

Available online at www.sciencedirect.com

Procedia - Social and Behavioral Sciences 00 (2013) 000–000

**Procedia
Social and
Behavioral
Sciences**

www.elsevier.com/locate/procedia**ICIMTR 2013**International Conference on Innovation, Management and Technology Research,
Malaysia, 22 - 23 September, 2013**Online Banking and Customer Service Delivery in Malaysia:
Data Screening and Preliminary Findings**Alhaji Abubakar Aliyu¹, Tasmin Rosmain¹ and Josu Takala²*¹Department of Technology Management, Faculty
of Technology Management and Business,**Universiti Tun Hussein Onn Malaysia, 86400, Parit Raja, Batu Pahat, Darul Ta'zim, Johor, Malaysia**²Department of Production, University of Vassa, City of Vassa, Finland**Correspondence: Alhaji Abubakar Aliyu, Department of Technology Management,
Faculty of Technology Management and Business,**Universiti Tun Hussein Onn Malaysia, 86400, Parit Raja, Batu Pahat, Darul Ta'zim, Johor, Malaysia**E-mail: dogoalhaji@yahoo.com*

Abstract

The rapid spread of information and communication technology (ICT) has made electronic banking the best channel to provide banking services/products to customers. The quality of online banking services has become a major area of attention among researchers and bank managers due to its strong impact on business performance, profitability and customer service delivery. Hence, banks now consider online banking as part of their strategic plan. This paper provides a model with 5 factors on the following dimensions: cost, convenience, security, online banking and customer service delivery. The study employed some hypotheses in order to guide the research in achieving the overall aim of the research as well as testing the stated hypotheses by using Structural Equation Modelling (SEM). The findings of the study reveal that security and convenience are the major drivers of customer service delivery of online banking in Malaysia. In addition, using online banking service context, the study also found a strong empirical evidence for measuring customer satisfaction with electronic banking services.

Keyword: Customer Service Delivery, Kano's Model, Malaysian Banking Industry and Online Banking.

1 Introduction

A strong online banking services are an important drivers in the banking industry for bank's performance and customer service delivery (Thulani, et al., 2011). It can have a significant effect in supporting economic development through efficient financial services (Aliyu et al., (2012a). As the banking industry is becoming global in nature, faces a competitive environment; banks are forced to balance the goals of outreach and sustainability. Thus, online banking may be the instigator of this new environment and the prime mover in terms of providing the potential solution for bank's survival in the near future (Anyasi, et al 2009; Musiime, 2010; Hazlina, et al 2011a and Hazlina, et al 2011b). Research has proven that, electronic banking services (EBS) are the wave of the future banking by providing enormous benefits to consumers in terms of ease and cost of transactions through online banking (Nsouli, et al, 2002; Markku , 2012).

Due to little research conducted in Malaysia in the areas regarding accessing the external factors that entice or discourage customers to patronize online banking, there is a strong need for this study to address two major issues,

The first one is to conduct an empirical study so as to assess the significant factors that may cause online banking to have an impact on customer service delivery in Malaysian commercial banks.

Secondly, there is a need to examine the relationship between the factors that may affect online banking services and customer service delivery in Malaysian banks.

By understanding the basic factors that encourage customers to patronize online banking, this will go a long way in reaping the benefits of online banking and also for banks to remain competitive and profitable in the long run (Thulani et al., 2011).

2 Factors Inhibiting Online Banking Adoption

Behavioral (external) factors are the important determinants of online banking adoption as disclosed by Rahmath, et al. (2011). Behavioral factors pertaining to convenience, security, cost, prior experience and volume of transaction are the focus of this study as they have a reciprocal influence on customer service delivery (Suganthi, 2010; Ombati, 2010 and Ahmad, 2011).

2.1 Cost: This is one of the major factors that influence consumers' adoption of innovation Aliyu at al. (2012a) stated that for consumers to use new technologies, the technologies must be reasonably priced relative to alternatives. Otherwise, the acceptance of the new technology may not be viable from the standpoint of the customer.

2.2 Security: This is another very important factor in determining the decision of customers to use online banking. Aliyu et al. (2012b) identified security as an important characteristic from a customer's perspective on the adoption of innovation.

2.3 Convenience: This is considered to be an influential factor for the use of online banking. Still, there is a positive relationship between convenience and service delivery via online banking, such as the ability of online banking to meet users' needs using the different feature availability of the services. (Malarvizhi, 2011)

Previous researches reveal that customers are more sensitive to the behavioral factors mentioned above in terms of customer service delivery via online banking than the internal factors. This means that there is a direct relationship between technology and behavioral (external) factors in the adoption of online banking. Therefore, the level of online banking adoption will directly impact on the degree to which the customers are satisfied, in terms of the behavioral factors (Musiime, 2010). This reveals that effective service delivery on behavioral factors may result in customer loyalty (which impacts their future utilization of online banking patterns) in relation to other factors, just like it has on customer satisfaction. Thus, banks should give high priority to behavioral factors and should consider it as important key drivers towards successful implementation of online banking (Khong, et al., 2006; Nek, et al 2009; Shirshendu and Sanjitkumar, 2011)

3 Customer Service Deliver in the Banking Industry

According to Munusamy, et al., (2010), the study of customer service delivery has gained interest just after the concern on improving the quality of products and services become increasingly important in the globe. Today, information and communication technology, competition, deregulation and globalization have changed the landscape of the banking industry in such a way that it is characterized based on the services the banks offer

to customers across the globe. This is one of the major reasons why the banking industry is among the most intense in deploying high technology innovation (Drucker, 1985a; Drucker, 1999b and Shoebridge, 2005). It is noticeable that online banking enabled banks to service customers not only in branches and other dedicated services sites but also in a numerous of other channels (Al-Hawari, et al., 2005 and Lovelock, 1996).

Thus, delivering effective customer service is indeed an important marketing strategy (Berry and Parasuraman, 1995), but the difficulty in defining customer service delivery in deploying a specific contextual instrument for measuring such constructs represents important constraints for the banks to approach their markets (Atul, 2012).

4 Conceptual Model and Hypotheses

For the purpose of understanding the factors influencing online banking services towards customer service delivery, this paper proposes a conceptual model (see figure 1 below). This conceptual model is developed based on several previous studies related to electronic banking, behavioral factors, banking application, and customer service delivery.

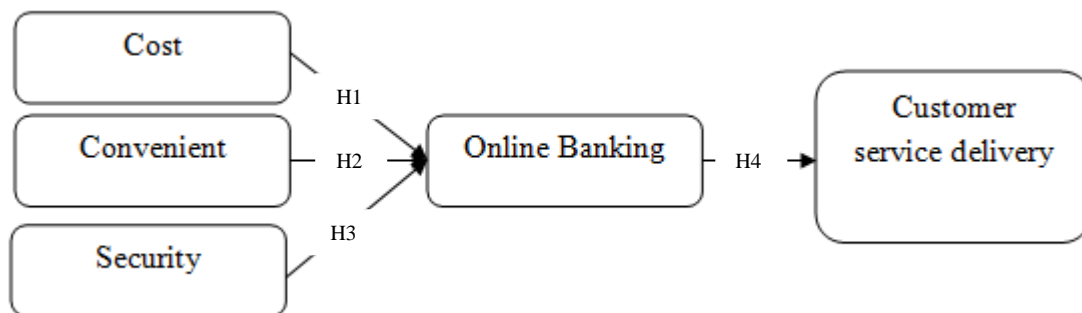


Figure 1: Conceptual Research Model (Source: Literature Survey, 2013)

The following hypotheses are developed based on the conceptual model and literature review discussed:

Ho1: Cost (Bank Charges) has a significant and positive influence on Online Banking service in Malaysia.

Ho2: Convenience has significant and positive influence on online banking service in Malaysia.

Ho3: Security has a significant and positive influence on online banking service in Malaysia.

Ho4: Online Banking services have significant and positive influence on Customer Service Delivery in Malaysia.

5. Methodology

This study applies SPSS statistical tests and AMOS 18 Structural Equation Modeling (SEM) software in order to determine the relationship between the postulated hypotheses of behavioral factor (cost, convenience and security), online banking and customer service delivery. The survey instrument was developed based on literature review, while the variables included in the study have been adopted from the existing literature. Data were collected through online questionnaire from several Universities in West Coast Malaysia. Respondents were randomly chosen from the list of both undergraduate and postgraduate students. The students' sample was chosen because they are the most frequent users of electronic banking as most of them are staying in the campus far away from the city. Research shows that students are the lead users of technology, such as undergraduate and postgraduate students are not different from other tech-savvy customers in terms of psychological processes (Ganguli & Roy, 2011).

The statistical procedures and measures used in this paper are methodologies recommended by Hair et al. (2006), who suggested that minimum sample sizes between 100 and 150 are required to achieve stable MLE results. Interestingly, 283 students filled up the questionnaires online and all the 283 surveys are usable, because the system is configured in such a way that one cannot continue with the survey without filling all the survey questions. This means that the respondents are more than reasonable for this survey. Equally, respondents were the customers of different banks, in which they were asked to state their level of agreement with the series of statements stated using a five-point Likert scale ranging from "strongly disagree" to "strongly agree."

5.1 Cronbach's Alpha

The data collected were analyzed using Cronbach's alpha coefficient to check its internal consistency. The Cronbach's alpha coefficient is commonly used to measure reliability of the questionnaires in surveys. Hair et al. (2006) noted that alpha and construct-reliability values greater than or equal to 0.70 and a variance-extracted measure of 0.50 or greater indicates sufficient scale or factor reliability. Therefore, the Cronbach's alpha coefficients of the variables were shown in the table 1 below. All instruments showed high reliability values (exceeding cut off point of 0.6), which has a good internal consistency, with a Cronbach alpha coefficient reported in table 1 below:-

Table 1: Cronbach's Alpha Coefficient

Online Banking Services	Cronbach's Alpha	No. of Items
Cost	0.694	6
Convenience (CONV)	0.873	6
Security (SEC)	0.859	6
Online Banking (OB)	0.836	6
Customer Service Delivery (CSD)	0.859	8

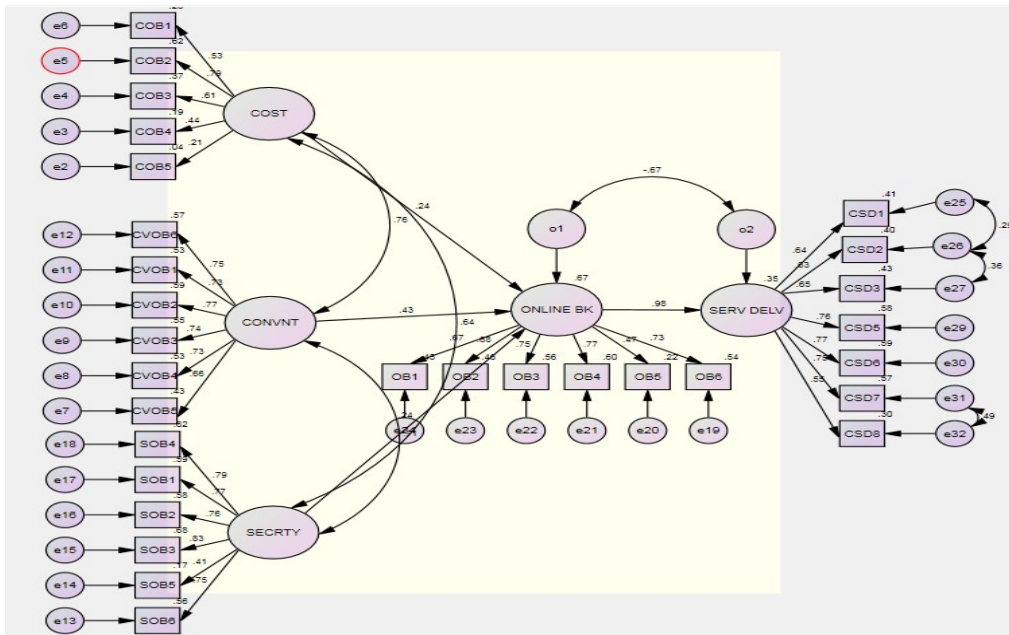


Figure 7: Structural Model Of Online Banking And Customer Service Delivery

Table 6: Model Fit Summary of the Structural Model

Model	CMIN	DF	P	CMIN/DF	GFI	NFI	CFI	RMSEA
Default model	891.997	394	.000	2.264	.820	.811	.884	.067
Saturated model	.000	0			1.000	1.000	1.000	
Independence model	4727.487	435	.000	10.868	.200	.000	.000	.187

The full structural model results show that there are 3 correlations and 4 covariances achieving stable model fit estimates. Figure 7 displays its indicators of fit table 6: Cmin/DF = 2.264 (C min =891. 997, DF = 394); GFI = 0.820; NFI = 0.811; CFI = 0.884; RMSEA = 0.067. In summary, Figure 7 empirically shows that online banking has a highly significant influence ($\beta=0.93$, $p=.0001$) on customer service delivery ($R^2=0.35$). These indices suggested that the structural model provides a good fit to the data and yields a corroborating value for good model fit. However, it is interesting to note that the covariance link between $e1$ online banking and $e2$ customer service delivery had a negative magnitude of 0.67. This mean that online banking with unknown element was not positively associated with an unknown element of customer service delivery.

Table 7 shows the goodness of fit of generated or re-specified structural model is better compared to the hypothesized model.

Table 7: Model Fit Summary of the Structural Model

Regression Weights: (Group number 1 - Default model)							
			Estimate	S.E.	C.R.	P	Label
ONLINE BK	<---	COST	.727	.326	2.231	.026	
ONLINE BK	<---	CONVNT	.467	.095	4.897	***	
ONLINE BK	<---	SECRTY	.223	.058	3.862	***	
SERV DELV	<---	ONLINE BK	.890	.105	8.438	***	

All the hypotheses are supported, except (Online Banking Cost), which indicated that cost has no direct effect of customer service delivery via online banking. Instead, customers value more on the convenience and security factors which have a direct effect on online banking, while on the same vein online banking has a direct effect on customer service delivery. Thus, from the result of the hypothesis testing, the study has proven

that those two constructs namely convenience and security have strong evidence of customer satisfaction via online banking as the mediator linking the relationship between Online banking and customer service delivery.

6. Conclusion

The primary aim of this paper is to outline the research hypotheses and the procedure employed in Structural Equation Modeling (SEM) followed by developing scales to measure online banking and customer service delivery in Malaysian Banking Industry. By measuring the factors that influence customer service delivery via Online banking using Confirmatory Factor Analysis (CFA), it is revealed that these factors have a significant influence with a higher cutoff Goodness-of-Fit Index (GFI) > .95 and RMSEA (spec. < 0.080) (see table 6).

Furthermore, the results of the survey provides a strong empirical support for the three hypotheses tested by comparing the relationship between the constructs. Figure 7 shows the final model and highlights the significant relationship in bold. The research provides an empirical evidence about the relationship between cost, convenient, security, online banking and customer service delivery. This research provides the first investigation into conceptualizing such relationships in online banking service within the context of Malaysian banking industry. Essentially, the research systematically developed a model of customer service delivery that are mentioned in the literature and then empirically tested the model in the context of online banking in Malaysia. Hence, evidence about the relationships between online banking, cost, convenience, security and customer service delivery was produced.

The findings of this paper confirm the existing body of literature on the importance of online banking to customer service delivery. It shows that most of the behavioral factors positively influence service delivery (Ankit, 2011). Hence, these factors are determinants of customer service delivery in online banking services. As such, this paper presents new directions in a service delivery research and offers new directions to researchers and managers in providing service delivery improvement and enable management to identify quality problems and help them plan the launch of a quality improvement program, thereby improving efficiency, profitability and overall performance.

7. Acknowledgement

The corresponding author would like to acknowledge the support and guidance given by his PhD supervisor through constructive criticisms and suggestion in the conduct of the research. The authors are also indebted to the prior literature research that has been made in any anonymous journal referees related to electronic banking and customer service delivery. The author also wishes to thank the journal editor for extensive assistance in the final revision of the paper to be published. Last but not the least, special thanks goes to Tun Hussein Onn University of Malaysia for sponsoring the research from inception to completion.

8. References

- Ahmad, A. E. (2011), E-banking Functionality and Outcomes of Customer Satisfaction: An Empirical Investigation. *International Journal of Marketing Studies*, 3(1), pp. 231-245.
- Al-Hawari, M., Hartley, N. & Ward, T. (2005), Measuring Banks Automated Service Quality: A Confirmatory Factor Analysis Approach. *Marketing Bulletin*, 16, 2005.
- Aliyu, A. A. (2012b), An Exploratory Study on Adoption of Electronic Banking : Underlying Consumer Behaviour and Critical Success Factors . *Case of Nigeria* , *Business and Management Review*, 2(1), pp. 1 – 6.
- Aliyu, A. A. & Tasmin, R (2012a). The Impact of Information and Communication Technology on Banks' Performance and Customer Service Delivery in the Banking Industry, *Int. J Latest Trends Fin. Eco. Sc.* 2(1), pp. 80–90.
- Ankit, S. (2011). Factors Influencing Online Banking Customer Satisfaction and their Importance in Improving Overall Retention Levels : An Indian Banking Perspective, *Information and Knowledge Management*, 1(1), pp. 45–55.
- Anyasi, F. L. & Otubu, P. A. (2009), Mobile Phone Technology in Banking System: Its Economic Effect.

Research Journal of Information Technology, 1(1). pp 1-5, ISSN: 2041-3114.

Ardhiyani, N. (N.D.). Integrating Servqual With Kano Into Quality Function Deployment (Qfd) for Better Quality of Services (Case Study : Pt Pos Indonesia), pp 1–7.

Atul, B. (2012), An Explorative Study of Satisfaction Level of Cyber-crime Victims with Respect to E-services of Banks, *Journal of Internet Banking and Commerce*, 17(3), pp. 179-194.

Berry, L. & Parasuraman, A. (1995), *Service De Marketing*. So Paulo: Maltese, 1995.

Bhattacharyya, S. K., & Rahman, Z. (2004), Capturing the Customer's Voice, the Centerpiece of Strategy Making: A Case Study in Banking. *European Business Review*, 16(2), pp. 157-172.

Drucker, P. (1999b), *Desafiosgerenciaispara o sculo, XXI*. So Paulo: Pioneira, 1999.

Drucker, P. F. (1985a), *Entrepreneurial Strategies, Innovation and Entrepreneurship Practice and Principles*, Harper & Row, New York, pp. 207-243 .

Ganguli, S., & Roy, S. K. (2011). Generic Technology-Based Service Quality Dimensions in Banking: Impact on Customer Satisfaction and Loyalty. *International Journal of Bank Marketing*, 29(2), pp. 168–189.

Hair, J. F., Anderson, R. E., Tatham, R. L. and Black, W. C. (1998), *Multivariate Analysis*, 5th ed., Prentice Hall International, Englewood Cliffs, NJ.

Hazlina, T. et al (2011), Impacts of Service Quality on Customer Satisfaction: Study of Online Banking and ATM Services in Malaysia. *International Journal of Trade, Economics and Finance*, 2(1), pp 10-23.

Hazlina, T. et al (2011), Singapore Service Quality Analysis: An Application on Online Banking and ATM Facilities, *Proceedings of the International Conference on Economics and Finance Research Ipedr* , Vol.4 © (2011) IACSIT Press,.

Hyung S. L., Dong, S. J. & Jemi, C. (2011), Effects of Information Intermediary Functions of Comparison Shopping Sites on Customer Loyalty, *Journal of Internet Banking and Commerce*, 16(2), pp. 317-329.

Kano, N. et al. (1984), Attractive Quality and must-be Quality. *The Journal of the Japanese Society for Quality Control*, 2(5), pp 39–48.

Khong, K. W. & Mahendhiran, N. (2006), The Effect of Customer Service Management on Business Performance in Malaysian Banking Industry: An Empirical Analysis. *Asia Pac. J. Mark. Logis.*, 18(2), pp. 176-196.

Lovelock, C. H. (1996), *Services Marketing*, New Jersey. Prentice Hall, 1996.

Markku, T. (2012), Impact of Future Trends on Banking Services, *Journal of Internet Banking and Commerce*, 17(2), 271-295.

Munusamy, J., Chelliah, S. & Mun, H. W. (2010), Service Quality Delivery and its Impact on Customer Satisfaction in the Banking Sector in Malaysia, *International Journal of Innovation, Management and Technology*, 1(4), pp. 398–404.

Ms Malarvizhi, V. (2011), An Analysis on the Usage of E-banking Services in Coimbatore City, *IJBEMR*, 2(1), pp. 226-242.

Musiime, A. (2010), Bank Clients' Perception of Information Technology Usage, Service Delivery and Customer Satisfaction: Reflections on Uganda's Banking Sector. *Proceedings of the International Trade & Academic Research Conference (ITARC) – London*.

Nek, et al. (2009), Service Quality Dimensions, Perceive Value and Customer Satisfaction: ABC Relationship Model Testing. *IBej*, 2(1), pp. 189-207.

Nsouli, S. M. & Schaechter, A. (2002), Challenges of the E-banking Revolution: Finance and Development, International Monetary Fund, 39(3), pp. 231-254.

Ombati, T. O. (2010), Technology & Service Quality in the Banking Industry Importance and Performance of Various Factors Considered in the Electronic Banking Services; AIBUMA Publishing, African Journal of Business & Management (AJBUMA), 1(1), pp. 16.

Parasuraman, A., Zeithaml, V. A. & Berry, L. L. (1985), A Conceptual Model of Service Quality and its Implications for Future Research. Journal of Marketing, 49 (Fall), pp.41 – 50.

Rahmath, S., Hema, D. & Abdullah K. (2011), Internet Banking Adoption in an Emerging Economy: Indian Consumer's Perspective. International Arab Journal of e-Technology, 2(1), pp. 134-151.

Ramayah, T., Jantan, M., Nasser, M., Noor, M., Ling, K. P., & Razak, R. C. (2003). Receptiveness of Internet Banking by Malaysian Consumers : The Case of Penang, Asian Academy of Management Journal, 8(2), pp. 1–29.

Shirshendu, G. & Sanjitkumar, R. (2011), Generic Technology-Based Service Quality Dimention in Banking. International Journal of Bank Marketing, 29(2), pp. 168-189.

Shoebridge, M. (2005), Banking on Six Sigma to Improve Service Quality: A Case Study of Major Australian Financial Institution. Australian Banking & Finance, Vol 14 . pp 9-10.

Suganthi, B. A. (2010), Internet Banking Patronage: An Empirical Investigation of Malaysia.
http://www.arraydev.com/commerce/jibc/0103_01.htm

Thulani, D., Njanike, K., Manomano, C. & Chiriseri, L. (2011), Adoption and Use of SMS/Mobile Banking Services in Zimbabwe: An Exploratory Study, Journal of Internet Banking and Commerce, 16(2), pp. 149-167.

Zainudin, A., (2012), Structural Equation Modelling Using Amos Graphic, Uitm Press, University Technology MARA, 40450 Shah Alam, Selangor Darul Ehsan, Malaysia.