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What Drives Tunisian Customers to Adopt Internet Banking Services? An Examination from the TAM Perspective

Anis Allagui

Faculty of Business, Tunis University, TUNIS

Corresponding author's Email: Anisallagui@gmail.com

ABSTRACT: This paper aims to empirically examine the factors that affect the adoption of Internet banking in Tunisia. In order to explain the factors, this paper extends the "Technology Acceptance Model" by adding additional external factors such as security and privacy, self efficacy, social influence, and awareness of services and its benefits. The findings of the study suggests that the security and privacy, self-efficacy, social influence, and awareness of services and its benefits have significant effects on the perceived usefulness (PU), perceived ease of use (PEOU) and attitude toward Internet banking acceptance. Age and education have also significant impact on the attitude towards the likelihood of adopting online banking. These findings may provide for banks useful guidelines for developing Internet banking services and for marketing Internet banking.

Key words: Internet banking; Technology acceptance model; Tunisia; Developing countries

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INTRODUCTION

The rapid growth of the Internet has radically changed the delivery channels used by the financial services industry. Today, the Internet becomes a full-fledged distribution channel. Internet banking offers great opportunities for banks to increase their transactions, extend their customer bases, and to decrease their operational and opportunity costs (Ozdmir et al, 2007). From the consumers' perspective Internet banking is extremely beneficial to customers because of the savings in costs, time and space it offers, its quick response to complaints, and its delivery of improved services, all of which benefits make for easier banking (Turban et al., 2000).

The financial services offered by internet banking could include viewing all transactions and all accounts balances in real time, payment of bills, change of money in other currencies, transfers of money, stocks operations, purchase of all kind of insurances purchase of travel tickets and travel packages, etc. (Gerrard and Cunningham, 2003; Polatoglu and Ekin, 2001).

Today, commercial banks in Tunisia are competing aggressively to introduce new types of technological products and services to improve their operations and to reduce costs. Credit cards, automatic teller machines (ATMs), telephone and Internet banking are among some of the technology innovations that have been offered by banks to overcome the drawbacks of changing market conditions. Despite all their efforts aimed at developing better and easier Internet banking systems, these systems remained largely unnoticed by the customers. The number of Internet Banking users is still very weak in comparison with the others e-banking services and they are not frequently used by Tunisian consumers (Wadie, 2011).

There is a need, therefore, to understand users' acceptance of Internet banking, and to identify the factors affecting their intentions to use Internet banking. This issue is important because the answer holds will help the banking industry to formulate their marketing strategies to promote new forms of Internet banking systems in the future.

The primary objective of this research is to extend the Technology Acceptance Model in the context of Internet banking in developing countries. Based on the literature of the Technology Acceptance Model, this study extends the Technology Acceptance Model applicability to the context of Internet banking, by adding additional external constructs such as security and privacy, self efficacy, social influence, and awareness of services and its benefits. The purposes of this study are as follows.

1. To identify factors those determine customers' behavioral intention to use Internet banking adoption.
2. To clarify which factors are more influential in affecting the intention to use Internet banking.
3. To evaluate whether the extension of Technology Acceptance Model provide a solid theoretical basis for explaining the adoption of Internet banking.

This chapter is divided into six sections. The first and the second sections contain the introduction and the literature review on theories that can be used to explain acceptance of internet banking. The Third section details the methodology and research design. The fourth section presents the data analysis and hypotheses testing results. The fifth section discusses our

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research findings. The sixth section provides theoretical and managerial implications and finally, the seventh section concludes with this paper's limitations, and further research

The cretical background

TAM and related theories: Many studies had been conducted to investigate the influencing factors of technology acceptance use of new information technology using different theory and models. Three models have been proposed, the Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975), the extension of TRA into a theory of planned behavior (TPB) originally proposed by Ajzen (1991), and the technology acceptance model (TAM) originally proposed by Davis (1989) and adapted from the theory of reasoned action (TRA) (Fishbein and Ajzen, 1975).

Theory of Reasoned Action

The Theory of Reasoned Action (TRA), developed by Fishbein and Ajzen (1975), is one of the most important theories used to explain human behaviour (Venkatesh et al., 2003). According to the TRA, presented in Figure 1 the behavioral intention can be explained by the attitude towards behavior and subjective norm. Attitude refers to an individual's positive or negative belief about performing a specific behavior (Fishbein and Ajzen, 1975). Subjective norms refer to an individual's perceptions of other people's opinions on whether or not he or she should perform a particular behavior, while perceived behavioral control refers to an individual's perceptions of the presence or absence of the requisite resources or opportunities necessary for performing a behavior (Ajzenand Madden, 1986).

Theory of Planned Behavior

The Theory of Planned Behavior (TPB) was proposed by Ajzen (1985) as an extension of TRA (Fishbein and Ajzen, 1975) for situations where people have incomplete volitional control. According to TPB, an individual's behavior can be explained by his or her behavioral intention, which is jointly influenced by attitude, subjective norms and perceived behavioral control (see Figure 2). Attitude refers to an individual's positive or negative evaluation of the performance effect of a particular behavior. Subjective norms refer to an individual's perceptions of other people's opinions on whether or not he or she should perform a particular behavior, while perceived behavioral control refers to an individual's perceptions of the presence or absence of the requisite resources or opportunities necessary for performing a behavior (Ajzenand Madden, 1986).

Figure 1. Theory of Reasoned Action

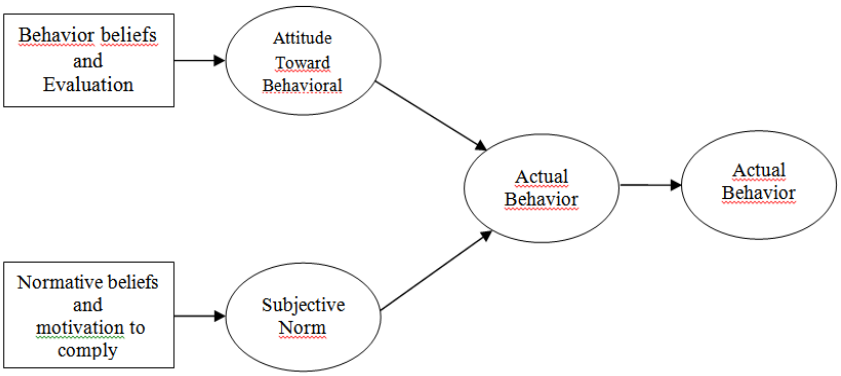
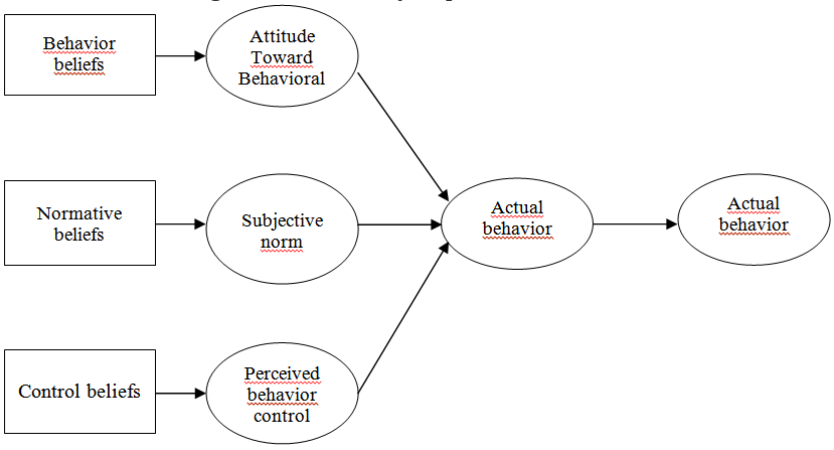


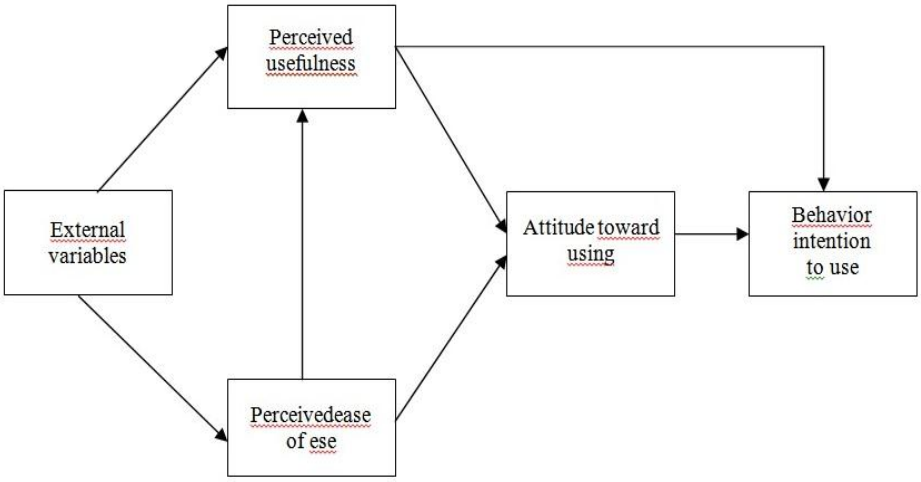
Figure 2. The theory of planned behaviour



Technology Acceptance Model (TAM)

The technology acceptance model introduced by Davis (1986) is one of the most cited theoretical models to predict the acceptance and use of new information technology. This model derives from the TRA. In the model (Figure 3), behavioral intention can be explained by the attitude towards use of the system and its perceived usefulness. Attitude towards use of the system, in turn, can be explained both by its perceived usefulness and its perceived ease of use. Attitudes and perceived usefulness are also affected by perceived ease of use. Perceived usefulness is the degree to which individuals believe that using a particular system would enhance their job performance, while perceived ease of use is defined as the extent to which a person believes that using a particular system will be free of effort (Davis, 1989; Davis et al., 1989). Several studies have validated Technology Acceptance Model as a robust and parsimonious framework for understanding the user's adoption of technology in a variety of contexts including e-commerce (Bruner and Kumar, 2005), email (Huang et al, 2003), and E-banking technology (Adamson and Shine, 2003; Chau and Lai, 2003; Suh and Han, 2002).

Figure 3. The Technology Acceptance Model.



The expanded Technology Acceptance model

The following model has employed the original elements of Technology Acceptance Model and adding other factors to better reflect internet banking in Tunisia. For the purpose of model development, three additional factors are added into Technology Acceptance Model: security and privacy, self efficacy, social influence, and awareness of services and its benefits

Perceived usefulness

Perceived usefulness is defined as the degree to which a person believes that using a particular system would be free of effort (Davis, 1989). Therefore, perceived usefulness will influence their intention to accept and adopt technolgy, either directly or indirectly. Prior empirical studies have provided support for the proposition that perceived usefulness is the primary factor of a particular system technology adoption (Davis, 1989; Igbaria et al., 1997; Gefen and Straub, 2000; Venkatesh, 2000; Venkatesh and Davis, 2000; Gefen et al, 2003; Hsu and Lu, 2004). Moreover, Chiu et al. (2005) found that perceived usefulness positively and directly influences online purchase intentions. In addition, Cheong and Park (2005) found perceived usefulness to be a significant factor on intention to use Internet Banking. They indicate that the perceived usefulness of mobile Internet plays a critical role in developing the positive attitude towards mobile internet as well as intention to use. In the context of internet banking Pikkarainen et al. (2004) and Wang et al. (2003) found that perceived usefulness had a significant positive effect on behavioral intention for Internet banking. According to several researches on TAM (Davis et al. 1989); (Teo et al. 1999), PU has been shown to influence behavior through two causal ways: (1) a direct effect on behavior and (2) an indirect effect on behavior via attitude. Therefore we propose the following hypotheses:

H4. Perceived usefulness has a positive effect on the behavioral intention to use Internet banking.

H2. Perceived usefulness has a positive effect on attitude toward the use of Internet banking.

Perceived ease of use

Perceived ease of use refers to the degree to which the prospective user expects the target system to be free of effort (Davis, 1989).Prior studieshavesupported the significant effect of perceived ease of use on behavioral intention, eitherdirectly or indirectly through perceived usefulness (Agarwaland Prasad, 1999; Davis et al., 1989; Hu et al, 1999; Venkatesh, 1999). Some studies have demonstrated that perceived ease of use has a positive correlation with behavioral intention, both directly (Davis, 1989; Gefen and Straub, 2000; Venkatesh, 2000; Venkatesh and Davis, 2000; Gefen et al, 2003). In contrast,

Pikkarainen et al. (2004) found that perceived ease of use was not positively correlated with online banking use. This indicated that perceived ease of use does not statistically significantly affect the use of Internet banking. According to several researches on TAM ((Davis et al. 1989); (Teo et al. 1999)), perceived ease of use has been shown to influence behavior (i.e., IT adoption) through two causal ways: an indirect effect on perceived usefulness and (2) an indirect effect on behavior via attitude. Therefore we propose the following hypotheses:

H5. Perceived ease of use has a positive effect on perceived usefulness of internet banking.

H3. Perceived ease of use has a positive effect on attitude toward intention to use internet banking.

Security and privacy

Security and privacy are one of the most challenging problems faced by customers who wish to trade in the ecommerce world (Dixit, 2010). Security is defined as a threat which creates circumstance, condition, or event with the potential to cause 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" (Kalakota and Whinston, 1997). In the context of Internet banking threats can be made either through network and data transaction attacks or through unauthorized access to the account by means of false or defective authentication. Privacy is defined as the ability to control and manage information about oneself (Belanger et al., 2002). In the literature, privacy and security have been mixed together in a large body of research. There is very little research investigating the different impact of privacy and security partly due to the high correlation between them (Belanger, et al. 2002). In the area, of internet banking security and privacy can be observed in several studies for the acceptance of internet banking (Sathye, 1999; Hamlet and Strube, 2000; Tan and Teo, 2000; Polatoglu and Ekin, 2001; Black et al., 2002; Howcroft et al., 2002), which confirm the determinant role that security and privacy plays in explaining adoption of internet banking. Therefore, based on the theoretical and empirical support from the technology acceptance literature, we tested the following hypotheses:

H6.Security and privacyhas a positive effect on the perceived ease of use of internet banking.

Computer self-efficacy

Computer self-efficacy can be observed in recent IS studies (Agarwal et al., 2000; Chau, 2001; Hong et al., 2001), which confirm the determinant role that computer self-efficacy plays important role in explaining individual response to information technology. Thus, perceived self-efficacy is defined as an individual's self- confidence in his or her ability to perform tasks across multiple computer application domains (Monsuwe et al., 2004). Moreover, Polatoglu and Ekin (2001) imply that customers, who are familiar with the Internet and e-mail, should not find Internet banking to be complex. In the area of internet banking several studies have examined the relationship between self-efficacy and perceived ease of use, which have found positive relationships between perceptions of convenience and the use of internet banking (Wang et al., 2003; Gerrard and Cunningham, 2003; Polatoglu and Ekin, 2001; Lassar et al., (2005). There also exists empirical evidence of a causal link between self-efficacy and perceived ease of use (e.g., Agarwal et al., 2000; IgbariaandIivari, 1995; Venkatesh, 2000). Therefore, based on the theoretical and empirical support from the information system literature, we tested the following hypotheses:

H7. Perceived self-efficacy has a positive effect on the perceived ease of use of internet banking

Social Norms

Social norms or normative pressure refers to the person's perception that most people who are important to him think he should or should not perform the behavior in question (Fishbein and Ajzen, 1975). It was dropped by Davis et al. (1989) in the development of Technology Acceptance model. Prior studies have founded that subjective norm positively and directly affect intention and adoption behaviors (Hsu and Lu, 2004; Karahanna and Straub, 1999; Liao et al. 1999; Taylor and Todd, 1995; Venkatesh and Davis, 2000).

In initial Technology Acceptance model research, social norm was found to have influence on perceived usefulness and behavioral intention to use technology.Venkatesh and Davis (2000) demonstrated that social norm had a direct or indirect impact on perceived usefulness in operation systems.Therefore, based on the theoretical and empirical support from the technology acceptance literature, we tested the following hypotheses:

H8. Social norm has a positive effect on the behavioral intention to use Internet banking.

Awareness of services and its benefits

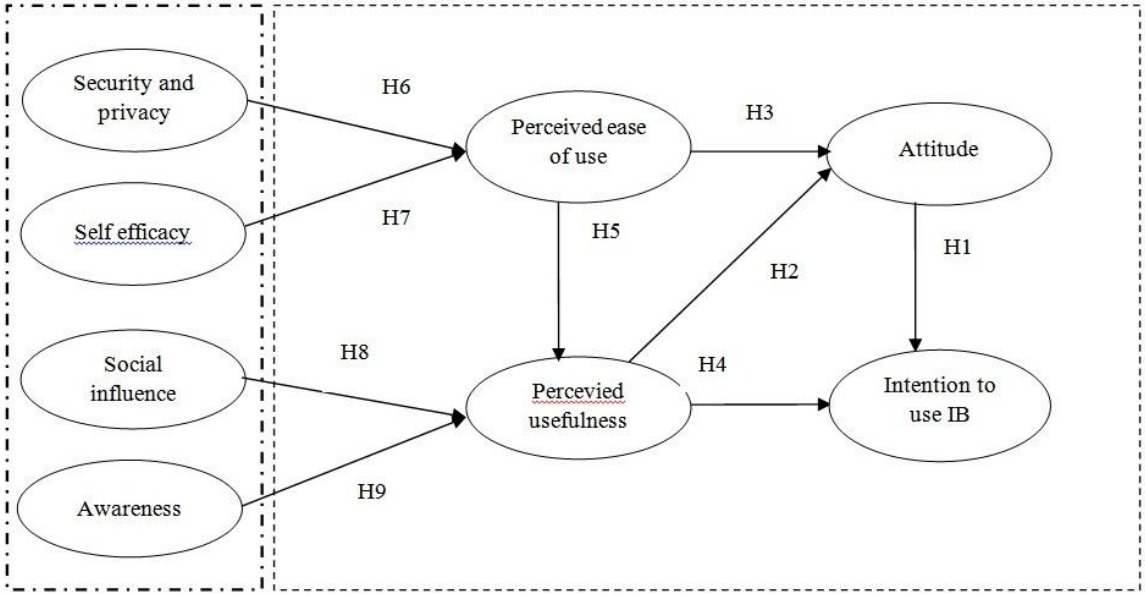
According to Pikkarainen et al, (2004) the amount of information about Internet banking and its benefit is a determinant factor in motivating customers to use internet banking services. Moreover, Sathye (1999) found that low awareness about the benefits of internet banking is a critical factor in causing customers not to adopt internet banking. In addition, Howcroft et al. (2002), found that lack of awareness of Internet banking services and its benefits are found to be reasons for consumers' reluctance to use Internet banking services. Therefore we propose the following hypotheses

H9. Awareness of services and its benefits has a positive effect on customer's perceived usefulness.

Research model

The research model to be empirically tested in the study is illustrated in Figure 4. Our model, called the expanded Adoption Model, is derived from the theories and hypotheses described in the preceding sections.

Figure 4. Proposed research model (the extended TAM).



MATERIALS AND METHODS

Data collection procedures

The survey method was used for collecting the data to test the research model. All participants were bank customers selected randomly from universities, companies, and businessmen from private and public sectors. The questionnaire was administered by meeting the respondents on a one-to-one and were asked to circle the response which best described their level of agreement with the statements. A total of 350 approaches were made to obtain 284 completed surveys. The reason for non participation was mainly due to a lack of time to complete the survey. Table 1 summarises the demographic characteristics of the respondents. Among the 284 respondents, 57.74 percent were male and 42.25 percent were female. 45.77 percent of interviewees were between 18 and 30 years old. 83.80 percent had a college degree.

Table 1. Sample demographics

Means	Value	Frequency	Percentage (%)
Gender	Male	154	57.74
	Female	130	42.25
Age	18 to 30	124	45.77
	31 to 40	94	32.39
	41 to 50	66	21.83
Education Level	Primary	8	6.33
	Secondary	28	13.38
	College/University	248	83.80

Measurement development

The measurement of all the variables in the current study were adapted from previously studies, (see Appendix). All items in the Appendix were measured using a five-point Likert-type scale ranging from (1) strongly disagree to (5) strongly agree. Items for perceived usefulness, perceived ease of use, attitude, and intention used in this study were adapted from Cheng et al, (2006) and Lai and Li, (2005), containing four items for perceived usefulness and attitude and three items for perceived ease of use and intention to use. Items for the security and privacy ware adopted from Pikkaraienen et al, (2004), and included sex items. The computer self efficacy survey items were adapted from the classical Compeau and Higgins (1995) study containing ten items. Subjective norm were adapted from the measurements defined by Wu and Chen (2005), containing three items. Awareness of services and its benefits were adopted from the measurements defined by sabah et al,

(2009) containing four items. Demographics questions were adapted from (Yang, 2005). The demographics characteristics were measured in terms of gender, age, education, and occupation.

Data analysis

The data analysis was estimated using confirmatory factor analysis (CFA) to test reliability and validity of the measurement model, and the structural equation model was analyzed to examine the model fit results of the proposed theoretical models (Anderson and Gerbing, 1988).

Measurement model

A confirmatory factor analysis, using LISREL 8.8, was conducted to test the measurement model. Seven common model-fit measures were used to assess the model's overall goodness-of-fit: The Adjusted chi square ($\chi 2$/df) to degrees-of-freedom (df); root mean square error of approximation (RMSEA); goodness of fit index (GFI); adjusted goodness-of-fit index (AGFI); root mean square residual (RMR); normalized fit index (NFI); comparative fit index (CFI); Akaike Information Criterion (AIC); Consistent akaike information criterion (CAIC); and expected cross validation index (ECVI). As shown in Table 1, all the model-fit indices exceeded their respective common acceptance levels suggested by previous research, thus demonstrating that the measurement model exhibited a fairly good fit with the data collected. The test of the measurement model includes, also the estimation of internal consistency and the convergent and discriminant validity of the instrument items. Internal consistency reliability to test unidimensionality was assessed by Cronbach's alpha. Convergent validity is demonstrated when items load highly (loading> 0.50) on their associated factors (Hair et al., 1992). Convergent validity also is adequate when constructs have an Average Variance Extracted (AVE) of at least 0.50 (Fornell and Larcher, (1981). Table 2 summarized the results of internal reliability and convergent validity for constructs. The resulting alpha values ranged from 0.71 to 0.90, which were above the acceptable threshold 0.70 suggested by Hair et al. (1995) and Nunnally, (1978). Results show also that all of the measures have significant loadings that load much higher than suggested threshold. The factor loading for all items exceeds the recommended level of 0.6. All AVE were well above the recommended value level of 0.50.

Table 2. Confirmatory Factor Analysis Results for Measurement Model

Constructs	Items	Factor loading	Average variance extracted	Cronbach's alpha
Perceived usefulness	PU1	0.59	0.509	0.797
	PU2	0.60		
	PU3	0.72		
	PU4	0.90		
Perceived ease of use	PEOU1	0.89	0.690	0.747
	PEOU2	0.71		
	PEOU3	0.88		
Security and privacy	SP1	0.97	0.716	0.838
	SP2	0.92		
	SP3	0.67		
	SP4	0.83		
	SP5	0.81		
Attitude	ATT1	0.70	0.754	0.838
	ATT2	0.95		
	ATT3	0.86		
	ATT4	0.94		
Subjective norm	SN1	0.91	0.781	0.916
	SN2	0.86		
	SN3	0.88		
Self efficacy	SCE1	0.78	0.643	0.840
	SCE2	0.99		
	SCE3	0.86		
	SCE4	0.71		
	SCE5	0.62		
Awareness (AW)	AW1	0.93	0.569	0.714
	AW2	0.77		
	AW3	0.50		
Intention to use IB	INT1	0.84	0.862	0.856
	INT2	0.97		
	INT3	0.97		

As shown in Table 3, all the model-fit indices ($\chi 2/df = 1.85$; RMSEA = 0.068; RMR = 0.095; NFI = 0.89; CFI = 0.95; AIC = 798.28; CAIC = 6284.70; and ECVI = 5.66) exceeded their respective common acceptance levels suggested by previous research, thus demonstrating that the measurement model exhibited a fairly good fit with the data collected. Note that low GFI and AGFI statistics may have resulted from the small sample size used.

Structural model

The results, as listed in Table 3, show that all eight fit indices for our testing model ($\chi 2/df = 1.95$; RMSEA = 0.072; RMR = 0.096; NNFI (Non normed Fit Index) = 0.93; CFI = 0.94; AIC = 828.43; CAIC = 1125.11; and ECVI = 5.88) have clearly exceeded the minimum recommended values suggested for a good model fit, implying the adequacy of our model for further statistical analysis, including its causal link evaluation. Note also that as in measurement model low GFI and AGFI statistics for structural model may have resulted from the small sample size used.

Table 3. Measurement Model.

Absolute indices	**Estimated value**	**Expected value**	**Authors**
χ^2 /dl	1.85	<5 and >1	Satorra and Bentler (1988a, 1988b, 1994)
RMSEA	0.068	<0.08	Steiger et Lind (1980)
GFI	0.77	>0.9	Jöreskog et Sörbom (1984)
AGFI	0.72	>0.9	
RMR	0.095	Near zero	Jöreskog et Sörbom (1984)
Incremental indices	Estimated value	Expected value	Authors
NFI	0.89	>0.9	Bentler and Bonett (1980)
CFI	0.95	>0.9	Bentler (1989, 1990)
Parsimony indices	Estimated value	Expected value	Authors
AIC	798.28	Smaller than AIC of saturated and independent models.	(Akaike (1987)
CAIC	6248.70	Smaller than CAIC of saturated and independent models.	Bozdogan (1987)
EVCI	5.66	Smaller than EVCI of saturated and independent models.	Browne et Cudeck (1989)

AIC of saturated and independent models is respectively 930.00 and 6130.03.
CAIC of saturated and independent models is respectively 2769.46 and 6248.70.
EVCI of saturated and independent models is respectively 6.60 and 43.48.

Table 4. Structural Equations Model

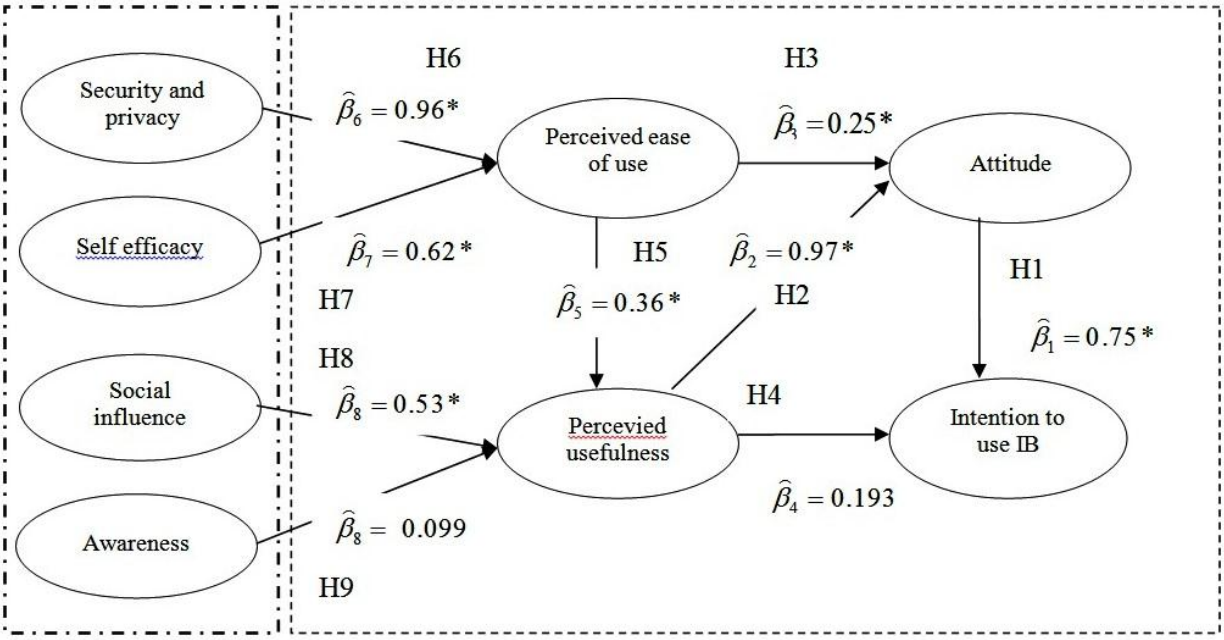
Absolute indices	**Estimated value**	**Expected value**
χ^2 /dl	1.95	<5 and >1
RMSEA	0.072	<0.08
GFI	0.76	>0.9
AGFI	0.71	>0.9
RMR	0.096	Near zero
Incremental indices	Estimated value	Expected value
NNFI	0.93	>0.9
IFI	0.94	>0.9
CFI	0.94	>0.9
Parsimony indices	Estimated value	Expected value
AIC	828.43	Smaller than AIC of saturated and independent models.
CAIC	1125.11	Smaller than CAIC of saturated and independent models.
EVCI	5.88	Smaller than EVCI of saturated and independent models.

AIC of saturated and independent models is respectively 930 and 6130.
CAIC of saturated and independent models is respectively 2769.46 and 6248.70.
EVCI of saturated and independent models is respectively 6.60 and 43.48.

Considering the pattern of significance for the parameter estimates within the structural model (Figure 5), attitude was found to have a significant influence on intention to use internet banking ($\beta = 0.75$, $p<0.01$), thus, H1 is supported. Perceived

usefulness has a significant influence on attitude toward intention to use internet banking (β= 0.97, p<0.01) thus, H2 was supported. Perceived ease of use was found to have a significant influence on attitude toward intention to use internet banking (β= 0.25, p<0.01) thus, H3 was supported. Perceived usefulness was found to have a significant influence on intention to use internet banking (β= 0.193, p<0.01) thus, H4 was not supported. Perceived ease of use was found to have a significant influence on perceived usefulness on intention to use internet banking (β= 0.36, p<0.01) thus, H5 was supported. Security and privacy (β= 0.96, p<0.01) and self-efficacy (β= 0.62, p<0.01) were found to have a significant influence on perceived ease of use of Internet banking. Hypotheses H6, and H7 were also supported. Social influence was found to have a significant influence on perceived usefulness to use internet banking (β= 0.25, p<0.01), thus, H8 was supported. Awareness was found to have a not significant influence on perceived usefulness on intention to use internet banking (β= 0.099, p>0.10) thus, H5 was not supported.

Figure 5. Results of structural model



* Indicates that the variable is significant at the 1%.

RESULTS AND DISCUSSION

This study investigated factors influencing behavioural intention to use Internet banking through the Technology Acceptance Model developed by Davis (1989). The results of this study show that perceived ease of use, perceived usefulness, has a significant effect on intention to use the internet banking through attitude. This is consistent with the original Technology Acceptance models and with others prior studies (Amin, 2007; Shih and Fang, 2004). Perceived usefulness was found to have not a direct significant effect on intention to use the internet banking. This is not consistent with the original Technology Acceptance models and priors studies (Moon and Kim, 2001). Our results show that security and privacy, and self-efficacy have a significant effect on intention to use the internet banking. This is in line with the previous findings of Hernandez and Mazzon, (2007); Sathye, (1999); Hamlet and Strube, (2000); Tan and Teo,(2000); Polatoglu and Ekin, (2001); Black et al., (2002) and Howcroft et al., (2002), which have reported that these factors have positive influences on the acceptance, of innovations such as internet banking. For self-efficacy, this result is consistent with Agarwal et al., (2000); Chau, (2001); Hong et al., (2001); Johnson andMarakas, (2000); Polatoglu and Ekin, (2001); Wang et al., (2003); Gerrard and Cunningham, (2003); IgbariaandIivari, (1995); Venkatesh, (2000); Venkateshand Davis, (1996), which have found a positive relationships between perceptions of convenience and the use of internet banking The results also show that that social norm has a significant effect on intention to use the internet banking. The result is confirmed with the results reported by Taylor and Todd (1995) and Venkatesh and Morris (2000), who founded social norm to be a significant factor for IS acceptance. Finally, the results also show that awareness of services and its benefitsis found to be a significant determinant to predict the intention to use the internet banking. This result contradicts the prior studies (Sathye, 1999); Yousafzai et al., (2003), and Pikkarainenetal, 2004). Results chow that Internet banking in Tunisia is influenced by some individual characteristics (college (university) degree and age between 18 and 30 years), this is in line with the previous studies (Venkatesh et al. 2003; Sathye, 1999; Lai and Li, 2005; Lassar et al., 2005) which, indicated that adopters of Internet banking tend to be more highly educated, and younger.

Our findings strongly confirm the appropriateness of using this extended Technology Acceptance Model to understand the intentions of people towards the use of Internet banking services and show that perceived usefulness, perceived ease of use, attitude, security and privacy, self-efficacy, social norm are the important determinants of online banking adoption.

CONCLUSION; Implications and Limitations

The findings of the study also suggest important practical implications for businesses. First, banks need to search for reducing risk strategies that might increase confidence from potential customers. For example, building secure firewalls to avoid intrusion, developing methods for strengthening encryption, and authenticating websites in order to prevent fraud and identity theft are all measures that should be undertaken (Ming-Chi Lee, 2009). Second, to promote a customer's perception of self-efficacy in Internet banking, banks could organize training courses in using Internet banking applications, thus increasing customers' familiarity with Internet banking technologies. These courses can help customers to develop positive usefulness; ease of use and credibility beliefs in the system, which in turn can influence behavioral intention to use mobile banking services (Luarn and Lin, 2005). The findings of this research can not only assist banks authorities in the development of accepting Internet banking systems, but can also provide insight into how to promote the potential users to use internet banking system. This study contributed to the Technology Acceptance Model literature by applying TAM in a context of using Internet banking.

The expanding the Technology Acceptance Model by adding additional external factors such as security and privacy, self-efficacy, social influence, and awareness of services and its benefits enhanced the explanatory power of Technology Acceptance Model to explaining Behavioral Intention. There are several limitations in this study. First, the sample size of the samples was small for generalization of the outcome of the study. Second, the factors identified by this study may not cover all factors that could explain the intention to use internet banking in Tunisia, it is important future studies to investigate others factors, which influence the adoption of internet banking services in Tunisia country.

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Appendix Measurement scales

Constructs		Measures
Perceived usefulness (PU)	PU1	I think that using the online banking would enable me to accomplish my tasks more quickly.
	PU2	I think that using the online banking would make it easier for me to carry out my tasks.
	PU3	I think the online banking is useful.
	PU5	Overall, I think that using the online banking is advantageous.
Perceivedease of use (PEOU)	PEOU1	I think that learning to use online banking would be easy.
	PEOU2	I think that interaction with online banking does not require a lot of mental effort.
	PEOU3	I think that it is easy to use online banking to accomplish my banking tasks.
Intention (INT)	INT1	I would use the online banking for my banking needs.
	INT2	Using the online banking for handling my banking transactions is something I would do.
	INT3	I would see myself using the online banking for handling my banking transactions.
Attitude (ATT)	ATT1	I think that using online banking is a good idea.
	ATT2	I think that using online banking for financial transactions would be a wise idea.
	ATT3	I think that using online banking is pleasant.
	ATT4	In my opinion, it is desirable to use online banking.
Security and privacy (SP1)	SP1	I trust in the technology an online bank is using
	SP2	I trust in the ability of an online bank to protect my privacy
	SP3	I trust in an online bank as a bank
	SP4	Using an online bank is financially secure
	SP5	I am not worried about the security of an online bank
	SP6	Metters of security have no influence on using an online bank
Self efficacy	SE1	I could complete my bank transaction using the internet banking, if there was no one around to tell me what to do.
	SE2	I could complete my bank transaction using the internet banking, if I had never used a package like it before
	SE3	I could complete my bank transaction using the internet banking, if I had only the manuals or online help for reference
	SE4	I could complete my bank transaction using the internet banking, if I had seen someone else using it before trying it myself.
	SE5	I could complete my bank transaction using the internet banking, if I could call someone for help if I got stuck
	SE6	I could complete my bank transaction using the internet banking, if someone had helped me get started
	SE7	I could complete my bank transaction using the internet banking, if I had a lot of time to complete the job.
	SE8	I could complete my bank transaction using the internet banking, if I had built-in help facility for assistance.
	SE9	I could complete my bank transaction using the internet banking, if someone showed me low to do it first
	SE10	I could complete my bank transaction using the internet banking, if I had used similar system before to do the same job.
Subjective norm	SN1	People who are important to me would think that I should use online banking.
	SN2	People who influence me would think that I should use online banking.
	SN3	People whose opinions are valued to me would prefer that I should use online banking.
Awareness (AW)	AW1	I receive enough information about online banking services
	AW2	I receive enough information about the benefits of online banking
	AW3	I receive enough information of using online banking
	AW4	I never received information about online banking from the bank