

THE EFFECT OF TRUST ON PERCEIVED USEFULNESS WITHIN THE MALAYSIAN ONLINE BANKING ENVIRONMENT

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Abstract

Trust is often studied as a variable that contributes towards the adoption and subsequent use of online banking (OB). This study however studied the influence that trust (TRT) exerts on perceived usefulness (PU) when intending to adopt online banking. A systematic random sampling of residents in and around various cities in Malaysia was used as the studies sample. A Pearson correlation followed by a multiple regression, and later a bootstrap of the regression output was used to test the hypotheses generated. The dimensions of trust (security, privacy, reliability) were studied first before the trust variable was tested. The regression analysis indicated a significantly positive relationship between the individual dimensions of trust and further to this the trust variable itself with PU in the context of consumer online banking adoption. The study provided a useful insight on the dimensional attributes of trust that impacts PU. The study also implied that trust has a strong impact on PU and as such positively influences the intention to adopt online banking in Malaysia. Recommendations for future research are suggested at the end of the article.

Keywords: *Trust, Perceived Usefulness, Online Banking, Security, Privacy, Reliability.*

2016 GBSEJournal

Introduction

There is a lack of utilization of online banking when compared to the high level of Internet penetration in Malaysia. This study hopes that it will be able to further enhance knowledge on the adoption of online banking especially with regards to trust which is seen by many as inhibiting adoption. The study however, does not intend to look primarily at adoption but is more focussed on the concept of perceived usefulness as defined in the TAM model (Davis, 1989a). It is hoped that the study will enable the introduction of trust as a construct when using the TAM model to ascertain adoption. The trust construct that is used utilizes the harder dimensions of security, privacy and reliability (of the service provider) instead of the more commonly used trust dimensions of benevolence, integrity, ability and predictability (Gefen, Karahanna & Straub, 2003).

This is because of the way businesses are conducted presently. The contemporary business environment has been changed or altered by the Internet, especially in this new century and firms need to address the issues raised in order to stay relevant. Surprisingly, the inabilities of a major proportion of firms in meeting this challenge have remained and still exists today (Haag & Cummings, 2012). This new phenomenon (the Internet) is only possible because of technology. In its infancy technology was merely used to manufacture products but with the advent of communications (with ever increasing data movement and connectivity) and the

speed with which people can be connected has meant that the manner in which firms reach their customers has forever been rewritten. Examples of such organizations are Amazon and E-Bay which are basically what is termed as virtual organizations (because they exist only on the net). By virtue of this, these types of organizations owe their very existence to the Internet.

IT enables firms to achieve operational, tactical and strategic needs more effectively and efficiently (Cooper & Zmud, 1990). Sadly, many technology-centered products and services fail to reach their expected purpose, and some are just abandoned (Burton-Jones & Hubona, 2006). Banks just like all other businesses must learn to appreciate the fact that online banking (in the case of banks) is a part of e-business (in the case of other businesses) by itself is the operationalization of the e-strategy identified by the firm to enhance its reach. You cannot adopt an e-business strategy without first identifying the environmental factors that are shaping the business environment (this must happen at the strategic level of the organization), from this a deliberate decision to expand electronically (electronic strategy) which may be through e-commerce or the more expansive e-business model may be adopted. As stressed above, this strategy needs to be addressed at the highest levels of the firm to negate any resultant technology adoption failure.

Businesses cannot operate independent of the environment and understanding this factor inherently means understanding the consumer. As is the case in an online environment there is no face to face interaction between the customer and the service provider as is the case traditionally. By this we mean there is no over the counter interaction as opposed to a first time over the Internet interaction. First time over the net interaction usually is related to initial trust which is beyond the scope of this study. This study however, intends to examine over the Internet utilization of online banking services by existing customers.

To achieve this, the PU construct from the TAM model is used as the dependent variable and trust is used as the independent variable to ascertain the linear relationship between the two and a study of the individual dimensions of trust and their relationship with PU. The study will also confirm the findings on unidirectional influences of trust on TAM constructs and whether they are still existent (Ortega and Gonzales, 2011; Palvia, 2009; Hassanein & Head, 2007). In the TAM model perceived ease of use (PEOU) has a strong relationship with PU (Davis, 1989b), however this study concludes that the trust construct also influences PU when intending to adopt online banking. Trust is an important component when dealing with online retailers as well as banks as there is no direct contact between the consumer and the provider of the product/service. Thus, trust has been established as an important element in explaining the lack of adoption in Europe which may also apply to other regions in the world (Halliburton & Poenaru, 2010). This has been studied in the context of Kuala Lumpur (Foon & Fah, 2011) and in Australia (Adapa, 2011).

Literature Review and Model Development

There is significant importance for trust within an online environment but its study is still in its infancy (Kracher, Corritore, & Wiedenbeck, 2005). The concept of trust therein has many concoctions with a multitude of measures primarily centred on human relationships which are familiar to many. However when it comes to identifying what constitutes trust then the paradigm changes. McKnight, Choudhury & Kacmar (2002) dealt with initial trust and how it is formed within an online environment where the vendor is unknown. This study however, perceives trust to be the instance where one entity is vulnerable to the behaviour of another

entity when it is related to the risk when conducting an action online whether known or unknown (Petrovic, Ksela, Fallenbock & Kittl (2003).

Trust, Security, Privacy and Reliability

Trust is the most important attribute consumers respond to and as such requires a concerted effort by the vendor to gain it (Gregg & Walczak, 2010; Koufaris & Hampton-Sosa, 2004; Salo & Karjaluolo, 2004; Grabner-Krauter & Kalusha, 2003). In a study conducted in India it was found that the above observation still exists and that trust clearly inhibits adoption of online banking (Kesharwani and Bight, 2012). This was further reinforced when it was concluded that there still exists an aversion to adopt online banking even though online banking offers advantages such as convenience, easy personal account management from home etc. (Ahmed, 2013). Trust exerts an unmistakably strong influence on the adoption of online banking and cannot be ignored when studying this phenomenon (Goudarzi, Ahmed, Soleymani and Mohammadhosseini, 2013).

In view of this, and the need for the construct to be measured for the requirements of this study, it adopts the dimensions as proposed by Camp (2001) and expanded by Petrovic, Ksela, Fallenböck Kittl, (2003). They proposed that a combination of three dimensions affect the formation of trust which in turn will influence the consumer when interacting over the Internet with a retailer. Thus, the composition of trust as proposed is security, privacy and reliability. This they term as the harder dimensions and can be measured more accurately.

Security here can be said to be the extent to which customers trust the Internet as being secure for the transmission of sensitive information required to finalise the business transaction (Hutchinson and Warren, 2003; Kim and Shim, 2002). Security in the context of e-commerce is seen as a hazard which might be an event which can damage, change, make redundant, withhold or divulge information or curtail the efficiency of data and network resources (Belanger, Hiller and Smith, 2002). Security or the perception of security represents a very crucial component in influencing consumer attitudes as well as purchase intentions (Salisbury, Pearson, R.A., Pearson, A.W & Miller, 2001) and is a core dimension in trust (Hoffman, Lawson-Jenkins & Blum, 2006; Hoffman, Novak & Peralta, 1999).

Privacy is the trust that is attributed to the actions of another party whilst a transaction is conducted (Chen & Barnes, 2007). McKnight, Choudhury & Kacmar (2002) cite privacy as the commitment of the vendor not to divulge information. Privacy is a key driver of online trust (Hoffman, Lawson-Jenkins & Blum, 2006). The concept of privacy is linked with the levels of security and the online shopping experience itself. These two elements have a distinct positive influence on consumer trust especially during information exchange where perceived risk is an important factor (Lee & Turban, 2001). Privacy can be defined as a customers' perception with regards to their ability to control the compilation, utilization, dissemination and the subsequent access of that information by a third party of such information that is provided to a bank or other online financial service provider by the consumer when conducting an online transaction (Yousafzai, Pallister & Foxall, 2007a;2007b).

Reliability is premised upon the reliability of a firm which has a major influence on consumer trust while online as well as their purchase intention (Balasubramanian, Konana, & Menon, 2003; Koufaris & Hampton-Sosa, 2004). Therefore, in an online shopping environment, a majority of consumers are more receptive that big companies are better positioned to enhance their web-based trust (Koufaris & Hampton-Sosa, 2004; Figueiredo, 2000). It is also noted

that company reliability has a major influence on consumers online trust levels and thereby purchase intention (Koufaris & Hampton-Sosa, 2004; Balasubramanian, Konana & Menon, 2003). Therefore, in a web based shopping environment, most consumers accept that large companies are better positioned to enhance their online trust (Koufaris & Hampton-Sosa, 2004; Figueiredo, 2000).

Perceived Usefulness

Perceived usefulness (PU) is the extent to which the user believes the utilization of a given system improves efficiency at the workplace. It is the extent to which a specific (application) system is seen to increase the individual's job performance (Davis, 1989a; 1989b). In the initial stages PU was prescribed within the context of an individual job performances but this has however been expanded to include any common task beyond the confines of the organization such as for Internet shopping (Gefen, 2002).

PU is inadvertently affected by PEOU where vigour concerns the 'belief–attitude–intention–behaviour' continuum of relatedness and is dependent upon the definitive measurements attained (Ajzen & Fishbein, 1980). Many researchers have further simplified the TAM especially by removing the attitude construct (in the TRA) removing it from the current designation (Venkatesh & Davis, 1996; 2000; Venkatesh, Morris, Davis, G.B. and Davis, F.D., 2003). They argue that the role of attitude when trying to explain behavioural intention or the actual adoption behaviour is very constrained or finite. Attitude at best only partially mediates when attempting to identify the relationship between what is termed formative beliefs (PEOU, PU) and its link to adoption or the intention to adopt. As such the influence of PEOU was not examined by the study. The study only examines the relationship between trust and PU singularly but which may be included in a future model to predict online banking adoption. The literature presented led to the development of the model below.

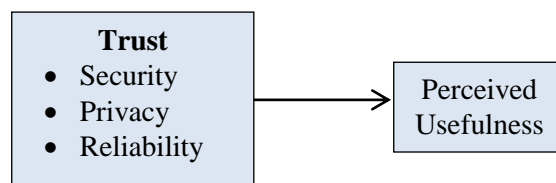


Fig. 1. Conceptual Framework

The hypotheses that were developed for the study are: H1: security exerts a significant influence on perceived usefulness; H2: privacy exerts a significant influence on perceived usefulness; H3: reliability exerts a significant influence on perceived usefulness; and H4: trust exerts a significant influence on perceived usefulness.

Methodology

The study is based on a sample drawn from various townships/cities in Peninsular Malaysia. The townships covered were Changlun, Jitra, Sungei Petani in Kedah, Kangar in Perlis, Kuala Lumpur in Wilayah Persekutuan, Shah Alam and Seri Kembangan in Selangor and Batu Gajah in Perak. The data for this study was collected using a systematic random sampling mode through flyer distribution in the aforementioned areas. The distribution was conducted over a two week period in January 2016. Every tenth unit in the residential areas within the

townships was targeted and a total of 200 questionnaires distributed covering a total of 2000 units. A total of 63 (31.5%) completed questionnaires were received but only 60 (30%) was deemed usable and subsequently used for data analysis. To ascertain the effect of a larger sample bootstrapping was conducted. The SPSS 22 software package was used for data analysis.

The pre-data analysis conducted indicated that linearity and homoscedasticity are ensured and multicollinearity, collinearity and unacceptable multivariate outliers do not exist. Therefore, the data used in the study was deemed fit for further statistical analysis. The output from SPSS is shown in Table 1 below. From the output below it can be seen that the tolerance values for all three independent variables are above 0.10 thereby indicating that there is no multicollinearity influence among the variables. Tolerance is an indicator of how much of the variability of the specified independent variable is not explained by the other independent variables in the model calculated as $1-R^2$ for each variable (Pallant, 2010). The tolerance values are read together with the VIF (variance inflation factor) value. Based on the VIF values all the variables indicated a value of below 10 which is acceptable (Pallant, 2010). VIF's are the inverse of the tolerances ($1/\text{tolerance}$). The eigenvalues on the other hand indicate high inter-correlation between the independent variables (values close to 0.00) suggesting that small changes in values in the intra-values will have large changes in the coefficients (Pallant, 2010). This usually means that the variables complement each other effectively.

Table 1. Collinearity Diagnostics

Model	Collinearity Statistics		Model	Eigenvalue	Condition Index	Variance Proportions			
	Tolerance	VIF				(Constant)	SE	PRIV	REL
1 (Constant)			1	3.959	1.000	.00	.00	.00	.00
SE	.938	1.066	2	.024	12.812	.03	.44	.13	.09
PRIV	.451	2.219	3	.011	19.396	.78	.47	.19	.01
REL	.465	2.151	4	.006	24.891	.19	.08	.68	.90

a. Dependent Variable: PU

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To determine which of the cases were outliers a Mahalanobis test was conducted as part of the regression test. To identify which cases are outliers, a determination of the critical chi-square value using the number of IV's as the degrees of freedom are used (Tabachnick & Fidell, 2007). For the three IV's a critical value of 16.27 is suggested (Tabachnick & Fidell, 2007). The output of Mahalanobis distances indicated a score of 0.001 which is well below the accepted level. The value for Cooks distance also falls within the acceptable distance of less than 1 at 0.000. A value of above 1 would require that the case be removed from the data analysis (Tabachnick & Fidell, 2007).

Validity and Reliability

Next a validity and reliability test was carried out. Based on the results (see Table 2 below) no construct value for reliability was below 0.70 and as such all the constructs can be used in the study (Pallant, 2010; Sekaran, 2002).

Table 2. Construct Reliability Value

	Construct	Reliability	Specification
PU	Effectiveness	0.754	Acceptable
	Productivity	0.932	Acceptable
	Importance	0.891	Acceptable
TRUST	Security	0.795	Acceptable
	Privacy	0.891	Acceptable
	Reliability	0.878	Acceptable

Summary of Descriptive Statistics

A total of 60 respondents were drawn from the cities/townships of Changlun (12); Jitra (6); Sungei Petani (8) in Kedah, Kuala Lumpur (10), Shah Alam (10); Seri Kembangan (7) in Selangor, Batu Gajah (4) in Perak and Kangar (3) in Perlis. Respondents were asked to indicate the trust factors that most influenced their perception of usefulness when intending to use online banking. The majority of respondents were female (56.7%) whereas males comprised 43.3%.

A full representation of the demographic factors influencing the sample that was drawn is shown in Table 3 below. The more important aspects of the demographics are the adoption rate of online banking. Online banking comprised only 28.3% whereas non-users comprised 71.7% even though all the 60 respondents sampled had internet access. Another important element is that the respondents also comprise 40% of PhD holders who also seem to be rather reluctant to adopt online banking.

Table 3. Demographic Factors

		Frequency	Percent			Frequency	Percent
Gender	Male	26	43.3	Age	18-35 years	23	38.3
	Female	34	56.7		36-45 years	21	35.0
			46-55 years		11	18.3	
			> 56 years		5	8.3	
Edu	MCE/SPM and below	7	11.7	Internet Access	<1 year	1	1.7
	HSC/STPM	4	6.7		>1-3 years	10	16.7
	Degree	25	41.7		>3-5 years	10	16.7
	Master/PhD	24	40.0		>5 years	39	65.0
City	Changlun	15	25.0	Online Banking	Yes	17	28.3
	Kuala Lumpur	19	31.7		No	43	71.7
	Shah Alam	1	1.7				
	Jitra	3	5.0				
	Sungei Petani	8	13.3				
	Kangar	3	5.0				
	Batu Gajah	4	6.7				
	Seri Kembangan	7	11.7				

Source: Author

Measurement of Variables

A questionnaire was used as the instrument of the study to capture relevant information related to the study. The variables were measured on a 5 point Likert scale ranging from strongly disagree = 1 to strongly agree = 5. In Part 1 of the the respondents were also asked if

they used online banking for any of their banking needs besides other demographical questions. The items of the dependent variable (perceived usefulness) is based on Chuttur (2009); Bagozzi (2007); Shih (2004); Karahanna et. al. (1999); Davis (1989b), whilst the independent variable of trust and its dimensions of security, privacy and reliability was based on Foon & Fah (2011); Adapa (2011); Wakefield, Stocks & Wilder (2004) and McKnight et. al. (2002).

Correlation and Regression Analysis

Table 4. Correlations among Independent Variables and Perceived Usefulness

		PU	SEC	PRIV	REL	Mean	SD
Pearson Correlation	PU	1.000	.203	.550	.070	3.339	0.459
	SEC	.203	1.000	.117	.023	3.483	0.673
	PRIV	.550	.117	1.000	.278	3.239	0.633
	REL	.070	.023	.278	1.000	3.794	0.884
Source: Author		** Correlation is significant at the 0.01 level (2tailed)					

A statistical correlation analysis was done to evaluate the strength of relationship between the independent variables of security, privacy and reliability with the dependent variable of perceived usefulness. The analysis indicates (Table 4 above) privacy ($r = 0.550$) has the highest correlation and reliability has the lowest correlation (0.070) to perceived usefulness among the respondents. The single linear relationship of trust as a single variable with perceived usefulness returned a result of $r = 0.309$ with a significance of $p=0.016$ (when $p<0.05$).

Table 5. Coefficients for the Multiple Regression Model

	Unstandardized Coefficients	Standardized Coefficients	t-value	Sig.
	B	Beta		
(Constant)	1.631		4.290	.000
SEC	.195	.285	2.818	.007
PRIV	.475	.655	6.219	.000
REL	.134	.258	2.469	.017
a. Dependent Variable: PU				

The multiple regression analysis results from Table 5 above shows that all three independent variables show the existence of significant influence towards perceived usefulness ($p < 0.05$). The result also indicates that privacy has the strongest influence with the highest beta= 0.655 and t score of 6.219. The adjusted R^2 for this model is 0.406 indicating that 41% of the changes in the dependent variable are explained by the independent variables. The statistical significance (ANOVA) for this result indicates it is Sig. = 0.000 at $p<0.005$ level.

When the bootstrap method for 1000 was used the results indicated that the Sig. (two tailed) outputs for the independent variables of security were 0.009; privacy was 0.001 and reliability was 0.010. It can thus be stated that with a larger sample the results will not differ much for the variables of security and privacy but the reliability variable may show a higher significance.

Discussion and Conclusion

The regression analysis in this study clearly supports H1, H2, H3 and H4. It reveals security ($p=0.007$); privacy ($p=0.000$) and reliability ($p=0.017$) have a significant influence on perceived influence. The study also shows that trust as a single variable has a significant influence on the dependent variable ($p=0.016$ at $p<0.05$ level). This conforms to the results of several studies on trust in general (Goudarzi, Ahmad, Soleymani & Mohammadhosseini, 2013; Ahmed 2013; Alsajjan and Dennis, 2010) and the specific dimensions of security, privacy and reliability (Casaló, Flavián and Guinalú, 2007).

Trust obviously plays an important role on online banking adoption (Edelman, 2011) but it also exerts influence on perceived usefulness in the TAM model. This may mean that the TAM model though an effective predictor of intention to adopt online banking it would be better served to include trust as a variable to complement it in view of existing environmental issues related to privacy and security. The dimensions of security, privacy and reliability as seen from the results seem to be exerting strong and significant influence on online banking adopters especially in the context of initial trust where physical interaction is non-existent.

Implications and Recommendations for Future Research

This study provides an extra insight into the nature of trust and how it should be measured whilst taking the environmental issues affecting online banking consumers. The opportunity for service providers to meet and fulfil this need might increase the number of online banking users in Malaysia given the fact that Internet penetration is so high. The softer dimensions of benevolence, ability or brand name may be included as a separate variable in future studies. However, before such a study can be done the sample size must be physically expanded to see if the above argument as regards to the harder dimensions used in this study holds true.

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