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ELECTRONIC BANKING USAGE IN ALBANIA: A STATISTICAL ANALYSIS

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ABSTRACT

The technological advancement has enhanced delivery of banks' services, and has an enormous effect on development of more flexible payments methods and more user-friendly banking services. Commercial banks in Albania to be competitive have started to offer electronic banking services. The aim of this paper is to study the usage of electronic banking services by individual clients of banks in Albania. The objectives of this research are: to identify the electronic banking services that banks' clients use, to identify the factors that influence the use of e-banking services, and to assess the influence of demographic characteristics of clients on electronic services usage. The target population was comprised by individuals that have a bank account. The results of descriptive analysis indicated that the most used electronic banking service was Automated Teller Machine. Unawareness of e-banking services and products was one of the factors that the respondents agreed that influence their adoption and use of e-banking services. The results of chi-squared test indicated that education and monthly income were significantly related to the use of electronic banking services. The results of logistic regression indicated that clients with high education level were more likely to use the electronic banking services. The findings of this study provide useful information for planning electronic banking promotion strategies.

KEYWORDS: Commercial Bank, Electronic Banking Channel, Cronbach's Alpha, Chi-Square Test, Logistic Regression

INTRODUCTION

The banking industry has undergone significant operational changes over the last decade, thanks to advances in information technology. Commercial banking is undergoing a rapid change as the international economy expands and advances towards institutional and market competence as a result of the advancement of information technology. The technological advancement has produced more effective and efficient channels to deliver banking services. One of the offspring of information technology in banking operations is electronic banking (e-banking).

E-banking has been defined as providing banks' customers with banking services through a variety of tools except the banks' branches. E-banking services are being offered through electronic delivery channels in three forms: ATM (Automated Teller Machine), phone banking, and internet banking (Mashhadi et al, 2007). According to Mishra and Kiranmai (2009), E-banking services fall into these types: ATM; Electronic payments through Credit cards, Debit cards, and Electronic fund transfer; phone banking, mobile banking, internet banking. The technology allows banks to get closer to their customers, to deliver a wider range of services at lower costs, and offer 24-hour banking support to customers.

Commercial banks in Albania have recognized that the internet has tremendous potential for creating business opportunities and have started to offer e-banking services. In their study, Sevrani and Gorica (2011) found that 33% of banks in Albania responded that the main obstacles faced by clients were: the low level of transparency about the

e-banking service and for 22% of banks the lack of security they offer. Whereas the banks' difficulties in using e-banking service, for the most of banks in Albania the main obstacle was the inefficient telecommunications infrastructure and for some of the banks was the difficulty in determining the potential users of e-banking. In another study, Teliti and Mersini (2012) for ten banks operating in Albania offering e-banking services found that 50% of these banks offer e-banking to gain competitive advantage, 40% of them to offer e-banking due to some pre-planned objectives and only 10% of them offer e-banking because of customers' demand.

At the end 2013, out of 16 commercial banks operating in Albania, 14 are offering e-banking services. E-banking services offered by banks include: ATM, EPOS (Electronic Point of Sale), Internet Banking, Phone Banking, Mobile/SMS banking, Electronic (debit/credit) Cards. The number of ATM and POS terminals is increased from 93 and 155 at 2004 to 822 and 5,668 respectively in 2013. Number of cards in circulation is increased, from 806 in 2004 to 64,432 credit cards in 2013 and from 33,288 debit cards in 2004 to 741,128 debit cards to 2013. (Central Bank of Albania: Annual Supervision Reports, 2013).

The main objectives of this paper are to identify the e-banking services that commercial banks in Albania are offering to their customers, the e-banking services that are used from the bank's clients and the frequency of e-banking use, to identify the factors that influence the clients' adoption and use of e-banking services and to assess the influence of clients' demographic characteristics on electronic services usage.

LITERATURE REVIEW

E-banking is considered to be a vital channel of distributing bank's services. In many ways, e-banking is like traditional payment, inquiry, and information processing system, differing only in that e-banking utilizes electronic means to deliver these services (Dixit and Datta, 2010). From the use of E-banking get benefits both banks and its customers. E-banking has enabled banks: to lower operational costs through the reduction of physical facilities and staffing resources required, to reduce waiting times in branches resulting in potential increase in sales performance and a larger global reach, to increase the customer base, to increase marketing and communication possibilities, mass customization and to develop non-core businesses. Also, e-banking allows customers to perform a wide range of banking transactions electronically anytime and anywhere, customers no longer are confined to the opening hours of banks, travel and waiting times are no longer necessary, and access of information regarding banking services are easily available.

Wan et al (2005) investigated factors that influenced customers' adoption of four major banking channels: Branch banking, ATM, Telephone banking, and Internet banking. They found that ATM was the most frequently adopted channel, followed by internet banking, and telephone banking was the least frequently adopted channel. Devi and Malarvizhi (2010) in their study, which investigated customers' perception of e-banking, found that ATM is more popular and most cost effective. Their findings reveal that customers were experiencing technical problems and formalities and less social relation with banks. In their study, Mohamed and Mohammed (2012) found that among all e-banking channels, ATM is the most popular channel. Moreover, the study identified eleven factors that affect the adoption of e-banking: frequent breakdown of ATMs, inconvenient locations of ATMs and EPOS, inaccessible internet, lack of means reporting technical problems, unclear legislations protecting e-transactions, slow banks response for correcting erroneous transactions, weak banks' role in raising clients awareness, unclear e-banking guidelines and instructions, frequent power cut offs, and high e-banking services' fees.

Most of the studies related to influence of factors that impact the adoption and use of e-banking services consider also demographic characteristics of individual clients of the banks. According to Poon (2008), age, education level, computer skills and internet access at home/office were significantly related to usage of e-banking services. Sohain and Shanmugham (2003) did not found significant impact of age and education in use of e-banking, whereas significant impact was found to have the monthly income. In the study of Nasri (2011) resulted that education level and profession were significant factors impacting the adoption of Internet banking by the clients, whereas age and gender were not significant. According to the research of Izogo *et al*. (2012), gender, religion and income influenced the usage of e-banking, while marital status, age and education level were statistically significant. Also, Mohamed and Mohemmed (2012) found that the usage of e-banking services was related to the client' income, the type of bank account, and computer skills level and internet usage. However, their results not indicated enough evidence of significant impact of age, marital status, education level and profession.

RESEARCH METHODOLOGY

The population of the study consisted of Albanian individuals with age 18 years or more who have a bank account and use banking services. Data collection was conducted based on a self-administered questionnaire. In total, 250 questionnaires were randomly distributed to individuals who use banking service. Only 122 questionnaires were returned and were useful for the data analysis, representing a 48.8% response rate. The questionnaire included questions about: respondents' demographic profile; time using computer and internet; computer and internet literacy; time using banks services and e-banking services; the frequency of use of these services; and possible factors influencing the adoption and use of e-banking services.

The 17 items comprising the factors influencing the adoption and the use of e-banking services were adopted from the study of Mohamed and Mohammed (2012). All the items were measured on a five-point Likert scale, ranging from 'strongly disagree' to 'strongly agree'. A higher mean score on an item indicates greater level of agreement. The Cronbach's alpha coefficient was calculated for all items to ensure that the items comprising factors produced a reliable scale. According to Hair et al (2009), reliability less than 0.6 are generally considered to be poor, those in a range of 0.7 to be acceptable and those over 0.8 to be good. One sample mean comparison t-test was also conducted to determine whether the mean score of each item was significantly higher than 3. The p-value for each item less or equal to 0.05 indicates that the respondents agreed that the factor influence the adoption and use of e-banking services.

To analyze the relationships between demographic variables and the usage of e-banking services firstly was used the chi-square test of independence and then, to assess the simultaneous influence of all demographic variables on the usage of e-banking services, binary logistic regression was used. A respondent was considered a user of e-banking services when he/she used at least once a month at least one of e-banking services.

The chi-square test of independence was used to test the independence of the two categorical variables (that is, there is no relationship between them). The test statistics is:

$$\chi^2 = \sum_{i=1}^{n}\sum_{j=1}^{m}\frac{(f_{ij} - p_{ij})^2}{p_{ij}}$$

where: n indicates the number of columns and m the number of rows of the contingency table; f_{ij} are observed

frequencies in the *ij* cell of the *n* x *m* contingency table, whereas p_{ij} are expected frequencies in the *ij* cell if the null hypothesis of independence was true. The test statistics approximately follows a chi-square distribution with degree of freedom equal to (*n*-1)(*m*-1). The null hypothesis is rejected at the level of significance 5%, if p-value < 5%.

A logistic regression model with a dichotomous response of use or not use was modelled. For the analysis, the response was coded as 1 or 0, respectively. Logistic regression is recommended over linear regression when modelling dichotomous responses and allows the researcher to estimate probabilities of the response occurring (Hosmer dhe Lemeshow, 2004). The logistic regression equation takes the following form

$$\ln\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k$$

Where *p* is the estimated probability that the customer to use the electronic cards, and x_1, x_2, ..., x_k are independent variables of the model.

The estimated probability of the response occurring (*p*) divided by the probability of it not occurring (1-p) is called the odds ratio. Maximum likelihood method is used to estimate the odds ratios of the model. Values of odds ratios higher than 1 indicate positive association between the variables, odds ratios equal to 1 indicate no association, while odds ratios lower than 1 indicate negative association between each independent variable and the dependent variable of the model.

STATA12 was used to conduct the descriptive analysis, reliability analysis, one-sample mean comparison t-test and logistic regression analysis.

FINDINGS AND DISCUSSIONS

The respondents were from Tirana (67%), Durres (13%), Korca (10%) and Vlora (10%). About 83% of them live in urban area, 51% were male, 50% were married and 49% were between 18 and 28 years old. Most of the respondents (29.5%) have completed university, and 26.2% have completed master's degree. Majority of the respondents (54%) were professional employees, 22% were simple workers and 13% students. Around 47% of the respondents had monthly income between ALL 30,000 and 60,000.

The majority of the respondents for at least 6 years have been using computer (56.5%), internet (44.3%), and banking services (41.8%). Also, around 33% of the respondents have been using e-banking services for 1 to 3 years and 31% from 3 to 6 years (Figure 1).

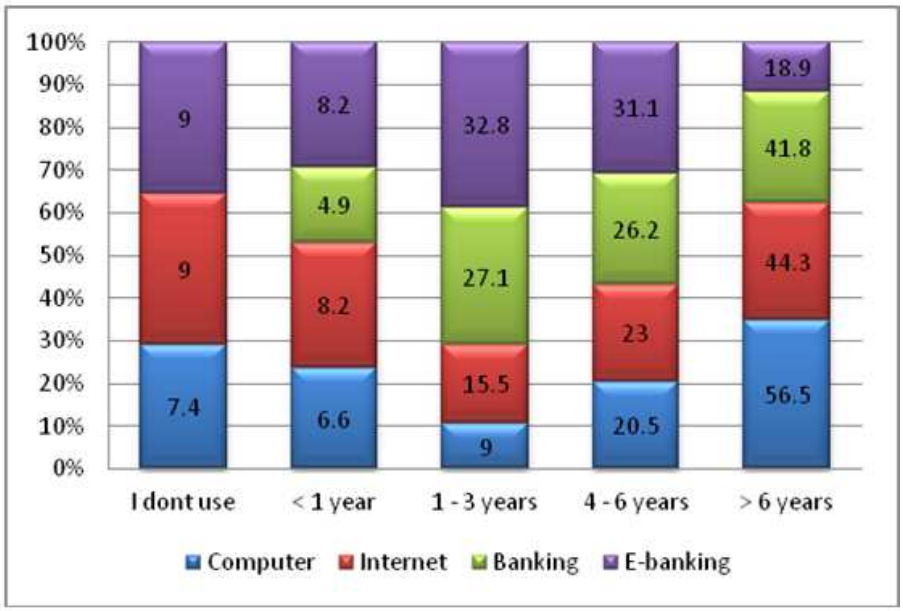

Figure 1: Time Using Computer, Internet, Banking Services and E-Banking Services

Related to the frequency of e-banking use, 45% of the respondents declared that they use e-banking services at least once a month, 28% once a week and 23 % less frequently (n = 111).

Among all e-banking services offered from banks, ATM was used by majority of the respondents (88%), followed by electronic credit/debit cards (33%), internet banking (27%) and POS (4%). The high level of usage of ATMs compared with other channels is supported by the literature (Wan *et al*., 2005; Devi dhe Malarvizhi, 2010; Mohamed dhe Mohammed, 2012; Izogo *et al*., 2012).

Table 1: The Usage of E-Banking Services

E-Banking Service	Frequency	Percentage
ATM	108	88.5
EPOS	5	4.1
Phone Banking	0	0.0
Mobile Banking	3	2.5
SMS Banking	4	3.3
Internet Banking	34	27.9
Electronic (credit/debit)cards	39	32.0

Note: Some of the clients use more than one service (n = 122)

The results indicated that mean scores of the responses of the respondents for 17 items measuring the factors influencing the use of e-banking services ranged between 2.4 and 3.56. The Cronbach's alpha value for each of the items was higher than 0.75, higher than the general accepted limit 0.7 (Hair et al, 2009). The result of one sample mean comparison t-test indicated that items representing factors that influence the adoption and use of e-banking services (items with mean score greater or equal to 3 and p-value < 0.05) were: bank's role in raising its clients' awareness in weak, unawareness of e-banking products and services, no direct means to report technical problems, unclear e-banking guidelines and instructions, e-banking services do not meet all client's needs, high e-banking services' fees and slow response for correcting erroneous transactions (Table 2).

Table 2: Factors Influencing the Adoption and the Use of E-Banking Services

Item	Mean	St.dev	One sample t-test (Ha: mean > 3)	
			t-value	p-value
Bank's role in raising its clients awareness in weak	3.56	0.91	6.77	0.000
Unawareness of e-banking products and services	3.52	0.89	6.38	0.000
No direct means to report technical problems	3.25	0.91	3.07	0.001
Unclear for e-banking guidelines and instructions	3.24	0.92	2.86	0.002
E-banking services do not meet all client's needs	3.22	1.05	2.33	0.011
High e-banking services' fees	3.19	0.97	2.14	0.034
Inconvenient locations of EPOS	3.16	0.08	0.37	0.355
Slow response for correcting erroneous transactions	3.16	0.88	2.05	0.021
E-banking is risky	3.00	0.84	0.00	0.050
Inaccessible internet	2.92	0.95	-0.94	0.826
Inconvenient locations of ATMs	2.90	1.05	-1.03	0.847
Lack of computer skills	2.89	1.00	-1.17	0.878
Frequent errors of e-banking transactions	2.82	0.76	-2.62	0.995
Unreliability of ATMs	2.80	1.08	-2.01	0.976
No privacy and confidentiality	2.77	0.96	-2.64	0.995
Frequent breakdown of ATMs	2.73	1.03	-2.88	0.977
No advantages for e-transactions over traditional transactions	2.40	0.95	-6.89	1.000

Items that according to respondents not represented factors that influence adoption and use of e-banking services (items with mean score less than or equal 3 and p value > 0.05) were: no advantages for e-transactions over traditional transactions, frequent breakdown of ATMs, lack of privacy and confidentiality, unreliability of ATMs, frequent errors of e-banking transactions, lack of computer skills, inconvenient locations of ATMs and inaccessible internet (Table 2). These results differed slightly from the findings of Mohamed and Mohammed (2012).

Chi-square independence test was used to assess the relations between the e-banking services usage with six demographic variables. Results indicated no significant relations between age, gender, marital status and residence, and the use of e-banking at 5% level. Education and monthly income level were significantly related to the use of e-banking.

Age was not significantly related to the usage of e-banking at 5% level. This finding was consistent with the finding of Mohamed & Mohemmed (2012), Nasri (2011), Sohain & Shanmugham (2003), and was inconsistent with the finding of Izogo *et al*. (2012), and Poon (2008). Gender was not statistically related with the use of e-banking services at 5% level. The same result was obtained by Mohamed & Mohemmed (2012), Izogo *et al*. (2012), and Nasri (2011). Also, marital status resulted not significant at 5% level, consistently with the result of Mohamed & Mohemmed (2012) and inconsistently with the finding of Izogo *et al*. (2012). Education level was significantly related to e-banking usage at 5% level, consistently with the result of Mohamed & Mohemmed (2012), Izogo *et al*. (2012), Nasri (2011), Poon (2008); and inconsistently with the finding of Sohain & Shanmugham (2003). Also, monthly income level was significantly related with the usage of e-banking service. This finding was consistent with the finding of Mohamed & Mohemmed (2012), Sohain & Shanmugham (2003), and different from the finding of Izogo *et al*. (2012).

Table 3: Chi-Square Results

Variable	Chi-square value (df)	p-value
Age	3.72 (2)	0.155
Gender	0.75 (1)	0.387
Residence	3.59 (1)	0.058
Marital Status	1.39 (1)	0.238
Education level	20.81 (2)	0.000
Monthly income level (ALL)	3.58 (2)	0.037
Computer literacy	22.34 (3)	0.000
Internet literacy	18.65 (3)	0.000

The results of chi-square test indicated significant relation between computer literacy and the usage of e-banking services, and between Internet literacy and the usage of e-banking. These findings are the same as the findings of Poon (2008) and Mohamed & Mohemmed (2012).

The correlation coefficients between demographic independent variables of the logistic model were assessed to check for the problem of multicollinearity. Marital status of the respondent was highly correlated with age ($r = 0.72$, $p < 0.01$).

Table 4: Correlations Matrix

	1	2	3	4	5	6
1.Age	1.000					
2.Gender	0.191*	1.000				
3.Residence	-0.152	-0.057	1.000			
4.Marital status	0.721*	0.048	0.016	1.000		
5.Education level	-0.064	-0.198*	0.119	0.036	1.000	
6. Monthly Income level	0.109	0.116	0.154	0.116	0.543*	1.000

Note: * $p < 0.05$.

The results of binary logistic regression model 3 indicated that the model was statistically significant (LR chi-square (8) = 23.63, $p < 0.05$). The value of Pseudo-R^2 was 15.8 and the percentage of cases correctly classified was 75.41%. According to Hair *et al*. (2009), the classification accuracy should be at least 25% greater than that achieved by chance.

The odds ratios indicated that the usage of e-banking services was positively related to education level, that is, more educated individual clients (university and master) were more likely to use these services. Other demographic variables were not significant at 5% level. However, clients under 28 years old, males, those living in urban area, and those with higher level of monthly income were more likely to use e-banking services.

Table 5: Results of Binary Logistic Regressions

Variable	Odds ratio		
	Model 1	Model 2	Model 3
Age			
18 – 28		1.00	1.00
29 – 39	1.00	0.68	0.62
40 +	0.63	0.46	0.56
Gender	0.56		
Male		0.72	1.11
Female	1.13	1.00	1.00
Residence	1.00		
Urban		1.84	1.79
Rural	1.82	1.00	1.00
Education level	1.00		
Primary/secondary			1.00
University	1.00		4.62^{**}
Master +	4.82^{**}		8.35^{**}
Monthly income level (ALL)	9.04^{**}		
< 30,000		1.00	1.00
30,000-60,000		2.29^{+}	1.08
> 60,000		4.09^{*}	1.16
LR chi-square (df)	23.58 (6)	12.13 (6)	23. 63(8)
% correctly classified	75.41	72.13	75.41
Pseudo-R^2	15.75%	8.1%	15.78

Note: $^{+}$ $p < 0.10$ * $p < 0.5$, ** $p < 0.01$; n = 111.

These findings were inconsistent with the results of logistic regression of Lassar *et al*. (2004), where family income were positively related with the usage of e-banking, while age and education level were not significantly related at 5% level.

CONCLUSIONS

Nowadays, e-banking service has grown rapidly in many parts of the world. Development of Information technology has helped banking business to evolve and has transformed banking services from traditional banking to e-banking services. Commercial banks operating in Albania have embraced innovative banking technologies and e-banking services in recent years. Almost all banks have invested in expanding and improving the Information Technology systems and a number of new e-banking services have been developed.

Based on the results of this study, among all e-banking services offered from banks in Albania, ATM was the most popular channel, followed by electronic credit/debit cards, internet banking and EPOS. The results of one sample mean comparison test indicates that items that representing factors that influence the use of e-banking services were: bank's role in raising its clients' awareness in weak, unawareness of e-banking products and services; whereas the items not representing factors were: no advantages for e-transactions over traditional transactions, frequent breakdown of ATMs, lack of privacy and confidentiality, and unreliability of ATMs.

Among demographic characteristics of clients, chi-square test results indicated that education, monthly income, computer literacy and internet literacy were related significantly to e-banking services use. The logistic regressions results indicated that education level was positively related to e-banking usage.

These findings give useful information for planning e-banking promotion strategies. Role of bank should increase

related to awareness and education of their clients regarding to all their e-banking services, as well as security and privacy of their account, and also banks should give their clients more information about benefits of e-banking.

This study has some limitation. Firstly, the study identifies some demographic characteristics of clients that may influence the usage of e-banking services. However, other factors can influence the usage of these services. Secondly, the sample was small and do not cover all the country.

In the future, the research must be performed to identify other factors that can influence the usage of these services such as: security, trust, culture, ease of use, information, etc. Also, in future research must consider the perspective of non-users.

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