

## Evaluation of E-banking Dimensions By Greek Customers

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**Abstract: Problem statement:** The use of electronic banking is increased rapidly worldwide and offers to the users many advantages. However, the percentage of Greek e-banking users, even if it has increased, is still very low. The adoption of e-banking depends on some factors which are connected with the services that the banks offer and the satisfaction from these factors influences, the overall satisfaction. **Approach:** The aim of this study was the exploration of the perception of Greek e-banking users about the factors affecting the satisfaction from the use of e-banking and moreover the influence of their experiences in the perception's formation. **Results:** In order to achieve the aims of this study a research was realized, using a structured questionnaire, in 354 users of e-banking. The results show that Greek customers are quite satisfied from the e-banking dimensions and moreover the dimensions that mostly affect the overall satisfaction are "trust" and "convenience/usefulness". **Conclusions:** The results indicate also that the most of Greek customers are characterized as "low familiar" with e-banking services. The level of familiarity of Greek customers depends on gender, education and income. Based on our findings it is in the best interest of e-banking service providers to gain the trust and usefulness of their customers.

**Key words:** E-banking, Greek's consumer's behavior, services evaluation, familiarity

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### INTRODUCTION

The possibility to fulfill banking transactions with the use of internet, referred as electronic banking (e-banking), is increased rapidly and while, before few years, it constituted an unusual banking service today it is offered by all the banks. [1], describes e-banking as an electronic connection between the bank and customer in order to prepare, manage and control financial transactions. It was characterized as an innovation that uses the customers in order to realize, in electronic way, transactions as the opening of account, the transport of money the payment of cards [2], [3]. E-banking is growing quickly from being a rarely banking service to one that can be found at many banks. Despite the fact that brick and mortar branches are the main banking distribution channels people have started to prefer the E-banking to carry out their transaction by themselves, without the need to visit a bank branch. It is considered to become the favorable, alternative, distribution channel, because, it offers financial services with convenience, security, privacy and quality information about financial products, without place or time limits and in better prices [4]. The development of E-banking is a result of an increasing use of personal computers, the refined internet connections, the widely use of Internet from people at home and work and the lower prices in services which are offered from the E-banking

[5]. A recent research for Europeans reveals that the E-banking usage leads the customers to get the ownership of more financial product and services. Also the aspect of trust, for safe transactions via E-banking, affects significantly user's decision for the adoption of the E-banking Services [4].

E-banking is a service which is growing rapidly in developed countries such as Finland, UK, the US, Italy, Spain and in countries with emerging economies such as India, Hong Kong, South Korea, Turkey, Malaysia and Estonia. People in Greece, have a different attitude towards new technologies, such as E-banking. They have started to trust the new services, recently and they want to be benefited from all the advantages that E-banking Services have to offer (<http://www.ber.gr> and <http://blog.isotopon.com>). In 2001 the E-banking users, in Greece, were not over 150.000. In 2004 the users were 500.000, in 2006, 800.000, in 2007, 996.500 and in the end of 2008 it is estimated to be 1.500.000 (<http://www.ber.gr>).

**Literature review:** Many researches in the past have examined the factors affecting the adoption of e-banking. Nowadays, a lot of people realize their banking transactions electronically, therefore evaluating their satisfaction in e-banking services constitutes the next logical step in the scientific researches.

It is common to measure the success of an Information system with the user's satisfaction <sup>[6]</sup> ; <sup>[7]</sup> . Satisfaction can be defined as the user's perception which influences his/her intention to evaluate and use a service such as the E-banking services <sup>[8]</sup> . According to <sup>[9]</sup> the satisfaction of the users is a critical construct because it is related to other important variables, including systems analysis and design. <sup>[10]</sup> state that in web-based systems, in particular, satisfaction can depend on various factors, including web design, content, user interface, navigation and information structure. The link between satisfaction and "service quality" construct is emphasized in several studies <sup>[11]</sup> , <sup>[12]</sup> . Based on the work of <sup>[13]</sup> other researches, in the banking literature, report that there are two main dimensions affecting customer satisfaction: (1) the quality of services provided by the bank and which are "reliability", "security", "functionality", "accuracy" and "speed" <sup>[11][14]</sup> and (2) the quality of the relationship with the bank. Relationship drivers seem to be even more important and include "responsiveness", "competences", "assurance", "trust", "friendliness", "courtesy", "availability", "commitment", "flexibility" and "communication" <sup>[11],[14],[15]</sup> . Many factors affecting the satisfaction were presented in the literature and all of them are measured by the use of a lot of items which are, in most cases, different. In this study the factors which were employed, in order to determine the satisfaction from the use of e-banking, were selected from various studies and are then presented.

**Security:** The concept of security in transactions is one of the most important factors that influence the E-banking adoption. Customers have the perception of being protected against threats. As <sup>[16]</sup> state "security is the customers' perception of the degree of protection against threats, such as, economic hardship to data or network resources in the form of destruction, disclosure, modification of data, denial of service and/or fraud, waste and abuse". If customers think that they are not protected they are not willing to use Internet for their activities.

**Status:** Was used to measure the influence of the E-banking usage on the self-image of the user <sup>[17]</sup> . Status refers to impression management and influences the consumer's image in the eyes of other consumers <sup>[18]</sup> .

**Exploration:** <sup>[19]</sup> state that the exploratory consumer attitude is an inner motivated consumption process that is separated in two dimensions: Exploratory Acquisition of Products (EAP) and Explanatory Information Seeking (EIS). Exploratory information seeking includes consumer activities such as the reading of

daily news in bank website, or the opinions which the users are able to exchange on website.

**Trust:** The customer's trust in a vendor is fundamental and a customer expects from a vendor to protect him from undesirable situations. <sup>[20]</sup> ; <sup>[21]</sup> defined trust as "a psychological state which leads to the willingness of customer to perform banking transactions on the Internet, expecting that the bank will fulfill its obligations, irrespective of customer's ability to monitor or control bank's actions".

**Convenience/usefulness:** Convenience refers to the benefit of time saving and the advanced services that a consumer enjoys by using E-banking services replacing the banks branches <sup>[22]</sup> . The perceived usefulness is considered to be a basic factor that influences the user's adoption of E-banking Services. Customers decide to use E-banking if they believe that they will have advantages of the usage such as the improvement of their job performance, low transaction cost <sup>[23]</sup> .

The overall satisfaction from e-banking services, as have shown many researches, is influenced by the consumer's perception in the various dimensions associated with e-banking services. Furthermore, the factors forming the e-banking dimensions are affected by user's experience (often referred as familiarity) in the internet. Familiarity, in the context of Internet and electronic commerce has received attention recently <sup>[24]</sup> . In the Internet context, familiarity means experience in using the Internet in general <sup>[25]</sup> , <sup>[26]</sup> , <sup>[27]</sup> . <sup>[28]</sup> argue that users with high level of experience search less and are more confident when operating online. As has been found familiarity in using computers and new technology affect positively consumer attitude with regard to usage of electronic banking <sup>[29]</sup> .

This study tries to determine the degree of agreement of Greek e-banking users with the basic e-banking dimensions and furthermore to evaluate the overall satisfaction from the use of e-banking. It also aims to explore the impact of the basic dimensions on satisfaction and moreover the influence of familiarity in the degree of satisfaction.

## MATERIALS AND METHODS

**Sample and data collection:** In order to achieve the aims of this study a research was realized among the Greek e-banking users with the use of a structured questionnaire as research instrument. The questionnaires were sent via internet after a random choice by the data base of Greek banks customers.

From the total of 1011 questionnaires were returned supplemented and suitably for use the 354 (response rate 35%). The demographic characteristics of the sample are presented in the Table 1.

**Measures:** The questionnaire used for the needs of the research consists of four sections.

The first section is referred to the demographic characteristics of the sample's individuals. The demographic characteristics create the respondents profile and are believed that influence in the intention of customers to adopt the internet services and especially the e-banking services<sup>[24], [30], [31]</sup>.

The second section of the questionnaire measures the e-banking experience (familiarity) of users. For measuring users experience it was first examined (a) the length of use (b) the frequency and (c) time spend connected. About the E-banking length measurement, three categories were identified: (1) less than one year, (2) between one and tree years and (3) more than 3 years<sup>[24]</sup>. About the E-banking Frequency measurement, five options where provided:

(1) once a month, (2) 2-3 times a month, (3) 1-3 times a week, (4) 4-6 times a week and (5) daily. For the time spend, four options were used: (1) less than an hour week<sup>-1</sup>, (2) between 1 and 4 h week<sup>-1</sup>, (3) between 4 and 10 h week<sup>-1</sup> and (4) more than 10 h week<sup>-1</sup><sup>[32]</sup>.

Table 1: User's demographic characteristics

	Percentage (%)
<b>Gender</b>	
Male	59.1
Female	40.9
<b>Age</b>	
-24	06.8
25-40	77.3
41-55	14.2
55+	01.7
<b>Education</b>	
Elementary	01.2
Medium	09.6
High	54.2
M.Sc/Ph.D.	35.0
<b>Monthly income</b>	
-800 €	05.7
801-1200 €	40.1
1201-1400 €	26.0
+1400 €	28.2
<b>Occupation</b>	
Public employee	30.5
Private employee	60.5
Entrepreneur	05.6
Unemployed	00.6
Student	02.8

The third section of questionnaire is constituted by 35 items, adopted by various researches, which create

the five dimensions of e-banking transactions and which they were called to evaluate the users. The five dimensions are: (a) security, (b) social status, (c) exploration, (d) trust and (e) convenience/usefulness.

The fourth section measures the satisfaction from the use of e-banking and is constituted by 3 items, adopted by work of<sup>[8]</sup>. Details about the items and their sources can be found in the Table 2.

All items, in the third and fourth part, were statements and the respondents were asked to indicate on a five-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree, the degree to which they agreed with the statements.

**Validation of research instrument:** The appropriateness of the research instrument was tested for content validity, construct validity and reliability.

Content Validity is based on the extent to which a measurement reflects the specific intended domain of content<sup>[33]</sup> and in our research was established from the existing literature and our measures were constructed by adopting constructs validated by other researchers. Moreover a pilot test in a panel of experts (academics and professionals) was conducted.

Construct validity was examined by assessing convergent validity and discriminant validity<sup>[34]</sup>. Before testing for convergent and discriminant validity, in the second, third and fourth part of the questionnaire, an Exploratory Factor Analysis (EFA) was performed. EFA is applied when the structure of the model is not known or specified a priori and the data are used in order to determine the structure<sup>[35]</sup>. For the extraction of the factors the principal component methods was used, with Varimax rotation which is one of the most popular methods of orthogonal rotation<sup>[36]</sup>. The appropriateness of data for factor analysis were tested with the Bartlett's test of sphericity and the measure of Kaiser-Mayer-Olkin (KMO) which express the degree to which some items belongs to the same factor.<sup>[36]</sup> notes that the KMO must be greater than 0.8 however, values greater than 0.6 are considered acceptable. For the determination of the number of the factors the criterion of eigenvalue was used. Factors whose Eigenvalue is over one are selected. Finally, for the test of significance of the items which create the factors, their loadings were checked. In a sample of more than 350 individuals, a loading more than 0.30 is considered as significant<sup>[37]</sup>.

Table 2: Items and Sources

Statements by factor	Authors
<b>Security</b>	
By using EB I keep my privacy so that other people won't know about my bank transactions	<sup>[24]</sup>

I am not afraid that in EB mistakes occurs more easily than at bank office	[24]
When I use EB my money is as safe as when I use other banking services	[38]
The EB is a safe place to transmit sensitive information and my bank information won't fall into the wrong hands	[24]
I would feel secure sending sensitive information across the E	[39]
The EB is a secure means through which to send sensitive information	[39]
<b>Status</b>	
By using EB I give a modern impression of myself to other people	[24]
By using EB I stand out of ordinary people who use traditional bank services	[24]
Using EB gives me a more professional status	[40]
I can have more prestige than other bank customers if I use EB services	[40]
<b>Exploration</b>	
It would be useful to exchange opinions with other people in discussion groups about topics related to banking issues in EB	[24]
Sometimes it is fun just to browse around and see what can be found on bank's website	[24]
I would like to read versatile daily news on bank's website	[24]
<b>Trust</b>	
Even if I am not monitored I trust EB site to do the job correctly	[25] , [41]
I trust banks reliability in correcting erroneous transactions of EB services usage	[42]
I have trust in the bank to compensate for losses due to security using EB Services	[42]
I believe that EB is trustworthy	[25], [41]
I trust in the benefits of the decisions of the EB site	[41]
I trust the bank to response to my queries quickly	[42]
I get all the information I need for taking care of my banking transactions more conveniently and in time, from Internet Bank than from bank office	[24]
<b>Convenience/usefulness</b>	
By using EB I get better service than from bank office	[24]
By using EB I have more time for my family-friends-Hobbies	[24]
I can perform my banking transactions anywhere in the world	[40]
When I want more information or advice from bank personnel I prefer e-mail or message services in EB to visiting or calling bank office	[24]
I can enjoy 24 h banking services	[40]
The EB site that I use keeps its promises and commitments	[41]
Using EB site makes it easier to do my banking activities because the system provide the precise information I need	[41]
I find the use of the EB to be advantageous	[43]
Using EB site the productivity of my banking activities is enhanced	[39]
EB have better prices than office services	[41]
EB use helps me to make managing my accounts and doing transactions easier	[31]
EB use improves my life	[44]
Using the EB site has a critical role in supporting my banking activities	[44]
Using the EB site improves my performance of banking activities	[41]
I find this EB site useful for my banking activities	[41]
<b>Satisfaction</b>	
I think that I made the correct decision to use EB website and I am satisfied	[8]
In general terms, I am satisfied with the way that the EB website that I use, is carrying out transactions	[8]
In general, I am satisfied with the service I have received from the EB website	[8]

The first factor analysis for the 3 items which measure the familiarity of the users in e-banking transactions gave us acceptable results as shown in the Table 3.

The second factor analysis for the 35 items which constitutes the dimensions of e-banking, gave us 6 factors initially. In order to achieve more reliable solution were eliminated the items which loading equally to more than one factor and items with load less than 0.35. After the elimination of 11 items the factor

Table 3: User's experience factor analysis

Factor	Items	Loadings
Familiarity	For how long have you been using the E-banking services?	0.716
	How often do you use the internet for banking services?	0.913
	How much time do you spend connected to the internet for banking services?	0.875

analysis was rerun and gave us five factors which explained the 64.44% of the total variance, KMO index with a value of 0,894 and a significant Bartlett's test. The results of factor analysis, in details, are presented in Table 4.

Finally, factor analysis for the 3 items of satisfaction gave us one factor which explains the 84.266% of total variance. The KMO statistic is sufficient as its value is 0.730 and is also statistically significant (Table 5).

Cronbach's alpha index: 0.775

KMO = 0.638

Bartlett's test of sphericity:

Approx. Chi square = 315.19 df = 3; Sig. = 0.000

Total variance explained = 70.363%; Eigenvalue = 2.111

Table 4: Factor Analysis for e-banking dimensions

Factors	Number of items	Eigenvalue	Variance (%)	Cronbach's alpha
Convenience/usefulness	9	8.379	18.088	0.868
Security	4	1.546	10.916	0.808
Status	4	2.351	12.815	0.878
Exploration	3	1.185	8.988	0.772
Trust	4	1.736	12.514	0.791
Total	24			

KMO = 0.875

Bartlett's test of sphericity:

Approx. Chi square = 4.134. 88 df = 27 Sig. = 0.000

Total variance explained = 63.321%

Table 5: factor analysis for satisfaction

Factor	Items	Loadings
Satisfaction	I think that I made the correct decision to use internet banking website and I am satisfied	0.900
	In general terms, I am satisfied with the way that the internet banking website that I use, is carrying out transactions	0.944
	In general, I am satisfied with the service I have received from the internet banking website	0.910

Cronbach's alpha index = 0.906

KMO = 0.730

Bartlett's test of sphericity:

Approx. Chi square = 684.231; df = 3; sig. = 0.000

Total variance explained = 84.266%; Eigenvalue = 2.528

Table 6: Correlation matrix of e-banking dimensions

	1.	2.	3.	4.	5.
1. Security	0.808a				
2. Status	0.323**	0.878a			
3. Exploration	0.297**	0.352**	0.772a		
4. Trust	0.550**	0.398**	0.379**	0.791a	
5. Convenience/ usefulness	0.608**	0.388**	0.362**	0.498**	0.868a

Convergent validity relates to the degree to which multiple methods of measuring a variable provide the same results <sup>[45];[46]</sup> and is considered acceptable when all item loadings are greater than 0.5 <sup>[47]</sup> and the items for all construct load onto only one factor with an eigenvalue greater than 1 <sup>[48]</sup>. In our case the loadings of all items are greater than 0.5 (Table 7), the minimum eigenvalue of the created factors is 1.175 (Tables 2-4) and therefore, there is evidence of convergent validity.

Discriminant validity deals with the concept that dissimilar constructs should be different <sup>[49]</sup>. In order to demonstrate that the constructs are distinct a matrix containing the correlation coefficients among the constructs and, in the diagonal of the matrix the Cronbach's alpha coefficients was created (Table 6). The correlation coefficients within a column should be less than the coefficient alpha found in the diagonal <sup>[46]</sup>. The results in the Table 6 support the claim of discriminant validity and demonstrate that the constructs are distinct dimensions.

For testing reliability, which is one of the most important criteria for the evaluation of the questionnaire <sup>[50]</sup> Cronbach alpha index was used. <sup>[51]</sup> suggests that Cronbach's alpha should be greater than 0.7 in order to be characterized as reliable a construct.

Table 7: Loadings of Items forming the E-banking dimensions

Items	Loadings
<b>Security</b>	
By using EB I keep my privacy so that other people won't know about my bank transactions	0.716
I am not afraid that in EB mistakes occur more easily than at bank office	0.696
When I use EB my money is as safe as when I use other banking services	0.712

The EB is a safe place to transmit sensitive information and my bank information won't fall into the wrong hands	0.685
<b>Status</b>	
By using EB I give a modern impression of myself to other people	0.762
By using EB I stand out of ordinary people who use traditional bank services	0.807
Using EB gives me a more professional status	0.828
I can have more prestige than other bank customers if I use EB services	0.851
<b>Exploration</b>	
It would be useful to exchange opinions with other people in discussion groups about topics related to banking issues in EB	0.753
Sometimes it is fun just to browse around and see what can be found on bank's website	0.814
I would like to read versatile daily news on bank's website	0.789
<b>Trust</b>	
Even if I am not monitored I trust EB site to do the job correctly	0.591
I trust banks reliability in correcting erroneous transactions of EB Services usage	0.762
Trust in the bank to compensate for losses due to security using EB Services	0.767
<b>Convenience/usefulness</b>	
I believe that EB is trustworthy	0.604
Using EB site makes it easier to do my banking activities because the system provide the precise information I need	0.589
I find the use of the EB to be advantageous	0.723
Using EB site the productivity of my banking activities is enhancing	0.676
EB have better prices than office services	0.530
EB use helps me to make managing my accounts and doing transactions easier and quickly	0.723
E use improves my life	0.634
By using EB I have more time for my family-friends	0.589
I can perform my banking transactions anywhere in the world	0.662
I can enjoy 24 h banking services	0.679

The reliability index for the first factor of “familiarity” is 0.775 (Table 3) and the reliability indices for all the factors of e-banking dimensions ranking from 0.772 to 0.878 (Table 4). Finally, the reliability index for the “satisfaction is 0,906 (Table 5). Thus, all the factors are characterized reliable, as their values are greater than the suggested point of 0.7.

## RESULTS

**Data analysis-results:** After the validation of the instrument the responses to these research questions were averaged to form the final score for the factors.

The first step in the data analysis was the calculation of basic statistics for familiarity, e-banking dimensions and satisfaction.

The mean score for familiarity is 1.66 and shows that the level of familiarity is not enough high. Then, the familiarity score was separated into quartiles and the first quartile represents the “low familiar users” (N = 141, 41.8%) who have low experience on E-banking services. The second and third quartiles, both of them, conclude the category of “moderately familiar users” (N = 126, 37.4%). The fourth quartile represents “highly familiar users” (N = 70, 20.8%) who use the E-banking services very often, for a long time and are connected with bank’s website for long time.

Observing the values on the Table 8 it is obvious that the respondents feel more than secure than insecure as the mean score is 3.54. The respondents believe that the use of e-banking is not a factor that improves their status (3.13). They also trusting the e-banking transactions (3.68) and believe that are convenient and

useful (4.04). Finally, they are satisfied from the use of e-banking (4.05).

Table 8: Basic Statistics

	Min.-Max. Value	Mean	Median	Std. Deviation	C.V
1. Familiarity	1-4	1.66	1.67	0.550	33.13%
2. Security	1-5	3.54	3.50	0.849	23.98%
3. Status	1-5	3.13	3.25	0.960	30.68%
4. Exploration	1-5	3.31	3.33	0.936	28.24%
5. Trust	1-5	3.68	3.75	0.796	21.60%
6. Convenience/ usefulness	1-5	4.04	4.11	0.662	16.38%
7. Satisfaction	1-5	4.05	4.11	0.663	16.37%

The coefficient of variation for all the dimensions of e-banking is greater than 15%. This is an indication of a significant differentiation in the level of agreement among the respondents <sup>[24]</sup> indicated that familiarity affects consumer perceptions on the various E-banking dimensions.

For determining differences in means of the perceptions on the five dimensions of E-banking which are owed in the different level of user’s familiarity a one-way ANOVA was used. From the results presented in Table 9, arises that only security and trust do not depend on the level of familiarity. Especially, the high familiar respondents feel that their image is improved in the eyes of other consumers because the use of e-banking. Furthermore, they are more satisfied than the others from the e-banking services and transactions and also believe that e-banking is convenient and useful.

Table 9: ANOVA Analysis

	F-value	Significance
1. Security	2.586	0.077

2. Status	3.019	0.049*
3. Exploration	3.228	0.040*
4. Trust	1.675	0.189
5. Convenience/ usefulness	3.864	0.022*

\*Significant at 0,05 level or lower.

In order to explore differences in the level of familiarity which are owned in the demographic characteristics of respondents a  $\chi^2$ -test of independence was performed.

The results, in Table 10, show that the level of familiarity depends on gender ( $\chi^2 = 7.978$  with p-value = 0,019), educational level ( $\chi^2 = 10.90$  with p-value = 0,091) and monthly income ( $\chi^2 = 15.10$  with p-value = 0.019).

Table 10:  $\chi^2$  – test of independence

Personal Characteristics	Low	Mod.	High	$\chi^2$	P-value
<b>Gender</b>					
Male	35.8	38.5	25.7	7.978	0.019*
Female	48.7	36.1	15.2		
<b>Age</b>					
-24	33.8	41.7	25.0	4.821	0.567
25-40	41.0	39.5	19.5		
41-55	53.1	26.5	20.4		
over 55	33.3	33.3	33.3		
<b>Education</b>					
Elementary	50.0	0.0	50.0	10.90	0.091**
Medium	48.5	45.5	6.0		
High	45.0	33.9	21.1		
M.Sc/Ph.D	35.0	41.7	23.3		
<b>Income</b>					
-800 €	30.0	60.0	10.0	15.10	0.019*
801-1200 €	51.1	32.8	16.0		
1201-1400€	39.3	40.4	20.3		
+1400 €	34.0	36.1	29.9		
<b>Occupation</b>					
Public	44.7	35.0	20.3	7.82	0.451
Private	43.1	36.6	20.3		
Student	40.0	40.0	20.0		
Entrepreneur	20.0	30.0	50.0		
Unemployed	0.0	100.0	0.0		

\*Significant at 0,05 level or lower, \*\*Significant at 0,1 level or lower.

The degree of agreement on e-banking dimensions, as it is expected, reflects on the degree of overall customer's satisfaction. In order to estimate the dimensions that affect significantly and more than others in the satisfaction, a regression model was created. The familiarity is a factor that can differentiate the effect of various dimensions on overall customer's

satisfaction. Three regression models, one for each level of familiarity, were employed. The dependent variable was the "satisfaction" and the independent variables were the five dimensions of E-banking, for all models. The results of the regression analyses for all models are presented in Table 11.

In the first regression model that refers to the overall sample, the independent variables explain the 89.8% of the total variance ( $R^2 = 0.898$ ). However, only three variables (status, trust, usefulness /convenience) are significant predictors of customer's satisfaction. Specifically, "usefulness/convenience", with a coefficient of 0.837 (sig. <0.001), is the dimension that affects more to the satisfaction followed by trust (0.151 and sig. <0.001).

The second regression model refers only to the low familiar users and the  $R^2$  indicates that the amount of variance explained by the model is 89%. The three variables which are significant predictors of customer's satisfaction are "exploration", "trust" and "usefulness/convenience". The dimensions that affect more to the satisfaction are, as in the first model, usefulness/convenience with a coefficient of 0.812 (sig. <0.001) and trust (0.141 and sig. <0.001).

The third regression model is created by the moderate familiar users and the independent variables explain the 94.5% of the total variance. The three variables which are statistically significant and affect to the user's satisfaction are, with order of classification, "usefulness/convenience" (0.870 and sig. <0.001), "trust" (0.141 and sig. <0.001) and "status" (0.082 and sig. <0.01).

The last regression model is created by high familiar users and the independent variables explain the 78.7% of the total variance. Only two independent variables are statistically significant and affect to the user's satisfaction. The two variables are, as in all models, the "usefulness/convenience" with a coefficient of 0.870 (sig. <0.001) and "trust" (0.190 and sig. <0.01).

Table 10: Regression Analysis

Dimensions	Total Sample		Low Familiarity		Moderate Familiarity		High Familiarity	
	Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.
Security	-0.006	0.804	0.022	0.576	-0.026	0.388	-0.033	0.638
Status	0.046	0.023*	0.031	0.349	0.082	0.001*	-0.007	0.917
Exploration	0.024	0.226	0.071	0.031*	-0.019	0.469	0.020	0.755
Trust	0.151	0.000*	0.141	0.000*	0.141	0.000*	0.190	0.008*
Usefulness/Convenience	0.837	0.000*	0.812	0.000*	0.870	0.000*	0.838	0.000*
<b>R<sup>2</sup></b>	0.898		0.890		0.945		0.787	
<b>F</b>	583.195		217.670		415.330		47.304	
<b>Sig.</b>	0.000		0.000		0.000		0.000	

\*Significant at 0,05 level or lower.

## DISCUSSION

We investigated five dimensions of e- banking for evaluating the degree of satisfaction and the opinion of customers with regard to the e – banking. Moreover we tried to realise if the opinion and the degree of satisfaction are differentiated depending on the experience of customers in the use of internet and depending on individual characteristics.

The results indicate that the dimensions which are significant predictors and affect the satisfaction more than the others, independently from the level of familiarity, are the “trust” and the “convenience/usefulness”. Trust is considered as a basic customer perception and marks the user’s confidence that the bank protects him from false transactions. The perception that using e-banking the works are realized better and easier drives to the satisfaction from the e-banking services. In the case of low familiar users the “exploration” is also a significant predictor and for moderate familiar users the “status” constitutes another significant predictor of satisfaction.

The results indicate also that the most of Greek customers are characterized as “low familiar” with e-banking services. Moreover, they are satisfied enough from e-banking dimensions and especially from “trust” and “convenience/usefulness”. “Trust” and “security” do not depend from the level of familiarity, something that is happening for “convenience/usefulness”, “status” and “exploration”. The level of familiarity of Greek customers depends on gender, education and income. Based on our findings it is in the best interest of e-banking service providers to gain the trust and usefulness of their customers. They must make more effort to improve the sense of security to the customers in order to attract more and more people that until now do not use e-banking or use it in limited extend.

## CONCLUSION

Revolutionary developments in marketing, information and communications technology continue to transform the banking and financial industry. Distribution of banking services through the Internet is an important part of this transformation. Technology can help banks build an integrated delivery strategy for effective multi-channel management. Greek banks want to expand their existing distribution channels using the Internet as another alternative channel. Internet banking in Greece is on its way to become the centrepiece of direct banking strategies however the development of E-banking in Greece is relatively slow compared to worldwide practices.

In this paper, the perception of consumer’s using e-banking and the degree of their satisfaction from it has been examined. From the findings of this research it results that the customers, depending on their familiarization with the use of internet, differentiate their opinion in certain e-banking dimensions. More generally, the customers are presented enough satisfied and the degree of satisfaction is influenced also by the level of familiarization.

## REFERENCES

1. Lustsik, O., 2004. Can E-banking services be profitable?. Tartu University Press. ISSN 1406-5967. ISBN 9985-4-0400-9.
2. Corrocher, N., 2006. Internet adoption in Italian banks: An empirical investigation. Res. Policy, 35: 533-544. doi: 10.1016/j.respol.2006.02.004.
3. Simpson, J., 2002. The impact of the Internet in banking: Observations and evidence from developed and emerging markets. Telemat. Inform., 19: 315-330. PII: S0736-5853(01)0019-3.
4. Guerrero, M.M., J.M. Ortega Egea and M.V.R. González, 2007. Application of the



- latent class regression methodology to the analysis of internet use for banking transactions in the European Union. *J. Bus. Res.*, 60: 137-45. doi: 10.1016/j.jbusres.2006.10.012
5. Hernado, I., M.J. Nieto, 2007. Is the Internet delivery channel changing banks performance. The case of Spanish banks. *J. Bank. Finance*, 31: 1083-1099. doi: 10.1016/j.bankfin.2006.10.011
6. Zviran, M. and Z. Erlich, 2003. Measuring IS user satisfaction: Review and implications. *Commun. AIS.*, 12: 81-104. ISSN: 1529-3181.
7. Doll, W.J., X. Deng, T.S. Raghunathan, G. Torkzadeh and W. Xia, 2004. The meaning and measurement of user satisfaction: A multigroup invariance analysis of the end user computing satisfaction instrument. *J. Manage. Inform. Syst.*, 2: 227-62.
8. Casalo, L., C. Flavian and M. Guinaliu, 2008. The role of perceived usability, Reputation, satisfaction and consumer familiarity on the website loyalty formation process. *Comput. Hum. Behav.*, 24: 325-45. doi: 10.1016/j.chb.2007.01.017.
9. Zviran, M., C. Glezer and I. Avni, 2006. User satisfaction from commercial web site: The effect of design and use. *Inform. Manage.*, 43: 157-78. doi:10.1016/j.im.2005.04.002.
10. Lee, K.C. and N. Chung, 2009. Understanding factors affecting trust in and satisfaction with mobile banking in Korea: A modified DeLone and Mc Leans model perspective. *Interact. Comput.*, 21: 385-392. doi: 10.1016/j.intcom.2009.06.004.
11. Jamal, A. and Naser, K., 2002. Customer satisfaction and retail banking: an assesment of some of the key antecedents of customer satisfaction in retail banking. *International Journal of Bank Marketing*, Vol. 20, No. 4, pp.146-160. doi: 10.1108/02652320210432936.
12. Ndubisi, N.O., 2006. A structural equation modeling of the antecedents of relationship quality in the Malaysia banking sector. *J. Fin. Services Market.*, 11: 131-141. doi: 10.1057/palgrave.fsm.4760033.
13. Parasuraman A., V Zeithaml. A., L. L. Berry (1985). A Conceptual Model of Service Quality and Its Implications for Future Research. *The Journal of Marketing*, Vol. 49, No. 4. pp. 41-50. doi:10.2307/1251430.
14. Jamal, A. and Naser, K., 2002. Factors influencing customer satisfaction in the retail banking sector in Pakistan. *International Journal of Commerce and Management* Vol. 13, No. 2, 2003. doi 10.1108/eb047465.
15. Manrai, L.A. and A.K. Manrai, 2007. A field study of customers switching behavior for bank services. *J. Retail. Consumer Service*, 14: 208-215. doi: 10.1016/j.retconser.2006.09.005.
16. Kalakota, R. and A. Whinston, 1997. *Electronic Commerce: A Managers Guide*. Addison Wesley, Reading, MA. Ed.2th.p.431.
17. Gerrard, P. and J.B. Cunningham, 2003. The diffusion of E-banking amongst Singapore consumers. *Int. J. Bank Market.*, 21: 16-28. doi: 10.1108/02652320310457776.
18. Holbrook, M.B. (1999), "Introduction to consumer value", in Holbrook, M.B. (Eds), *Consumer Value: A Framework for Analysis and Research*, Routledge, New York, NY, pp.1-28.
19. Baumgartner, R.H. and J. Steenkamp, 1996. Exploratory consumer buying behavior: Conceptualization and measurement. *Int. J. Res. Market.*, 13: 12-37. doi:10.1016/0167-8116(95)00037-2
20. Mayer, R.C., J.H. Davis and F.D. Schoorman, 1995. An integrative model of organizational trust. *Academy of Management Review*. 20: 709-734. Stable URL: <http://www.jstor.org/stable/258792>.
21. Rousseau D.M, S.B. Sitkin, R. S. Burt, C. Camerer. Not so different after all: A cross-discipline view of trust. *Academy of Management Review* (1998).Volume: 23, Issue: 3, Publisher: Academy of Management, Pages: 393-404. ISSN: 03637425.
22. Polatoglu, V.N. and S. Ekin, 2001. An empirical investigation of the Turkish consumers, acceptance of E-banking services. *Int. J. Bank Market.*, 19: 156-165. doi 10.1108/02650110392527.
23. Davis, F.D., R.P. Bagozzi and P.R. Warshaw, 1989. User acceptance of computer technology: A comparison of two theoretical models. *Manage. Sci.*, 35: 982-

1003. Stable URL:  
<http://www.jstor.org/stable/2632151>.
24. Maenpaa, K., S.H. Kale, H. Kuusela and N. Mesiranta, 2008. Consumer perceptions of E-banking in Finland: The moderating role of familiarity. *J. Retail. Consumer Services*, 15:266-276.  
doi:10.1016/j.jretconser.2007.05.007
25. Gefen, D., 2000. E-commerce: The role of familiarity and trust. *Int. J. Manage. Sci.*, 28: 725-737. doi:10.1016/S0305-0483(00)00021-9.
26. Corbitt, B.J., T. Thanasankit, H. Yi, 2003. Trust and e-commerce: A study of consumer perceptions. *Elect. Commerce Res. Appli.*, 2: 203-215. doi: 10.1016/S1567-4223(03)00024-3.
27. So, M.W.C., D.T.N. Wong and D. Sculli, 2005. Factors affecting intentions to purchase via the Internet. *Ind. Manage. Data Syst.*, 105: 1225-1244.
28. Ward, M.R. and Lee, M.J., 2000. Internet shopping, consumer search and product branding. *Journal of Product and Brand Management*, 9: 6-20. doi: 10.1108/10610420010316302
29. Karjaluoto, H., M. Mattila and T. Pento, 2002. Factors underlying attitude formation towards online banking in Finland. *Int. J. Bank. Market.*, 20: 261-272. doi:10.1108/02652320210446724.
30. Littler, D. and D. Melanthiou, 2006. Consumer perceptions of risk and uncertainty and the implications for behavior towards innovative retail services: The case of E-banking. *J. Retail. Consumers Services*, 13: 431-443. doi: 10.1016/j.jretconser.2006.02.006.
31. Erikson, K. and D. Nilson, 2007. Determinants of the continued use of self-service technology: The case of E-banking. *Technovation*, 27: 159-167. doi: 10.1016/j.technovation.2006.11.001.
32. Castaneda, J.A., F. Munoz-Leiva and T. Luque, 2007. Web Acceptance Model (WAM): Moderating effects of user experience. *Inform. Manage.*, 44: 384-96. doi: 10.1016/j.im.2007.02.003.
33. Carmines, E.G. and R.A. Zeller, 1991. Reliability and Validity Assessment. Sage, Thousand Oaks, CA. [www.sagepub.com](http://www.sagepub.com).
34. Chin, W.W., 1988. The Partial Least Squares Approach to Structural Equation Modeling, In: *Modern Methods for Business Research*, Marculides, G.A. (Ed.). Lawrence Erlbaum, Mahway, NJ. pp. 295-336.
35. Timm, N., 2002. *Applied Multivariate Analysis*. Springer-Verlag, New York. ISBN 0-387-95347-7; 693 pages.
36. Sharma, S., 1996. *Applied Multivariate Techniques*. Wiley, New York. ISBN: 0-471-31064-6. 493 pages.
37. Hair, F., Anderson, R., Tatham, L., Black, W. (1995), *Multivariate Data Analysis with Readings*, 4th ed., Macmillan Publishing, New York, NY. ISBN 0-13-180969-5; 745 pages.
38. Kolodinsky, J.M., J.M. Hogarth and M.A. Hilgert, 2004. The adoption of electronic banking technologies by US consumers. *Int. J. Bank Market*, 22: 238-59. doi: 10.1108/02652320410542536.
39. Cheng, E., D.Y.C. Lam and C.L. Yeung, 2006. Adoption of E-banking: An empirical study in Hong Kong. *Dec. Support Syst.*, 42: 1558-1572. doi: 10.1016/j.dss.2006.01.002.
40. Shing, C.Y., K. Grant and E. David, 2007. Factors affecting the adoption of E-banking in Hong Kong-implications for the banking sector. *Int. J. Inform. Manage.*, 27: 336-351. doi:10.1016/j.ijinfomgt.2007.03.002.
41. Suh, B. and I. Han, 2002. Effect of trust on consumer acceptance of E-banking. *Electronic Commerce Res. Appli.*, 1: 247-263. doi:10.1016/S1567-4223(02)00017-0.
42. Sohail, M.C. and B. Shanmugham, 2003. E-banking and customers preferences in Malaysia: An empirical investigation. *Inform. Sci.*, 150: 207-217. PII: S0 0 20 -0 2 55 (0 2 )00 3 78 -X.
43. Pikkarainen, K., T. Pikkarainen, H. Karjaluoto and S. Pahnla, 2006. The measurement of end-user computing satisfaction of the online banking services: Empirical evidence from Finland. *Int. J. Bank Market.*, 24: 158-73. doi: 10.1108/02652320610659012.
44. Sundarraj, R.P. and J. Wu, 2005. Using information-systems constructs to study online-and telephone-banking technologies. *Elect. Commerce Res. Appli.*, 4: 427-443. doi: 10.1016/j.elerap.2004.12.001.
45. Spector, P.E., 1992. *Summated Rating Scale Construction: An Introduction*. (Sage University Paper Series on Quantitative Applications in the Social Sciences. Newbury Park, CA.) p.73.

46. Churchill, G.A., 1979. A paradigm for developing better measures of marketing constructs. *J. Market. Res.* 16: 64-73. Stable URL: <http://www.jstor.org/stable/3150876>.
47. Wixom, B.H. and H.J. Watson, 2001. An empirical investigation of the factors affecting data warehousing. *MIS Q.* 25: 17-41. Stable URL: <http://www.jstor.org/stable/3250957>.
48. Kim, D.J., D.L. Ferrin and H.R. Rao, 2008. A trust-based consumer decision making model in electronic commerce: The role of trust, perceived risk and their antecedents. *Dec. Support Syst.*, 44: 544-564. doi: 10.1016/j.dss.2007.07.001
49. Burns A. C. and Bush R. F. (2000) *Marketing Research (3rd edn.)* New Jersey; Prentice Hall.
50. Chu, K.H. and S.K. Murrmann, 2006. Development and validation of the hospitality emotional labor scale. *Tourism Manage.* 27: 1181-91. doi: 10.1016/j.tourman.2005.12.011
51. Nunally, J.C., 1978. *Psychometric Theory* (2nd ed.). Mc Graw-Hill, New Delhi; 701 pages.