banking in Malaysia, Singapore and hong kong", Multimedia university Malaysia.
15. Ternullo, G. "Banking on the Internet: New Technologies, New Opportunities and New Risks," Boston Regional Outlook, Second Quarter, 1997 (<http://www.fdic.gov/index.html>).
16. Walker, B., Walker, L. 1996 Marketing Strategy: Planning and Implementation, 2nd ed., Richard D. Irwin, Boston, MA.

11/11/2011