European Online Journal of Natural and Social Sciences 2013;
Vol.2, No.3 Special Issue on Accounting and Management.
ISSN 1805-3602
www.european-science.com

The Effects of Electronic banking development on Iranian banks' profitability (2005-2010)

Ahmad Salah Manesh[1], Fatemeh Shah Mohamadi[1], Amir Kiani[2]
[1]Shahid Chamran Ahvaz University, [2]Banking Affair Management, Banking Institute, Tehran
Email: Shamohamadi_fa1363@yahoo.com

Abstract

In this research, it has been attempted to answer what effects electronic banking development has had on Iranian banks' profitability. This research is based on analyzing Iranian Banks activities in Electronic Banking development during several years. Regarding the fact that the most serious actions in the field of e-banking in Iran are installing ATMs, various e-banking services (by telephone, internet, and cell phone), issuing different e-cards (debit card, credit card, purchase/gift card, and e-money), and installing sales terminals and branch terminals, the issue which was pointed out in the present study was the effect of each of the mentioned parameters and equipment on Iranian banks' profitability. The model used in this research is based on the structure-behavior-action hypothesis in which the Return on Assets (ROA) is considered as the dependant variables and the number of cards to ATMs ratio, facilities to the number of branches ratio, Herfindahl- Hirschman Index (HHI), inflammation rate, and both the virtual variables including business and government aspects of banks or their being private and specialized were defined as independent variables. The model estimation was performed through 17 banks data during the years 2005 to 2010 and based on the panel data method. The research results show that number of cards to ATM ratio increase has a positive and meaningful effect on banks profitability. Based on this, it can be concluded that Electronic Banking development has a positive and considerable effect on Iranian banks profitability. Also, the number of loans, and given facilities have positive and meaningful effects on Iranian banks profitability.

Keywords: Electronic Banking tools and services, profitability, structure hypothesis, accomplishment/action

Introduction

Along with international economy development, banks have also made fast changes influenced by technology development that has broken down the geographical borders, have introduced new products, services, and also market opportunities and hence has developed commercial processes based on innovative information. (Michael Tawching, 2001)

Internet systems of e-banking give people the opportunity to do their bank activities easier. Credit cards, e-banking, and e-money are the part of universal economy that is improved in Global Village day by day and digests/dissolves the proponents and opponents of globalization in itself. The incredible expansion of information technology and its development to the world's money and bank markets, has transformed the banks and also has facilitated the rutine matters for customers. The new electronic technology is the cause of improvement in speed, quality, accuracy and diversity in services. Regarding the quick advancements in IT and communications, several countries have electronised their banking system, using this technology. (Hamzeh, 2005)

Increasingly using the advanced IT and communications systems in banking industry and moving towards e-banking, most of the traditional banking activities have been terminated and this

field has been converted to information process industry that its activities are based on new concepts like e-money, ATM machines, sales terminals, etc.

Nowadays, regarding the numerous economic benefits of e-banking systems regarding banks costs decrease and their profitability increase, customers' service quality increase, removing time and location limitations, bank activities and marketing domain development and so on. In most developed countries experienced banks also have developed their activities through electronic systems by developing independent banks or alongside their current activities, besides new banks which have customer services only through electronic communications.

It is essential to have efficient banking systems for e-commerce development in Iran and also for global markets entrance and membership in organizations like the World Trade Organization (WTO) ; therefore, it is important to use IT and communication skills to develop e-banking in Iran's banking system. Although some of the ways for e-banking servicing like ATM machines and debit cards have been used during recent years, but there is a long way to reach the developed countries level in e-banking field (Kehzadi, 2000).

It has been tried to answer this question "What effects does electronic banking development has had on Iranian banks' profitability?" by analyzing Iranian Banks activities in Electronic Banking development during several years. Since the most serious actions in e-banking in Iran are ATM machines installation, various e-banking services (services using telephone, internet, and cell phone), issuing different e-cards (debit card, credit card, purchase/gift card, and e-money), and installing sales terminals and branch terminals, therefore the subject to be studied in this research is the effect of each of the mentioned parameters and equipment on Iranian banks' profitability.

Theoretical basics

Banks financial services methods

These methods are categorized into two groups:

1- **Traditional**: Traditional services include all banking services that are done by human and customers presence at the branch is necessary for its performance.

2- **Modern**: This method of financial services is e-banking which can be performed without customers presence too and includes home banking, telecommute banking, telephone bank, e-banking, ATM machines, sales terminals, etc.

Table 1. Traditional and e-banking properties comparison

Traditional banking	e-banking
- Limited Market - Competition between banks - Limited service - Providing services based on a specific form of branches - Focus on cost - Make money through margin (facilities) - For services in particular (in the stipulated office hours) - Based on the administrative structure and paper-based documents -The use of many human resources	- The unlimited market place - Competing brands - Wide services based on customer needs - Banks rigs equipped with electronic features - Focus on cost and revenue growth - Emphasis on making money through commissions - The clock service - There is a close relationship between the bank -Reducing the use of paper and the amount of manpower due to computer use

Source: Electronic Funds Transfer and Electronic Banking, 1384

E-banking benefits

It is expected that unlimited access to e-banking has an effect on the combination of banks financial services offers and also on the service methods and as a result on the financial performance of these banks. Industry analysis shows that e-banking has a potential effect on the income derived from costs savings, revenue growth, and banks risks (Berger, 2003). E-banking comparison in new and developed markets shows that in developed markets, lower costs and higher incomes are more considerable (Simpson, 2002). The main and most important advantage of e-banking from the customer's viewpoint is time saving due to using automated banks services and customers money management.

Table 2. E-banking advantages for the society, banks, and customers

Customers	Banks	society
Customer satisfaction, allowing easy control of the account balance and circulation, enabling the transfer of money, get rid of the time limit, stop wasting time, increase the quality of services received, using the variety in service, reduced costs, improved liquidity management	Integration of island systems, improve information management, recognition, market, and improve communication with customers, generate more revenue, banking cooperation, including costs related to processing cost, fee structure and branches ...	Accelerating the turnover of Institutions and enterprises, reducing trade costs economical, easy access to financial data, reducing the volume of banknotes in circulation, reduce costs money, take advantage of opportunities to cooperate with other countries in trade, reducing the cost of bill and mailing costs.

Reference: Abasinezhad (2009)

Of course, e-banking advantages can be studied in short term, middle term, and long term points of view. Same level competitions and customer care are some of the advantages of short term (less than one year) e-banking. For middle term (less than 18 months) e-banking advantages are as follows: different channels equalizing, information management, vast variety of customers, customers guide to suitable channels with good properties, and costs decrease. Also, customers guidance towards suitable channels with the desirable properties and lowering costs, dealing process cost saving, services to goal market customers, and also making extra income are some of the long term advantages of e-banking (Kehzadi, 2003).

E-banking disadvantages

With all the advantages of e-banking in the exchange field, that really is one of the means of the greatest evolution in the exchange system. These disadvantages can be summarized as follows:

1. **Security risks:** In the new banking system, people can have acess to others' password and withdraw money from their accounts or generally attack their accounts or invalidate them. This problem is among the main disadvantages of electronic banking.
2. **Lack of some of the special e-banking services:** In today's modern banking system, some special services such as financial advice and investment and possibility to receive cash, check, financial documents or credit cannot be offered.
3. **Unfamiliarity with technology:** Another disadvantage of electronic banking is that many people are unfamiliar with it. Actually it is due to the lack of public education and poor social and cultural backgrounds (Abbasi -Nejad, 2009).

4. Other disadvantages of electronic banking can be hackers access to personal accounts, and lack of broadband and permanent internet in some countries, high costs of e-banking infrastructure and so on.

Profitability

Banks have considered and have started the use of electronic banking services, not only as an innovative way to increase welfare of the client, but also use them as a way to increase profitability and reduce costs (Francesca Arnaboldi and Peter Claeys, 2005).

Nowadays, a growing number of customers who tend to do their banking activities using electronic systems without going to the branches are emerging (Liao and Chang , 2002). Bank customers can use electronic banking services in the right time and at their favorite place. On the other hand, due to reducing the number of employees and also reducing the number of branches, banks are minimizing their operating costs to make more profit (Liao et al, 1999). There are two general methods for measuring the profitability of banks in literature: relative efficiency hypotheses and structure - conduct – performance hypotheses. Relative efficiency hypothesis predicts that since larger banks (in terms of assets) are more efficient than smaller banks, they make more profit due to their higher efficiency (Clarke et al, 1984). Structure - conduct - performance hypotheses focuses on market structure and suggests that a higher degree of market concentration and density, improves and increases the probability of successful performance, ultimately it must be interpreted in higher bank profitability (Evanoff et al, 1988).

Measurement indicators of market structure

The term “concentration” (or focus) is usually used in experimental studies on judgments about the degree of competition and monopoly of market structure in each market. Focus is one of the most important aspects of the market structure and its structure is perhaps the most important variable (Tash, 2003). Market concentration is a situation in which a market or industry is being controlled by a small number of the leading manufacturers who are active in that industry. For measuring the amount of focus, one should deal with the relative size of the firms and market researchers are interested to know how it is distributed among existing firms and how much each has contributed to know every market share. The focus is higher, if the market share and distribution among firms is not fair and is unequal and if all conditions are constant, with the equal and same conditions, the higher the number of firms, the less will be their focus or concentration. So, focus is directly related to the market share being distributed unfairly (I) and is inversely related to the number of firms (n) (Khodadad Kashi, 1998).

$C > F(n, I)$ $C_n < 0$, $C_I > 0$

So, for judgment about the level of competition and monopoly in a market, a rational approach is to consider first the number of active firms in the market and second, how the market (share) should be distributed among them. The lower number of firms as well as a large part of the market owned by a limited number of firms, make the market structure to be closer to a monopoly. Also, the concentration measurement indexes make it possible to summarize the information related to the number of firms and the market share distribution into one number (Tash , 2003). Concentration amount, as measured by a general classification is done by both absolute and relative measures (Bureau of Economic Research, 2005). Table (2-3) classifies the absolute measures of inequality, as well as considering their size.

Pilloff and Rhoades (2002), in their study, entitled "Structure and profitability in banking markets," studied the effect of structural variables such as NORG, MSIZE, MSDIS,and HHI on the variable rate of total assets in 950 to 1500 local markets in Washington for four periods of three different years with views of the structure - conduct - performance evaluation and concluded that the

most consistent and compatible and strongest index is Herfindahl–Hirschman Index and has a significant positive relationship with profit ability (Pillof et al, 2002).

Table 3. Indicators of measuring market structure (absolute measures)

In this approach, the emphasis is on k and the number of large banks, small banks, the leader in the market neglects. K is the number of banks which have entered the desired amount is the sum of market share (Si), k of the largest banks in the market $\sum_{I=1}^{k} S_i =_k$ CR	K bank concentration ratio
This index is named "complete information, because all the information related to all firms in the industry is considered in making this index and is considered the sum of squared market shares of all banks in the industry and the importance of larger banks by assigning greater weight than smaller banks stressed HHI = $\sum_{I=1}^{N} S_i$	Herfindahl index - Hyrshmn (HHI)
This index emphasizes on having the number of banks as a variable in focus index calculations. It describes some of the characteristics and requirements of the market share of each bank that is weighted by its category and also guarantee the absolute number of banks HTI = ½ ($\sum_{I=1}^{N} iS_i - 1$)	HT index
This index shows both the distribution of relative and absolute size of the display is the sum of the relative contribution of leading banks and each bank relative size of the square sum of the product of the relative size of the rest of the industry of weight .CCI = $S_i + \sum_{i=1}^{N} S_i (1 + (1 - S_i))$	CCI
This index, above from The size distribution of banks in the market, is sensitive to α parameter and so to information about changes in concentration as a result of the entry and exit of banks reflects the desired value is. HKI = ($\sum_{I=1}^{N} S_i^{\alpha})^{1/(1-\alpha)}$	HK index
Davis defines the index of inequality according to the number of banks. The index is formed as $I^a\ n^{-1}$. a> 0 and I is an accepted measure of inequality. The change in the ratio of I and n by a flexible display. a is a preferred choice.	index u
The entropy index has biodegradability properties and it can be decomposed into different indices is E = $\sum_{I=1}^{N} S_i \log s_i$	The entropy index

Source: Baker and Hoff, 2002

Shamseddin Hosseini et al (2004), in their study, named "Capital account liberalization and economic reforms required by the banking system in Iran", with the view point of the structure - conduct - performance and structural approach, reviewed the focus situation of the commercial and specialized banks and concluded that the Herfindahl–Hirschman Index value was 1841.20, which demonstrates a high concentration in the industry (Hosseini, 2004).

Research Background

Rezai and Saadi (2010) in their paper entitled "The relationship between market structure and performance of the banking system" studied the variables influence the demand for loans, interest rates, loan, loan rate, loan demand, competitor bank lending rates, and real growth GDP. Also, inflation variables on the profitability of banks in Iran and the oil producing countries (return on total assets, return on equity and net interest margins) were investigated. GMM method and the conventional panel with random effects (the Hausman test) were used to estimate the model.

Variables related to focus and bank monopolization in the studied countries show that in Iran and other countries with high focus index at the time of study, more profit making was not possible. Operating costs and risks for the banking and non-oil producing countries and Iran are positively related to performance indicators and show a negative relationship between oil producing countries and Iran. The relationship between GDP growth and profit margins for both countries and Iran is a significant positive relationship, but the effect of inflation is not statistically significant for non-oil countries and for oil-rich countries is negative and significant. Relationship between market share (assets of the country's three largest banks with total assets of commercial banks in the system) and the profitability index has a positive and significant relationship between the large banks and money market Mslttr were a country, have gotten more profit. Also, the cost and risk indicators have shown a negative relationship with profitability index that reflects the bank's inability to control their costs and pricing changes in services tailored to.

Khalifeh Soltani and Hoseini (2009) in their paper entitled "Challenges, Opportunities and Strategies towards mobile banking development in Iran," have tried to explain Iran’s problems and challenges, and with respect to the obvious and hidden opportunities, provide strategies to solve problems and improve mobile banking system. They have come to the conclution in their research that successful usage of mobile banking will have the following achievements:

1. Possibility of direct contact with customers, without intermediaries, without restrictions of time and place
2. Possibility of attracting more customers
3. Lower personnel costs due to reduced bank customers visiting bank branches
4. Expediting the process of banking and saving time
5. Widespread banking services in the world and the possibility of competing at international level

They also concluded that the success of mobile banking with a wide range of electronic media, including the quality of mobile information technology infrastructure, government support, ordinary people access to the means of communication with superior quality and businessmen low costs regulations financial manpower skilled electronic literacy, adequate and appropriate legislation, protection of personal data and the protection of intellectual property, investment and technology infrastructure, requires financial and spiritual support of banks and mobile services in the field of ideas and opportunities to develop banking phone calls.

Singh, Balwinder & Malhotra (2009) in their study entitled "The impact of electronic banking on performance and risk," tried to influence the performance of e-banking and venture banks in India for the period 2006-1998. Reviews from panel data of 85 commercial banks website (28 domestic banks, 28 private banks and 29 foreign banks) during the period June 2007 show that approximately 57 percent of commercial banks in India offering electronic banking transactions are secure.

Results show significant differences between state banks offering electronic banking and electronic banking and banks which do not do so. In general, electronic databases, efficient, bigger and better operating efficiency ratios compared in different banks show that, the banks that have a

higher quality of e-assessment in terms of construction and equipment costs are better managed. Compared with developed countries, electronic banking in India, generally rely on deposits as a source of traditional financing.

The results of this research using measures of financial performance (return on total assets, return on equity, NPA) and the factors that influence profitability (internet adoption by banks, bank size, equity, debt, demand deposits, savings, and annual inflation. ..) using ordinary least squares method shows no significant relationship between e-banking adoption by banks and their performance being deficient. However, electronic banking has significant negative impacts on the profitability of private sector banks, particularly, new private sector banks.

Singh and Malhotra believe that this negative impact is because of the higher costs of electronic banking operations, including fixed costs and labor costs in the private sector as banks. They also found out that e-banking has a positive effect on bank profitability (return on equity of the share holders) foreign banks (10% error level). On the other hand, the impact of e-banking has a negative and significant effect on risk that shows the acceptance of e-banking has not increased banks' risk profile.

Ceylan et al (2008) have done a research entitled "The impact of electronic banking on the profitability of banks in Turkey". The model used in this study is as follows:

$$Yit = \alpha 0 + ƒtMACROt + \beta iXit + \mu tBANKCRIt + \sigma itINTERNETjit + \varepsilon it$$

Ceylan et al have used three scales for the performance variable (Y): total return on bank assets, return on equity and net interest income scale margin (the difference between interest expense and income) to total assets shows banks. Independent variables in this model are:

MACROt: Turkey matrix of macroeconomic variables in the year t, including the percentage change in real GDP per capita and average lending rates of banks in year t.

Xit: matrix-specific control variables include total bank loans and deposits of banks i and i as a proportion of total banking assets of bank i in year t.

BANKCRI: Turkish banking crisis dummy variable

INTERNET: Virtual Variable Connection Time Bank trade website

The results of the data panel using the mentioned methods show that the variables for online banking acceptance in the year that internet was accepted, don't seem to have any effect on the financial actions of Turkish banks, although the profit decreased significantly a year after that time. Ceylan et al believe that it is because it caused an increase in IT spending that followed the adoption of the new technology being considered. In later years, the gradual process of technology adoption by banks, e-banking, the impact on equity returns would be positive, while no significant effect on the yield of total assets is being sensed. Ceylan has Stated that investment in electronic banking is a gradual process and it has had a positive effect on the activities of the Turkish banking system performance (return on equity) with a two-year hiatus.

Delgado et al (2006) have done a research entitled "Europe's first Internet banks show size and performance amount" among the three groups of chartered banks across 15 European banks (13 Primarily-Internet banks, 335 small banks and 45 conventional banks principally new club) conducted during 1994-2001. In this research, the effect size and level of technology acceptance variables (bank age and bank assets), Real GDP or economic growth, inflation rate, virtual variables allow the minimum capital requirements for European banks and a dummy variable having the influence in the Internet on profitability of the variables are studied. In this study, the following measures are used to evaluate the bank's profitability, Equity over liabilities, return on total assets, return on equity, debt capital, net debt to total assets, net of interest income on profitable assets, non-interest expenses over total assets.

Reviews of the data shows that traditional banks licensed works that lead to cost savings, return on total assets and return on equity is not shown. Also, traditional banks have shown clear evidence of general decline costs of traditional banks licensed. Internet banks, have shown strong evidence of cost efficiency decrease in total assets revenue. Also an increase of 50 percent of the assets has led to 1.85 percent return on assets, resulting in an increase in the bank's total assets. Assets increased 50 percent to 15.3 percent average reduction in overall costs of banks has led to early Internet. While traditional banks licensed to only 0.33 percent of lead is reduced. This means that online banks have to lower their profitability. Traditional banks seem to have the ability to increase lending activities, while Internet banks, does not have higher lending capacities.

Siam (2006) in his article entitled “E-banking services role on Jordan bank profits” showed that shot term E-banking services has a negative effect on Jordan bank profits. This negative effect is derived from banks investment on infrastructures and staff training. But in long term, these services have a positive effect on banks profitability. Hernando and Nieto (2006) in an article entitled "Does Internet acceptance as a one-way function, change banks Performance?" investigated in Spain on 72 commercial banks (traditional Banks without trading websites and Multichannel Banks with trading websites). This research was conducted during 1994 -2002. In this paper, the impact of Internet adoption on profitability variables include total return on assets, return on equity, profit of intermediation margins, securities brokerage commission income, and other incomes have been investigated.

The results show that using the generalized least squares acceptance of the Internet has led to increased profitability (return on total assets, return on equity) of multichannel banks than traditional banks. Also, the impact of the Internet on the adoption of Internet banking is a gradual process which involves a gradual reduction in overall costs (particularly staff costs, marketing and the Internet). Reducing costs means an increase in profitability of the banks. If that works for over a year and a half later, after three years, return on total assets and return on equity appears. Internet adoption has a positive effect on profitability (return on equity of 8.5%, 2% return on total assets) of the multichannel banks, three years after the adoption of the Internet. In connection with the profit margins of intermediation and securities brokerage commission, competition between multichannel banks and traditional banks is not significant.

Hasan et al (2005) investigated the performance of commercial multichannel banks against Italian traditional banks. They concluded that the performance of e-banking operations (ROAA, ROAE) is positive and gradually reduces costs. This cost decrease, increases ROAA a year and a half later, and ROEA three years later.

Kozak (2005) in his paper entitled "The role of information technology in improving profitability and cost efficiency in the banking sectors' development of IT on profitability and cost efficiency of the banking industry in America. The results showed that the technology benefits all U.S. banks over the period 2003-1992 (with a correlation coefficient of 75%) has a positive effect, the cost of IT application and database performance, negative (0.9% -) exists. Change in total return on assets that banks are better able to make more profits (0.15% +) than in non-interest expenses decreased by (0.13%) - is greater. Positive relationship between IT performance and profitability of both banks and saving cost.

Forrest et al (2002) in a comprehensive study entitled "Electronic Banking" in a statistical model to evaluate the impact of electronic banking on the profitability of banks in United States. They explained why the bank officially adopted e-banking and e-services distinction was between their products? Forrest and colleagues found that bank profitability is heavily dependent on

electronic banking. Large banks based in the city center for a larger share of the market to get more profit from the dominant e-services as a trade policy used.

Sullivan (2000) 1618 survey of U.S. banks in the first quarter of 2000 showed that the profitability of banks and non-bank e-mail to the same level of profitability.

Egeland et al (1998) study of U.S. banks in the period 8983 to 1998 showed no evidence of a difference in the performance of electronic and non-electronic databases have not seen. Holden and Albnany (1998) in their study titled "Investment in IT systems and other features of bank profitability in Great Britain" examines the impact of IT investments on the profitability of large banks in Great Britain during the period 1976 to 1996 began. In this study, the hypothesis that the structure - conduct - performance is used to determine the profitability of banks. Holden and Albnany variable as the bank's profitability was the percentage change in after-tax rate of return on total assets is, they affect 1 - Variables market (market concentration, market size, market size, growth rate), 2 - Bank of variables (size Bank's share in the bank's market risk), 3 - IT variables (number of ATMs, virtual member variables of the network ATMs) on the profitability of banks.

History of Electronic Banking in Iran

Electronic banking activities in Iran's history dates back to 1971. At the time, Tehran banks took between 7 to 10 ATM with its subsidiaries and the payment of money was only possible at the branch installed automatically. Banks in the late 1360's started to use computers and because of the need for automation of banking operations, the bank paid off the computer. In the same year, the central bank, as part of the Information Services Project Comprehensive Informatics banking system was established.

Iran in 1992 and in 1993 became a member of the SWIFT network center in 1992 and 1993 and was connected to the network.

All hardware and software on 13 August 2002 at the central office was accelerated and the company's Information Services and the National Informatics Disclaimer. Specialized banks (Agricultural Development and Export) and a commercial bank (exports) in the initial pilot project were present. Grab the link between these three bank ATMs was born, was designed in two stages. Acceleration member banks and private banks in order to accelerate revenue in 2003 to join the network, was carried out.

Table 3 indicates the date of banks membership in the acceleration network.

Accelerated Payment Systems Administration Center is under the direction of the payment systems unit and after purchase until noon the following items related to bank card transactions, amounts related to the settlement of interbank settlement in Satna (central bank). Satna system has been stablished since December 2006 to cover interbank electronic transfers launched from August 2007 to another Exchange Bank customers. Bank customers can use the facilities without paying Satna without limitation costs and fees : funds are transferred from one bank account to another account at a bank transfer. Satna transfers shall be credited to the destination account sooner than the end of the working hours and using Satna is a good alternative for all types of checks, interbank encrypted , and the bill of traveler 's checks.

The barter system development projects will require a comprehensive system of electronic payments (steady state), an electronic securities settlement systems (Taba) , public key infrastructure and electronic signature to be operational in 2009 (Central Bank). Nowadays, most Iranian banks are directly promoting their e -banking initiatives. With SIBA neing introduced in Melli Bank , Commerce Bank, with SGB, BSI sphere scheme , this scheme , along with the welfare banks , Agricultural Bank, with Seal , banks and private banks , Mellat bank with

Jaam plan, also 24-hour banking plan being performed seperately, electronic banking , and the like are being experienced in the areas under control.

Table 3. Date of banks membership in the acceleration network

Website	Related section	Membership date	Bank name
www.bank-en.com	IT	June 2005	Eghtesad novin
www.parsian-bank.com	Tejarat electronic parsian	Nov 2004	Parsian
www.postbank.ir	IT	March 2004	Post bank
www.tejarat-bank.com	Card services	January 2004	Tejarat
www.edbi-iran.com	Card services	December 2002	Tose e saderat
www.bankrefah.ir	New services	April 2005	REfah kargaran
www.sb24.com	Technology and development	December 2003	Saman
www.banksepah.ir	Electronic calculations	March 2004	Sepah
www.saderbank.com	Card services	August 2002	Saderat
www.BIM.ir	Systems development department	April 2004	Sanat o madan
www.karafarinbank.com	Informatics	June 2004	Karafarin
www.agri-bank.com	Card services	August 2002	Keshavarzi
www.bank-maskan.org	Computing Machinery	June 2005	Maskan
www.bankmellat.ir	New services	December 2004	Mellat
www.bmi.ir	Department of Informatics	May 2004	Melli

Reference: Hasani, 2006

Model used in the study

Review of the literature on bank profitability shows that the functional form of profitability analysis is the linear form . Short and Brock studied several functional forms and found that the results of the linear model due to its simplicity is as good as any other functional form (Short, 1989). In support of this linear form, Williams Molyneux , Phil and Thornton, in their studies on bank profitability , studied and analyzed the linear model and they also reached the same results as above (Williams et al, 1994). Bank profitability is a linear function as follows:

$Y\ t = \beta 0 + \Sigma ni = 1\ \alpha i\ Dit + \Sigma kk = 1\ \beta k\ xkt + \varepsilon t$

Y = the dependent variable is a measure of bank profitability.

D = dummy variable
n = number of dummy variables
X = the independent variables that affect bank profitability.
k = number of independent variables
ε = the error sentence
i = Bank being studied
t = year of study

For analysis , we used the results of econometric software e-views . The reason for this approach is the low number of years and the low number of data. We estimated the log, semi-log, and simple linear regression models to achieve the final model. The prototype which is intended to assess the impact of electronic banking on the profitability of banks is as follows: $ROA = \beta 0 + \beta 1\ TAPP + \beta 2\ CA + \beta 3\ CONS + \beta 4\ TD + \beta 5\ SAHAM + \beta 6\ TSH + \beta 7\ IMC + \alpha 1\ P + \alpha 2\ D12 + \alpha 3\ Di$

Dependent variable:
ROA: return on total assets
Independent variables:

TAPP: This variable represents the total number of electronic banking transaction machines (ATM + sale + terminal branches) to the total number of machines (ATM + sale + terminal branches) is obtained at the end of each year , in the sense that use of the devices in the year.
CA: This variable represents the total number of cards (debit, credit, shopping, gifts, electronic money), the number of ATMs at the end of each year. Words indicate that the annual per ATM card number in there.

CONS: the number of customers in a variety of electronic banking services (telephone, Internet, mobile) at the end of each year is used for this variable.
TD: This variable is defined as the ratio of loans to total assets and facilities at the end of each year.

SAHAM: capital and reserves and reserves and adjustments to show annual profits (equity) at the end of each year of this variable is used.

TSH: This variable represents the number of loans and facilities granted to the subsidiaries at the end of each year.

IMC: Herfindahl – Hyrshmn index

P: (rate of inflation) annual percentage change in the retail price index (consumer)
D12: dummy variable for being both commercial and public or private banks and specialized banks; it so that both businesses and the government are considered one and the rest zero.
Di: dummy variable for changing years: 2005 is set as the basis and three years of virtual variables are defined; for example, for the variable D1 : 2006 is set to be number one and other years are zero. For variable D2 : 2007 is set to be number one and other years are zero and as we consider the variable D3, 2008 is set to be number one and the rest of the years are zero.

Model estimation

Electronic banking services and a variety of different models with different variables, variables related to the balance sheet and profit and loss and logarithmic and semi- logarithmic models were used, but the coefficients were not significant and R2 and F were very low and were excluded. The initial model was estimated to assess the impact of e- banking on banks' profitability using panel data and is described in the following table:

As the results in Table (4) show, the number of ATM cards (CA) and a variable number of loans and facilities granted to subsidiaries (TSH) has a significant and positive effect on the profitability of banks. Variables TAPP, CONS have no significant effect on bank profitability,

although the coefficient is positive and increasing their profitability increases. Variable TD, SAHAM, IMC, P, and commercial and state banks, the dummy variable (D12) and changes in the virtual variables are meaningless. The coefficient of determination (goodness of fit) is equal to 84 percent. Since the period examined in this study is too short (4 months) reliability tests can usually be performed, the description and discussion of the regression model variables related to unsustainability have ruled out. The above model is based on distributed Normalty test (Jarque-bera statistic) is normal. The models in Table 4, variables TAPP, CONS, TD and SAHAM were excluded from the model because they were not statistically significant. By re-estimating the model with the results shown in Table (5) we found:

Table 4. Primary model estimation.

Probability	Statistic t	Coefficient	Discriptional variations
0.23	1.20	2.04	Constant value
0.46	0.72	0.003	TAPP
0.00	12.84	0.004	CA
0.67	0.98	0.002	CONS
0.47	-0.90	-0.05	TD
0.19	-1.30	-0.004	SAHAM
0.05	2.07	0.02	TSH
0.10	1.37	23.58	IMC
0.31	-0.72	-0.21	P
0.14	-1.54	-1.03	D12
0.62	-0.38	-0.20	D1
0.90	-0.11	-0.12	D2
0.69	0.39	0.78	D3
	84% %82 1.87 16.59		R2 $\bar{R}^2$ DW F

Table 5. Model estimation

Probability	Statistic t	Coefficient	Descriptive variations
0.43	0.68	1.19	Constant value
0.00	14.48	0.004	CA
0.03	2.01	0.02	TSH
0.28	1.07	22.57	IMC
0.77	-0.26	-0.03	P
0.03	-2.14	-1.07	D12
0.37	-0.98	-0.53	D1
0.36	-0.54	-0.79	D2
0.74	0.28	-0.58	D3
	%83 %82 1.93 37.24		R^2 $\bar{\mathbf{R}}^{\mathbf{2}}$ DW F

Commercial and state banks as well as a dummy variable have a significant negative impact. Dummy variable is the change in meaning. The focus index, despite being of no sense, has a positive impact on profitability. The Watson camera is also improved with F statistic. Distribution model based on Normality test (test Jarg - to) is normal.

Conclusions

The following results can be drawn from this study:

An increase in bank ATM card would be more profitable and the following reasons can be mentioned:

- Increasing cards issued by banks
- Reducing the cost of banking operations
- Reducing in branch operations and an increase in non-branch operations.
- Restricting bank working hours
- Avoiding wasting time bank employees
- Reducing banking Personnel expenses due to reduced customer visiting bank branches
- Expediting and banking processes and save time
- Allowing customers to use a bank ATM machines, banks, ATM machines and other members of the network, which lead to an increase in the efficiency of the banking system
- Specifying required standards in relation to the network of member banks with ATM machines with an increasing number of bank cards issued

It is observed in the study period that the profitability index is similar to the ATM card. The main source of income for banks, dividends paid on the loans and facilities. They are more efficient means of granting loans. The coefficient of the variable as a variable in determining internal TSH is positive and significant.

With the increasing market concentration, bank profitability has not changed. The positive coefficient indicates that increasing the concentration increases the profitability of banks. This can cause a positive factor in the creation of a monopoly position in the market looking for increasing as the focus.

It is likely that the costs to the bank faster than revenues, so that the negative effects of inflation on bank profitability as well tell it is profitability, which is negatively related to P.

The relationship between business and government as well as variable determines whether or not a foreign bank profitability is negative and significant. The reason may be due to the increasing demands of both commercial and state banks in deferred revenue during the period can be reduced.

Given the insignificant coefficient TAPP, assumptions on the number of cards issued by the bank on bank profitability is affected, the number of terminal devices sold on the profitability of banks and the number of devices on the terminal branches of the bank's profitability, are rejected. Also, the coefficient is insignificant CONS, the hypothesis on the number of customer service, telephone banking, internet banking and mobile banking is on the profitability of the bank is failing. barriers and restrictions, increase the profitability of banks in the country with the main hypothesis of the research (the development of e-banking on banks' profitability is effective) confirms.

This study offers an ATM card as well as the positive impact of a positive factor variables TAPP, CONS are as follows:

- Establishing agreements between banks and firms and legal departments to open cards and related services.

- Creation of banking services through ATMs only in the sense that the use of these devices in order to receive funds, and the balance is not paid bills. ATMs have been designed to meet the

needs of today. To receive cash. It is suggested that the necessary steps be taken to address this problem.

- Identify various incentives to the users of electronic banking services, such as offering special discounts, free bill pay, classification of financial transactions and financial walks daily, monthly and yearly.

References

Abbasi, H. & Mina, M. (2009). Electronic Banking, Second Edition.

Arnaboldi , F . & Claeys , P . (2005). Internet Banking in Europe: A comparative analysis.

Berger, A. N. (2003) . The economic effects of technological progress: Evidence from the banking industry. Journal of Money, Credit and Banking, 35(2),141-76.

Bikker, J. & Haaf, K . (2002) . Measures of competition and concentration in the banking industry: A review of the literature , Economic & Financial Modeling, 2, 4-17.

Bureau of Economic Research (2009). Structure (measured concentration) of the banking industry and the social costs of monopoly.

Bureau of Economic Research. (2005). Theoretical and experimental bases of competition law countries, Ministry of Commerce, Department of Planning and Economic Affairs.

Clarke, R., Davies , S. & Waterson , M . (1984). The profitability-concentration relation:market power or efficiency?, Journal Of Industrial Economics, 32/4, 435-450.

Delgado, J. Hernando, I. & Nieto, M. J. (2006). Do european primarily internet banks show scale and experience efficiencies?, European Financial Management, (forthcoming).

Department of Commerce (2005). Electronic funds transfer and electronic banking, Department of Planning and Economic Affairs, Tehran.

Dezhpasand, F. (2004). National Report of e-commerce in 2004", Office of e-commerce development.

Dezhpasand, F. (2005). Electronic funds transfer and electronic banking, study commissioned by the Department of Planning and Economic Affairs, Ministry of Commerce, Fifth Edition, published Sizan, Tehran.

Evanoff, D. & Fortier, L. (1988). Re-evaluation of the Structure-Conduct-Performance Paradigm in Banking, Journal of Financial Service Research, 1, 277-294

Farrell , M.J . (1957). The measurement of productive, Journal of Royal Statistical Society, 120 (3), 253-281 .

Furst, K.L., Nolle, K. & Robertson, D. (1998). Banking over the Internet , Quarterly Journal of Office of Comptroller of the Currency, 17(4).

Goudarzi, A. & Haider, Z. (2007). The effects of electronic banking on the profitability of commercial banks in Iran, Iranian Journal of Economic Letter, 1(35), 140-111.

Hamza, A. (2007). Investigating and identifying barriers to the development of e-banking (banking facilities) at city banks, M.A thesis, Isfahan University.

Hasan I., Zazzara, C., & Ciciretti R. (2005). Internet , innovation and performance of banks : Italian experience , unpublished manuscript.

Hernando, I., & María J. N. (2006). Is the internet delivery channel changing banks performance? The case of Spanish banks, Documentos de Trabajo. 624 ,

Holden , K., & El-Bannany , M . (1998). Investment in information technology systems and other determinants of bank , profitability in the UK, Retrieved from http://www.clicktoconvert.com.

Holland, C.P. & J.B. Westwood . (2001) . Product-Market and Technology Strategies in Banking, Communications of the ACM, 44(5), 53-57.

Hosseini, A.R., & Shamseddin, S. (2005). Iran and the factors affecting the estimation performance of Banks, Economic Research Letter,155-127.

Hosseini, S. M., Syed Nasir, S., & Khalifeh Soltani (2009). Challenges, Opportunities and Strategies towards mobile banking development in Iran.

Hosseini, Sh.D., et al (2004). Capital account liberalization and economic reforms required by the banking system in Iran. Economic Studies and Planning Department of the Ministry of Commerce, Economic Reviews.

Javadin, R. & Sqtchy, M. (2006). The evolution of e-banking in Iran, Journal of prudence. 170,

Khodadad Kashi, F. (1998). Market structure and function theory and its applications in industry, Institute for Trade Studies and Research.

Kohzad, N. (1990). Transition from traditional banking to electronic banking.

Kohzad, N. (2001). Electronic banking prerequisites, limitations, and implemented it in Iran (Part I), Peak Development, 27, Summer.

Kohzad, N. (2003). Electronic banking situation in Iran and the World, Conference on Electronic Commerce, First International Conference on e-banking in Iran Export Development Bank of Iran.

Kohzad, N., Edalat, I., & Dehnavi, A. (2005). Mobile banking business in the world and Iran, Proceedings of the Third National Conference on Electronic Commerce, Tehran.

Kozak, S. J . (2005). The role of information technology in the profit and cost efficiency improvements of the banking sector, Journal of Academy of Business and Economics,

Liao , Sh, Pushao , Y., Wang , H., & Chen , A . (1999) . The adoption of virtual banking : An empirical study , International Journal of Information Management ,19, 63-74 .

Pilloff .S., & Rhoades .S . (2002) . Structure and Profitability in Banking Market , Review of Industrial Organization, 20, 81-97.

Tash, Mohamad (2003). Market structure and its impact on current earnings of non-oil exports of Iran, MSc thesis Tehran University.

Rezaei, R. , & Saadi, M.E. (2010). The relationship between market structure and the banking system: the experience of selected countries, Twentieth Annual Conference on monetary and foreign exchange policies: credit policies and requirements of the banking system in May.

Short , B. K . (1989) . The relationship between commercial banks profit rates and banking concentration in Canada , Western Europe and Japan. Journal of Banking and Finance , 3(3), 209-219 .

Siam , A. Z . (2006). Role of the Electronic Banking Services on the Profits of Jordanian Banks, American Journal of Applied Sciences, 3 (9), 1999-2004.

Simpson , J. (2002) . The Impact of the Internet in Banking: Observations and Evidence from Developed and Emerging Markets. Telematics and Informatics, 19, 315-330.

Singh , B. & Malhotra, P . (2009). The Impact of Internet Banking on Bank Performance and Risk: The Indian Experience , Eurasian Journal of Business and Economics, 2 (4) , 43-62.

Sullivan, R. J. (2000) . How Has the adoption of internet banking affected performance and risk at banks? A look at internet banking in the tenth federal reserve district, Financial Industry Perspectives, Federal Reserve Bank of Kansas City, December, pp. 1-16.

Williams , D . Lioyd , M . Molyneux , P., & Thornton, B. (1994) . Market structure and performance in Spanish banking . Journal of Banking and Finance , 18(3) , 433-443 .