

TRUST INFLUENCE TOWARDS INTERNET BANKING ACCEPTANCE
AMONG POSTGRADUATE STUDENTS AT UTM KUALA LUMPUR CAMPUS

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TRUST INFLUENCE TOWARDS INTERNET BANKING ACCEPTANCE
AMONG POSTGRADUATE STUDENTS AT UTM KUALA LUMPUR CAMPUS

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A dissertation submitted in fulfilment of the
requirement for the award of the degree of
Master of Science (IT Management)

Advanced Informatics School
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FEBRUARY 2014

I declare that this thesis entitled “*Trust Influence towards Internet Banking Acceptance among Postgraduate Students at UTM Kuala Lumpur Campus*” is the result of my own research except as cited in references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

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*To my favorite supporters.
Ayah, Ibu, Mbak Nina, Mas Intan, and little Maula.*

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ABSTRACT

Recent development in online technologies and devices, as well as the diversity of internet usage in daily life, has made internet banking as a necessity in our daily life. Online transaction has become a common practice in our society, especially in Malaysia. It is essential for financial institution, especially banks, to recognize determinants that influence user intention in using internet banking in order to provide suitable internet banking system. The objective of this study is to understand the determinants that influence user intention in using internet banking and proposed a conceptual model that illustrate the relationship among the determinants. Technology Acceptance Model theory was used as theoretical foundation to examine the determinants which comprise perceive ease of use, perceive usefulness, trust, and determinants of trust including familiarity with bank, structural assurance, situational normality, and calculative-based trust. This study was applying quantitative methodology by collecting 274 data from postgraduate students at UTM Kuala Lumpur. Furthermore, data analysis techniques of Correlation and Multiple Linear Regression Analysis were utilized to test the hypotheses of this study. The result of this study reflected that familiarity with bank, structural assurance, calculative-based trust and perceive ease of use have influence towards trust, which furthermore affect user perceive usefulness and intention in using internet banking. Finally, providing the determinants of internet banking usage helps financial institution to develop and implement more efficient system.

ABSTRAK

Pembangunan yang pesat dalam teknologi terutamanya perniagaan di atas talian telah mewujudkan pelbagai penggunaan internet dan menjadikannya sebagai satu keperluan di masa kini. Tambahan pula, urus niaga dalam talian telah menjadi satu amalan kepada masyarakat di Malaysia. Proses ini penting kepada institusi kewangan terutamanya bank untuk mengenal pasti faktor yang akan mempengaruhi pengguna semasa menggunakan internet perbankan untuk memudahkan pihak institusi kewangan menyediakan sistem perbankan internet yang memenuhi kehendak pengguna. Objektif kajian ini adalah untuk mengenal pasti faktor yang mendorong pengguna dalam menggunakan perbankan internet dan mencadangkan satu model bagi menghubungkan pengguna serta faktor yang mempengaruhi. Teori Teknologi Penerimaan Model telah digunakan sebagai teori asas bagi mengenal pasti faktor yang mempengaruhi; terdiri daripada kemudahan pengguna, kepelbagaian kepenggunaan, amanah, dan faktor penentu amanah; termasuk kebiasaan pengguna dengan bank, jaminan keselamatan struktur, kefahaman pengguna, dan kepercayaan berasaskan pengiraan. Kajian ini menggunakan kaedah kuantitatif dengan mengumpul data daripada 274 pelajar pasca-siswazah di UTM Kuala Lumpur. Teknik analisis data Korelasi dan Regresi Linear Berganda telah digunakan untuk menguji hipotesis kajian. Hasil kajian menunjukkan bahawa kebiasaan pengguna dengan bank, jaminan keselamatan struktur, amanah yang berasaskan pertimbangan dan faktor penentu amanah, yang memberi kesan kepada pengguna semasa melihat kegunaan dan niat semasa menggunakan perbankan internet. Akhir sekali, dengan menyediakan factor-faktor yang boleh membantu pengguna semasa menggunakan perbankan internet akan membantu pihak institusi kewangan dalam membangunkan dan melaksanakan sistem yang lebih cekap di masa hadapan.

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LIST OF ABBREVIATIONS

IT	-	Information Technology
PU	-	Perceive Usefulness
PEOU	-	Perceive Ease of Use
FAM	-	Familiarity with Bank
SIT	-	Situational Normality
STR	-	Structural Assurance
CAL	-	Calculative-based Trust
TRU	-	Trust
BI	-	Behavioral Intention
UTM KL	-	Universiti Teknologi Malaysia Kuala Lumpur campus
CA	-	Cronbach's Alpha

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CHAPTER 1

INTRODUCTION

1.1. Overview

Recent development in online technologies and devices, as well as the diversity of internet usage in daily life, has made internet banking as a necessity in our daily life. Online transaction has become a common practice in our society, especially in Malaysia. According to data from Internet World Stats, in 2012 the percentage of internet user in Malaysia has reach 17,723,000 internet users which is 60.7% of total population in Malaysia ("Internet Usage in Asia," 2012). In its annual financial report, Bank Negara Malaysia reported that in 2012 the transaction volume through internet banking channel in Malaysia has reached RM226.5 million (BNM, 2013).

Recently, many sectors and industries started adopting e-commerce strategy into their line of business to satisfy their customer's needs. One of those many sectors that largely affected by the expansion of this practice is banking industry. The online implementation on basic's operations such as account checking, bill payment, transfer funds, digital cheque and loan management has opened a new diversion for bank transaction in which customer no longer need to go to the bank to do the transaction. For properly implement internet banking, basic knowledge of computer and internet is required to ensure customer's readiness. More importantly, bank's willingness to adopt these changes into their business strategy towards the new opportunities offered by internet banking.

The use of online technology opens remarkable potential to the banking industry. Internet banking has moved real banking behavior closer to neoclassical economic theories of marketing function where people will compare the service of various banks easily and able to change their banking partner much more easily than in the physical or real bank-client relationship (Nitsure, 2003). Using internet technology banks are able to retain existing banking user by providing a convenient banking system that allow customer to have easier access into their bank accounts anytime anywhere. At the same time, banks also have the opportunity to attract internet users as their new banking customer with their services (Gu, Lee, & Suh, 2009).

1.2. Background of the Problem

As been stated previously, online transaction has becoming more popular nowadays in Malaysia than it is few years ago. However, the degree of user acceptance of internet banking does not show the same level of maturity. According to comScore ("Online Banking on the Rise in Southeast Asia," 2011), in 2011 the number of visitation to internet banking in Malaysia reached 2.7 million which is only 15.4% of internet users in Malaysia within 2011. Several previous studies reported that banking customers still hesitant to use internet as the medium for financial transaction mainly because of risk-concern, since the transaction would likely involve sensitive data exchange, and trust-related issues (M. K. Lee & Turban, 2001; Yousafzai, Pallister, & Foxall, 2003).

Previous researches suggest that user's intention on using or adopting an online system is highly influenced by the performance expectancy and effort expectancy towards the system (Alsajjan & Dennis, 2010; Davis, 1989; Venkatesh & Davis, 2000). While others argue that trust also has a significant influence towards user's perception in using online system (Alsajjan & Dennis, 2010) and the lack of trust might prevent user to engaged in online transaction which involves sensitive personal information exchange (Alsajjan & Dennis, 2010; Friedman, Khan Jr, & Howe, 2000; Grewal, Iyer,

& Levy, 2004; Liu, Marchewka, Lu, & Yu, 2004). This research will explore the determinants that influence user behavior intention in using internet banking services.

1.3. Problem Statement

Even though the number of internet banking users is reported to have increased since 2010 ("Online Banking on the Rise in Southeast Asia," 2011), many people still have concern about the use of internet banking services. According to initial interview with postgraduate students at UTM Kuala Lumpur campus, there is still some concerns regarding user trust toward internet banking. Some respondents still hesitate to use internet-banking services due to bad experience related to structural assurance of internet banking system. Moreover, some of them answered that they used the service due to third party request. The result from this initial study shows that the respondents was using the service because of third party suggestion instead of their own preferences. Therefore, it is important to identify the determinants that influence user intention in using internet banking. Furthermore, this study will examine the influence of trust and its determinants toward user intention in using internet banking.

1.4. Research Questions

1. What is the influence of trust and its determinants toward user intention of internet banking usage among postgraduate students at UTM Kuala Lumpur campus?
2. What model can be used to represent the relationship between trust and its determinants toward user intention to use internet banking among postgraduate students at UTM Kuala Lumpur campus?
3. How to validate the model proposed to represent the relationship between trust and its determinants toward user intention to use internet banking among postgraduate students at UTM Kuala Lumpur campus?

1.5. Research Objectives

1. To identify the influence of trust and its determinants toward user intention of internet banking usage among postgraduate students at UTM Kuala Lumpur campus.
2. To propose model that can be used to represent the relationship between trust and its determinants toward user intention to use internet banking among postgraduate students at UTM Kuala Lumpur campus.
3. To validate the model proposed to represent the relationship between trust and its determinants toward user intention to use internet banking among postgraduate students at UTM Kuala Lumpur campus.

1.6. Research Hypothesis

The following are the hypothesis listed for this research:

- H1: Familiarity with bank will positively affect perceive ease of use of internet banking.
- H2: Familiarity with bank will positively affect trust.
- H3: Situational normality will positively affect perceive ease of use of internet banking.
- H4: Situational normality will positively affect trust of internet banking.
- H5: Structural assurance will positively affect trust of internet banking.
- H6: Calculative-based trust will positively affect trust of internet banking.
- H7: Trust of internet banking service will positively affect behaviour intention of internet banking.
- H8: Trust of internet banking service will positively affect the perceive usefulness of internet banking.
- H9: Perceive ease of use will positively affect trust of internet banking service.
- H10: Perceive ease of use will positively affect behaviour intention of internet banking.

H11: Perceive ease of use will positively affect perceive usefulness of internet banking.

H12: Perceive usefulness will positively affect behaviour intention of internet banking.

1.7. Research Significance

The significance of this study is to explore and investigate the factors that influence user's intention to use internet banking among postgraduate students at UTM Kuala Lumpur campus. Firstly, this study could help to understand which factors that influence the use of e-banking service among postgraduate students at UTM Kuala Lumpur campus. Secondly, from this study we can observe whether trust has a significant influence towards user's acceptance of e-banking among postgraduate students at UTM Kuala Lumpur campus. Furthermore, the outcome of this study also can be useful for banks or financial institutions in considering a better online solution for their institution.

1.8. Research Scope

This scope of this study are postgraduate students at Universiti Teknologi Malaysia Kuala Lumpur campus. Respondents were randomly selected from different postgraduate schools at UTM Kuala Lumpur campus, including, but not limited to, Advanced Informatics School (UTM AIS), International Business School (UTM IBS), UTM Razak School, and Malaysia-Japan International Institute of Technology (UTM MJIT).

1.9. Summary

This research aims to study about the determinants that influence user intention of internet banking usage among postgraduate students at UTM Kuala Lumpur campus, which according to several reports has been increased recently. This research try to identify the determinants that influence user intention to use internet banking, propose a model that represent the relationship between determinants and user intention in using internet banking and validate the model. For this purpose, a quantitative study was conducted by distributing questionnaires among postgraduate students at UTM Kuala Lumpur campus.

REFERENCES

- Agarwal, R., & Karahanna, E. (2000). Time flies when you're having fun: cognitive absorption and beliefs about information technology usage 1. *MIS quarterly*, 24(4), 665-694.
- Ahmad, R., & Buttle, F. (2002). Retaining telephone banking customers at Frontier Bank. *International Journal of Bank Marketing*, 20(1), 5-16.
- Al-Gahtani, S. S. (2011). Modeling the electronic transactions acceptance using an extended technology acceptance model. *Applied Computing and Informatics*, 9(1), 47-77. doi: <http://dx.doi.org/10.1016/j.aci.2009.04.001>
- Alsajjan, B., & Dennis, C. (2010). Internet banking acceptance model: Cross-market examination. *Journal of Business Research*, 63(9–10), 957-963. doi: <http://dx.doi.org/10.1016/j.jbusres.2008.12.014>
- Barrett, K. C., & Morgan Jr, G. A. (2005). *SPSS for intermediate statistics: Use and interpretation*: Psychology Press.
- Bhattacharjee, A. (2001). An empirical analysis of the antecedents of electronic commerce service continuance. *Decision Support Systems*, 32(2), 201-214. doi: [http://dx.doi.org/10.1016/S0167-9236\(01\)00111-7](http://dx.doi.org/10.1016/S0167-9236(01)00111-7)
- BNM. (2013). Financial Stability and Payment System Report 2012: Bank Negara Malaysia.
- Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. 2nd. edit: Hillsdale, NJ: Lawrence Erlbaum Associates.
- Corbitt, B. J., Thanasankit, T., & Yi, H. (2003). Trust and e-commerce: a study of consumer perceptions. *Electronic Commerce Research and Applications*, 2(3), 203-215.
- Dabholkar, P. A. (1996). Consumer evaluations of new technology-based self-service options: an investigation of alternative models of service quality. *International Journal of research in Marketing*, 13(1), 29-51.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management science*, 35(8), 982-1003.
- Dawson, C. (2002). *Practical research methods: a user-friendly guide to mastering research techniques and projects*: How To Books Ltd.
- DeVellis, R. F. (2003). *Scale Development: Theory and Applications* Second Edition (Applied Social Research Methods).
- Dillon, A., & Morris, M. G. (1996). *User acceptance of new information technology: theories and models*.
- Facts & Figures. Retrieved 4/12/2013, from <http://www.kl.utm.my/about/sub-page-1/facts-figure/>

- Faqih, K. (2011). *Integrating perceived risk and trust with technology acceptance model: An empirical assessment of customers' acceptance of online shopping in Jordan*. Paper presented at the Research and Innovation in Information Systems (ICRIIS), 2011 International Conference on.
- Friedman, B., Khan Jr, P. H., & Howe, D. C. (2000). Trust online. *Communications of the ACM*, 43(12), 34-40.
- Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in online shopping: an integrated model. *MIS quarterly*, 51-90.
- Grewal, D., Iyer, G. R., & Levy, M. (2004). Internet retailing: enablers, limiters and market consequences. *Journal of Business Research*, 57(7), 703-713.
- Gu, J.-C., Lee, S.-C., & Suh, Y.-H. (2009). Determinants of behavioral intention to mobile banking. *Expert Systems with Applications*, 36(9), 11605-11616. doi: <http://dx.doi.org/10.1016/j.eswa.2009.03.024>
- Ha, I., Yoon, Y., & Choi, M. (2007). Determinants of adoption of mobile games under mobile broadband wireless access environment. *Information & Management*, 44(3), 276-286. doi: <http://dx.doi.org/10.1016/j.im.2007.01.001>
- Hair, J. F., Money, A. H., Samouel, P., & Page, M. (2007). *Research methods for business*: John Wiley & Sons Chichester, England.
- Hamid, M. R. A., Amin, H., Lada, S., & Ahmad, N. (2010). A comparative analysis of internet banking in Malaysia and Thailand. *Journal of Internet Business*, 4.
- Hoehle, H., Scornavacca, E., & Huff, S. (2012). Three decades of research on consumer adoption and utilization of electronic banking channels: A literature analysis. *Decision Support Systems*, 54(1), 122-132. doi: <http://dx.doi.org/10.1016/j.dss.2012.04.010>
- Hsu, C.-L., & Lu, H.-P. (2004). Why do people play on-line games? An extended TAM with social influences and flow experience. *Information & Management*, 41(7), 853-868.
- Hutcheson, G. D., & Sofroniou, N. (1999). *The multivariate social scientist: Introductory statistics using generalized linear models*: Sage.
- Ibrahim, R., Jaafar, A., & Khalil, K. (2011). Towards educational games acceptance model (EGAM): a revised Unified Theory of Acceptance and Use of Technology (UTAUT). *International Journal of Research and Reviews in Computer Science*, 2(3), 839+.
- Internet Usage in Asia. (2012). *Internet World Stats*. Retrieved 20 December 2012, from <http://www.internetworldstats.com/stats3.htm#asia>
- Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika*, 39(1), 31-36.
- Kim, H.-Y. (2013). Statistical notes for clinical researchers: assessing normal distribution (2) using skewness and kurtosis. *Restor Dent Endod*, 38(1), 52-54.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educ Psychol Meas*.
- Lee, M.-C. (2009). Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications*, 8(3), 130-141. doi: <http://dx.doi.org/10.1016/j.elerap.2008.11.006>
- Lee, M. K., & Turban, E. (2001). A Trust Model for Consumer Internet Shopping. *International Journal of Electronic Commerce*, 6(1), 75-91.
- Li, Z., & Tang, S. (2010). *An Empirical Research of Impacts of Review System on Online Shoppers' Intention Based on TAM*. Paper presented at the Database Technology and Applications (DBTA), 2010 2nd International Workshop on.

- Liu, C., Marchewka, J. T., Lu, J., & Yu, C.-S. (2004). Beyond concern: a privacy–trust–behavioral intention model of electronic commerce. *Information & Management*, 42(1), 127-142.
- Luarn, P., & Lin, H.-H. (2005). Toward an understanding of the behavioral intention to use mobile banking. *Computers in Human Behavior*, 21(6), 873-891.
- Lynn, M. R. (1986). Determination and quantification of content validity. *Nursing research*, 35(6), 382-386.
- Malhotra, N., & Peterson, M. (2006). *Basic Marketing Research; a decision-making approach*. New Jersey, 7458.
- Mathieson, K. (1991). Predicting user intentions: comparing the technology acceptance model with the theory of planned behavior. *Information systems research*, 2(3), 173-191.
- Mols, N. P. (2000). The Internet and services marketing—the case of Danish retail banking. *Internet Research*, 10(1), 7-18.
- Moon, J.-W., & Kim, Y.-G. (2001). Extending the TAM for a World-Wide-Web context. *Information & Management*, 38(4), 217-230. doi: [http://dx.doi.org/10.1016/S0378-7206\(00\)00061-6](http://dx.doi.org/10.1016/S0378-7206(00)00061-6)
- Munusamy, J. A., Sanmugam, & Chelliah, S. (2012). A Study of Users and Non-Users of Internet Banking in Malaysia. *International Journal of Innovation, Management and Technology*, 3(4).
- Nasri, W., & Charfeddine, L. (2012). Factors affecting the adoption of Internet banking in Tunisia: An integration theory of acceptance model and theory of planned behavior. *The Journal of High Technology Management Research*, 23(1), 1-14. doi: <http://dx.doi.org/10.1016/j.hitech.2012.03.001>
- Nitsure, R. R. (2003). E-banking: Challenges and Opportunities. *Economic and Political Weekly*, 5377-5381.
- One in Four Internet Users Access Banking Sites Globally. (2012). *comScore Data Mine*. Retrieved April 14, 2013, from <http://www.comscore.com/2012/06/1-in-4-internet-users-access-banking-sites-globally/>
- Online Banking on the Rise in Southeast Asia. (2011). *comScore*. Retrieved April 1, 2013, from http://www.comscore.com/Insights/Press_Releases/2011/3/Online_Banking_on_the_Rise_in_Southeast_Asia
- Pallant, J. (2004). *SPSS survival manual: version 12*: Open University Press.
- Parsian, N. (2009). Developing and validating a questionnaire to measure spirituality: a psychometric process. *Global journal of health science*, 1(1), P2.
- Pavlou, P. A. (2003). Consumer acceptance of electronic commerce: integrating trust and risk with the technology acceptance model. *International Journal of Electronic Commerce*, 7(3), 101-134.
- Rowley, J. (2006). An analysis of the e-service literature: towards a research agenda. *Internet Research*, 16(3), 339-359.
- Sasaki, H., Ikeda, Y., Kondo, M., & Nakamura, H. (2007). *An intra-task dvfs technique based on statistical analysis of hardware events*. Paper presented at the Proceedings of the 4th international conference on Computing frontiers.
- Sharp, M. (2010). Development of an Instrument to Measure Students' Perceptions of Information Technology Fluency Skills: Establishing Content Validity. *Perspectives in health information management/AHIMA*, American Health Information Management Association, 7(Summer).

- Suh, B., & Han, I. (2003). Effect of trust on customer acceptance of Internet banking. *Electronic Commerce Research and Applications*, 1(3), 247-263.
- Tan, M., & Teo, T. S. (2000). Factors influencing the adoption of Internet banking. *Journal of the AIS*, 1(1es), 5.
- Venkatesh, V. (1999). Creation of favorable user perceptions: exploring the role of intrinsic motivation. *MIS quarterly*, 239-260.
- Venkatesh, V. (2000). Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information systems research*, 11(4), 342-365.
- Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: four longitudinal field studies. *Management science*, 46(2), 186-204.
- Wang, W., & Benbasat, I. (2005). Trust in and adoption of online recommendation agents. *Journal of the Association for Information Systems*, 6(3), 72-101.
- West, S. G., Finch, J. F., & Curran, P. J. (1995). Structural equation models with nonnormal variables: Problems and remedies.
- Wynd, C. A., Schmidt, B., & Schaefer, M. A. (2003). Two quantitative approaches for estimating content validity. *Western Journal of Nursing Research*, 25(5), 508-518.
- Yousafzai, S. Y., Pallister, J. G., & Foxall, G. R. (2003). A proposed model of e-trust for electronic banking. *Technovation*, 23(11), 847-860. doi: [http://dx.doi.org/10.1016/S0166-4972\(03\)00130-5](http://dx.doi.org/10.1016/S0166-4972(03)00130-5)