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MASTER'S THESIS

Assessing the Adoption Potential of e-Banking Services for a Private Iranian Bank

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2006

1.29.10



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Abstract

Banking has always been a highly information intensive activity particularly over the last few decades that information technology (IT) has affected the banking industry heavily. The appearance of electronic banking services has changed the nature of financial services delivered to customers. By providing these services, banks can get notable cost savings, reduce their branch networks, and downsize the number of their service staff. But since customers do not adopt and use these services, banks can not profit from these new services. Recently, a number of Iranian banks have started to offer electronic banking services to their customers but still electronic banking is an unknown concept from customers' point of view. The purpose of this study is to gain a deep understanding of the factors which influence the adoption and usage of these services by customers in Iran. In this study, based on the review of literature, a model of the perceived innovation attributes and the personal characteristics of adopters have been developed. Then the model has been tested using a questionnaire concerned with Iran market for electronic banking services. The results are presented in details which indicate that the model is a proper predictor of adoption behavior. In particular, perceptions of relative advantages, compatibility and trailability of the service, cost and risk as well as gender and social character were found to influence the adoption of electronic banking services. The practical implications of the study are discussed and suggestions for future research are presented.

Acknowledgement

This thesis was written during the summer of 2005 and winter of 2006 at Tarbiat Modares University (TMU) in fulfillment of the Master program in Marketing and e-commerce, jointly held with Lulea University of Technology. Many people have helped me with the completion of this study and made this work possible.

First of all, I would like to express my sincere gratitude to my supervisor, Professor Peter Naude for his valuable supervision and intelligent guidance during the whole process of the thesis writing. Second, I would like to express my sincere gratitude to Dr. M.Mehdi Sepehri, my TMU supervisor, for his strong support, encouragement and his helpful comments on my thesis.

Special thanks to Dr. Amir Albadvi for his useful assistance in the early phase of doing this research by introducing me to Parsian bank. I would also like to show my sincere appreciation to Mr. Abdollah Talebi the president of Parsian bank and Mr. Amir Taheri the manager of R&D division in Parsian bank for their kind support and cooperation.

Finally, I would like to express my thanks to the branch staff of Parsian bank who helped me a lot in distributing and collecting the questionnaires of this research.

I wish to take this opportunity to express my deepest thanks to my dear parents for the love and never-ending support they have extended me in every step of my life.

Parisa Alagheband

January 2006

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Chapter One: Introduction and Research Problem

1.1 Introduction

Over the last few decades information technology has affected the banking industry highly and has provided a way for the banks to differentiate their products and services. For more than 200 years, banks were using branch-based operations but the advent of multiple technologies and applications changed the nature of financial services delivered to customers. For instance, automated teller machines (ATM) displaced cashier tellers, telephones represented by call centers replaced the bank branch, the Internet replaced mail, credit cards and electronic cash replaced bank transactions. The reason was the numerous key advantages that banks could gain by providing electronic banking services. In this way they had lower transaction costs, 24 hour trading, more extended business territory and also increased efficiency in daily banking processes. Today banks are faced with a competitive environment. In order to succeed in such marketplace, they must offer a wide array of products with the latest technology. At present, many banks and financial institutions are actively developing new electronic banking products for their customers throughout the world.

1.2 Customer Adoption

The development of electronic banking services actually changed the distribution channel structure in banking sector. Mols (1999) states that the electronic banking is a new distribution channel that offer less waiting time and a higher spatial convenience than traditional branch banking and new channel has significantly lower cost structure than traditional delivery channels. By offering electronic banking services, banks can get notable cost savings, reduce their branch networks and downsize the number of their service staff which all contribute in maximizing their profits. But before banks and financial institutions can benefit from these services, the willingness of customers to try out and adopt the new technology should be questioned. Customers today are demanding much more from banking services. They want new levels of convenience and flexibility on top of powerful and easy to use financial management tools, products and services that traditional retail banking could not offer (Tan and Teo, 2000). It is very important for bank managers first to identify the customers most likely to purchase and adopt electronic banking services and understand the factors, which influence adoption or rejection of electronic banking services.

1.3 The Research Problem

This study focuses on the adoption of electronic banking services by customers in Iran and aims to gain a deeper understanding of the factors influencing the adoption of electronic banking services by Iranian customers. The research problem for this research can be formulated as:

What are the main factors, which influence the adoption of retail electronic banking services?

The research problem is quite extensive and it is difficult to consider all the factors, together. In order to answer the research problem, the related theories are explained in the literature review in chapter two, which will lead to extract the effective factors in the adoption of electronic banking services. A framework based on the technology acceptance theory (Davis, 1989) and diffusion of innovation theory (Rogers, 1995) is

used to derive the factors as well as including personal and behavioral characteristics of adopters. Each of these characteristics will be stated in a hypothesis to examine the potential adopters' beliefs in adoption of electronic banking services. The combined framework will provide a multidimensional approach to comprehensively understand adoption intentions. The study contributes to theory and practice. The findings will help in understanding the theoretical constructs of framework in the adoption of electronic banking. In practice, the findings will assist banks in understanding the key factors that influence the adoption of electronic banking services. They will also provide information on the needs and preferences of the potential customers. Banks can then make informed decisions, thereby providing better services to their customers.

1.4 Parsian Bank

To carry out this research, finding a bank, which provides electronic banking services and also expresses an interest in doing research about customers, was an important issue. The idea of the thesis was presented to some banks and finally "Parsian bank" accepted to cooperate in conducting the survey in terms of asking the customers about Parsian credit card, as an electronic banking service.

Parsian bank is the second private bank in Iran after the Islamic revolution and started its banking operations on March 2002 with 4 branches and today this number has increased to 81. This bank introduced the use of credit cards in Iran in November of 2004. Credit cards are new payment tools in Iranian banking system and it is an important matter for Parsian bank to get better understanding of credit cards' adopters.

1.5 Outline of the Thesis

This thesis consists of five chapters, as shown in Figure 1.1. In this chapter an introduction to the research is given and the research purpose is stated. The next chapter presents the literature review and theoretical model developed for this study. In the third chapter, the methodology used for this thesis will be discussed. In the fourth chapter the empirical findings will be analyzed and finally, in chapter five contribution of this study is brought up under conclusions as well as implications for management and future research.

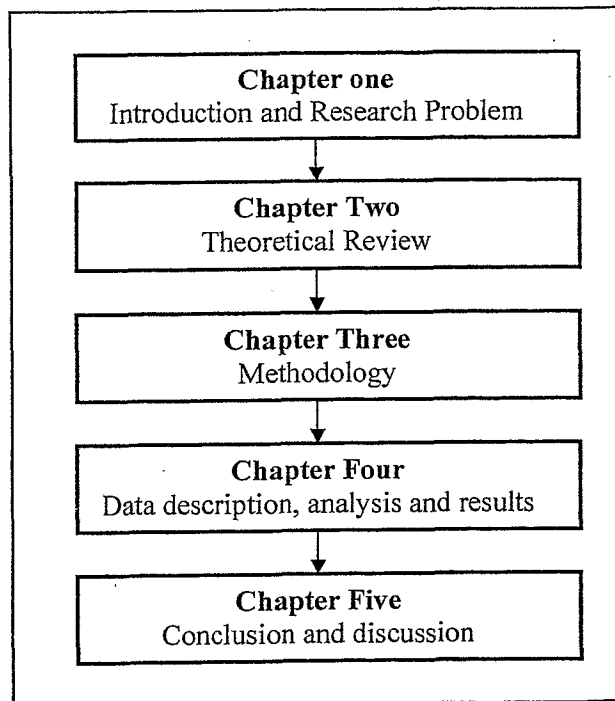


Figure 1.1: Outline of Thesis

Chapter Two: Theoretical Review

The previous chapter provided the background and problem area for this research. In this chapter the theoretical framework relevant to the purpose of this study will be presented.

2.1 Electronic Banking

Electronic banking is the automated delivery of new and traditional banking products and services directly to customers through electronic, interactive communication channels. Electronic banking includes the systems that enable financial institution customers, individuals or businesses, to access accounts, transact business, or obtain information on financial products and services through a public or private network, including the Internet (Federal Financial Institutions Examination Council, 2003). It should be noted that electronic banking is a bigger platform than just banking via the Internet. Electronic banking can also be defined as a variety of platforms such as Internet banking (or online banking), telephone banking, TV-based banking, mobile phone banking, and PC banking (or offline banking) whereby customers access these services using an intelligent electronic device, like a personal computer (PC), personal digital assistant (PDA), automated teller machine (ATM), point of sale (POS), kiosk, or Touch Tone telephone.

2.1.1 The History of Electronic Banking

Electronic innovation in banking can be traced back to the 1970s when the computerization of financial institutions gained momentum (Pang, 1995). However, a visible presence of this was evident to the customers since 1981, with the introduction of the automatic teller machine (ATM). Innovative banking has grown since then, aided by technological developments in the telecommunications and Information Technology industry. The early decade of the 1990s saw the emergence of automated voice response (AVR) technology. By using the AVR technology, banks could offer telephone banking facilities for financial services. With further advancements in technology, banks were able to offer services through personal computers owned and operated by customers at their convenience, through the use of Intranet proprietary software. The users of these services were, however, mainly corporate customers rather than retail ones (Sohail and Shanmugham, 2003). The Security First Network Bank was the first Internet banking in the world that was built in 1995, USA. After that some famous banks introduced their Internet banking one after another, such as Citibank and Bank of America.

2.1.2 Benefits of Electronic Banking

Electronic banking services have provided numerous benefits for both banks and customers. The first benefit for the banks offering electronic banking services is better branding and better responsiveness to the market. Those banks that would offer such services would be perceived as leaders in technology implementation. Therefore, they would enjoy a better brand image. The other benefits are possible to measure in monetary terms. The main goal of every company is to maximize profits for its owners and banks are not any exception. Automated electronic banking services offer a perfect opportunity for maximizing profits. According to a survey by Booz, Allen and Hamilton, an estimated cost providing the routine business of a full service branch in USA is \$1.07 per transaction, as compared to 54 cents for telephone banking, 27 cents for ATM (Automatic Teller Machine) banking and 1.5 cents for Internet banking (Nathan 1999; Pyun et al., 2002). On the other hand, the advantages for the customers are significant timesaving, reduced costs in accessing and using the various banking products and services, increased comfort and convenience.

2.1.3 Electronic Banking in Iran

The appearance of electronic banking in Iran goes back to the late 70s when two banks installed the first Automatic Teller Machines (ATM) in Tehran. But because of vast changes in the nation's banking and economic system plus the US embargo on Iran from the 80s, the use of these machines actually was discontinued. Later in early 90s the Iranian banks by slowly upgrading their automation standards once again started installing ATM devices. Gradually with the nationwide growth in Internet connectivity, online networks and protocols, fundamental platforms of online data transmission formed. Thus by defining electronic banking projects across the nation, these banks could take the first steps in developing and expanding the use of electronic payment devices such as Automatic Teller Machines (ATM), electronic cards and Point Of Sales (POS). In recent years, most of Iranian banks have undertaken initiatives towards electronic banking services and officials predict that electronic banking systems will become fully operational by 2007 in Iran (quoted in Iran Daily 2005).

Table 2.1 provides the electronic banking services, which are available in Iranian banks at present.

Table 2.1: Electronic banking services provided by Iranian banks

Bank	Services
Keshavarzi	ATM, Telephone banking, SMS banking, Credit Card, Debit Card, POS
Maskan	ATM, Telephone banking, SMS banking, POS
Mellat	ATM, Telephone banking, SMS banking, Internet banking, Debit card
Melli	ATM, Telephone banking, SMS banking, Internet banking, Debit card, POS
Saderat	ATM, Credit card, Debit Card, Telephone banking, SMS banking, POS
Sepah	ATM, Telephone banking, SMS banking, Debit card
Tejarat	ATM, Telephone banking, SMS banking, Debit card, Prepaid Card
Tose Saderat	ATM, Internet banking, Mobile banking
Karafarin	ATM, Telephone banking, Debit card
Parsian	Telephone banking, SMS banking, Credit Card, Debit Card, POS
Saman	ATM, Telephone banking, Mobile banking, Internet banking, Credit Card, Debit Card, Prepaid Card, POS

Source: electronic banking special issue, June 2005

2.2 Adoption of Electronic Banking

According to Doyle (1998) customers are invariably the best source of ideas. Innovations have commercial value only if they meet the needs of customers better than current products. Innovative customers-those individuals who are at the forefront in buying new products or applying new ideas- are the most valuable sources. Such customers see problems and opportunities well ahead of typical buyers. But before customers can adopt an innovation, they must learn about it. This learning is called the "adoption process" (Rogers, 1995) and consists of five stages as follow:

Awareness. First the individual is exposed to the innovation but lacks complete information about it.

Interest. Next the individual becomes interested in the new idea and seeks additional information about it.

Evaluation. Individual mentally applies the innovation to his present and anticipated future situation, and then decides whether or not to try it.

Trial. The individual makes full use of the innovation

Adoption. The individual decides to continue the full use of the innovation

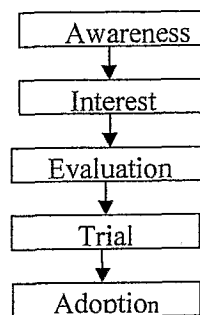


Figure 2.1: Adoption Process

The literature on the adoption of innovation and specifically adoption of electronic banking services can be found in a broad range of academic research. These studies suggest that customers' adoption of electronic banking technologies may be related to a number of factors, some associated with the characteristics of the product or service and others associated with the characteristics of the customers (Lockett and Littler, 1997; Lee,

Lee and Eastwood, 2003; Anguelov, Hilgert, and Hogarth, 2004; Kolodinsky and Hogarth, 2004). In order to derive these characteristics, this study concentrates on Lockett and Littler's presented model (1997) based on diffusion of innovation theory (Rogers, 1995) and personal characteristics (demographic and behavioral characteristics) of the adopters. Since Davis' technology acceptance model (1989) has been proved as a valid and reliable model in explaining information system acceptance and usage (Mathieson, 1991; Davis, 1996) it will be considered in this study, too.

2.2.1 Theory of Diffusion of Innovation

Rogers' (1995) diffusion of innovation theory is a popular model used in explaining user adoption of new technologies. He defines diffusion as "the process by which an innovation is communicated through certain channels over time among the members of a social society". He also defines innovation broadly as "an idea, practice, or object that is perceived as new by an individual or other unit of adoption". An innovation can be described in terms of a number of different perceived attributes. According to the perceived attribute theory of Rogers (1995), potential adopters evaluate an innovation based on innovation attributes such as relative advantage, compatibility, complexity, trialability and observability, which are described as below:

Relative advantage is the degree to which consumers perceive a new product or service as different from and better than its substitutes. Relative advantage is an important factor in determining adoption of new innovations (Tornatzky and Klein, 1982). In general, perceived relative advantage of an innovation is positively related to its rate of adoption (Rogers, 1995). In the case of electronic banking, savings of time, money and convenience have been cited as relative advantages (Abbate, 1999; Snel, 2000).

Compatibility is the extent to which a new product or service is consistent with consumers' needs, beliefs, values, experiences, and habits. Tornatzky and Klein's study (1982) states that an innovation is more likely to be adopted when it is compatible with individuals' job responsibilities and value system. The compatibility of an innovation, based on the perception of the members of a social system, is positively related to its rate of adoption. In the case of electronic banking, we must consider the degree to which a given technology fits in with the banking behavior of a consumer, or the way in which they have historically managed their finances.

Complexity is the extent to which consumers perceive a new innovation as difficult to understand or use. Past research has indicated that an innovation with substantial complexity requires more technical skills and needs greater implementation and operational efforts to increase its chance of adoption (Dickerson and Gentry, 1983). Rogers suggests that the complexity of an innovation, according to the perception of members of a social system, is negatively related to its rate of adoption. For consumers without previous computer experience, or for those that believe that electronic banking is difficult to use, adoption of these innovations may be hindered.

Observability is the extent to which an innovation is visible and communicable to consumers. The observability of an innovation, based on the perception of the members of a social system, is positively related to its rate of adoption. In case of electronic banking for example, seeing ATMs on the street corners may make this technology more observable than telephone banking which is conducted inside one's own home (Kolodinsky et al., 2004).

Trialability refers to the ability of consumers to experiment with a new innovation and evaluate its benefits. Trialability can decrease uncertainty about a new idea and is positively related to the rate of adoption. In case of electronic banking, the extent to which various financial institutions offer electronic banking to their customers impacts on the trialability of the innovation. In addition, consumers who must supply a myriad of personal information before being permitted to use the innovation may be inhibited from adopting a given electronic banking service (Kolodinsky et al., 2004).