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Building trust in internet banking: a trustworthiness perspective

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Building trust in internet banking: a trustworthiness perspective

Building trust
in internet
banking

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Abstract

Purpose – Based on the trust theory, the purpose of this paper is to empirically examine the role of trustworthiness and trust in users' intentions to continue using internet banking. Further, the authors position the trust beliefs of competence, benevolence, integrity, and shared values as key antecedents of trustworthiness and trust.

Design/methodology/approach – A questionnaire survey was used to collect responses from 227 actual users of internet banking in Malaysian context. A PLS analysis was conducted to explore the relationships between trusting beliefs, trustworthiness, trust, and internet banking use.

Findings – Empirical findings show that trusting beliefs of consistency, integrity, and shared values determine the trustworthiness and trust in internet banking. Moreover, trust was found to mediate the relationship between trustworthiness and internet banking use.

Practical implications – The study findings help managers understand the factors that determine Malaysia users trust and trustworthiness perceptions in internet banking. With reports indicated increase in internet banking use in Malaysia, the study findings provide important insights into enhancing users' trust in internet banking for future transactions.

Originality/value – Unlike previous studies that have largely focussed on technology factors, this study based on trust theory proposes that trust is important for users to continue using internet banking services. In developing this trust, the authors propose that trustworthiness is of vital importance. Further, the authors propose and show that trusting beliefs of competence, integrity and shared values influence user trustworthiness and trust in internet banking use. Thus, this study extends the understanding of the internet banking use in Malaysian context.

Keywords Malaysia, Trusting beliefs, Trustworthiness, Banking services, Trust, Internet banking continuance

Paper type Research paper

1. Introduction

Internet banking refers to the use of bank's web site through which customers access their banking accounts, conduct financial transactions, and obtain general information on bank products and services. It is a form of "virtual channel" that allows customers to interact with a bank in a convenient manner by providing them an opportunity to acquire banking services anytime and anywhere (Casalo *et al.*, 2007). Consequently, internet banking has experienced rapid growth in Malaysia and world over in the recent past. According to Bank Negara Malaysia (Bank Negara Malaysia, 2012), the penetration of registered individual internet banking users in Malaysia has increased from 9.8 percent in 2005 to 42.9 percent in 2012 (Bank Negara Malaysia, 2012). A ComScore survey report (ComScore, 2011) shows that about 2.7 million visited bank web sites in Malaysia in January 2011, a growth of 16 percent year-on-year, highest among the Southeast Asian countries. Despite this steady growth, there still remain major barriers to the acceptance of internet banking services in Malaysia (Poon, 2007).

Among the myriad of factors, trust is considered as an important future challenge for internet banking continuance. Yousafzai *et al.* (2009) cite lack of customer trust as



a potentially major obstacle for widespread acceptance of internet banking. As customers enter into business relationship with a distant and impersonal banking service they may experience greater perceived risk and uncertainty in internet banking environment. The perceived lack of control and personal contact in internet banking environment increases customers' concern for security and reliability of transactions (Flavián and Guinaliú, 2006; Chiou and Shen, 2012). These factors may reduce customer trust in internet banking (Lim, 2003), which might have an additional effect on its adoption and continuance. It is suggested that customers' untrust in internet banking can be overcome by building, confirming, and maintaining trust (Cheskin Research, Studio Archetype/Sapient, 1999). However, extant literature on trust related to internet banking is scarce and this remains an area worth exploring.

Extant literature suggests that for building trust one has to be trustworthy (Hardin, 2002). It is argued that trustworthiness communicates trusting behavior and enables initiation of long-term relationship with customers (Kasper-Fuehrera and Ashkanasy, 2001). Doney *et al.* (1998) view that trustworthiness drives the service providers' behavior. This suggests that trustworthiness is critical to understanding trust in internet banking continuance. In spite of its significance, there is a lack of empirical research given to the role of trustworthiness in building trust. For instance, Hardin (2002, p. 29) noted that "[...] much of the literature on trust hardly mentions trustworthiness." Echoing a similar view, Gefen *et al.* (2008) propose that future research should distinguish between trust and trustworthiness when examining trust in online context. In a more recent study, Kharouf *et al.* (2014) stated that seldom researchers have examined the role of trustworthiness in trust formation. The authors proposed that trustworthiness acts as a signal that drives customer trust and subsequent behavioral intentions. Given this limited research conducted to date on trustworthiness and trust, it is important to understand how trustworthiness develops in internet banking and examine its role in building trust in internet banking continuance.

In addressing the above research gaps, the present paper aims to investigate the role of trustworthiness and trust perceptions in internet banking continuance. More specifically, we propose and empirically test a conceptual framework of the determinants of trustworthiness and trust in internet banking, and examine the role of trustworthiness and trust in internet banking continuance in Malaysian context. Although there are previous studies on adoption of internet banking, majority of them have relied on information systems (IS) theories and technological factors in understanding the phenomenon (Hernandez and Mazzon, 2007; Alsajjan and Dennis, 2010). Research focussing on the role of trustworthiness and trust in the acceptance of internet banking services remain sparse. Thus, the empirical findings of this paper will provide important insights into the customers' perception of internet banking and advances our understanding of internet banking adoption. Additionally, given the relatively young population of Malaysia (Department of Statistics Malaysia, 2011), there would eventually be a large number of internet savvy banking users in the future. Thus, the vast opportunity for growth coupled with decreasing loyalty in the internet banking services among the Malaysian users (Yee and Faziharudean, 2010) makes this study timely and significant.

Our focus in this paper is on the role of trustworthiness and trust perceptions in internet banking continuance. Hence the research questions are:

RQ1. What are the determinants of trustworthiness and trust perceptions in internet banking services?

RQ2. What are the relationships between the trustworthiness, trust and internet banking continuance intentions?

2. Literature review

2.1 *Internet banking adoption and continuance*

Over the last decade, internet banking has grown rapidly and has expanded its presence in various markets (including the Malaysian market). Within the IS literature, various researchers have investigated the adoption of internet banking. For example, Pikkarainen *et al.* (2004) examine the acceptance of online banking using Technology Acceptance Model (TAM). The authors highlight cost savings and freedom from place as two key underlying reasons for acceptance of internet banking. In another study, Jaruwachirathanakul and Fink (2005) identify the facilitating and inhibiting factors for adoption of internet banking in Thailand. The authors propose that pull strategies such as increasing service value and push strategies such as ease of use and building confidence are key factors for successful internet banking adoption. In their study on internet banking adoption in Hong Kong using TAM, Cheng *et al.* (2006) found that perceived ease of use and perceived web site security influence the intention to use internet banking.

Hernandez and Mazzon (2007) reviewed various adoption models and propose an integrated theoretical model for internet banking adoption. The empirical results show that technology characteristics, perceived behavioral control, and individual characteristics determine the actual use of internet banking. In another study, Al-Somali *et al.* (2009) propose that quality of internet connection, awareness of service, trust, social influence, resistance to change, computer self-efficacy, demographic characteristics along with technology constructs such as perceived ease of use and perceived usefulness determine the attitude ($R^2 = 0.845$) and intentions ($R^2 = 0.827$) toward internet banking. More recently, Lee *et al.* (2011) found that offline trust, offline loyalty and switching costs play a key role in customers' switching intentions to internet banking. Liébana-Cabanillas *et al.* (2013) found that accessibility, trust, ease of use and usefulness determine the customer satisfaction with internet banking.

The above studies show that technology factors are key determinants of internet banking adoption as it is medium through which the transactions take place. However, Grabner-Kräuter and Faullant (2008) and Alsajjan and Dennis (2010) argued that customers need to trust the internet banking system in order to adopt it and continue using it. Lee *et al.* (2007, p. 729) asserted that in online environment "trust allows partners to transcend short-run inequities or risks to concentrate on long-term profits or gains." In building customer trust, trustworthiness helps in instilling customer confidence and belief to conduct financial transactions using internet banking services. As information is rarely available about the internet banking services as is the case with many services, trustworthiness which results from specific aspects/elements of internet banking service provider can enhance the customers' propensity to trust the internet banking services (Yousafzai *et al.*, 2009). Thus, in this study we draw on the trustworthiness and trust literature to examine internet banking continuance among the Malaysian banking users.

2.2 *Trust and trustworthiness*

Trust has long been considered as central to buyer-seller interactions (Morgan and Hunt, 1994). From an economic perspective, trust is seen as a mechanism that reduces the transaction cost of an exchange. It decreases the customers' perception of risk and enhances their likelihood to engage in an exchange, resulting in efficient transactions

(Chiou and Shen, 2012). Because of the higher degree of uncertainty associated with the online environment, trust is considered as more important in online than offline settings (Chen and Barnes, 2007). Moreover, customers may experience risk from technological infrastructure and from actors involved in the online setting (Grabner-Kräuter and Faullant, 2008). These suggest that an analysis of internet banking continuance should consider trust because of its key role in influencing risk and uncertainty. Consequently, initiating, developing and maintaining trust in internet banking context has attracted considerable attention from academics as well as practitioners.

The concept of trust has been defined by researchers in many ways. It is commonly defined as willingness to rely on the other party because of the belief, expectancy, or feeling that other party would act in the interest of the trusting party (Rousseau *et al.*, 1998). Following this, we define trust in the internet banking context as the willingness of the customer to conduct transactions on the bank's web site because of the belief or expectation they have toward the bank and bank's web site as a trusted party in fulfilling its obligations. This definition confirms with the McKnight and his colleagues' (1998) two dimensional view of trust consisting of trusting beliefs and institution-based trust.

Although there exists considerable debate regarding the differences between trustworthiness and trust; it is generally agreed that trustworthiness is conceptually distinct from trust (Hardin, 2002; Gefen *et al.*, 2008; Colquitt and Rodell, 2011; Kharouf *et al.*, 2014). While trust is often related to the belief one holds about the service provider, trustworthiness on the other hand is concerned with trait or character of the service provider. Distinguishing the two, Hardin (2002) stated that unlike trust which develops following the customers' direct experience with the service provider, trustworthiness toward a service provider can be developed based on secondary information. Further, the author suggested that trustworthiness may be essential in developing trust. Ashraf *et al.* (2006) viewed trust as a belief that relates to the expectation of trustworthiness and trustworthiness in turn relates to reciprocity. More recently, Colquitt and Rodell (2011) noted that trustworthiness is an evaluative process based on the competence or character of the service provider and trust is a cognitive process which relates to the service provider in an exchange relationship as being trustworthy, distrust, and others. Based on the above discussion, we distinguish trustworthiness from trust and define trustworthiness as the degree to which the competence and character of the internet banking service provider inspires the customers' confidence and reliability to conduct transactions using its internet banking services.

Extant literature shows that various characteristics of a service provider influence trustworthiness and trust perceptions. For example, McKnight and Chervany (2002) in their meta-analysis found that trustworthiness consists of three dimensions: ability, integrity and benevolence. Caldwell and Clapham (2003) identified six determinants of trustworthiness namely honest communication, task competence, quality assurance, interactional courtesy, legal compliance and financial balance. Similarly, Ennew and Sekhon (2007) identified expertise and competence, integrity and consistency, communication, shared values, and concern and benevolence as key determinants of trustworthiness.

Roy and Shekar (2010) examined the underlying dimensions of trustworthiness in the financial services context. They found that trustworthiness consists of three second-order dimensions of competence (ability and expertise), openness (shared value and communication), and benevolence (integrity and orientation). These studies reveal that there is no clear consensus on the determinants of trustworthiness and trust. However, previous studies indicate that being concerned about its customers' interest, expressing goodwill, sharing common values with customers, and being honest and

consistency are key to developing trustworthiness and trust in online context (Yousafzai *et al.*, 2009; Kharouf *et al.*, 2014). Consequently, we consider competence, integrity, benevolence, and shared values as determinants of trustworthiness and trust in internet banking context.

3. Research model and hypotheses

Figure 1 presents the conceptual framework of the study. Based on the trust literature, we model competence, integrity, benevolence, and shared values as antecedents of trustworthiness and trust. Further, we conceptualize trustworthiness to influence internet banking continuance through trust.

3.1 Drivers of trustworthiness

3.1.1 Competence. Competence refers to the service provider's ability and knowledge to provide consistent and desirable performance in fulfilling the customer needs. In internet banking context, competence is the belief about the internet banking service provider's expertise and experience in incorporating and maintaining appropriate technological safeguards in the internet banking web site to protect customers from violations of privacy and financial loss. In high perceived risk environment such as internet banking it is necessary for the service provider to highlight that they are capable of delivering what they promise. In such case, competence reduces the customers' risk perceptions and increases their confidence in the internet banking services. For example, Zhao *et al.* (2010) found that competence in internet banking reduces perceived risk and increase its usage intentions. Similarly, Nguyen and Leclerc (2011) showed that competence enhances the service providers' image and facilitates the consumption of the goods and services. Nor and Pearson (2008) provide empirical evidence for the association between competence and trust. Thus, the customers' belief that internet banking services offers desirable transactional services may result in favorable evaluation of the internet banking services, leading to the following hypothesis:

- H1. Competence will have a positive effect on trustworthiness.
- H2. Competence will have a positive effect on trust.

3.1.2 Integrity. Mayer *et al.* (1995, p. 719) define integrity as the "trustor's perception that the trustee adheres to a set of principles that the trustor finds acceptable."

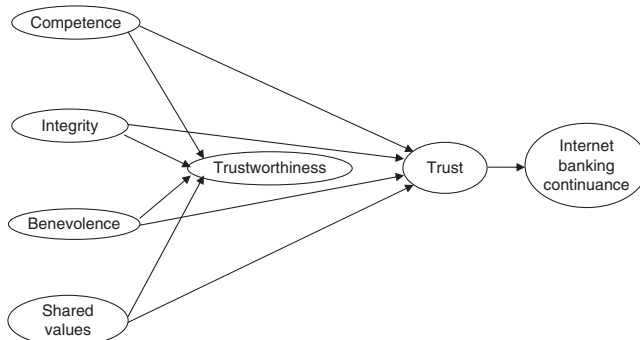


Figure 1. Conceptual framework of the study

In this study we define integrity as being trustful in the dealings, provide timely and accurate information, maintain commitment, act ethically and not exploit vulnerabilities, and create environment for maintaining confidentiality. Integrity conveys an image of predictability, honesty, and objectivity and contributes to the development of positive reputation for the service provider. In the online context, Suh and Han (2003) found that data integrity and confidentially positively influence trust toward electronic commerce. Similarly, Yap *et al.* (2010) found that clarity in instruction enhances customer confidence and trust in internet banking. Thus, customers with high integrity belief in internet banking are more likely to develop positive attitude and evaluate it favorably. Based on the above discussion, we hypothesize that:

H3. Integrity will have a positive effect on trustworthiness.

H4. Integrity will have a positive effect on trust.

3.1.3 Benevolence. Benevolence is the perception that the service provider is genuinely interested in the customers' welfare beyond its egocentric profit motives. It is evident when the service provider shows responsiveness and empathy for customer needs and concerns. Doney *et al.* (1998) highlight the importance of benevolence when they define trust as the expectation that the service provider will not engage in opportunistic behaviors despite the short-term benefits. Benevolence is rooted in buyer-seller relationship (Ba and Pavlou, 2002) as it mitigates the perception of uncertainty and risk associated with the opportunistic behaviors. Thus, benevolence promotes the ability of the internet banking services to perform in manner that realizes the customers' expectations. Thus, we propose that:

H5. Benevolence will have a positive effect on trustworthiness.

H6. Benevolence will have a positive effect on trust.

3.1.4 Shared values. Morgan and Hunt (1994, p. 25) define shared value as "the extent to which partners have beliefs in common about what goals, and policies are important or unimportant, appropriate or inappropriate and right or wrong." In this study, shared values refer to the extent to which customers perceive internet banking as similar to them in behavior and goals. Shared values facilitate interaction and communication between the partners thereby leading to mutual trust. Mukherjee and Nath (2007) found that shared value is one of the critical factors for developing trust in the online retail context. More recently, Hoffmann and Birnbrich (2012) propose that shared values determine customers' bank fraud prevention knowledgeability, and this leads to trust in the bank. It is argued that customer perception of value alignment or congruence of the service providers' policies and behaviors lead to greater satisfaction and higher commitment. Further, it contributes to greater confidence and expectations about the service provider. Based on the above discussion, we hypothesize that:

H7. Shared values will have a positive effect on trustworthiness.

H8. Shared values will have a positive effect on trust.

3.2 Trustworthiness and trust

Trustworthiness or the customers' belief that the trustee will act in the interest of the trusting party is related to trust. For example, Yousafzai *et al.* (2009) provide empirical evidence that trust in internet banking is largely determined by perceived trustworthiness. Pan and Chiou (2011) show that online information trustworthiness

as determined by perceived strong social relationship lead to trust in online discussion information. These authors position trust as a mediator through which trustworthiness affect the attitude toward online product information. Thus, when customers perceive the internet banking as being trustworthy (i.e. competent and knowledgeable salient to the expected behavior), they are likely to extend his or her trust toward it (Grabner-Kräuter and Faullant, 2008; Zhu and Chen, 2012). Based on the above discussion, we hypothesize that:

H9. Trustworthiness will have a positive effect on trust.

3.3 Trust as driver of internet banking continuance

The role of trust in internet banking continuance is likely to be highly significant because of the complexities of the internet banking environment (Suh and Han, 2003). Trust act as an insurance against potential risks and unexpected actions associated with internet banking. Prior research studies provide empirical evidence for the relationship between trust and intention to use internet banking. For example, Eriksson *et al.* (2005) show that trust influences perceived usefulness, perceived ease of use, and intentions to use internet banking. Similarly, Benamati and Serva (2007) found that both trust and distrust influence customers' decision to use internet banking. More recently, Akhlaq and Ahmed (2013) provide empirical support for the relationship between trust and intentions to use internet banking in a low income country context. These studies reveal that when customers extend trust, they feel confident of using the internet banking services for future financial transactions. Thus, we hypothesize that:

H10. Trust will have a positive effect on intention to continue using internet banking services.

4. Method

4.1 Sample

To test the proposed relationships, responses were collected using a self-administered online survey questionnaire from actual Malaysian banking users. The questionnaire was pretested and few semantic changes were made before conducting the actual survey. A purposive sampling was used to recruit participants who had internet banking experience with their main bank. The purposive sample was deemed appropriate as it allows selecting respondents who met the specific characteristics of the study. In total, over a two-week period, 239 internet banking users completed the online survey. Of these 12 responses were dropped because of missing data, resulting in a useable sample of 227. The power analysis indicates the sample size was adequate to estimate the model at 80 percent level. Table I describes the characteristics of the sample.

4.2 Measurement instrument

The measurement items for the constructs were all adopted from the literature – competence (COM) from Sirdeshmukh *et al.* (2002) and Ennew and Sekhon (2007); integrity (INT) from Roy and Shekhar (2010); shared values (SHV) from Ennew and Sekhon (2007); benevolence (BEN) from Ennew and Sekhon (2007) and Yousafzai *et al.* (2009); trust (TRU) from Ennew and Sekhon (2007); trustworthiness (TWN) from Morgan and Hunt (1994) and Ennew and Sekhon (2007); and intention to continue using internet banking (ITU) from Grabner-Kräuter and Faullant (2008). The measurement items for these constructs are presented in Table II. A five-point Likert scale ranging from “1-strongly disagree” to “5-strongly agree” was used to collect responses.

IMDS	Frequency	%
115,2		
<i>Gender</i>		
Male	93	41
Female	134	59
<i>Race</i>		
Malay	147	65
Chinese	41	18
Indian	23	10
Others	16	7
<i>Age group</i>		
20-below 30	85	37
30-below 40	74	33
40-below 50	31	14
50-below 60	30	13
60 and above	7	3
<i>Educational background</i>		
Secondary to below	17	7
Pre-university/diploma	45	20
University degree or higher	165	73
<i>Employment status</i>		
Self-employed	24	11
Employed	153	67
Business owner	25	11
Student	11	5
Housewife	10	4
Retiree	4	2
<i>Experience in internet banking as a user</i>		
<3 years	115	51
3 years or more	112	49
<i>Usage frequency in internet banking</i>		
Daily	183	80
Weekly	5	2
Monthly	39	18

Table I.
Demographic profile
of the sample

5. Results

A PLS path modeling was used for data analysis. The outer-measurement model was used to assess the validity and reliability of the measures. Table II presents the factor loadings, average variance extracted (AVE), composite reliability (CR), Cronbach's α 's. Results showed that all constructs as defined in the literature met the necessary thresholds, i.e. factor loadings were 0.7 above, AVE values were 0.5 above, CR values were 0.7 above and Cronbach's α were values were 0.7 above (Hair *et al.*, 2006; Khong *et al.*, 2013). The AVE values of 0.5 and above indicated that convergent validity was achieved by all constructs (Khong *et al.*, 2013). Additionally CR and Cronbach's α of all constructs had values of 0.7 and above implying that constructs had internal consistency and reliability. Common method bias (CMB) was tested using the Harman's one factor test and result revealed that variance explained by the one fixed factor (manifested by 35 indicators) was <50 percent. This result meant that there were no significant issues with CMB (Yap and Khong, 2006).

The R^2 of endogenous constructs trustworthiness (0.64), trust (0.60), and internet banking continuance (0.40) were above the 0.26 level implying that the total variance explained by the constructs used in this study as substantial (Chin, 1998). Moreover,

Indicators	Factor loading	AVE	Composite reliability	Cronbach's α	R^2
<i>Competence</i>					
Works competently	0.70	0.61	0.90	0.87	–
Handle all request	0.83				
Has the information it needs to conduct its business	0.82				
Is efficient	0.83				
Is knowledgeable	0.71				
Has appropriate skills to deliver the service	0.76				
<i>Integrity</i>					
Keep its word	0.82	0.68	0.91	0.88	–
Conduct transactions fairly	0.84				
Can be relied upon to give honest advice	0.81				
Is consistent in what it does	0.85				
Communicates regularly	0.79				
<i>Shared values</i>					
Has same values as me	0.90	0.81	0.93	0.89	–
Has the same concern as me	0.93				
Acts as I would in dealing with customers	0.88				
<i>Benevolence</i>					
Does whatever it takes to make me happy	0.81	0.76	0.93	0.90	–
Is open to the customer needs	0.89				
Will do best to help me	0.89				
Shows respect to customer	0.90				
<i>Trustworthiness</i>					
Is always honest in dealing with me	0.84	0.74	0.93	0.91	0.64
Keeps the promises it makes	0.86				
Looks after the welfare of the customers	0.87				
Dedicated to the customers	0.87				
Has reputation of being ethical in dealing with customers	0.86				
<i>Trust</i>					
Trust to do what it says it will do	0.75	0.57	0.90	0.88	0.60
Trust to have my best interest at heart	0.75				
Is very reliable	0.79				
Is honest with me	0.80				
Is concerned about my best interest	0.76				
Overall I feel I can trust	0.72				
Makes every effort to address my concerns	0.72				
<i>Internet banking use</i>					
Expect to continue to use internet banking in the future	0.85	0.65	0.90	0.86	0.40
Intent to use internet banking more frequently	0.87				
Will rely on internet banking for information and advice	0.82				
Will always depend on internet banking for future transactions	0.63				
Will continue to rely on internet banking for future transactions	0.84				

Table II.
Validity and
reliability of
the measures

the R^2 -values confirm the reliability of the above mentioned endogenous constructs. The goodness-of-fit (GOF) which was calculated as the geometric mean of the average communality and average R^2 was found to be satisfactory: $GOF = \sqrt{(0.64) \times (0.60) \times (0.40)} = 0.39$ (Tenenhaus *et al.*, 2005).

Next, discriminant validity was tested on all constructs using the approach by Fornell and Larcker (1981). Results, showed in Table III, reveal that all constructs met the necessary requirements where the AVE of respective constructs were higher than the squared correlations (ϕ) between respective constructs.

As the reliability and validity of the constructs were established, path coefficients based on the results of the PLS model was reported to examine the hypothesized relationships. The PLS analysis based on a bootstrapping procedure for 500 subsamples was carried out. The summary of hypotheses is presented in Table IV.

The results show that competence ($\beta = 0.14, p < 0.05$), integrity ($\beta = 0.56, p < 0.01$), and shared values ($\beta = 0.18, p < 0.01$) were positively associated with trustworthiness in support of hypotheses *H1*, *H3* and *H7*. Further, competence ($\beta = 0.26, p < 0.01$) and integrity ($\beta = 0.17, p < 0.05$) were found to be positively related to trust in support of *H2* and *H4*, respectively. Trustworthiness was positively associated with trust ($\beta = 0.44, p < 0.01$) and the latter was positively associated with internet banking continuance ($\beta = 0.64, p < 0.01$), supporting *H9* and *H10*. Benevolence was neither significantly associated with trustworthiness ($\beta = 0.02, p = 0.41$) nor trust ($\beta = -0.01, p = 0.43$). Similarly, shared values was not related to trust ($\beta = 0.00, p = 0.48$). Accordingly, there was insufficient evidence to assert the associations proposed in *H5*, *H6* and *H8*. Figure 2 presents the structural model.

Post hoc analysis was conducted to understand the mediation role of trustworthiness and trust in the relationship between trusting beliefs (service provider characteristics) and internet banking continuance. The Sobel (1982) test of mediation was used. Results in Table V reveal that trustworthiness was a mediator between the associations of competence→trust, integrity→trust and share values→trust. Both direct effects of competence→trust and integrity→trust were significant while their indirect effects were significant as well. Thus, the mediations in these associations were considered as partial mediation (Sobel, 1982). Meanwhile the direct effect of shared values→trust was non-significant while the indirect effect was significant. Thus, this association was considered as full mediation (Sobel, 1982). Results further revealed that trust mediates the relationship between trustworthiness and internet banking continuance. The results indicate that trust partially mediates the relationship between trustworthiness and internet banking continuance.

6. Discussion and implications

The present study provides empirical evidence for the role of trustworthiness and trust in internet banking continuance in Malaysian context. The results show that trusting beliefs of competence, integrity, and shared values are key determinants of trustworthiness and trust in internet banking continuance. We did not find support for the role of benevolence in building trustworthiness and trust. A possible reason for the same could be that the benevolence is highly intangible and customers may perceive its value as being very subjective. Another reason is that internet banking often employs message-based implementations instead of session-based implementations (Louis and Lombart, 2010). This leads to a perception of security threat and thus benevolence is not well articulated in the internet banking context.

	Mean	SD	COM	INT	BEN	SHV	TWN	TRU	ITU
COM	3.72	0.52	<i>0.61</i>	0.42	0.36	0.29	0.31	0.31	0.22
INT	3.57	0.58	0.65	<i>0.68</i>	0.41	0.24	0.45	0.35	0.16
BEN	3.40	0.67	0.60	0.64	<i>0.76</i>	0.42	0.30	0.22	0.14
SHV	3.22	0.64	0.54	0.49	0.65	<i>0.81</i>	0.23	0.14	0.13
TWN	3.64	0.57	0.56	0.67	0.55	0.48	<i>0.74</i>	0.40	0.18
TRU	3.68	0.54	0.56	0.59	0.47	0.38	0.63	<i>0.57</i>	0.40
ITU	3.90	0.58	0.47	0.40	0.38	0.36	0.43	0.63	<i>0.65</i>

Notes: The italic diagonal values represent AVEs. The lower diagonal values represent the correlations between the constructs while the upper diagonal values represent squared correlations between the constructs. All correlations are significant at $p < 0.05$

Table IV.
Summary of the findings

	Path coefficient	t-Statistics	p-value	Hypothesis
H1: competence→trustworthiness	0.14	1.981	< 0.05	Significant
H2: competence→trust	0.26	3.097	< 0.01	Significant
H3: integrity→trustworthiness	0.56	7.874	< 0.01	Significant
H4: integrity→trust	0.17	1.967	< 0.05	Significant
H5: benevolence→trustworthiness	0.02	0.228	0.41	Non-significant
H6: benevolence→trust	-0.01	0.163	0.43	Non-significant
H7: share values→trustworthiness	0.18	2.497	< 0.01	Significant
H8: shared values→trust	0.00	0.044	0.48	Non-significant
H9: trustworthiness→trust	0.44	5.250	< 0.01	Significant
H10: trust→intention to continue using internet banking	0.64	16.93	< 0.01	Significant

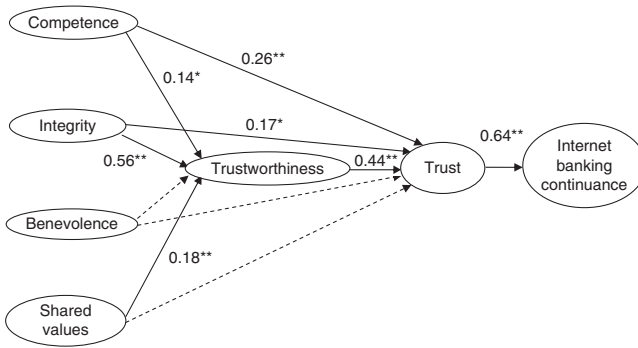


Figure 2.
Summary of the findings

Notes: Bold line indicates significant relationship and dotted line indicates non-significant relationship. * $p < 0.05$; ** $p < 0.01$

Table V.
Test of mediation

Association	Indirect effects significance	Direct effects significance	Mediator	Mediation
Competence→trust	Significant*	Significant*	Trustworthiness	Partial
Integrity→trust	Significant*	Significant*	Trustworthiness	Partial
Benevolence→trust	Non-significant	Non-significant	Trustworthiness	Null
Shared values→trust	Significant*	Non-significant	Trustworthiness	Full
Trustworthiness→intentions to continue using internet banking	Non-significant	Significant*	Trust	Full

Note: *Significant at 0.05 level

6.1 Theoretical implications

This study has important theoretical implications. First, this research extends our current understanding of internet banking adoption by empirically examining the role of trusting beliefs, trustworthiness, and trust in internet banking continuance. While extant literature in IS area argues that trust plays a central role in internet banking adoption, the role of trustworthiness in building customer trust in internet banking is not explored. The results

of the study provide strong evidence that trust in internet banking is developed through the perceptions of trustworthiness and trusting beliefs. By including trustworthiness, this study presents a process by which banking service providers can build trust, and more importantly enhance the customers' intention to continue using internet banking.

Second, this study extends prior research studies on consumer trust by considering both cognitive-based and affective-based dimensions of trusting beliefs (service provider characteristics). For instance Erdem and Ozen (2003) and Schaubroeck *et al.* (2011) suggest that both cognitive and affective dimensions determine trust. Consequently, we considered the cognitive dimensions of competence and integrity and affective dimensions of benevolence and shared values in understanding trustworthiness and trust in internet banking continuance. Furthermore, shared values have often been overlooked in the trust research (Khong *et al.*, 2013). The results show that both cognitive and affective dimensions are important for developing trustworthiness and trust in internet banking. Thus, the study findings show that cognitive aspects that focus on providing consistent and timely internet banking services and affective aspects that relate to sharing common goals with users are critical to building trustworthiness and trust perceptions in internet banking.

Finally, while extant literature on internet banking has indicated that trustworthiness is important for developing customer trust in internet banking, seldom research has examined it (Grabner-Kräuter and Faullant, 2008; Alsajjan and Dennis, 2010). Based on the trust theory, the present study distinguishes trust and trustworthiness, and positions trustworthiness to mediate the relationship between trusting beliefs and trust. Moreover, trust was observed to mediate the relationship between trustworthiness and internet banking use. This has important implications for service providers in building trust and enhancing internet banking continuance.

6.2 Managerial implications

From the managerial perspective, the results of the study will be very useful to the banking service providers as a tool to determine the internet banking continuance in Malaysia. It is also essential to identify that the relationship between trusting beliefs, trustworthiness, and trust show that the internet banking services much create trusting environment based on competence, integrity, and shared values to create trustworthiness and trust perceptions in internet banking continuance. Thus, the internet banking services providers should design and implement strategies that highlight the ability to provide consistent services, communicate common goals, being trustful in dealings and provide timely and meaningful information in developing trustworthiness and trust in internet banking use. As shared values influences trust through trustworthiness, failure to communicate the value alignment with the customers leads to lost opportunities of building trust in internet banking.

An overall trustworthy image that communicates consistency, integrity, and shared values can be developed by focussing on internet banking web site design. For example, the aesthetic, functional, internal, and external aspects of internet banking web site can lead to consistency in providing internet banking services among the customers (Lidwell *et al.*, 2003). Similarly, integrity can be communicated by providing secure infrastructures for internet transactions. It is also important for the internet banking service providers to communicate these qualities in their communication to the customers. By effecting the necessary changes in the internet banking web site design, the service provider can communicate competence, integrity

and shared values, which may lead to increased trust and continued usage of internet banking for future transactions. Furthermore, it helps in building long-term relationship with customers as service providers can effectively manage the customer needs (Padmavathy *et al.*, 2013).

6.3 Limitations and future research directions

This study is not without limitations. First, we considered only few cognitive and affective trusting beliefs in examining trustworthiness and trust perceptions in internet banking. Prior studies indicate that other dimensions such as communication, consistency, attraction, and fairness might determine trustworthiness in online context (Van Slyke *et al.*, 2009). Thus, future studies may consider other dimensions in examining internet banking adoption. Second, prior studies propose that trust and trustworthiness perceptions differ across cultures. As the present study was carried out in the Malaysian context, future studies can extend this by examining the difference in the relationship between trusting beliefs, trustworthiness, and trust in internet banking across different countries reflecting distinct cultural orientations. Finally, we collected responses from actual internet banking users in one-time period, i.e. cross-sectional. We propose that future research may use longitudinal data to explore the nature of relationship across the relationship duration. Furthermore, future research should extend the findings to a large sample that includes other groups of online banking users for enhanced generalizability.

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