

Customer Risk Perceptions Of Internet Banking – A Study In Turkey

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ABSTRACT

Technological developments in electronics have lead to the introduction of technology-based self-service systems resulting in the reorganization of several industries offering their services in electronic format known as “e-service” – electronic banking is called ‘internet banking’. With increasingly easier access to the internet, even in developing countries like Turkey over 18 % of all banking customers already use Internet Banking actively. Customers usually perceive risks in conducting transactions electronically, and particularly if the transactions involve money. Risk perception can be of six different types: time risk, financial risk, performance risk, psychological risk, safety risk & confidentiality risk. It is generally considered that risk perception could be higher for electronic banking services. This study aims to understand the extent to which this consideration is valid as well as to determine the levels of risk perception differences among those using Internet Banking and those not using it. A survey was conducted among 350 academic staffs and their responses were analyzed statistically. This study showed that while customers used Internet Banking for a variety of different purposes such as to determine account balance, transfer money, or to pay invoices, etc., there was a significant relationship between the income level of customers and their risk perceptions. An analysis of the differences in risk perceptions between bank customers using Internet Banking (IB) and those not using IB showed that risk perceptions in terms of financial, psychological and safety risks among customer not using IB was more pronounced than those using IB. Customers not preferring to use internet banking thought that they would be swindled when using this service, and therefore, were particularly careful about high risk expectation during money transfers from and between accounts.

Keywords: Internet Banking, electronic banking, customer perceptions, perceived risks, risks.

INTRODUCTION

Recent developments in communication and information technologies have led to radical changes world wide in the intensely competitive banking sector which has increasing numbers of specialized financial products. Internet Banking (IB) enables customers to do all transactions, except receiving cash, effectively, thus replacing Branch Banking, phone banking, WAP and ATMs (Usta, 2005).

Traditionally banking has meant that customers go to the nearest bank branch and ask for needed services. Some of the costs involved in such banking include:

- customers taking a break from their jobs to go to the bank
- time spent accessing the bank branch
- time spent in the queue
- waiting time during peak working hours of the bank, and
- time spent in the bank while services are accessed.

Because of the crucial importance of time, the cost of time could be very low if banking services could be provided in a more timely and efficient fashion.

Technological improvements have led internet banking to be known also as the Alternative Distribution Channel in the banking sector. With the increasing number of banking customers using internet banking, the risks involved have also risen. This study is, therefore, aimed at determining the general risk perceptions of customers using internet banking, and specifically what are the perceptions of the academic staff of Ataturk University, Turkey.

INTERNET BANKING

Recent technological developments have led to a kind of service distribution called “technology based self-service”. This has resulted in reorganization of service firms providing services in electronic format (e-service) and by the same token banks also started providing services electronically. Increased importance of e-services has become one of the dominant factors of business success and has helped customers access information in an interactive process called Internet Banking (Rowley, 2006).

Internet banking, as the distribution means of banking, provides transactions such as: opening an account, transferring money, invoice information and paying bills electronically (Liao, et.al., 1999). Banks offer two types of e-services using the internet: (a) traditional banking services with a physical branch location and (b) services also through web sites. Others operate as “imaginary”, “without branch” or “only internet” (Furst, et.al., 2002). Abbey Bank, Intelligence Finance, Smile Co-operative Bank, ING and Sainsbury Bank are known as “imaginary”, “without branch” banks (Littler and Melanthiou, 2006).

Banks decide to provide e-services for various reasons: increase in the customers’ demand, increasingly intense competition, reduced costs and increased efficiency, and finally, the increasing deregulation of the financial services market in the world. (Hutchinson and Warren, 2003).

Internet banking was first introduced in the USA in 1995 and then spread to European countries. IB came to Turkey two years later in 1997 (Korkmaz and Gövdeli, 2005). In 2003 there were approximately 54 million internet banking customers in Europe, and it was expected that by end-2007 this number would be 107 million (Littler and Melanthiou, 2006).

In Turkey the use of internet banking is increasing as the number of banks providing e-services increases. Turkish Banks Association (TBA), which has 47 member banks, has released a report containing data about its 27 banks that provide e-services. According to this report, there were 15,510,826 registered IB users as of September 2006. Another TBA report published in March 2007 shows this number as 17,385,363, indicating a 12% increase over a six-month period (TBA, 2007).

It is clear that, even though the number of registered bank customers is increasing rapidly, hardly one fourth of them use internet banking in Turkey. Banks as well as academics are doing research on this issue, and this study too is an effort to determine the reasons why so few customers use internet banking in Turkey.

RISK PERCEPTIONS OF CUSTOMERS

The concept of ‘risk perception’, first introduced by Baur in 1960, refers to the perceived dangers and uncertainty during and after purchases. Research on customer risk perceptions and risk dimensions continues, and different researchers have categorised this in different ways:

- Jacoby and Kaplan (1972) has put risk dimensions into six groups: (1) financial, (2) performance, (3) psychological, (4) physical, (5) social, and (6) time (Cases, 2002).
- Roselius (1971) classified risk types as: (1) performance, (2) physical, (3) socio- psychological and (4) time risk. (Özer ve Gurpinar, 2005).

- Stone and Mason (1995), determined that risk perception had six dimensions: (1) financial, (2) social, (3) time, (4) performance, (5) psychological, and (6) physical.
- Lovelock, et.al., (1999) suggest seven risk types in the services sector: (1) financial, (2) time, (3) functional, (4) psychological, (5) physical, (6) social, and (7) sensorial.
- Littler and Melanthiou (2006) mention six types of risks perceived by customers of internet banking (1) financial, (2) performance, (3) time, (4) social, (5) psychological, and (6) security risks.

Customers' risk perceptions pertaining to the purchase of a product can be different from that pertaining to the purchase of a service. Purchasing services electronically or purchasing financial services on the internet can cause higher levels of risk perception. However, the customers' individual characteristics and previous buying experiences directly impact their risk perceptions (Clarke and Flaherty, 2005).

Chen and Chang (2005) report that as developments in information technology (IT) reduce business transparency and increase customers' risk perceptions, the topic has become an important issue for firms providing internet-based services. The various categories of perceived risks listed by various researchers, mentioned above, can be explained as under:

Financial Risk, also referred to as economic risk, is the possibility of monetary losses during on-line purchasing (Lim, 2003). In other words, financial risk is the money losses as a result of purchasing any products or services (Laroche, Bergeron and Yang, 2004). The risk perception of the IB customers primarily grows out of the IT lapses and the resultant losses incurred in fraudulent access to customer accounts (Littler and Melanthiou, 2006).

Performance Risk is the possibility of defect or failure as a result of purchasing a product (Laroche, Bergeron and Yang, 2004). In internet banking, performance risk arises when (a) either money is not transferred on time, or (b) customers have difficulties in accessing the web page or (c) not having enough new web-based services requested by customer (Littler and Melanthiou, 2006).

Time Risk is the combination of lost time and effort spent in purchasing any product or service (Murray and Schlacter, 1990). In internet banking, when more time is required to learn how to access any particular service, risk perceptions increase. Customers also perceive risk when money transfer is not realized in time and faults occur during the transaction leading to time loss perception (Littler and Melanthiou, 2006).

Social Risk can be defined as the possibility of derogate from his/her friends' dignity and interest (Murray and Schlacter, 1990). Family members' and other people's constructive and negative thoughts about internet banking impact the customer's purchasing decision. Nonetheless, the lack of face-to-face communication with bank personnel can also get customers worried. Some researchers claim that technology based services have a built-in deterrent impact by not providing interactive effect with people (Littler and Melanthiou, 2006).

Psychological Risks: Customers often become anxious or stressful because of their purchasing attitude. For example, when a purchasing experience does not correspond to the expected, people become nervous. This nervousness can be called psychological risk. (Lim, 2003).

Security Risk occurs when customers worry that money transfers from their accounts or their private financial information can be seen by others without their permission; this worry creates security risk (Littler and Melanthiou, 2006). Security risk is the main obstacle in using internet banking. (Polatoğlu and Ekin, 2001). It has been suggested that improved security in protecting personal information can increase the preference for using internet banking (Yousafzai, 2003).

The most important of customer risk perceptions is the security of the services offered on the internet, and which in turn influences the customer's purchasing decision. Altan and Karasioğlu (2004), determined that the main reason for the customers deciding not to use internet banking is distrust of the services. Another study involving university employees determined that customers do not use internet banking if they feel that their confidentiality is not secured (Gülmez and Kitapçı, 2006). Research involving university students points out that reliability and worries about confidentiality are important factors affecting use of internet banking (Sohail and Shanmugham,

2003). A similar study involving University staff found that non-users of e-banking considered the internet unsafe for banking transactions (Akıncı, Aksoy and Atılgan, 2004).

PURPOSE, SCOPE AND LIMITATIONS OF THIS STUDY

Main purpose of this study was to assess differences in risk perceptions between customers using internet and those not using the internet. This study also aimed to determine levels of customer risk perceptions among users of internet banking.

This study was conducted using Ataturk University’s academic staff. The main limitations of this study has been constraints of time and physical resources.

METHODOLOGY

Sampling Process:

Using sampling size formula

$$n = \pi(1-\pi)/(e/Z)^2$$

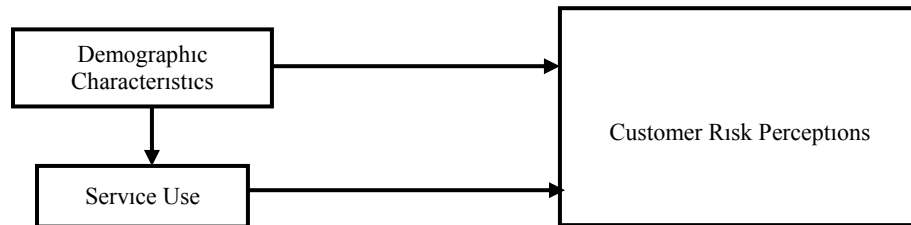
with e= 5% error margin, and 95% confidence interval, the sample size was determined as n=385 (Kurtuluş, 1998). Interviews were conducted on Ataturk University academic staff, and after eliminating incompletely filled questionnaires, 350 responses were analyzed.

Data Collection Method

Data was collected using survey method with structured interviews to determine risk perceptions against Internet Banking (IB) services. The interview instrument contained questions covering: demographic characteristics of sample group, uses of internet banking services, factors affecting bank choices, risk perceptions relating to IB, names of banks used for IB, and estimates of number of years with current bank.

Research Model

Research model is shown in Figure 1, below:



This model uses group variables developed by Littler and Melanthiou (2006), for determining customer risk perceptions, with sub-variables consisting of: time, financial, social, performance, psychological and security risks.

Research Hypothesis

- H1:** Financial risk perceptions are different between the customers using and those not using internet banking.
- H2:** Performance risk perceptions are different between the customers using and those not using internet banking.
- H3:** Time risk perceptions are different between the customers using and those not using internet banking.

- H4:** Social risk perceptions are different between the customers using and those not using internet banking.
- H5:** Psychological risk perceptions are different between the customers using and those not using internet banking.
- H6:** Security risk perceptions are different between the customers using and those not using internet banking.

ANALYSIS

Demographic Characteristics of the respondents is summarized in Table 1, below:

Table 1. Demographic Characteristics of the Sample

Demographic Characteristics		Using IB		Not Using IB	
		Frequency	%	Frequency	%
Sex	Male	133	77.30	105	59.00
	Female	39	22.70	73	41.00
Age	18-25	7	4.10	11	6.20
	26-33	68	39.50	77	43.30
	34-41	52	30.20	43	24.20
	42-49	30	17.40	28	15.70
	50 +	15	8.40	19	10.70
Marital Status	Married	127	73.80	118	66.30
	Single	45	26.20	60	33.70
Monthly Income Level	<1250 YTL(*)	10	5.80	18	10.10
	1,251-1,750 YTL	62	36.00	65	36.50
	1,751-2,250 YTL	24	14.00	38	21.30
	2,251-2,750 YTL	31	18.00	16	9.00
	2,751-3,250 YTL	26	15.10	29	16.30
	3,251- 3,750 YTL	11	6.40	5	2.80
Academic Title	> 3,751 YTL	8	4.70	7	3.90
	Prof.Dr.	24	14.00	18	10.10
	Assoc. Prof.Dr.	20	11.60	21	11.80
	Assist.Prof.Dr.	34	19.80	37	20.80
	Lector	20	11.60	28	15.70
	Lecturer	10	5.80	12	7.70
Department	Research Assistant	64	37.20	62	34.80
	Faculty	105	61.00	107	60.10
	Institute	17	9.90	20	11.20
	High School	22	12.80	21	11.80
	Vocational High School	28	16.30	30	16.80

(*) Where YTL= New Turkish Lira

Table 1 shows that the majority of respondents using internet banking (IB) is male (77%), 39% is in the 26–33 age bracket, 73 % is married, 36 % earn between 1,231- 1,750 YTL per month, and 45.4% of respondents are at the Assistant Professor level or higher.

Amongst those not using IB, 59 % are male, 43% are in the 26-33 age bracket, 66% married, with 36% earning between 1,231-1,750 YTL per month, and 42.7% of respondents are at the Assistant Professor level or higher.

Banks used and years with Bank:

Respondents using IB were asked to name their bank and indicate how long they had been using their IB services, Table 2 below.

Table 2: Bank with IB Services and Time Spent

Bank with IB Services and Time Spent		Freq	%
Bank	Vakıfbank	69	40.10
	Ziraat Bank	21	12.20
	İş Bank	28	16.30
	Akbank	12	7.00
	Garanti Bank	22	12.80
	Finansbank	6	3.50
	Koç-Yapı Kredi Bank	14	8.10
Time Spent	Less than 1 year	27	15.70
	2-3 years	83	48.30
	4-5 years	39	22.70
	6-7 years	18	10.50
	More than 8 years	5	2.90

Table 2 shows that Vakıfbank ranked first in IB (40%) and İşbank ranked second (16.3%). Only 36.1% of the respondents had been using internet for 4 years or more.

Using IB Services:

Responses on frequency of use of IB services are given summarized below, Table 3.

Table 3: Using IB Services

Use of IB Services IB Service Types	Do not Use		Seldom		Sometimes		Always	
	Freq	%	Freq	%	Freq	%	Freq	%
Determine Account Balance	8	4.70	11	6.40	53	31.00	100	57.90
To transfer Money (EFT-Money Order)	17	9.90	10	5.80	41	24.00	104	60.20
Foreign Exchange transactions	115	67.30	21	12.30	13	7.60	23	6.60
Investment Fund Transactions	136	79.50	12	7.00	10	5.80	14	7.60
Repos Transactions	160	93.00	5	2.90	1	0.60	4	3.50
Stock Transactions	147	85.40	8	4.70	5	2.90	12	7.00
Pay Bill, Credit	32	18.70	12	7.00	28	16.00	100	57.90
Bond Transactions	156	90.60	7	4.10	5	2.90	4	2.30
Futures	141	82.50	7	4.10	18	9.90	6	3.50
To learn Daily Finance	100	58.50	25	14.60	23	12.90	24	14.00
Electronical Card	150	87.10	5	2.90	4	2.30	13	7.60

N=172

It seems that accessing ‘account balance’ is the most used IB service, followed by transfer of money, and pay invoices/bills, in reducing order of importance. Most IB users seem not to have used specialized services like repos and bond transactions.

Important Factors Affecting Bank Choice For IB Services

In order to determine important factors for IB users a question asked and answers are shown in Table 4.

When Table 4 is examined it is seen that the first factor effecting bank choice is “Security of Web Site” variable with 4,82 average. Second factor is “Reliability of the Bank” with 4,79 average and third factor is “Privacy” with 4.77 average. IB users see “Commercials” unimportant.

Respondents Risk Perceptions Against IB

Question asked to determine risk perception of the users and non-users of IB and answers and the reliability coefficient of the scale used are given in Table 5.

Table 4. Important Factors Affecting Bank Choice For IB Services

Important Factors in Choosing Bank	M	SD	Cronbach Alpha	
Security of Web Site	4,82	,615		
Reliability of The Bank	4,79	,506		
Privacy	4,77	,562		
Transaction Speed	4,63	,538		
Bank keeps salary	3,96	1,198		
Enjoyable Web Page	2,59	1,193		
Variety of Internet Banking Services Offered	4,00	,942		
Innovative Web Site	3,73	1,068		
Recommendation of Friends	2,68	1,291		
Commercials	2,20	1,228		
Overall Total	3,82	0,49		0,68

*5 = Very Important.....1 = To be of no consequence

Table 5: Respondents' Risk Perception and Reliability Coefficients of the Scale

Risk Perceptions Variables		IB Users		IB Non-Users		Cronbach Alpha
		AM*	S D	AM*	SD	
Financial Risk	I worry about being swindled by IB	3.51	1.09	3.81	1.08	
	I worry about high risks during money transfers	3.47	1.14	3.87	1.03	
	Total	3.49	1.05	3.84	.98	
Performance Risk	I worry that IB provider may not deliver the service	3.29	1.09	3.35	1.11	
	I worry about non-access to IB Web due to poor maintenance	3.25	1.14	3.23	1.11	
	I worry about non-access to IB Web due to low internet connection speed	3.36	2.54	3.18	1.09	
	I worry about transactions left incomplete	3.12	1.06	3.29	1.15	
	Total	3.25	1.09	3.26	.89	
Time Risk	I worry about spending more time to complete IB transaction	2.94	1.12	2.74	1.23	
	I worry about spending more effort to effort IB transaction	2.69	1.12	2.62	1.22	
	Total	2.81	1.04	2.68	1.12	
Social Risk	I worry about losing my friends and my family support in case of any failure while using IB	2.52	1.09	2.42	1.22	
	Not encouraged by others to use IB	2.72	1.12	2.58	1.14	
	I am afraid to ask for help from bank's personnel in case of any failure or fault in IB transactions	3.02	1.17	3.53	2.49	
	Total	2.75	.90	2.85	1.20	
Psychological Risk	In case of any failure or fault, I worry about making wrong decision while using IB services	2.97	1.16	3.35	1.09	
	I think using IB can cause stress and anxiety.	2.45	1.08	2.95	1.24	
	Total	2.71	.98	3.15	1.01	
Security Risk	I am suspicious about reliability of the bank chosen for IB transactions.	2.59	1.09	2.99	1.25	
	I am suspicious that someone else may access my bank account.	3.44	1.21	3.92	1.04	
	I am worried that somebody can access my account if I use a computer not belonging to me	3.66	1.14	3.91	1.02	
	I am worried that I may not be able to cancel incorrectly entered transactions	3.24	1.26	3.68	1.01	
	Total	3.22	.98	3.62	.80	
Overall total		3.04	.75	3.23	.70	.871

*5 = Completely Agree....1=Definetely Disagree

The financial risk perception among non-users of IB is 3.84 while it is 3.49 for IB-users. This means that non-users’ financial risk perception is relatively high.

When security risk perceptions of IB service users and non users are evaluated it is seen that there is low security risk perception among IB-users and that there is a noticeable security risk perception among non-users of IB.

The average value of responses for different types of risks, for users and for non-users of IB, as summarized below, indicate uncertainty among respondents about those IB risks:

- Performance Risk: average values of 3.25 and 3.26
- Time Risk: average values of 2.81 and 2.68
- Social Risk: average values of 2.75 and 2.85
- Psychological Risk: average values of 2.71 and 3.15

Relationship Between Demographic Characteristics of and Risk Perceptions:

Correlation analysis results are given in Table 6, below.

Table 6: Relationships Between Process Time of IB and Risk Perceptions

Demog. Char	Risk Values.	Internet Banking (IB) Use											
		Social Risk		Financial Risk		Performance Risk		Time Risk		Psychological Risk		Security Risk	
		r	p	r	p	r	p	r	p	r	p	r	P
Gender		.024	.698	-.058	.345	.029	.625	.016	.792	-.023	.710	.090	.131
Income		-.177**	.003	.025	.971	-.100	.085	-.155*	.010	-.138	.021	.142*	.014
Age		.024	.698	-.058	.345	-.029	.625	.016	.792	-.023	.710	-.090	.131
Marital Status		.063	.343	.075	.265	.036	.575	.060	.371	.043	.516	.074	.255
Title		.019	.751	-.038	.535	.032	.584	.070	.245	.036	.547	.052	.372
Process Time		-.065	.289	-.016	.798	-.033	.581	-.145	.020*	-.103	.095	-.049	.418

**p<.01 * p< .05

Negative relationship was calculated between income and social risk at .01 significance level. It means that when income increase, social risk perceptions of IB users will decrease.

There is also negative relationship between income and time risk at .05 significance level. In this case, when income level increase time risk perceptions of IB users will decrease.

However, there is a positive relationship between income and security risk at .05 significance level. As the income level of IB users increase security risk perceptions also increase.

Analysing Differences Between Respondents’ Risk Perceptions:

Variance analysis was done on Table-5 data to determine whether is there any difference between users and non users of IB services or not, and results are shown in Table 7, below.

Table 7: Differences Between Respondents’ Risk Perceptions with respect to IB

Risk Types	F	P
Financial risk	10,254	.001
Performance risk	0,006	.940
Time risk	1,279	.259
Social risk	2,325	.128
Psychological risk	17,374	.000
Security risk	16,841	.000

Table 7 shows that there is a significant difference between risk perceptions of users and non users in terms of financial risk, psychological risk and security risk. While IB users' financial risk perceptions is 3.49, non users' average value is 3.84. It can be said that non-users' financial risk perception is higher than that of IB users. While average value of psychological risk perceptions of IB users 2.71, non users' average value is 3.15. In this case, non users' psychological risk perceptions is significantly higher than users. Another difference between users and non users risk perception is in the security risk. While average value of IB users' is 3.22, non users' average value is 3.62 with security risk. This result reveals that non-users' security risk perception is significantly higher than those of users. Therefore, **H₁**, **H₅** and **H₆** hypothesis are accepted.

It is also found out that there is no significant difference between users and non users in terms of performance risk, time risk and social risk and **H₂**, **H₃** and **H₄** hypothesis are rejected.

RESULTS

The following conclusions can be drawn from this study which aimed at finding whether there are any differences between risk perceptions of users' and non users' of Internet Banking.

Customers who choose internet banking use IB especially for information about balance of account, money transfer (EFT), and to pay invoices, credit-cards, etc. Most of IB users do not use repos, bond & futures, electronic card, and investment funds. These results are similar to a previous similar study done on academic staff in Turkey which showed that most preferred services were: to make payments, to get information, and to do EFT (Akinci et. al., 2004).

Factors that seem important to IB users in choosing bank are: security of web site, privacy, transaction speed, reliability of bank, and variety of IB services offered. Previous studies on IB found that factors affecting choice of bank were almost identical: security of the site, privacy, transaction speed, reliability of the bank and variety of the services offered (Akinci, et.al., 2004; Liao and Cheung, 2002; Daniel, 1998).

There is a significant relationship between users' income level and risk perceptions in this study. Users with high income perceive high social risk and time risk than others. But, users with high income also have high security risk perceptions. Time risk reduces with increased use of IB, meaning that frequent users manage to complete their IB transactions faster, thus reducing time risk perceptions.

Non-users' financial risk, psychological risk and security risk perceptions are significantly higher than that of IB users. Non-users of IB worry about being swindled during money transfers while using IB. All the same, they think that using IB services is a wrong decision because of financial risks involved. Customers also worry about reliability of the bank chosen, because of perceptions that somebody else can access their bank account and that they may not be able to cancel transactions when they make errors in conducting internet banking.

According to these results, it can be said that non-users' main risk perceptions stem from security concerns. They think that (a) they will lose money, (b) somebody can access their bank account, and (c) they will be swindled by others. These worries are generally supported by other similar studies. Gerrard, et.al. (2006) found out that customers do not use IB services because: they perceive risks, lack of information about services and/or do not have enough facilities to access the services. In another study, Walker and Johnson (2006) determined that risk perception and capacity to use the services did influence customers' decision to use IB services. Several other studies have also determined that important factors affecting use of IB use include security and privacy (Suh and Han, 2002; Hernandez and Mazzon, 2007; Flaviàn, et.al., 2006; Cunningham, et.al., 2005).

Widespread use of IB services can be useful for both customers and for banks. Customers can do their bank transactions on internet using their time effectively, but banks must provide very secure web sites to encourage customers to use their web-based internet banking services, especially people with high education levels. Banks should solve their security problems and provide more information to the users.

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