Journal of Economics, Business and Accountancy Ventura Volume 14, No. 2, August 2011, pages 161 – 174
Accreditation No. 110/DIKTI/Kep/2009

FACTORS DETERMINING ACCEPTANCE LEVEL OF INTERNET BANKING IMPLEMENTATION

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ABSTRACT

The purpose of this research is to determine the factors influencing acceptance level of internet banking by the bank customers in Surabaya. There are ten constructs compiled into a structural model to explain the customer acceptance level of internet banking, i.e. awareness of service, security, quality of internet connection, computer self efficacy, perceived usefulness, perceived ease of use, perceived enjoyment, trust, attitude towards using, and adoption intention. The data were collected using convenience sampling method by randomly taking all the bank customers that have used internet banking in Surabaya. Only 193 questionnaires were taken and analyzed because due to some circumstances. The method of analysis is by means of partial least square (PLS) using the program of SmartPLS 2.0. The results show that the overall proposed hypotheses are accepted except two hypotheses relationship between awareness of service to the perceived usefulness and security to the perceived usefulness are considered to have no significant relationship. The management implication and suggestions for the banks as internet banking service providers are also discussed.

Key words: *Internet Banking, Technology Acceptance Model.*

INTRODUCTION

A rapid development of information and communication technology (ICT) makes every company able to do adjustments to any changes. This situation becomes more complex because also of human needs that always demands faster, more secure, not bound in time services. Beside, it can also influence the company itslef. One type of the companies that is closely related to the human needs is the banking industry. In order to expand its service network and increase customer satisfaction, many banks have implemented ICTs for being internet banking in order to be able to give easier financial transaction process for their customers.

By providing internet banking facilities, banks can obtain some advantages, like expanding their business network. In addition, by implementing internet banking, the banks can eliminate their physical boundaries and limited operations time from other banks. Internet banking can also be accessed from any place without time bound for 24 hours of online system. This certainly can reduce the cost of network expansion for the banks which usually must be taken by opening new branch office and hiring new employees (Al-Sukkar and Hasan, 2005).

Increased customer loyalty in using internet banking will encourage increasing bank's financial performance as indicated by increase in revenue and decrease operational costs. The Cost to provide banking service through internet banking can be cheaper than opening new branch office (Sri Maharsi and Yuliani, 2007). The most advantageious one of using intenet banking is that the banks obtain from internet banking provisioning in which they may have a competitive advantage when compared with other banks that do not have internet banking service.

In recent years, the number of internet users in Indonesia has increased substantially. It is triggered by social networking site phenomenon like facebook and twitter where Indonesia is the country which is second highest growth rate of facebook users in the world (Kompas.com, 2010). This phenomenon is also supported by the increasing number of internet gadget smartphones like BlackBerry and the like, even in Indonesia BlackBerry has the sales growth rate reached by 494 percent in 2008 (Detikinet.com, 2010).

Increasing numbers of internet users in recent years would also have an impact on the increasing number of internet banking users. Based on the data from Bank Indonesia, customers who had transaction via internet banking in 2009 reached by 2,5 million people, larger than the number of customers who had transaction via internet banking in 2008 which totaled only 1,5 million people. The increasing number of internet banking users automatically has influenced the transaction value. For example, during year 2008, the transaction value just amounted Rp 207 trillion from 79 million transaction, then during 2009 internet banking transaction value had rose significantly to Rp 1.502 trillion from more than 250 million transaction (Highlight Perbankan Indonesia, 2009).

The increasing number of internet banking users indicates that the internet banking's acceptance level have improved. Internet banking's acceptance level can be influenced by several factors. One model that is often used to describe acceptance level of information technology is TAM (*Technology Acceptance Model*) (Davis, 1989). According to TAM, perceived usefulness and perceived ease of use is believed to be the basis in determining acceptance of information technology. Both of these factors influence intention to use information technology before it can finally create the actual usage in daily life (Davis, 1989).

Several studies on internet banking has used TAM as their basis research model. From various studies, there are several new factors put in the research model as modification of the initial TAM developed by Davis (1989). Al-Somali, Gholami, and Clegg (2009) conducted research in Saudi Arabia to examine factors influencing internet banking acceptance by modifying TAM model. In these studies they put new variables to be examined, i.e. awareness of service, security, trust, and quality of internet connection.

Pikkarainen, Pikkarainen, Karjaluoto, and Pahnila (2004) conducted similar research in Finlandia to examine the variables that affect the use of online banking. In these studies they put a new variable, i.e. perceived enjoyment and information of online banking. Meanwhile, Wang, Wang, Lin, and Tang (2003) conducted research in Taiwan by adding a new variable that is computer self-efficacy as modification of TAM model.

THEORITICAL FRAMEWORK AND HYPOTHESES

Internet Banking Benefits

The various benefits can be obtained through the banks are by providing internet banking services. The benefits as follows:

a. Reduce Costs

Nath, *et al* (2001) stated that average cost of banking transactions has decreased from $1,07 to $0,27 if using internet banking. This cost reduction can be caused due to the nature of internet banking which is a fixed cost, contrast with conventional banking services which are variable cost where costs will continue to grow along with the addition of branches, number of employees, and working hours. Nature of internet banking is not limited by time (24 hours a day 7 days a week), self-access, and can reach all customer network. Internet banking are able to provide solution for high cost conventional banking service providing.

b. Increase Customer Base

Corrocher (2002) stated that one of the benefits from internet banking is to increase the customer base. This can occur because the nature of internet banking which can be accessed by all customer from anywhere and

anytime. Different from conventional banking system, in which they like establishing new branch offices that are only able to reach customer base in certain area.

c. Marketing and Communication Media

One of the benefits from internet banking is that it can be a media of marketing and communication for its banking company as service provider. Corrocher (2002) stated that through the internet media, information process delivery and the latest updates from the bank can be performed efficiently and accurately because each message sent directly to each users so the message doesn't need too broad to target information that is not supposed to.

d. Increase Customer Satisfaction and Loyalty

Nath, *et al* (2001) stated that one of the benefits from provisioning internet banking service is enhance customer satisfaction and loyalty. With the use of internet banking, frequency of customer visits to bank can be reduced so every customers can save their time and cost. Banks also can create more loyal customers by offering various financial services through their website. Sites that offer a wide range of financial service will increase customer dependence on the services offered, so banks can generate higher revenue from each customer.

e. Generate High Profit

Nath, *et al* (2001) stated that average internet banking users are customers who have high income levels and educational background is above average. By increasing the customer's dependence frequency toward internet banking, bank can increase their profit. Hoffman (1999) in Nath, *et al* (2001) stated that Wells Fargo Bank get income 50% higher above average from customer segment internet banking users who had high income and educational background above average.

Internet Banking's Risk

Al-Sukkar and Hasan (2005) stated that there are variety of risks might be arising in the use of internet banking. Those risks areas the following:

a. Indirect Cost

Internet banking has some computer spesification requirement, such access, computer type, memory minimum, monitor resolution, and internet browser. Some of these requirement should make customer pay extra money when compared to the conventional banking service method such as ATM.

b. Cash Availability

Using internet banking makes customers unable to save and withdraw the fund in cash. Internet banking can only be used to perform payment and transfer transaction. If customer needs to save and withdraw money in cash they hahve to go to bank or ATM.

c. Security

One of the biggest risks from internet banking using is the threat from hackers and also misuse of the customer accounts. If internet banking sites are not protected by adequate protection system this could be a serious threat for banks, because customer will be reluctant to conduct transaction via internet banking.

Technology Acceptance Model (TAM)

Actually, TAM is a model developed by Davis (1989) to explain the acceptance of technology. According to Davis, ICT using behaviour started by a perceived usefulness and perceived ease of use. Davis defines the perceived usefulness based on "useful" word which means capable of being used advantageously or can be used for beneficial purposes. Perceived usefulness is benefits that an individual believed would be obtained when using ICT. In the context of organization, usefulness is associated with the improvement of individual performance that directly or indirectly impact on the chance to gain advantage both physical and material and non material.

Other TAM variables that can affect tendency of individuals to use ICT is perceived ease of use. Ease of use means without difficulty or freed from trouble and do not have to try hard. Thus the perceived ease of use means the individuals believed that

use ICT systems will not be inconvenient or require a major effort at the time of use (free of effort).Perceived usefulness and perceived ease of use affects the attitude towards using of ICT, and then will determine whether individuals intends to use ICT or not. Intention to use ICTs will determine whether people will use ICT or not. In TAM, Davis (1986) found that perceived usefulness may be affected by perceived of ease of use but does not apply vice versa. Thus as long as individuals feels that ICT is useful in many tasks, then individual will intend to use it.

Research Hypothesis

Awareness of service (AW) is the customer awareness level of the internet banking services existence provided by banks. The level of awareness is influenced by the amount of information received by the customer (Al-Somali, et al. 2008). The higher level of awareness owned by the customer, the customer will increasingly understand usefulness of internet banking service. Based on the description above hypothesis as follows:

H1: Awareness of service (AW) has positive effect on perceived usefulness (PU).

Security (SE) is the level of security offered by the internet banking service provider to each user. Without adequate level of security, the use of internet banking will become useless (Shan Lu, et al. 2006). The higher the assurance level of security provided by the internet banking service providers, the greater the benefits that can be received by customers. Based on the description above hypothesis as follows:

H2: Security (SE) has positive effect on perceptions usefulness (PU).

Quality of internet connection (QIC) is the level of connection quality used to access internet banking by customers. Without an adequate internet connection the use of internet banking is not possible to do, especially for features that have special requirements, so this will have an impact on customers who have difficulty in accessing internet banking (Al-Somali, et al. 2008). Based on the description above hypothesis as follows:

H3: The quality of Internet connection (QIC) has positive effect on perceived ease of use (PEU).

Computer self efficacy (CSE) is a customer ability to use computers. A customer who often uses computers especially internet will feel easy to adjust to internet banking services (Wang, et al. 2003). The more easily make adjustments so customers can feel the ease of transacting through internet banking. Based on the description above hypothesis as follows:

H4: Computer self efficacy (CSE) has positive effect on perceived ease of use (PEU)

Perceived ease of use (PEU) is the level of a person believes that using a particular system does not require any effort (free of effort) (Davis, et al 1989). A customer will feel that using internet banking can be useful when the use is also easy for them (Wang, et al. 2003). The easier the operation of internet banking then this will attract customers to continue using internet banking. With the continuing use make customers feel more benefits from internet banking (Al-Somali, et al. 2008). Based on the description above hypothesis as follows:

H5: Perceived ease of use (PEU) has positive effect on perceived usefulness (PU).

A customers will feel that using internet banking is so easy (perceived ease of use) when does not require any effort. The easier the use of internet banking, customer will be interested to continue using the service (Sun, Heshan and Ping Zhang, 2006). By continuing using internet banking slowly but sure customer can enjoy the advantages of internet banking. Based on the description above hypothesis as follows:

H6: Perceived ease of use (PEU) had positive effect on perceived enjoyment (PE).

Perceived usefulness (PU) defined as the degree which a person believed that using a particular system would enhance their performance (Davis, et al. 1989). A customer will have a positive attitude towards internet banking when customers feel that using

internet banking provide benefits for them (Al-Somali, et al. 2008). Based on the description above, thehe hypothesis is as follows:

H7: Perceived usefulness (PU) has positive effect on attitude towards using (ATU).

A customers will feel that using internet banking is so easy (perceived ease of use) when using internet banking does not require any effort (Davis, et al 1989). Customers who feel that using internet banking is not easy will tend to have rejection attitude, while customers will have a positive acceptance of internet banking when customers feels that using internet banking is so easy (Reid, Michael and Yair Levy, 2008). Based on the description above hypothesis as follows:

H8: Perceived ease of use (PEU) has positive effect on attitude towards using (ATU).

Perceived enjoyment (PE) is defined as the degree which a person feels that using internet banking can be enjoyed for themselves (Pikkarainen, et al. 2004). If one customer has to feel that using internet banking can be enjoyed for them, this will encourage customers to have an acceptance attitude of internet banking (Qureshi, et al. 2008). Based on the description above hypothesis as follows:

H9: Perceived enjoyment (PE) had positive effect on attitude towards using (ATU).

Trust (TR) is the level of confidence that using a system is fit to user expectations. The use of internet banking is related to the transfer of specific confidential data and the ability to perform multiple transactions simultaneously (Md Noor, Khalid and Michael Pearson, 2007). Customers trust will grow as internet banking can solve all these problems (Reid, Michael and Yair Levy, 2008). Trust will encourage a customer to have an acceptance attitude of internet banking. Based on the description above hypothesis as follows:

H10: Trust (TR) has positive effect on attitude towards using (ATU).

Adoption intention (AI) in the context of internet banking will affect customer's decision whether to continue using internet banking or decide to not use it anymore. Intention to use internet banking will appear when a customer has a positive attitude towards internet banking (Al-Somali, et al. 2008). This acceptance is derived from a variety of customer perceptions that have been formed earlier. Based on the description above hypothesis as follows:

H11: Attitude towards using (ATU) has positive effect on adoption intention (AI).

RESEARCH METHOD

Population, Sample, and Sampling

The population used is the bank customers who use internet banking service. The sample is not restricted from how long they have used internet banking, because there are equal respondents between long-user internet banking or customers who have just used few months using internet banking and thus data variability can be obtained in oder to describe customer's decision to still continue using internet banking in the future or not. There are two sampling techniques used in this research that is accidental sampling and snowball sampling due to get customers who use internet banking is not easy to get. Some places were targeted for collecting samples such as trade center, plaza, and mall where at those place there are many traders and buyers who use internet banking for business transactions.

Variables Measurement

There are ten variables used in this study. Each variable was measured using Likert scale with a weight from 1 to 5. The description of such variables are as follows:

a. Awareness of services

Awareness of service (AW) is the level of customer awareness about internet banking service. This variable was measured through the adequacy of information received by the customers about internet banking services existence, benefits, and how to use it.

b. Security

Security (SE) is the customers' perception

that using internet banking can be protected from theft or any other abusing activities. This variable was measured through the level of customer confidence in the security system provided by the internet banking service providers.

c. Quality of Internet Connection

Quality of internet connection (QIC) is the level of internet connection quality to access internet banking. This variable was measured through easy access to internet, speed, and also connection stability.

d. Computer Self Efficacy

Computer Self Efficacy (CSE) is a customer ability to use computers. This variable was measured through the ability to use internet banking customers with or without help from the others.

e. Perceived Usefulness

Perceived usefulness (PU) is the customer's perception about benefits after using internet banking. This variable was measured through increasing performance and banking activity which can be felt by customers after using internet banking.

f. Perceived Ease of Use

Perceived ease of use (PEU) is the perception ease of use of internet banking perceived by the customers. This variable was measured through customer ease in using internet banking.

g. Perceived Enjoyment

Perceived enjoyment (PE) is the customer's enjoyment in using internet banking. This variable was measured through a sense of pleasure and comfort from customers while they used internet banking.

h. Trust

Trust (TR) is the level of confidence that using internet banking is suitable with customers' expectations. This variable was measured through the level of customer confidence, commitment from service providers, and decisions taken by the customer.

i. Attitude Towards Using

Attitudes towards using (ATU) is the attitude towards using internet banking, this attitude can be either positive attitude or negative attitude. This variable was measured through responses given by the customer after using internet banking such as recommendations to others and positive attitude.

j. Adoption intention

Adoption intention (AI) in the context of internet banking is the customer's decision whether to continue using internet banking in the future or not anymore. This variable was measured through the intention to continue using internet baking in the future, and hope to use internet banking in completing financial transactions.

Data Analysis

Structural equation modeling (SEM) and analysis tools were used that is the software Partial Least Square (PLS). PLS is an analysis tool that allows researchers to obtain the value of latent variables for prediction purposes. As stated by Wold (1985) in Ghozali (2008), Partial Least Square (PLS) is a powerful method analysis because it is not based on many assumptions. Data should no be multivariate normal distribution (indicator with a scale category or ratio can be used simultaneously on the same model), the sample does not need to be big and residual distribution. In addition, PLS has advantage that they are able to estimate a large and complex models with hundreds variables and thousands indicators. For the purpose of prediction, PLS approach is more suitable. If a study is in situations of high complexity and has the low support theory, then the SEM analysis with PLS method is more appropriate to be applied (Ghozali, 2008).

DATA ANALYSIS AND DISCUSSION

Based on the questionnaire, there is general description of respondent's profile as shown in Table 1. The majority respondents have sex male with percentage 63.21 percent, while the remaining percentage is women. Internet banking respondents most comes from the age group between 21-30 years amounted 46.63%, while respondents from the age group above 50 years had the smallest percentage 4.15 percent. Majority of

Table 1
Respondent's Profile

Respondent's Profile	(N)	%
Sex		
Male	122	63,21%
Female	71	36,79%
Age		
21-30 Year	90	46,63%
31-40 Year	54	27,98%
41-50 Year	41	21,24%
>50 Year	8	4,15%
Bank		
BCA	96	49,74%
Mandiri	36	18,65%
BRI	28	14,51%
BNI	16	8,29%
CIMB Niaga	10	5,18%
Mega	3	1,55%
Panin Bank	2	1,04%
Danamon	1	0,52%
NISP	1	0,52%
Educational Background		
Elementary School	-	0%
Junior High School	3	1,55%
Senior High School	41	21,24%
Undergraduate	136	70,47%
Postgraduate	13	6,74%
Jobs		
Enterpreneur	78	40,41%
Private Sector	59	30,57%
Public Servants	7	3,63%
Others	49	25,39%
Mothly Income		
Rp 1.000.000-Rp 2.000.000	34	17,62%
Rp 2.000.001-Rp 4.000.000	47	24,35%
Rp 4.000.001-Rp 8.000.000	58	30,05%
>Rp 8.000.001	54	27,98%
Using Type		
Individual	185	95,85%
Corporate	8	4,15%

respondents are internet banking users from BCA as shown by the percentage 49.74 percent. Internet banking users are customers who have relatively high educational background because majority of respondent's educational background is under graduate, with the percentage 70.47 percent. The respondents from this study had various jobs among others like entrepreneurs, private employees, and others expert jobs. The smallest number of respondents came from a class of public servants with a percentage 3.63 percent. Internet banking users in Surabaya has a various monthly income, starting from the lowest income class between Rp 1.000.000 - Rp 2,000,000 per month is 17.62 percent to the highest income class that is more than Rp 8,000,000 per month is

27.98%. Because customers are found in the fields are mostly individual clients, so the use of internet banking majority is also for individual's behalf with percentage 95.85 percent, only a small percentage of respondents who use internet banking for company's behalf.

Statistical analysis using the program SmartPLS 2.0 was preceded by validity and reliability test to determine the consistency of measurement tools. This is used to describe whether it has been precise or not with the variables analyzed. The test results show that overall convergent validity indicator in this study meets the requirements of validity because it has a loading factor value above 0.5 (> 0.5), results from validity test as shown in Table 3. While the construct reliability test have also meets internal construct consistency because each construct has a cronbach alpha value above 0.7 (> 0.7) (Ghozali, 2008). The Table 2 is the research instrument that we used in this study including the results of reliability test from each construct.

Before performing path analysis to determine results from each hypothesis, we need to make a research model based on constructs that have been analyzed. The model we used in this study as shown in Figure 1.

After making the research model, we do path analysis to determine hypothesis results. Path analysis results as shown in Table.4. The results show that hypothesis 3 up to 11 are accepted, because it has T statistics above 1,96 (>1,96), but only hypothesis 1 and hypothesis 2 that are not complied with the proposed hypothesis because it has T statistics under 1,96 (<1,96). This proves that awareness of service and security have no significant effect on perceived usefulness.

Discussion

No significant relationship between awareness of service and perceived usefulness is caused by majority internet banking users and this has fairly high awareness of the existence from internet banking facility provided by the bank. Yet, this does not affect significantly the perceived usefulness because usefulness can only be felt when internet banking has been used. After using the internet banking, the customers can feel whether the internet banking is useful for them or not, not at the time before using or only from the information per se.

No significant relationship between security and perceived usefulness is caused by majority respondents. They feel worried with the transaction security while using internet banking. Internet banking can not be perceived by the customers as a system that is completely safe. Customers are considering the security risks that must be covered with benefits that can be felt (risk benefit analysis). As a result of these concerns, there are term arise among the customers that is pure and non-pure internet banking users. Pure internet banking users are customers who utilize all the facility of internet banking transactions such as check balances, transfer, bill payments, and others. On the cotrary, the non-pure internet banking users are customers who use internet banking only for checking balance purposes. Majority of respondents are customers of non pure type. Activities only to check balances had purpose to minimize security risks that might occur but still with same benefits can be felt.

There is a significant relationship between quality of internet connection and perceived ease of use caused by the majority respondents has easy and good quality internet connection to access internet banking. This is because internet development in Indonesia is currently on booming stage and many internet service providers provide cheap rates so it makes easier for customers to get a good internet connection at low price. Significant relationship between computer self eficacy and perceived ease of use caused by the majority respondents has a good enough computer mastery so they will be able to operate internet banking only by following the instructions provided within the site without having received help from others. A customer who often used

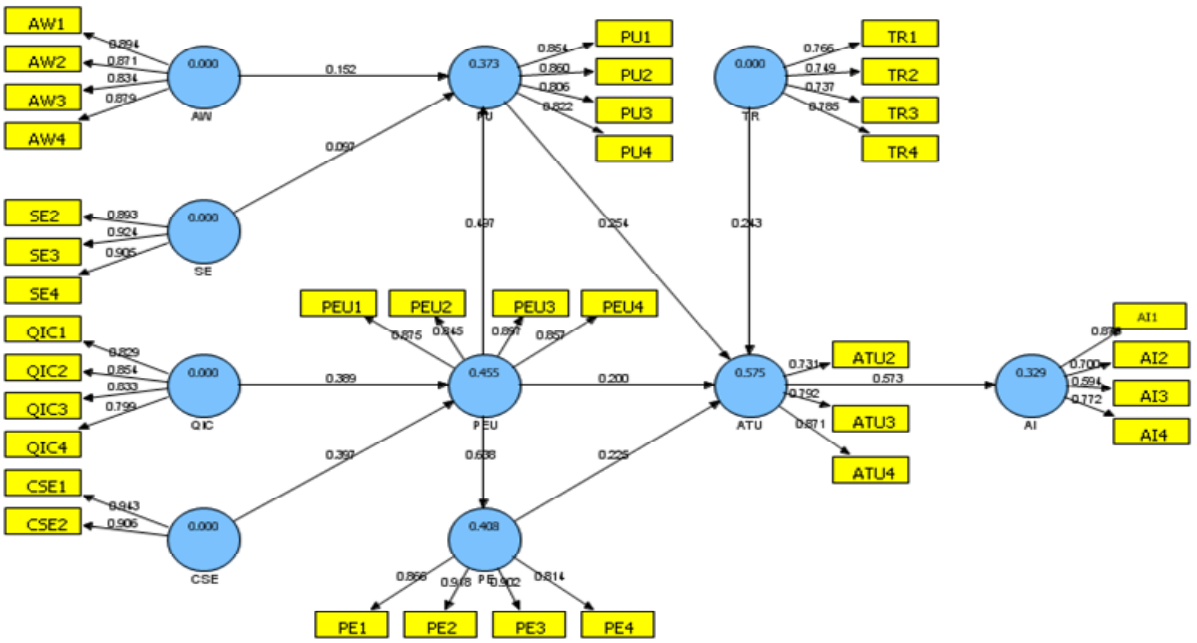
Table 2
Research Instrument

Questions	Mean	*Loading*	*Reliability*
Awareness of Service (AW)			
Knowing that bank had internet banking services	4.35	0.89	0.92
Knowing benefits and risk from using internet banking	4.32	0.87	
Knowing application procedure from internet banking	4.05	0.83	
Knowing how to use internet banking	4.30	0.87	
Security (SE)			
Bank gives security guarantee to do transaction over internet banking	3.31	0.89	0.93
I would feel secure sending sensitive information over the internet	3.11	0.92	
Using internet to do money transaction is secure	3.03	0.90	
Quality of Internet Connection (QIC)			
My access to internet is easy	3.83	0.82	0.89
My internet connection is fast	3.91	0.85	
My internet connection is stable	3.87	0.83	
The internet guarantees that all transactions to the bank have been completed	3.86	0.79	
Computer Self Efficacy (CSE)			
I could complete my bank transaction using the internet banking system if I had only online help for reference	4.02	0.94	0.92
I could conduct my banking transaction using the internet banking systems if I had only the system manuals for reference	3.82	0.90	
Perceived Usefulness (PU)			
Using internet banking in my jobs increase my performance	4.32	0.85	0.90
Using internet banking in my jobs increase my effectiveness	4.44	0.86	
Using internet banking in my jobs increase my productivity	4.08	0.80	
I would find the internet banking systems useful in conducting my banking transactions	4.37	0.82	
Perceived Ease of Use (PEU)			
Interacting with internet banking does not require a lot of my mental time	4.09	0.87	0.92
Interaction with internet banking is clear and understandable	4.02	0.84	
It is easy for me to become skillful at using internet banking	4.19	0.89	
Learning to use internet banking systems is easy for me	4.28	0.85	
Perceived Enjoyment (PE)			
Using internet banking is interesting activities	4.22	0.86	0.92
Using internet banking is fun	4.13	0.91	
Using internet banking can be enjoyable	4.10	0.90	
Using internet banking is positive activities	4.31	0.81	
Trust (TR)			
I trust my bank's internet banking site	3.69	0.76	0.84
The internet banking site keep customers best interest in mind	3.60	0.74	
The internet banking site keeps its promises and commitments	3.58	0.73	
I trust in the benefits of the decision of the internet banking site	4.15	0.78	
Attitude Towards Using (ATU)			
In my opinion, it is desireable for every customers to use internet banking	3.69	0.73	0.84
My attitude towards internet banking usage is positive	4.03	0.79	
Using internet banking is a wise idea	4.08	0.87	
Adoption Intention (AI)			
I will use internet banking on regular basis in the future	4.03	0.87	0.82
I will strongly recommended others to use internet banking	3.58	0.69	
Whenever I have an access to internet, I intend to use internet banking	3.12	0.59	
Feels satisfied with the benefits I can get from internet banking	4.11	0.77	

computers especially internet will be easy to adapt in the use of internet banking service.

Significant relationship between perceived ease of use and perceived usefulness is due to the customers who feel the internet banking using can be useful when the use is also easy for them. The easier the operation of internet banking then this will attract customers to continue using internet banking. Significant relationship between perceived ease of use and perceived enjoyment it is because the ease of use in operating internet

Figure 1
Research Model



banking will encourage every customer interested in using internet banking again. Interests that arise due to the perceived ease of use make customers happy and enjoy the internet banking.

There is also a significant relationship between perceived usefulness and attitude towards using it. This is because a customer will have a positive acceptance attitude of internet banking when customers feel that using internet banking give benefits for them (Al-Somali, et al. 2008). These results are consistent with the research results conducted by Wang, et al (2003), Al-Somali, et al (2008), and Davis, et al (1989) which stated that there is a significant relationship between perceived usefulness and attitude towards using. Significant relationship between perceived ease of use and attitude towards using it is because customers who feel that is not easy to use internet banking will tend to have the rejection attitude, while customers will have a positive acceptance attitude of internet banking at the time when they felt that using internet banking is so easy (Reid, Michael and Yair Levy, 2008).

Another significant relationship between perceived enjoyment and attitude towards using it is when one customer feels that using internet banking can be enjoyed for them, and then this will encourage customers to have an acceptance attitude of internet banking (Qureshi, et al. 2008). Results of this study do not support the research results conducted by Qureshi, et al (2008) and Pikkarainen, et al (2004) which stated that there is no significant relationship between perceived enjoyment and attitude towards using. The difference might be due to the research conducted by Qureshi, et al (2008) and Pikkarainen, et al (2004) carried out in countries that have high enough internet banking adoption rate so that internet banking using is already a habit and does not require a perceived enjoyment to establish a positive attitude.

Significant relationship between trust and attitude towards using it is because of internet banking related to the transfer of specific data that is confidential and the ability to perform multiple transactions. Customers trust will grow as internet banking can solve all these problems. This trust goes to encourage a customer to have an accep-

Table 3
Discriminant Validity

Variables	AI	ATU	AW	CSE	PE	PEU	PU	QIC	SE	TR
AI	**0.7416**									
ATU	0.5735	**0.8002**								
AW	0.5196	0.3872	**0.8697**							
CSE	0.5271	0.3348	0.5802	**0.9246**						
PE	0.5868	0.6449	0.5006	0.4190	**0.8760**					
PEU	0.6159	0.6094	0.5864	0.5804	0.6384	**0.8688**				
PU	0.5496	0.6373	0.4567	0.4802	0.6110	0.5866	**0.8359**			
QIC	0.4957	0.4194	0.4871	0.4712	0.4185	0.5761	0.4442	**0.8293**		
SE	0.2954	0.1235	0.1354	0.1062	0.1361	0.0081	0.1220	0.1192	**0.9076**	
TR	0.5747	0.6006	0.3689	0.3322	0.5636	0.4812	0.5294	0.3965	0.3433	**0.7593**

Table 4
Path Analysis Results

Path Correlations	Path Coefficient	T Statistics	Path Correlations	Path Coefficient	T Statistics
AW-->PU	0.152	1.061	**PU-->ATU**	0.254	2.538
SE-->PU	0.097	1.008	**PEU-->ATU**	0.200	2.020
QIC-->PEU	0.389	4.382	**PE-->ATU**	0.225	2.336
CSE-->PEU	0.397	3.578	**TR-->ATU**	0.243	2.612
PEU-->PU	0.497	4.667	**ATU-->AI**	0.573	7.030
PEU-->PE	0.638	7.936			

tance attitude of internet banking. Significant relationship between attitude towards using and adoption intention it is because the positive attitude that is formed by the customer will determine decision whether to continue using internet banking or not. Intention to continue using internet banking in the future will arise when a customer has a positive attitude of internet banking.

CONCLUSIONS, IMPLICATIONS, SUGGESTIONS, AND LIMITATIONS

The purpose of this research is to determine the factors influencing acceptance level of internet banking by the bank customers in Surabaya. There are ten constructs compiled into a structural model to explain customer acceptance level of internet banking, i.e. awareness of service, security, quality of internet connection, computer self eficacy, perceived usefulness, perceived ease of use, perceived enjoyment, trust, attitude towards using, and adoption intention. The results show that the overall proposed hypotheses are accepted except two hypotheses that are the relationship between awareness of service to the perceived usefulness and security to the perceived usefulness have no significant relationship.

This research is useful for many parties especially for the banks as internet banking service providers so that they can increase the number of internet banking users in the future. Some implications are as follows: 1) Security factor is an important consideration from a system design. Layout design of internet banking also needs tobe considered concerning the security factor. Provide feedback to customers about the security mechanisms provided by the banks will increase customers understanding against the internet banking security. 2) The bank needs to inform customers about potential threats that may arise in a system. Being careless to the

availability of such information will also encourage users to reduce careless of detail step transactions. Most internet banking users in Indonesia still have disadvantages in terms of language. Therefore, they often missed and did not read the warning messages that appear on the screen. This requires the need for Indonesian language information menu on the internet banking application, not just in the internet banking pages but also in the internet browser. 3) Bank as internet banking service providers should always maintain a concern to the customer. Regularly bank must provide answers to the question of security issues, either through directly or indirectly answer.

The answer can be given through newspapers, press releases, or via message in internet banking. Better not to use explanations that only simply cover up the threat or actual weakness from internet banking, and also gave an explanation that scaring customers so it will increase reluctant to internet banking using. 4) Internet banking users need to have a handbook about the internet banking security system, including sensitive steps that must be done to avoid security problems. Handbook on security system is a proactive step that must be done by the bank so it doesn't have to wait until there was a new case happens that needs attention.

Suggestions

Some suggestions for further similar studies are as follows: 1) It is advisabkle to use research model supported by strong empirical theory. 2) Some new variables can be added in future research to obtain different results, such as demographic variables, credibility, accuracy, appearance of the site, and others. 3) The re a need to limit the research sample so the sampling process becomes more structured. The restrictions could be the nature of internet banking using (pure and non-pure), or how long have been used internet banking.

Limitations

This research also has some limitations such as: 1) Structural model used in this research is the development of TAM model so that the model is only supported by low empirical theory. 2) Sampling technique used in this research is convenience sampling so that the research results are very dependent on the respondents. 3) The researchers did not restrict internet banking users in a particular bank, while each bank has different services. 4) The researchers did not limit the sample by nature of internet banking using, whether it is pure or non-pure. Thus, this will affect perceived usefulness and ease of use that can be perceived by customers. Researchers also did not limit the sample by how long have been used internet banking, this will affect the adoption intention from a customer.

REFERENCES

Akour, I., Alshare, K., Miller, D., and Dwairi, M 2006. An Exploratory Analysis of Culture, Perceived Ease of Use, Perceived Usefulness, and Internet Acceptance : The Case of Jordan. *Journal of Internet Commerce*, Vol. 5 No. 3.

Alsajjan, B. and Dennis, C 2006. The Impact of Trust on Acceptance of Online Banking. *European Association of Education and Research in Commercial Distribution*, 27-30 June 2006 Brunel University – West London, United Kingdom

Al-Shomali, S. A., Gholami, R., and Clegg, B 2008. Internet Banking Acceptance in the Context of Developing Countries : An Extension of the Technology Acceptance Model. *European Conference on Management of Technology*, Nice, France. September 2008.

Al-Sukkar and Hasan H 2005. Toward a Model for the Acceptance of Internet Banking in Developing Countries. *Information Technology for Development*, Vol 11., No.4, pp. 381 – 398.

Corrocher, N 2002. Does Internet Banking Substitute Traditional Banking? Empirical Evidence from Italy. *Working Paper No.134, Universita Commer-*

ciale, Lucigi Bocconi.

Davis, F 1989. Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*. Vol. 13 No. 3, pp 319 – 340.

Davis, F., Bagozzi, R. P., and Warshaw P. R 1992. Extrinsic and Intrinsic Motivation to Use Computers in the Workplace. *Journal of Applied Social Psychology*. Vol. 22 No. 14 , pp 1111 – 1132.

Ghozali, Imam, 2008. *Structural Equation Modeling-Metode Alternatif dengan Partial Least Square*. Edisi Kedua. Semarang. Badan Penerbit Universitas Diponegoro.

Howcroft, B., Hamilton, R., and Hewer, P 2002. Consumer Attitude and the Usage and Adoption of Home Based Banking in the United Kingdom. *The International Journal of Bank Marketing*. Vol. 20 (3), pp. 111 – 121.

Laporan Tahunan Bank Indonesia, 2009. *Highlight Perbankan Indonesia*. Jakarta. Bank Indonesia.

Maharsi, Sri dan Yuliani Mulyadi, 2007. Faktor – Faktor Yang Mempengaruhi Minat Nasabah Menggunakan *Internet Banking* dengan Menggunakan Kerangka *Technology Acceptance Model*. *Jurnal Akutansi dan Keuangan*, Vol. 9, No.1, Mei 2007 : 18 – 26. Universitas Kristen Petra Surabaya.

Md. Nor, K. and Pearson, J. M 2007. The Influence of Trust on Internet Banking Acceptance. *Journal of Internet Banking and Commerce*, August 2007. Vol. 12, No. 2.

Nath, R., Shrick, P., and Parzinger, M 2001. Bankers Perspective on Internet Banking. *E-Service Journal*. Indiana University Press.

Pikkarainen, T., Pijjarainen, K., Karjaluoto, H., and Pahnila S 2004. Consumer Acceptance of Online Banking : An Extension of the Technology Acceptance Model. *Internet Research*, Vol. 14 (3), 224-235.

Qureshi, T.M., Zafar, M.K., and Khan, M.B 2008. Consumer Acceptance of Online Banking in Developing Economics. *Journal of Internet Banking and Commerce.* April 2008. Vol. 13. No. 1.

Reid, Michael and Yair Levy, 2008. Integrating Trust and Computer Self-Efficiacy with TAM : An Empirical Assesment of Customers Acceptance of Banking Information Systems (BIS) in Jamaica. *Journal of Internet Banking and Commerce. December* 2008. Vol. 12 No. 3

Sathye, M 1999. Adoption of Internet Banking by Australian Consumer: An Empirical Investigation. *International Journal of Bank.* Vol. 17 (7), pp 324 – 334.

Shan Lu. C., Lai, K. H., Cheng. T. C. E 2006. Adoption of Internet Service in Linier Shipping: An Empirical Study of Shippers in Taiwan. *Transport Reviews,* Vol. 26, No. 2, pp 189 – 206, March 2006.

Solomon, M., Bamossy, G., Askegaard, S., and Hogg, M. K 2006. *Consumer Behaviour : A European Perspective*. Third Edition. Prentice Hall Europe.

Suh, B. and Han, I 2002. Effect of Trust on Customer Acceptance of Internet Banking. *Electronic Commerce Research and Applications.* Vol. (1) 1, pp 247 – 263.

Sun, Heshan and Ping Zhang, 2006. Causal Relationship Between Perceived Enjoyment and Perceived Ease of Use : An Alternative Approach. *Journal of the Association for Information Systems.* Vol. 7, No. 9, pp.618 – 645, September 2006.

Wang, YS., Wang, YM., Lin, HH., and Tang, I 2003. Determinants of User Acceptance of Internet Banking : An Empirical Study. *International Journal of Service Industry Management*. Vol. 14 (5), 501 – 519.

http://ictwatch.com/id/, accessed 6 August 2009

https://www.bi.go.id/, accessed 14 January

2010
http://tekno.kompas.com/read/xml/2010/01/13/16374871/wow....indonesia.ranking.2.pertumbuhan.facebook.tertinggi.di.dunia, accessed 4 February 2010

http://www.detikinet.com/read/2009/04/14/192736/1115473/319/fenomenal-penjualan-blackberry-tumbuh-494-di-indonesia, accessed 4 February 2010.