The moderating effect of electronic strategy (e-strategy) on the relationship between perceived usefullness and the intention to adopt online banking in Malaysia

Shahmir Sivaraj Abdullah
Haim Hilman
Rajoo Ramanchandram
School of Business Management
College of Business, Universiti Utara Malaysia, Malaysia

Abdullahi Hassan Gorondutse
Department of Economics and Management Science
Nigerian Police Academy, Kano, Nigeria

Nek Kamal Yeop Yunus
Faculty of Management and Economics
Universiti Pendidikan Sultan Idris, Malaysia

Abstract

Strategy is an important element in enhancing management competitiveness which directly influences firm performance. Therefore, contemporary business environments which are driven by technology require urgent and sustained attention by firms seeking to enhance their competitiveness. Simply put, technology is the tool through which a firm's strategy is achieved. Online banking is an example of a technology driven business environment. It is therefore important for the banks who offer this service to understand that the strategy they adopt influences the uptake of the service being offered. The level of adoption of online banking is an indication of the success of the strategy that has been adopted by banks. Consumer perception of the service has a strong influence on its actual usage. This study has used the perceived usefulness (PU) and behavioural intention to adopt (ADO) construct from the technology adoption model and the e-strategy construct to study online banking adoption in Malaysia. The moderation effect of e-strategy on the relationship between PU and ADO was examined. To achieve this, a random sampling of urban residents in the cities Ipoh, Georgetown, Alor Setar and Kangar in Malaysia was used. A total of 2560 questionnaires were distributed but only 360 usable questionnaires were received. The analysis was conducted by using SPSS 24 and Hayes SPSS process macro. From the analysis that was conducted it was found that e-strategy had a positively significant moderating effect on the perceived usefulness of adopting online banking by the consumer. The study found that e-strategy had a stronger effect on PU when applied effectively by banks. The study therefore confirms the hypothesis that the element of strategy influences online banking adoption rates in Malaysia.

Introduction

The way business is conducted has changed drastically in the new millennium especially with the delivery mechanism having gone online. Traditional competitiveness-based elements such as raw material or closeness to markets is losing competitive ability due to the existence of technology and its adoption (Ramayah, Mohamad, Omar, Marimuthu & Leen, 2013). This new mechanism is none other than the Internet which is technology based and is often underutilized by many firms which inherently causes a loss of competitiveness. Banks must address this situation in order to remain relevant and become more

competitive. The banking sector per se has become extremely competitive to the seismic shift created by the Internet (Shaikh & Karjaluoto, 2015).

Retail e-commerce sales in 2016 including both products and services ordered via the Internet was estimated to have reached USD1.915 trillion. This form of commerce accounts for 8.7% of overall worldwide retail spending (eMarketer, 2016). Accounting for an estimated sales volume of USD1 trillion in 2016, the Asia_Pacific region is the largest in the world. This form of commerce is expected to reach USD2.725 trillion by the end of 2020. The Asia-pacific region by reflection is expected to drive e-commerce (climbing to 31.5%) because of higher Internet penetration, a growing middle class and ever improving logistics infrastructure (eMarketer, 2016). Internet or online banking is a constituent part of e-commerce. Malaysians transacted a total of RM463.7 billion with 31 banks offering the Internet banking facility to their customers as of December 2016 (eMarketer, 2017) This represents 37.6% of internet banking users in Malaysia (Department of Statistics Malaysia, 2018).

The reasons for the adoption of new technologies by firms including banks was because these technologies were firmly linked to enhancing organisational effectiveness and efficiency in the following ways:

- By enhancing efficiency by reducing costs associated with effective supply chain management (Kroenke, 2014).
- By enhancing competitive advantage through the provision of new products and services (Kronke, 2014).
- By enhancing the provision of improved services to customers (Igbaria & Tan, 2007; Legris, Ingham, & Collerette, 2003; Shaikh & Karjaluoto, 2015).

From these conclusions it becomes inherently clear that the adoption of new technologies must be well thought out and cleverly executed. The strategy to be employed will impact the firm inextricably (Gorundutse & Hilman, 2017). IT adoption (foundation of e-commerce) failures is very common among firms (Robert and Racine, 2001) because of not being well thought out and in other cases because of haphazard uptake. This observation still applies today. This failure usually happens at the implementation phase (Abbasi, Tarhini, Elyas & Shah, 2015; Legris, Ingham & Collerette, 2003; Tan & Sutherland, 2004) and spans from under-usage to outright repudiation (Venkatesh and Davis, 2000). The primary reasons for such failures include poor alignment or fit between the system and its end users (Davis, 1993), weak configuration fit such as inconsistent strategy, structure and technology issues (Sauer, Southon & Dampney, 1997) and much recently human and organisational barriers (Coakes, Amar & Granados, 2013).

This phenomenon was often centered on two elements both interconnected to each other i.e. the individual consumer and the firm. This is the primary link based on the offer by the firm (their online banking facility) and the acceptance and adoption by the consumer of online banking. The reasons for technology adoption and the factors that influence its adoption need to be addressed from both an organisational and more importantly a consumer perspective (Montazemi & Saremi, 2015). Bank managers must influence customers by identifying and applying appropriate strategies to achieve this objective (Fawzy & Esawai, 2017).

Following these assertions, this study as its core objective has looked at the adoption of online banking adoption rates in Malaysia and the factors that may enhance or inhibit its adoption by the typical Malaysian consumer. Therefore, perceived usefulness (PU) and the intention to adopt (ADO) (intention to use) constructs from the (TAM) technology adoption model by Davis, Bagozzi & Warshaw (1989) was used as the theoretical base. This was then moderated by the e-strategy (ESTRAT) construct which is completely new. This is because firm performance and its link with strategy has been theoretically and empirically proven (Hingley, Sodano, & Lindgreen, 2008; Pehrsson, 2016; Teeratansirikool, 2013). Strategies and its managerial implications driven by new technologies are crucial for organisational success (Mũnoz-Leivaa, Climent-Climent & Liébana-Cabanillas, 2017). The TAM model has often been used to study online banking adoption and is well tested (Amin, 2016; Hosein, 2009; Lai & Li., 2005; Mangin, 2011; Tan, Potamites & Wens-Chi, 2012). The combination of the constructs for this study is unique as it has not been utilized within a standalone model before.

The study is premised on the high Internet penetration rate in Malaysia (Department of Statistics Malaysia, 2018) when compared with other countries in the region but peculiarly with a B2C adoption rate (online banking) which is still relatively small. This is an issue that needs to be investigated because a comprehensive acceptance or adoption of online banking seems to be very inhibited in Malaysia (Hong, Teh, Vinayan, Soh, Khan & San Ong, 2013). Even with increasing numbers of Internet banking users, the adoption of Internet banking by Malaysian consumers has still not reached expected levels given the fact that there is a high internet penetration rate (Amin, 2016). It has been reported that, as of the end of 2017, the Internet banking adoption rate in Malaysia was 37.6% whereas the Internet penetration rate was 80.1% (Department of Statistics Malaysia, 2018).

Hypothesis Development
Technology Adoption Model (TAM)

The TAM was utilized for this research because of its traits in measuring individual characteristics that have been identified as good measures of individual adoption. The TAM cannot be looked at in isolation from the two other models which remain the mainstay in trying to explain adoption and acceptance levels of innovation and new technologies. These two models are the Theory of Reasoned Action (TRA) by Fishbein and Ajzen (1975); Ajzen and Fishbein (1980) and the Theory of Planned Behaviour (TPB) by Ajzen (1991). All three theories seek to explain or predict consumer behaviour within the context of Internet banking (Sternad & Bolek, 2013; Yousafzai, Pallister & Foxall, 2005). Further to this, the purpose of the three theories is predominantly to explain behaviour or to be more precise the prediction of behaviour. In the TRA, TAM and TPB, Behavioural Intention (BI) primarily predicts behaviour and highlights a situation where an individual's action occurs but does not provide the reasons for such an action.

This is opposed to the TAM and TRA where the predictions of behaviour are accepted to occur entirely through BI. It must be noted here that both theories provide an explanation as well as an understanding of behaviour. This attribute enables these theories to be used in the context of IT adoption. By seeking to understand the behaviour of the consumer an organisation will be able to understand what it needs to do to encourage it. In the case of services delivered online such as online banking it may well prove to be both profitable as well as very rewarding.

The three theories identify unidirectional causal pathways that sought to identify and explain the prerequisites of behaviour. To put it simply in the TRA and TAM the predetermined factor influencing BI was usage behaviour, and in the case of TPB it may either be BI or PBC (Perceived Behavioural Control). Behaviour is said to happen when it can be predicted and when one of the pre-determinants of BI is significantly related to it (Sutton, 1998). The TRA was adapted to include Perceived Behavioural Control (PBC) in the TPB but the TAM is more individual biased (PU and PEOU), Together with volition or control it has become an important predictor of adoption especially when the individual consumer is targeted for analysis. This has made the TAM much easier to apply and draw conclusions from.

Technology adoption research is focused on two areas, with one field of research addressing the acceptance by individuals and societies at large (Compeau & Higgins, 1999; Davis, Bagozzi & Warshaw, 1989), which is the crux of this study as opposed to the other which critically addresses implementation issues within firms (Leonard-Barton and Deschamps, 1988). As such, all three theories may be used to study individual adoption or organisational adoption but in the case of individuals, the TAM was found to be very effective especially in the case of adoption of a certain technology to carry out a task (Davis, 1989a; Davis, Bagozzi & Warshaw, 1989), thereby, rendering it as a viable measure to identify online banking adoption (Patel, K. J., & Patel, H. J., 2017).

The TAM even though initially tailored for individuals in organisations and their acceptance of technology it has since been proven to be very well placed to study the acceptance of information technology (IT) in a more general setting of individual consumers such as the case here with online banking. Therefore, the TAM is the most appropriate model to be used by this study to meet its objectives.

The overwhelming prevalence of the use of the TAM to identify technology acceptance has been widely attributed to it being parsimonious, being IT-centric with the ability to provide adequate evidence

and ably forecast the targeted population's acceptance level for a variety of specific systems or technologies in a diverse setting. TAM is based on sound and well proven grounded theory with a validated psychometric measurement scale, making its utilization very accurate and appealing plus the added weightage of being extensively tested with strong and varied empirical evidence in its ability to explain adoption (Jahangir & Begum, 2008; Szajna, 1996). To achieve this, the TAM provides a framework to identify the effect of existential variables on inherent beliefs, attitudes and intentions.

The TAM proposed two variables that define or influence system adoption namely perceived ease of use (PEOU) and perceived usefulness (PU). In the beginning PU was recommended as a variable when studying a person's performance on the job, but this has been broadened to encompass all commonly carried out tasks outside the limitations of the firm including internet shopping and online (internet) banking (Gefen, 2002). For the purposes of this study though only the PU and the intention to adopt constructs have been used. The PEOU construct in most cases has often been seen to better explain the PU construct when studying intention to adopt as is noted in the original model (Davis, 1989a; Davis, Bagozzi & Warshaw, 1989). The PEOU construct tends to influence adoption through the PU construct in societies that are technologically savvy such as in Malaysia. It is due to this that this construct has been excluded in this study and the PU construct is used on its own. It will therefore enable this study to be more precise in its ability to explain usefulness and its influence on adoption.

Perceived Usefulness

Businesses must identify what customers want and how it will be able to influence the purchase. This is the only recipe for success in a dynamic business environment as present day environments have proven to be. The situation today is further complicated because of technology and its derivative the Internet. Innovation and environmental factors have significant relationships on perception of the usefulness of technology (Rababah, Mohd & Ibrahim, 2012). The banking system is no different and as such it needs to adapt quickly. Faced with this predicament banks must be driven by the need to identify new and more innovative ways to influence its customers to do their banking over the Internet (Ezzi, 2014; Gerrard & Cunningham, 2003) with them, and as a business become more efficient (Ezzi, 2014) and effective (Baltzan and Phillips, 2014). Davis (1993), states that PU is an individual's perception about using new technology and its adoption and how it would enhance his or her performance.

Based on this, this study has included PU as the predictor variable because of its importance when predicting adoption as it is a widely recognized attribute in the field of online banking (Tan et. al., 2012; Suki, 2010; Guriting and Ndubisi, 2006). It must be noted that when applying the TAM in Finland it was found that PU effectively determines actual behaviour influencing the user to use newer and innovative user-friendly technologies for their banking needs (Pikkarainen, T., Pikkarainen, K., Karjaluoto., & Pahnila, 2004). This situation is still prevalent today.

Intention to Adopt (Behavioural Intention to Use)

The TAM model contends that the use of technology is determined by an intention which exhibits a certain conduct or behaviour, or the intention to use technology (Oyeleye, 2015). Predicting an individual's behaviour when using technology can be done by gauging intention and other elements that affects the behaviour of users (Davis et. al., 1989; Goudarzi, Ahmad, Soleymani & Mohammadhosseini, 2013). It has been proven that there is a significant relationship between intention to use and the actual adoption of online banking by previous studies (Walker & Johnson, 2006).

The TAM has also been simplified by removing the attitude construct from the current specification (Venkatesh, Morris, Davis, G. B., & Davis, F.D., 2003; Venkatesh & Davis, 1996, 2000). It was proposed that the role of attitude especially when seeking to interpret behavioural intention or actual usage behaviour is very restrictive and endless. Attitude at best is only a partial mediator when identifying the relationship between formative beliefs (PEOU, PU) and adoption or intention to adopt.

This study has adopted these recommendations and removed the attitude construct to meet its objectives. This study contends that it is justified to do so and be able to answer the study's objectives without in any way or form diluting the model. The recommendations are also indicated by the creators of the model itself for the attitude construct but the exclusion of the PEOU construct is merely to test the level of influence of PU as a standalone construct in the TAM model to predict adoption.

E-Strategy

The moderating variable of e-strategy is used because it is hypothesized that it exerts an influence on the relationship between PU and ADO. Banks use strategy to influence customers and if the strategy is misapplied it may well lead to a lack of utilisation by its customers. The level of adoption by consumers was hypothesized to ascertain the level of effectiveness of the strategy that is employed by banks. This measure is an acceptable test of effectiveness of firm performance (Öztürk & Coskun, 2014; Ortega, 2010; Parnell, 2010).

E-strategy is the application and use of an electronic strategy intended to attain the objectives the organisation has set itself within the environment it is operating in. It must be noted that the rapid evolution of technology dependent systems requires a new approach especially when firms seek to interact with their customers through this medium. Cunningham (2002), visualised e-strategy as a tool that will enable the firm to develop and change the way the organisation operates by employing the inherent (electronic) tools and techniques associated with it as the main driver. Presently, however most e-business solutions seem to focus on individual business improvement programs and strategies (Turban & King, 2012; Cunningham, 2002).

Robert and Racine (2001) believe that there is a void between convention and practice in Internet based commerce. This situation also applies to online banking in Malaysia. It is therefore pertinent for e-strategy to be viewed as an equisential element when investigating low online banking adoption rates domestically. This will provide a better grasp of the nuances of online banking from the perspective of the consumer which may allay resistance. Banks in this case may need to incorporate an effective consumer focussed e-strategy to enhance online banking adoption rates. Adapa (2011) opined that the Internet or online banking has been much researched, but it has not been applied in the business context when she studied online banking in Australia. This is even though strategy influences performance within any business context (Gorundutse & Hilman, 2017).

The three main dimensions measuring strategy were customer perspective (Wu & Olk, 2014), internal processes (Kalkan, Erdlib & Cetinkayac, 2011; Lim, Stratopoulos, & Wirjanto, 2012), and competitive strategy (Kalkan et., 2011; Venkatraman, Henderson & Oldach, 1993). These dimensions were initially used to measure strategy, however for the purpose of this study they were measured as a single construct of e-strategy by including the online delivery component into the items in the questionnaire.

E-strategy has a significant moderating effect on the relationship between PU and the intention to adopt online banking.

Methods

Based on the discussions above, a predictor variable PU, an outcome variable intention to adopt and a moderator variable e-strategy were used. The research framework for the study is presented in Figure 1 below.
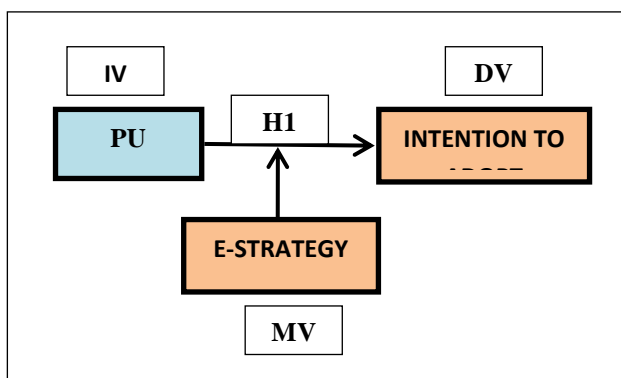

Figure 1: Research Framework
Data and Sample

The sample comprised urban dwellers from the cities of Ipoh, Georgetown, Alor Setar and Kangar in the states of Perak, Penang, Kedah and Perlis respectively. A postcode based random sampling survey was used to allow everyone an equal opportunity to participate. The questionnaires were distributed at 10 household intervals by postmen in all the areas. The number of questionnaires that were distributed was based on the national postal sampling response rate of 10-20% (Ramayah, 2005). In view of this, an estimated median response rate of 15% was chosen. The estimated sample was thus calculated as: minimum sample size/anticipated response rate = total required sample size. Therefore 384/15*100 = 2560. The total number of questionnaires received from the 2560 that was sent out was 381 with only 360 deemed usable.

Questionnaire and Measures

The hypotheses are measured by using the IV namely PU, the DV namely ADO and the moderator variable namely STRAT. The underlining theories and the choices of constructs have already been discussed above. The PU is the degree to which a user believes that the utilization of a system improves efficiency at the workplace. PU has three dimensions (Davis, 1989a; Gefen, 2002), namely effectiveness (4 items), productivity (5 items) and importance (5 items). The DV includes two dimensions namely attitude (6 items) and behavioural intention (5 items). The dimensions for the MV have been sourced from multiple literatures. The discussions have been centred on three main dimensions that comprise the effect of strategy i.e. customer perspective (Wu & Olk, 2014; Kaplan & Norton, 1996), internal processes (Lim et. al., 2012; Kalkan, Erdlib & Cetinkayac, 2011; Kaplan & Norton, 1996) and competitive strategy (Kalkan et., 2011; Venkatraman et. al., 1993). The dimensions used were customer perspective (4 items), internal processes (5 items), and competitive strategy (3 items).

The five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used for the questions to indicate a degree of agreement or disagreement with each of the statements related to the stimulus objects. The questionnaire comprised two sections. Section 1 comprised part A which covers the demographics and section 2 comprising parts B to D which covered the independent, dependent and moderating variables. The survey instrument was adopted and further adapted to suit this research from previous studies that were conducted.

Analysis and Results

Profiles of the Respondents

The majority of the respondents were males (219=60.8%) whilst females comprised 39.2% (141). The respondents' age distribution were 18-25 years (48=13.3%); between 26-35 years (90=25%); 36-45 years (126=35%); 46-55 years (66=18.3%) with those above 56 years comprising 8.3 % of the overall respondents. It was evident that the middle-aged group from 36-55 years comprised the majority percentage of the respondents (192=53.3%). The majority of the respondents were married (281=78.1%) whilst singles comprised 21.9% (76).

The employment status of the respondents revealed that a majority were employees (241=66.9%) while the self-employed comprised 33.1% (119) of the sampled population. Income levels indicated that a majority (138) of 38% have a monthly income of over RM4501. The other income brackets included 63 (17.5%) earning RM1501-2500; RM2501-3500 (73=20.3%) and with 16.9% (61) earning RM3501-4500).

The education levels of the respondents indicate that a majority hold a degree (147=40.8%) whilst the rest are MCE/SPM and below 24.2% (87); HSC/STPM/Diploma (83=23.1%) and PhD and above (43=11.9%). The number of PhD holders may have been skewed because the respondents from Alor Setar and Kangar live in the proximity of universities (Universiti Utara Malaysia and Universiti Malaysia Perlis), colleges (Mara Institute of Technology, Kedah Matriculation College, Perlis Matriculation College) and other tertiary education institutions.

Descriptive Analysis of the Constructs

The variables used in this study were investigated using the descriptive analysis approach. Statistical values of means, standard deviation, minimum and maximum were considered for the independent, moderating and dependent variables. The results of these statistical values are displayed in Table 1 below. All variables were calculated on a 5-point Likert scale.

Table 1. Descriptive Analysis of the Constructs

	N	Minimum	Maximum	Mean	SD
PU	360	2.40	4.47	3.3753	.45885
ESTRAT	360	2.80	5.00	3.9315	.47130
ADO	360	2.48	5.00	3.8359	.56370
Valid N (listwise)	360				

The results based on the descriptive statistics of the independent variables show that the mean value for the moderating variable E-Strategy (ESTRAT) is 2.80 which are the highest whilst the mean value for Perceived Usefulness (PU) has the lowest mean at 2.40. The dependent variable (intention to adopt) has a mean value of 2.48.

Preliminary Analysis

The main issue in post data collection is the treatment of missing data. It is considered normal that some respondents have not answered all items in the questionnaire. This may be a result of factors such as a lack of interest, understanding, unwillingness or just plain failure to understand the questions that has been presented (Sekaran, 2007). There are many avenues to overcome the problem of missing data. This study has used mean values as the chosen method to overcome this issue (Sekaran, 2007). This is because it is acceptable to use means when missing data only comprises less than 5% of the overall items in the questionnaire, however when missing data comprises more than 15% of the overall items the response should be discarded (Hair, Hult, Ringle and Sarstedt, 2014).

Overall, there were 21 unusable questionnaires which were received, and they were discarded because 5 respondents failed to complete 4 pages out of the 10-page questionnaire, 14 respondents missed Part A (descriptive) completely and 2 respondents were disengaged by answering all items with the same score. In all these cases the means were used. They were thus discarded. The list of categorical variables that were tested indicated no abnormalities. There were no missing data issues, and the total number of respondents was correct (N=360). The means and standard deviation (SD) were all acceptable. The minimum and maximum values are consistent with the actual measures (see Table 2 below).

Following the analysis on missing data, data screening was conducted to evaluate the outliers (excessive case scores likely to have a significant negative impact on outputs). To achieve this, a multivariate analysis was conducted to confirm and identify outliers and necessary action was taken to resolve it. The multivariate analysis was conducted using SPSS 24. The output from this analysis will provide a Mahalanobis score (Pallant, 2010; Hair et al., 2014). The Mahalanobis distance score can be extracted from the chi-square table by looking for X^2 for (df=V) p<.001. The X^2 (chi-square) for 2 variables at a significance value of 0.001 is 13.82. The value derived was 9.519 which is below the threshold of 13.82 which indicates no outliers are present (Tabachnick & Fidell, 2007). To complement this and identify any other strange cases which any undue influence on the model a Cook's distance measure may have was also analysed. The Cook's value derived is 0.20 which is below the 1.0 threshold (Pallant, 2010).

Table 2. Residuals Statistics

	Minimum	Maximum	Mean	SD	N
Predicted Value	3.2029	4.3379	3.8253	.22829	360
Std. Predicted Value	-2.726	2.245	.000	1.000	360
Standard Error of Predicted Value	.030	.097	.050	.015	360
Adjusted Predicted Value	3.1969	4.3323	3.8249	.22820	360
Residual	-1.62119	1.08447	.00000	.56806	360
Std. Residual	-2.846	1.904	.000	.997	360
Stud. Residual	-2.856	1.908	.000	1.001	360
Deleted Residual	-1.63312	1.08971	.00036	.57211	360
Stud. Deleted Residual	-2.886	1.915	.000	1.005	360
Mahal. Distance	.012	**9.519**	1.994	1.920	360
Cook's Distance	.000	**.020**	.002	.004	360
Centred Leverage Value	.000	.027	.006	.005	360

a. Dependent Variable: ADO

A homoscedasticity test is related to the assumption of normality, if the data is normal, then the relationships between the variables is assumed to be homoscedastic and, thus, homoscedasticity is absent (Tabachnick & Fidell, 2007). Since, multivariate normality was confirmed in this study (the plot was 'squarish' in the scatter plot), it was concluded that, homoscedasticity was absent.

As multivariate normality did not reveal any abnormalities the Skewness and Kurtosis test for all the items was found to fall within the acceptable range of <2 and <7 respectively. The output indicated that the skewness value derived was less than 2; and the kurtosis value, was less than 7.

The pre-data analysis conducted indicated that linearity and homoscedasticity are ensured and multicollinearity (does not exist because of the single independent variable), 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 24 for collinearity is shown in Table 1 below.

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/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 3. Collinearity Diagnostics

Model		Collinearity Statistics		Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
		Tolerance	VIF					(Constant)	PU	ESTRAT
1	(Constant)			1	1	1.991	1.000	.00	.00	
	PU	1.000	1.000		2	.009	14.800	1.00	1.00	
2	(Constant)			2	1	2.983	1.000	.00	.00	.00
	PU	.846	1.182		2	**.010**	17.024	.11	.98	.27
	ESTRAT	.846	1.182		3	**.007**	20.805	.89	.02	.73

a. Dependent Variable: ADO

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Next a validity and reliability (Cronbach's alpha) test was carried out. Based on the results (see Table 4 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 4. Validity and Reliability Test

Construct	Reliability	Specification
PU	0.736	Acceptable
ESTRAT	0.704	Acceptable
ADO	0.923	Acceptable

Measurement Model

This research used SPSS 24 plus the process macro provided by Andrew Hayes (Hayes, 2013). The moderating influence of the moderating variable was tested using the SPSS 24 process macro to identify significant influence levels.

The exploratory factor analysis (EFA) conducted for this study used the principal component analysis (PCA) method. The validity analysis and the internal consistency reliability analysis did not show any inconsistencies. This was done by ascertaining that the data set for individual constructs was suitable for factor analysis by conducting the Kaiser-Meyer-Olkin (KMO) measure for sampling adequacy. This value was above 0.6 (Pallant, 2010; Sekaran & Bougie, 2010) and thus was deemed acceptable. Following

this the eigenvalues were determined. Using Kaiser's criterion, we are interested only on eigenvalues above 1.0. This was then confirmed using the screeplot generated by SPSS 24 (to identify the number of elbows) and the total components that can be used. This was then checked using a parallel analysis. The aim is to systematically compare the eigenvalues from SPSS 24 with the corresponding values generated by parallel analysis. If the value generated by SPSS is larger than the value in the parallel analysis then the factor will be retained (Pallant, 2010). The parallel analysis was done using the recommended website by O'Connor (2000). This is done as a confirmatory exercise because the number of factors for the constructs was adopted from previous research. As for rotation the Oblimin method was used as recommended by Pallant (2010).

SPSS Process Macro Output
Model Summary
        The output in Table 5 below indicates that that the model explains 15.4% of the variance for the intention to adopt online banking (R^2=.154, F (3,356) = 32.626, p<.001) due to the three predictors of perceived usefulness and intention to adopt online banking.

Table 5. Model Summary

R	R^2	MSE	F	df1	df2	p
.3922	.1538	.3198	32.6260	3.0000	356.0000	.0000

        The interaction (moderation) is significant where p<.001 and the R^2 change = 0.0148, F change (3,356) = 16,826, p<.001 (see Table 6 below). The moderation effect is therefore large (above 0.025). This study uses the Aguinis, Beaty, Boik, & Pierce (2005) measures for interpretation of effect size. Cohen (1988), suggested that effect sizes of 0.02 (small), 0.15 (medium), and 0.35 (large) may be applied in ascertaining effect sizes in moderation analysis. However, Aguinis et.al., (2005) have proven that the median effect size for tests of moderation fall around only 0.009. Therefore, they opined that a more realistic contemporary standard given their exhaustive review should be 0.005 (small), 0.01 (medium), and 0.025 (large). Kenny, (2015), expressly notes that the effect sizes aforementioned are very "optimistic" values due to the review of size effects conducted by Aguinis et al. (2005).

Table 6. R-square increase due to Interaction (s)

	R2-chng	F	df1	df2	p
int_1	.0148	16.8620	1.0000	356.0000	.0000

Predictors
        The analysis of the output by SPSS Process Macro for the three predictors and the interaction effect are provided in Table 7 below. The outputs indicate the following:
        E-Strategy: β=.36, t (356) =5.37, p=.00. Therefore e-strategy is a significant predictor of online banking adoption. It indicates that for every 1 unit increase in the effectiveness of e-strategy, there will be a 0.3604 increase in adoption rates.
        Perceived Usefulness: β=.36, t (356) =4.57, p=.00. Perceived usefulness is also a significant predictor of the intention to adopt online banking. It indicates that for every 1 unit increase in the levels of perceived usefulness the adoption rates will increase by 0a value of 0.29.
        Interaction Effect: β=.34, t (356) =4.11, p=.00. There is a significant moderating effect on the relationship between perceived usefulness and the adoption of online banking.

Table 7. Model

	coeff	se	t	p	LLCI	ULCI
constant	3.7967	.0329	115.4870	.0000	3.7320	3.8613
ESTRAT	.3604	.0671	5.3723	.0000	.2285	.4923
PU	.2864	.0627	4.5650	.0000	.1630	.4098
int_1	.3427	.0835	4.1063	.0000	.1786	.5068

Product terms key: int_1   PU   X   ESTRAT
Conditional Effects

Table 8. Conditional effect of X on Y at values of the moderator(s)

ESTRAT	Effect	se	t	p	LLCI	ULCI
-.4643 (Low)	.1273	.0609	2.0918	.0372	.0076	.2470
.0000 Medium)	.2864	.0627	4.5650	.0000	.1631	.4098
.4643 (High)	.4456	.847	5.2611	.0000	.2790	.6121

Values for quantitative moderators are the mean and plus/minus one SD from mean.
Values for dichotomous moderators are the two values of the moderator

Both predictors are significant at the 0.01 levels of confidence. The confidence levels (LLCI and ULCI) do not indicate zero (Hayes, 2014). E-strategy has lower influence at low levels of perceived usefulness and has a strong influence at higher levels of perceived usefulness. This is indicated in the conditional effect of the moderator on the independent variable at different values of the moderator (see Table 8 above). The significance level is higher for medium and higher levels of e-strategy. Therefore e-strategy has a significant moderating effect on the linear relationship between PU and the intention to adopt online banking. Therefore, the hypothesis H1 is accepted. The higher beta value (effect) of .4456 indicates this (Hayes, 2014).

Conclusion

The analysis conducted supports the hypotheses (H1) that e-strategy has the ability to enhance the effect of perceived usefulness when the consumer intends to adopt online banking. This implies that paying attention to the e-strategy that is adopted by banks in Malaysia will indeed enhance the use of online banking in Malaysia. Another aspect this impacts on is the delivery of the postulated e-strategy by banks does in fact enhance perceived usefulness in the mind of the consumer. The findings also indicate that the causal and interactive effects between the independent variable and the dependent variable are enhanced by the moderator. This is evidenced by the beta values of the associated variables which are statistically significant. Intuitively, the moderated effects between perceived usefulness and intention to adopt are significantly validated.

The results evidenced by the study on the moderating effect of e-strategy is the significant contribution of this study. Previous studies have often looked at direct relationships without a moderating effect (Shih, 2004; Gefen & Straub, 2000; Karahanna et al., 1999; Davis, 1989a, 1989b). This was often in conjunction with the TAM model which is the theoretical framework for online banking (Tan et. al., 2012; Mangin, 2011; Hosein, 2009; Amin, 2007; Lai & Li, 2005) upon which this study is based. However, online banking adoption has been studied extensively but a moderating effect premised on e-strategy has not been studied previously. There are also other factors that are yet to be identified when it comes to understanding the nuance of online banking (Chuttur, 2009; Pikkarainen et.al., 2004).

As all these factors are primarily designed to improve the performance of banks by increasing online banking adoption the moderating effect of strategy cannot be discounted (Ortega, 2010; Slater et. al., 2006). Strategy does moderate in the sense that it influences linear relationships when firms intend to enhance their effectiveness (Lim, Stratopoulos & Wirjanto, 2012; Kalkan et. al., 2011). A customer focussed IT premised enhancement of a firm's competitive advantage is paramount in the digital age (Wu & Olk, 2014). In the case of banks, influencing their customers to migrate to online banking tends to reduce costs and thereby improves efficiency.

Implications for Future Research

This study contributes to the literature on online banking by statistically proving that an effective e-strategy by the vendor in this case the banks in Malaysia have a lot to gain by improving their online strategies. The contribution of this study provides answers to the call by authors who have opined that trust must be included in any research on online banking in Malaysia (Shih, 2004; Suh & Han, 2002) but this too needs to be moderated by e-strategy as a primary element to enhance firm performance (banks).

Future research needs to include e-strategy as a moderator to enhance the models predictive effectiveness. This may be applied in any business environment or industry. It would most appropriately be used when traditional firms intend to expand electronically.

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