

The Adoption of Virtual Banking in China: An Empirical Study

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Abstract: Virtual banking is broadly defined in this paper as the provision of banking services via means other than that of traditional physical branches. Currently, virtual banking exists in the forms of ATM, phone banking, home banking and Internet banking. Understanding people's adoption intention of virtual banking can help financial institutions formulate appropriate marketing strategies for new forms of banking. This paper examines the current trends in the Internet revolution that have set in motion in the Chinese banking sector, and reports on an empirical research carried out in China to study the customers' preference for virtual banking and the factors which they consider influence the adoption of virtual banking.

Key words: information technology virtual banking commercial bank

1. Introduction

Commercial bank is undergoing a rapid change as the international economy expands and advances towards institutional and market competence. A major force behind these developments is information technology. Using IT, a bank can reach out to customers and provide them with not only general information about its services but also the opportunity of performing interactive retail banking transactions. In China, commercial banks have quickly realized the importance of this factor to competitive advantage. Since 1990s, they have continuously innovated through technology-enhanced products and services, such as multifunctional automatic teller machine (ATM), electronic share application, telephone banking, TV banking, electronic transfers, electronic cash cards and Internet-based E-banking.

A virtual bank then can be defined as a "non-branch bank", while the virtual bank is the provider of banking services through electronic media such as ATM, telephone, personal computers and/or Internet. The purpose of this research is to investigate how different virtual banking forms are adopted or perceived in China. The findings of this research may help both the bank managers formulate their marketing strategies to promote virtual banking and the researchers do well in virtual banking studies and virtual organizations in general.

In the next section, we review the relevant literature in the area. Background information on Chinese banking sector is then presented. The following section describes the research methodology, which is then followed by the results from the survey. The paper concludes with a summary, outlining the implications of the findings and the limitations of this study.

2. IT and Commercial Banking

2.1 IT Impact on Banking

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Information Technology (IT) plays a major role in the success of a commercial bank in the highly competitive industry. It influences other successful factors and competitive strategies cannot be practically implemented without its support. Commercial banks are highly information intensive. Their business is heavily dependent on information related to the fund market including suppliers, users and brokers. IT's extension has made the banking industry enter a new era, where an explosion of IT applications has been seen throughout banking services, and the division between front and back-offices has become less relevant as integrated systems increasingly blur the line. Although the IT implementation by the banks was previously directed internally, it has facilitated the introduction of changes in banking, the full effects of which are still being felt. New banking delivery channels have made banking services convenient to customers, and bank customers may now perform their banking transactions at the place and time of their choice. In addition, banks benefit from low operating cost through fewer staff and physical branches.

2.2 Literature Review

While numerous studies have been undertaken to examine issues in the wider context of virtual banking and customer loyalty, comprehensive research in the area of virtual-banking issues and customer preferences in the specific context of China has been rather limited. The study examined the evolution of virtual-banking in China and analyzed the various electronic delivery channels such as automatic teller machine (ATM), telephone-banking and PC-banking, etc. Another recent study investigated the factors that effect the adoption of virtual-banking in China. These studies conclude that although virtual-banking offers new frontiers of opportunities, there are several critical psychological and behavioral issues that need to be addressed in trust, security, reluctance to change and a preference for human interface. This study aims to fill the gap in the literature by focusing on the customer's preferences for virtual-banking in China. Findings of this study will be useful for the banking sector in assessing the impact of information technology and in formulating appropriate strategies for building customers' loyalty thereby enabling them to retain customers.

3. Research Methodology

3.1 Methodology

To determine the customer's preference for virtual-banking, a survey was conducted during the second half of year 2002. A survey instrument was designed to collect data. The instrument itself was a questionnaire loosely based on one previously developed and focused on a list of 27 factors. Respondents were asked to indicate their preference for each of the factors, which they considered as affecting the adoption of virtual-banking. Demographic variables like the age, monthly income, and level of education were sought from the potential respondents to test if there are any significant differences between the Internet and non-Internet users. Retail users of banking services in China participated in the study. The survey instrument was administered through the medium of Internet. The sample was drawn from customers at random in two cities Xi'an and Guangzhou. A total of 300 useable responses were obtained.

3.2 Analysis and Discussion

To investigate if there are any demographic variables that influence the usage of virtual-banking, demographic variables were compared with the virtual-banking and non virtual-banking users. The underlying reason for such an analysis is the belief that the younger generation are more computer savvy and thereby are more likely to adopt virtual-banking; the higher the literacy rate, the more likely are the customers to adopt virtual-banking; the more affluent people are more likely to possess computer and thereby adopt virtual-banking. Based on the selected demographic characteristics, the two groups of banking users (virtual-banking users and conventional banking users) were compared by using t-tests.

Table 1 Demographic Characteristics and Preference for Banking

Demographic characteristics	Ebanking users	Conventional banking users	Significance
Average age	28 years	36 years	0.325
Average monthly income	RMB 3633	RMB 2224	0.006
Percentage of graduates and undergraduates	86.2%	74.6%	0.892

Table 1 provides the results of the analyses. Only one of the demographic characteristics of monthly income is found to be significant. In terms of age, there is no significant difference on comparison between the two groups of users. The percentage of graduates and undergraduates in the two groups are about the same. There is no significant difference between the educational level of respondents and their preference for either convention or virtual-banking.

Factor analysis is performed in order to examine and identify the underlying dimensions of the constructs and its relationships with each other. This analysis is also undertaken to determine whether the data could be condensed or summarized into smaller set of factors or dimensions. The factor analysis results in seven factors, which are appropriately named in line with the factors considered to affect the adoption of virtual-banking and presented together with the factor loading. Table 2 provides an overview of the findings. From an analysis of Table 2, the pertinent factors which seem to affect the adoption of Internet bank are Internet accessibility reluctance to change, cost of computers and Internet access, trust in one's bank, security concerns, convenience and ease of use. It is, however, interesting to note that awareness of virtual-banking products and services do not seem to affect the adoption of virtual-banking services. This may be due to the fact these respondents being Internet users are probably already quite aware of virtual-banking services. Overall, the seven factors account for about 78% of the total variance. Finally, each of the research questions is probed and a variance analysis is undertaken to compare if any variance exists for each of these factors between the virtual-banking and conventional banking users.

Table 2 Factors Affecting Adoption of Electronic Banking

Factors	Rotated factor loading	Percentage of variance
Accessibility		
Internet access	0.809	13.35
Internet connection speed	0.73	
Reluctance		
Willingness to adopt technology enhancement	0.859	12.96
Level of awareness of current trends	0.782	
Attitude towards change	0.617	
Costs		
Cost of computers	0.873	
Cost of Internet connection	0.87	12.86
Trust in one's bank		
Banks reliability in correcting erogenous		
Transactions	0.831	11.08
Trust in the bank to compensate for losses due to security	0.772	
Infringements		
Banks response rate to queries	0.618	
Security concerns		
Clear and understandable instruction	0.888	10.42
Security of Internet transaction	0.677	
Length of Internet experience	0.608	
Convenience		
Time saving	0.911	9.90
Convenient way of doing bank transactions		
Ease of use		
Ease of performing e-banking transaction	0.739	8.38
Ease of navigation in the banks site	0.608	

4. Summary and Implications

Virtual banking so defined has been with us for some time. As ATM and Phone Banking are the most commonly used virtual banking services by the respondents, a more in-depth analysis of the usage pattern is conducted. The same could not be done for home banking and Internet banking because the sample size is too small and hence not representative enough. On average, 11 transactions are performed through ATM in a month by the 104 respondents who are current users of ATM. Nearly half of the users use the ATM to process banking transactions 3-5 times in a month.

This study shows that Internet accessibility, awareness, attitude towards change, computer and Internet access costs, trust in one's bank, security concerns, ease of use and convenience are the major factors affecting the adoption of Internet bank services in China. Overall, the factors identified are in line with findings reported in previous studies mentioned earlier in the paper. Evidence also indicates that there are greater promotional efforts on the part of banks to create greater awareness of virtual-banking and its benefits are important for the success of e-banking services patronage. The level of such promotional activities at present is not surprising considering the fact that virtual-banking is only still in the stage of infancy. The demographic differences between Internet bank users and the non-users are not very evident in this study, particularly with reference to age and educational background. This may be due to the fact that the sample respondents are basically already Internet users and thus they would have some similar characteristics. However, in view of the security concerns and the risk involved in e-banking transactions, the more affluent members of the sample appear to have a greater inclination towards virtual-banking. Furthermore, the fact that 20% of the sample respondents have already adopted e-banking service is encouraging and is indicative of a bright future for virtual-banking in China. However, there are certain limitations in this study. While this exploratory research has revealed some interesting results, readers should be cautious on some of its limitations. Firstly, the online survey method is a limitation to generalize the whole of the Malaysian context. Secondly, sample size is another limitation. Therefore, findings of this study are tentative and need further verification. Further study with a larger representative of all regions is suggested for a rigorous analysis.

Virtual banking as a technological innovation in banking has not been studied rigorously in the perspective of discussion. There are four key elements in the discussion of virtual banking process: the virtual banking, channels of communications, time and people in the social system. The issue of virtual banking adoption is a complex one as adopting a particular technology depends on many factors.

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