

FACTORS INFLUENCING THE ADOPTION OF INTERNET BANKING IN MALAYSIA



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**SCHOOL OF BUSINESS AND ECONOMICS
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DECLARATION

The materials in this thesis are original except for quotations, accepts, summaries and references, which have been duly acknowledged.

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ABSTRAK

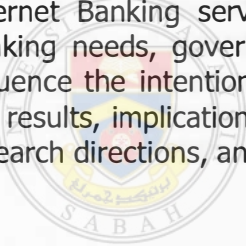
FAKTOR-FAKTOR YANG MENPENGARUHI PENERIMAAN PERBANKAN INTERNET DI MALAYSIA

Kajian ini berbentuk empirikal dan dijalankan untuk menentukan faktor-faktor yang mempengaruhi penerimaan perbankan Internet di kalangan pengguna di Malaysia. Sampel yang digunakan dalam kajian ini ialah individu yang menetap di Malaysia. Rangka kajian yang digunakan adalah berdasarkan "theory of planned behaviour" dan "diffusion of innovations theory" yang dikenali sebagai "decomposed theory of planned behaviour" digunakan yang mengatakan bahawa faktor seperti sikap, pengaruh sosial dan persepsi ke atas kawalan kelakuan mempengaruhi penerimaan terhadap perkhidmatan perbankan Internet. Soalan kajiselidik secara "online" digunakan dalam kajian ini dan responden telah diberitahu melalui email dan posting "newsgroup". Keputusan kajian ini menunjukkan bahawa faktor sikap dan persepsi ke atas kawalan kelakuan memainkan peranan dalam mempengaruhi niat untuk menerima perkhidmatan perbankan melalui Internet. Walau bagaimanapun, tanggapan tentang pengaruh sosial tidak mempengaruhi niat untuk menerima perkhidmatan perbankan Internet. Secara terperinci, hanya kerumitan, percubaan, keperluan bank, sokongan kerajaan dan keyakinan diri dibuktikan mempengaruhi niat untuk menerima perkhidmatan perbankan Internet. Keputusan, implikasi, kerumitan, rekomen untuk kajian akan datang dan kesimpulan kajian ini dibentangkan dengan terperinci.

ABSTRACT

FACTORS INFLUENCING THE ADOPTION OF INTERNET BANKING IN MALAYSIA

This is an empirical research and was carried out to determine the factors influencing the adoption of Internet banking by Malaysian consumers. The sample from this survey was drawn from individual residents in Malaysia. A research framework based on the theory of planned behavior and the diffusion of innovations theory known as the decomposed theory of planned behavior (DTPB) were used to identify the attitudinal, social influence and perceived behavioral control factors that would influence the adoption of Internet banking. An online questionnaire was used in this research and respondents were approached through extensive personalized email invitations as well as postings to the newsgroups. The results of this research revealed that attitudinal and perceived behavioral control factors, rather than social influence play a significant role in influencing the intention to adopt Internet Banking services. In particular only complexity, trialability, banking needs, government support and self-efficacy were found to influence the intention to adopt Internet Banking services. Details of the results, implications of the findings, limitations of the study, future research directions, and conclusions are presented.



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CHAPTER 1

INTRODUCTION

1.1 Overview

One might remember the days he or she physically had to go to the bank premises to make deposit or withdrawal transaction and get a bank statement book (passbook) manually updated by the tellers over the counter. With the introduction of computer networks, slowly a networked printing machine started replacing the manually operated passbook update. Then later, comes the Automated Teller Machines (ATMs) and cash dispensers to facilitate withdrawals, deposits and even transfers accommodating mobility in such wider coverage as well as later the introduction of phone banking and pc banking.

The growing applications of computerized networks to banking reduced the cost of transaction and increase the speed of service substantially. The nature of financial intermediaries made banks improve their production technology by focusing on distribution of products. In other words the evolution of banking technology has been mainly driven by changes in distribution channel as we see evidence from over the counter, automated teller machine (ATM), phone banking, tele-banking, pc-banking and one of the most substantial changes is the recent introduction of Internet banking.

In summary, banking has always been a highly information intensive activity that relies heavily on information technology (IT) to acquire, process, and deliver the information to all relevant users. Not only IT is critical in the processing of information system, it provides a way for the banks to differentiate their products and services. Banks find that they have to constantly innovate and update to ensure their demanding customers stay loyal and enjoy more beneficial banking products and services.

As banking technology has focused on reducing cost of distribution, Internet banking is characterized as a process innovation by making customers handle their own banking transaction without having to presence at bank premises (Kerem, 2003). It also allows non-customers to visit virtual banks via public web network while having pc banking and phone banking provide only close network. Considering new products and services specifically designed and offered on the Internet given the new technology feature, one might argue that Internet banking also has an aspect of product innovation. However, the success of this new distribution channel for banking products and services depends on the rate at which this new technology is adopted by the Malaysian consumers' retail and corporate alike. Thus, the factors affecting the adoption of Internet Banking in Malaysia will certainly be of both concern by bankers and policymakers.

When first introduced, Internet banking was used mainly as an information presentation medium in which banks marketed their products and services on their Web Sites. With the development of asynchronous technologies and secured electronic transaction technologies, more banks have come forward to use Internet banking both as a transactional as well as an informational medium (Tan and Teo, 2000).

Again, banking is a highly information-intensive industry. As customers demanding more accurate information regarding their accounts and require this information to be easily accessible, it seems that banks need to be more innovative in meeting the demands. As a result, information technology is extensively used in the collection, processing, output of information to users and customers. Furthermore, Internet banking is fairly easy to operate as one just needs to go to the bank's website address and follow the online instructions. Internet banking is also expected to increase consumer convenience, since consumers do not have to travel far to

perform basic banking transactions like applying loans, transferring funds and paying bills. Most of all, customers do not have to worry about getting caught in queues.

1.2 Internet in Malaysia

In 2001, there are approximately 2.11 millions Internet subscribers, representing a penetration rate of 8.8 percent, followed by 2.61 millions subscribers representing 10.5 penetration rate in 2002 (ITU, 2004). Whereas in 2003, total Internet subscribers increased to 2.89 millions with a growth rate of 10.8 percent, and represents penetration rate of 11.4 percent (ITU, 2004). The penetration rate is expected to increase to 25% by the year 2005 (Teo, 2001). Although the number of Malaysians going online is considerably small as compared to other nations across the globe, banks in Malaysia should not lag behind the changes of technology especially since the Malaysian financial industry is poised to open its doors to foreign banks by 2005 (Vijayan and Shanmugam, 2003). To face the competition from globalization, local domestic banks must fully utilize the Internet to improve their efficiency and profitability.

Malaysian government has created several agencies to spur Internet growth, but it has yet to develop a strong regulatory framework. The Communications and Multimedia Commission (CMC) was established in November 1998 and is in charged with promoting and regulating the converging industries of broadcasting, telecommunications and online services. The agency replaced the Telecommunications Department and assumed responsibility for the broadcasting industry from the Ministry of Information. The CMC is an agency of the Ministry of Energy, Technology and Multimedia hub. Although the government-run Malaysian Institute of Microelectronic Systems (MIMOS) and Malaysia's five telecoms companies have licenses permitting them to operate as ISPs, only two actually do so: MIMOS, through Jaring; and Telekom Malaysia, through TMNET (MCMC, 2004).

Malaysia's enthusiastic embrace of the technology continues to be embodied in the Multimedia Super Corridor (MSC) project. The MSC is both a physical area and a new paradigm for creating value in the Information age. The MSC is a 15 kilometres wide, 50 kilometres long spreading south from Kuala Lumpur City Centre to the Kuala Lumpur International Airport which has been designated as a hub for the development of multimedia products and services (Online, 2002). The MSC has targeted Flagship applications that it is developing in coordination with related government ministries, including Electronic Government, Multi-Purpose Card, Smart Schools, R & D Clusters, Borderless Marketing and Worldwide Manufacturing Webs (Online, 2002). The government is backing ICT Vision 2020 with a serious financial commitment according to the Eighth Malaysia Plan (2001-2005), RM 5.2 billions is allocated to ICT development over the next five year period, or five percent of the government budget (The Eighth Malaysia Plan).

1.2.1 Internet Banking in Malaysia

Banking over the Internet has attracted increasing attention over the past few years from bankers and other financial services industry participants such as the business press, regulators, and lawmakers. In line with the global trend, banking business in Malaysia has been undergoing tremendous changes and the current trend in the electronic revolution which has set in motion the Malaysian banking sectors appears to be Internet banking.

According to Pang (1995), the electronic revolution in the Malaysian banking sector have started in 1970's with the first visible electronic innovation was the introduction of Automated Teller Machines (ATMs) in 1981. The ATMs released banks from the constraints of time and location. Then in early 1990's telephone banking was introduced in Malaysia which also provides another delivery channel via

telecommunications devices connected to an automated system of the bank by utilizing Automated Voice Response (AVR) Technology.

Advances in telecommunications and information technology then culminated in banks offering their services through personal computers located at the customer's premises through the use of Intranet proprietary software. As at end of 1995, according to Bank Negara Malaysia (BNM,1995) ten local commercial banks are already offering PC-banking or desktop-banking services. PC banking was popular among corporate customers because it offered advantages such as cost saving, faster speed and improved flexibility of business transactions. Retail customers nevertheless, found that the disadvantages of PC-banking outweigh the advantages due to high fees involved in setting up intranet facilities and purchasing relevant software (Shanmugam et al, 2000). However, the number of customers who use this service is relatively small because PC-banking or desktop banking was mainly popular among banks' corporate customers than their retail customers.

Following these early banking delivery channels, was the introduction of the automated self-banking center which incorporates an information counter, ATM's, tele-banking and banking booths. With the advent of Internet, it has become affordable even for retail customers to setup a virtual branch in their home. Internet banking is not only part of the evolution of the Malaysian financial industry but the whole global banking landscape, as it not only provides an alternative to the conventional distribution channel for banks, but also has more economical transaction cost (Booz et al, 1997).

Now, in the world, which is becoming increasingly globalize through the use of the Internet and World Wide Web (WWW), Internet banking has been gaining ground as a new opportunity for banking institutions. These new opportunities and challenges further augmenting competition in the global banking market. Thus, in order to get a share of these opportunities and face those challenges, the Malaysian

government provided the legal framework for domestic banks to offer Internet banking services to customers as of June 1, 2000 (Suganthi and Balachandran , 2001).

The decision by the Malaysian Central Bank to consolidate the Malaysian banking sector was made in line with the impending financial liberalization and the consequent anticipated increase in actual as well as the potential competition from foreign banks. The objectives of the consolidation process are to strengthen the financial sector and enable them to face foreign competition in near future. This has resulted in ten core banking groups, which commenced operation as merged entities as of December 2000. Prior to this merging exercise there were 23 banking groups in the country (Suganthi and Balachandran, 2001).

Upon allowed by Malaysian Central Bank, locally owned commercial bank began to offer Internet banking services and on June 15, 2000, Malayan Banking Berhad (Maybank), the largest domestic bank in terms of assets as well as network distribution became the first local bank to offer Internet banking in Malaysia which commands its own portal at www.maybank2u.com. This service is currently provided to individual customers of the bank and the site boasts of the latest 128 bit encryption technology to allay fears of security among consumers (Suganthi and Balachandran, 2001). Subsequently, in December 2000, the Hong Leong Bank Berhad commenced its Internet banking known as 'ec-banking' which can be accessed via their website at www.hlbb.hongleong.com.my. Another domestic bank which has introduced Internet banking is Southern Bank Berhad, which offered its Internet banking services via www.sbbdirect.com.my, which later followed by Alliance Bank, offering its Internet banking delivery channel via www.alliancebank.com.my. Public Bank and its subsidiary, Public Finance, joined the bandwagon when they officially launched their fully interactive PbeBank.com Internet banking service on June 28, 2001.

Tan Sri Dato' Sri Dr. Zeti Akhtar Aziz, Governor of Malaysia Central Bank quoted that financial institutions in Malaysia have not left behind in embracing the rapidly evolving technologies and in taking initiatives to enhance the delivery channels. The successful financial institutions in the future will be those that are able to leverage most of the information and communications technology revolution. Currently, there are 12 banks offering Internet banking services while five have introduced mobile banking in Malaysia (Speech at Promotion of Electronic Banking and Payment Launching Ceremony, Electronic Banking: The Way Forward ,2003). A review of Malaysian banking sites in the Internet revealed that all domestic banks, which have been accorded an anchor bank status by the Central banks, maintained a website (Suganthi and Balachandran, 2001)

1.3 Issues and Rationale

There are several questions related to Internet banking. One of the common questions is why do we need Internet banking while bank's branches are still open? The answer to this question is simple, because banking online is fairly easy to operate. Internet banking refers to the use of the Internet as a remote delivery channel for banking services. Such services includes traditional ones, such as opening a deposit account or transferring funds among different accounts, instantly access account balance, request current statement, complete funds transfer, order checkbook and some websites offer loan application online, whereas new services such as electronic bill payment.

Banks offer Internet banking in two different ways. An existing bank with physical offices can establish a Web site and offer Internet banking to its customers in addition to its traditional delivery channels. A second alternative is to establish a "virtual," "branchless," or "Internet-only" bank. The computer server that lies at the heart of a virtual bank may be housed in an office that serves as the legal address of

such bank, or at some other location. Virtual banks may offer their customers the ability to make deposits and withdraw funds via automated teller machines (ATMs) or other remote delivery channels owned by other institutions.

Advantages of Internet banking

Internet banking offers certain advantages over traditional banking methods.

Some of these are as follows:

- Time saving – Customer no longer need to physically visit the branch
- Convenience – Writing cheque and queuing eliminated because accounts can be paid and funds transferred allowed.
- Accessibility – Services are available at longer time and sometimes 24 hour a day.
- Confirmation – Transaction are executed and confirmed almost immediately.
- Range – Choices of transaction can be made at any one time is larger from checking balance to mortgage loan
- Security – Customers can choose their own PIN, to prevent unauthorized access to their accounts
- Safety – Reduces the need to carry large amount of cash to the branch

Disadvantages of Internet banking

Internet banking also has several disadvantages, these includes the following:

- Cost – Internet banking has certain requirements such as accessibility to computers, computer type, memory which all of these required additional cost to the customers when compared to traditional banking methods or other online banking services such as ATMs.
- Cash availability – There is no services for withdrawals

- Security – This can be a disadvantage as there potential threat from hackers and fraudsters.

1.4 Research Problem

The emergence of Internet banking has been a topic of increasing interest in recent years for both academics and practitioners, as the changes taking place in the field are clearly observable. In part, this is due to the rapid and significant growth in electronic commerce and the notion that electronic banking provides a very convenient and effective approach to manage one's finances. The banking industry would be able to provide better banking services and products due to the impact of fast growing Internet. This will enable banking sector to differentiate its banking services and products in the new banking atmosphere that will give sustainable and better accessibility, security and control.

To date, however, consumer acceptance rate and usage of Internet banking in Malaysia is relatively low because there is little research to understand the key usage determinants influence the adoption of Internet banking. Although there is evident that the electronic revolution has commenced in Malaysia, widespread electronic banking may still be several years away. Furthermore, in Malaysia research in this area is still in its infancy stage which makes it hard for banks and their technology consultants to design interventions that will enhance the usage of internet banking services. Hence, the current research is needed in order to understand **"to what extent does attitude, subjective norms and perceived behavioural control influence the intention to adopt Internet banking"**.

1.5 Research Objective

The purpose of study is attempts to identify and describes the attitudinal, social influence and behavioural control factors that are important in the decision to adopt Internet banking services in Malaysia. Thus, the factors that affect the adoption of Internet banking will certainly provide insight into consumer intentions and adoption of Internet banking services. It is hoped that with better understanding of the antecedents of adoption it will help in the formulation and implementation of strategies that will enhance usage.

1.6 Scope of Study

The scope of this study is to reveal the impact of attitude, subjective norms and perceived behavioural control with intention to adopt Internet banking. The scope of this study also discussed the components of attitude namely, relative advantage, compatibility, trialability, complexity, banking needs, risk, and components of perceived behavioural control. The sample used in this study was drawn from individual residents in Malaysia. The reason for wider coverage is to establish greater insight of Internet users.

1.7 Significance of Study

This study bears significant impact in pushing back the frontier of knowledge in Internet banking service. Hence, this may lead to provide greater insight into consumer intentions to adopt this technology in the future. Other than that, this study will articulate new solutions and as a reference for further research for the government and private organizations and will enhance understanding of the antecedents of adoption.

1.8 Organisation of study

This paper is organized as follows; firstly, it describes the overview of Internet banking, followed by the issues and rationale of Internet banking, the research objectives and problems. Next chapter discusses on the literature review, and in chapter three it discusses the research framework and method in used in this study. It then discussed the online questionnaire that was used to conduct the survey. Chapter four presented the findings from this study and in chapter five the results of the finding, implications, limitations, suggestions for future research were discussed.



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CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter deals with the literature related to the area of intention to adopt new Technology and its key usage determinants. Research on intention to adopt new technologies has attracted many theorists, management scientists and organizational behaviourists. A review on some of the research studies on intention to adopt new technologies and its determinants presented below.

2.2 Background Literature and Facts

A number of technology adoption models have been developed to investigate and understand the factors affecting the acceptance of computer technology in organisations. The theoretical models employed to study user acceptance, adoption, and usage behaviour include the Theory of Reasoned Action - TRA (Fishbein & Ajzen, 1975; Ajzen and Fishbein, 1980), the Technology Acceptance Model – TAM (Davis 1989; Davis et al. 1989), the Theory of Planned Behaviour – TPB (Ajzen, 1991; Mathieson, 1991), the Decomposed Theory of Planned Behaviour (Taylor and Todd, 1995), Innovation Diffusion Theory (Agarwal and Prasad 1997), Integrated Technology Adoption and Diffusion Model (Sherry , 1998) .

Theory of Reason Action (TRA) explains the process of adoption of an innovation, which can be a new information system, such as airlines reservation system, or a technology, such as mobile communication. TRA is based on social psychology. ".....a person's performance of a specific action is determined by his or her Behavioural Intention (BI) to perform it, which determined by the person's attitude (A) and Subjective Norm (SN) concerning the action (Fishbein & Ajzen,1975).

Comparing with TRA, Technology Acceptance Model (TAM) is more oriented to analyze the human behaviour on using information system. Davis (1989) and Davis et al (1989) developed TAM by adapting the Theory of Reasoned Action (TRA) to understand the causal chain linking external variables to IT usage intention and actual use in workplace. In fact, Davis developed this model particularly to capture the user acceptance of information systems TAM has been widely used to predict user acceptance (Davis, 1989). The basic constructs are perceived usefulness and perceived ease of use.

In Malaysia, the TAM model has been used by Jantan, Ramayah and Chin (2001) to study various factors influencing personal computer acceptance by small and medium companies in Malaysia. Basyir (2000) replicated the TAM model to study various factors associated with acceptance of Internet shopping behaviour. Fok (2001) adopted TAM that explicitly incorporates self-efficacy and its determinants as the factors that influence perceived ease of use, perceived usefulness and the usage of the Internet. Ndubisi (2003a; 2003b; 2003c) adopted TAM model to study ICT usage by Malaysia women entrepreneurs and their role counterparts. Koay (2002) also used TAM model to measure receptiveness of E-banking in Malaysian consumers.

Ajzen (1985 and 1991) has extended TRA to another theory called Theory of Planned Behaviour (TPB). TPB is similar with TRA except an additional construct, perceived behavioural control (PBC) has been added. Actually, TPB was derived with the knowledge from TRA, namely that the behaviour of a person is affected by his or her intention to perform something. Crucial for predicting the behaviour of an end user and user's acceptance of a system is the knowledge of what attributes or beliefs lie behind a person to construct or formulate intention. TPB holds that attitudes, subjective norms and perceived behavioural control are direct determinants of intentions, which in turns influence behaviour. Taylor and Todd (1995) stated that the influence of peers and influence of superiors are antecedents to the subjective norm.