To Trust or Not to Trust: The Consumer's Dilemma with E-banking

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Abstract

The purpose of this research is to investigate whether a consumer's perception of risk in transacting on the internet (Perceived Risk) would have an influence on their trust of a bank's e-banking website (Specific Trust) and their willingness to use e-banking. Data were collected from a survey and a usable sample of 202 was obtained. Hierarchical moderated regression analysis was used to test the model. The results showed that Perceived Risk has a direct influence on a consumer's willingness to use e-banking and Specific Trust has a positive moderating influence on the relationship between Perceived Risk and a consumer's willingness to use e-banking. Consumers who have low perceived risk of transacting on the internet are generally more willing to use e-banking. Their willingness to use e-banking was also shown to be more pronounced in cases where the consumer also trust their bank's e-banking website. These findings are of particular relevance to banks. It highlights that a consumer's willingness to use e-banking primarily depends on their perception of risk in transacting on the internet; trust of the specific e-banking website was secondary. This suggests the need for banks to not only employ mechanisms to build trust for their specific e-banking website, but that banks should first take measures to educate their customers and manage general consumer perceptions of the risks of transacting on the internet.

Keywords: Trust, Perceived Risk, Internet, E-banking Adoption.

Introduction

In recent years, the advancement in technological developments in information technology has lead to the evolution of e-banking in the banking industry. The evolution of e-banking has fundamentally transformed the way banks traditionally conduct their businesses and the ways consumers perform their banking activities (Eriksson *et al*., 2008; Sayar and Wolfe, 2007). Today e-banking has experienced phenomenal growth and has become one of the main avenues for banks to deliver their products and services (Amato-McCoy, 2005).

E-banking reaps benefits for both banks and its customers. From the banks' perspective, e-banking has enabled banks to lower operational costs through the reduction of physical facilities and staffing resources required, reduced waiting times in branches resulting in potential increase in sales performance and a larger global reach (Sarel and Mamorstein, 2003). From the customers' perspective, e-banking allows customers to perform a wide range of banking transactions electronically via the bank's website anytime and anywhere (Grabner-Kraeuter and Faullant, 2008). In addition, customers no longer are confined to the opening hours of banks, travel and waiting times are no longer necessary, and access of information regarding banking services are now easily available (Hamlet, 2000).

However the success of e-banking isn't without its problems. Firstly the adoption of e-banking has not kept pace with that of internet usage (White and Nteli, 2004). This gap is attributed to the lack of trust among bank customers, particularly among internet users age 65 and older (Ilett, 2005; Perumal and Shanmugam, 2005). Secondly, customers still prefer face to face interaction (Asher, 1999) due to reasons such as fear of the online environment and lack of trust in the internet. Recent literature on e-banking showed that the formation of trust can help reduce the impact of key inhibiting factors such as fears about using the online service among non-e-banking customers (Vatanasombut *et al*., 2008).

Moreover, even with the increased usage of e-banking in recent years, banks are faced with a conundrum - whilst e-banking does have its benefits of convenience and cost savings; the ease at which e-banking allows for switching back to traditional ways of banking consequently reduces long term customer commitment (Sarel and Mamorstein, 2003). The commitment-trust theory of

Morgan and Hunt (1994) proposes that trust leads to commitment in relationships, and so, if trust is built amongst existing customers, over time they will become committed to the e-banking service, reducing the chances of customers "jumping ship" (Mukherjee and Nath, 2003; Vatanasombut *et al*., 2008).

Evident in past literature is the fact that risk plays a role in the formation of trust (Chen and Dhillon, 2003; Pavlou, 2003), but what is not evident is the relationship risk has with trust especially in regards to the perceived risk consumers have in transacting on the internet. Past research studies into the area of risk found that it is not objective risk, but perceived risk which matter in the formation of trust (Bauer, 1960 as citied in Büttner and Göritz, 2008; Garbarino and Strahilevitz, 2004). A recent research study found that, perceived risk is directly related to an individual's adoption of e-banking with many past research studies showing that intention to use e-banking is often times affected by fears of theft or fraud (Gerrard *et al*., 2006). The relationship between perceived risk and trust is an underdeveloped area in the literature. Past work in the area of trust and perceived risk has not yet managed to fully determine the exact relationship which risk has on trust, as whilst risk is necessary for the formation of trust, it is not an antecedent of trust (Chen and Dhillon, 2003). Moreover, trust has been shown in the past to effect perceptions of risk, as well as having mediating effects through risk (Pavlou, 2003).

Hence the purpose of this research is to investigate whether a customer's perception of risk in the internet would have moderating effects on trust and a customer's willingness to use e-banking. As noted by Büttner and Göritz, (2008), there is a lack of empirical studies in this area. Moreover by understanding the nature of risk and trust, banks can ascertain the steps necessary on their part to ensure that the trust which they have built in their services will indeed influence customers' adoption and commitment to e-banking.

Literature Review

Trust in E-banking

Trust is essential in situations where risk, uncertainty and interdependence exist (Mayer *et al.*, 1995), and the online environment certainly encapsulates these factors. In an online environment, there is no direct physical contact between buyer and seller. This spatial distance means that consumers cannot use the physical cues, such as observing the sales staff or the physical office/store space, in order to judge trustworthiness (Reichheld and Schefter, 2000). Due to the global nature of the internet, consumers and e-retailers often face spatial and temporal separation as a result transactions carried out online often do not involve a simultaneous transaction of goods (or services) and money (Grabner-Kraeuter, 2002). This delay in time means that consumers can become increasingly uncertain whether the other party will actually perform their side of the transaction. Another reason for the increased need for trust in the online contexts is consumers' fear for the safety of their personal information due to hackers or other harmful possibilities (Hoffman *et al.*, 1999; Yoon, 2002).

Apart from the necessities of trust in order to get consumers to purchase online as per the theory of reasoned action (Azjen and Fishbein, 1980), trust is also important for businesses to grow and maintain profitability, as per the commitment-trust theory of relationship marketing by Morgan and Hunt (1994). Past research studies have identified that one of the benefits of trust are committed customers (Casalo *et al.*, 2007; Morgan and Hunt 1994). Loyal repeat customers are highly beneficial to organizations, as it is much cheaper to retain customers than it is to find and attract new customers (Reichheld and Schefter, 2000). In the online arena where substitutes are readily available, the benefits to businesses of having committed customers are plenty, hence the amount of research into the area (e.g. Casalo *et al.*, 2007; Jarvenpaa *et al.*, 2000; Vatanasombut *et al.*, 2008).

Numerous research studies have been conducted to identify what factors drive or inhibit the adoption of e-banking by consumers (Gerrard *et al.*, 2006; Hernandez and Mazzon, 2007; Lichtenstein and Williamson, 2006; Sayar and Wolfe, 2007). It has been identified that the lack of trust was one of the main reasons why consumers are still reluctant to conduct their financial

transactions online (Flavian *et al*., 2006; Luarn and Lin, 2005; Mukherjee and Nath, 2003; Rotchanakitumnuai and Speece, 2003).

In order for e-banking to be a viable medium of service delivery, banks today must try to narrow the trust gap due to the higher degree of uncertainty and risk in an online environment compared to traditional settings. Research studies conducted examining the role of trust in e-banking (e.g. Vatanasombut *et al*., 2008; Casalo *et al*., 2007; Lichtenstein and Williamson, 2006; Rexha *et al*., 2003; Suh and Han, 2002), found that trust plays a key role in the adoption and continued use of e-banking. Furthermore, it was found that trust not only affects the intent to use e-banking (Liu and Wu, 2007; Suh and Han 2002), but trust in e-banking has also been found to be an antecedent to commitment in e-banking (Vatanasombut *et al*., 2008; Kassim and Abdulla, 2006), and is therefore useful to reduce the perceived risk that consumers feel is present in an online environment (Pavlou 2002).

Perceived Risk and Trust

Perceived risk is depicted as a concept that is 'complex, multifaceted and dynamic' (Zhao *et al*., 2008, p.506). Perceived risk is defined as a consumer's perceptions of the uncertainty and the possible undesirable consequences of buying a product or service (Littler and Melanthiou, 2006). In the online context, past research studies suggest the inclusion of perceived risk due to its importance in influencing online consumer behavior (Cunningham *et al*., 2005; Pavlou, 2003; Salam *et al*., 2003; Schlosser *et al*., 2006) and more so in the area of e-banking (Cunningham *et al*., 2005).

As mentioned earlier, perceived risk is important in the formation of trust (Bauer, 1960 as cited in Büttner and Göritz, 2008; Garbarino and Strahilevitz, 2004). The body of the knowledge on trust has identified that risk is the element which gives rise to the need for trust when engaging in an activity which means that if there were no perceptions of risk, trust would not be necessary to engage in an activity, as actions could be taken with complete certainty (Yousafzai, 2003; Chen and Dhillon; 2003). There are two different types of risk that have been identified in relation to trust - risks associated with a partner and risks associated with a type of transaction (Büttner and Göritz, 2008). Risks associated with a partner in general are perceptions that a particular

interaction partner in a transaction will not perform their end of the bargain, and are formed from perceptions of the attributes of that interaction partner - this type of risk should be inversely related to trust of that partner (Jarvenpaa *et al*., 2000). Essentially, the higher the trust one has in a partner, the less perceived risk in dealing with that partner. However, risk associated with a type of transaction has a different association with trust. The more risky a type of transaction is perceived to be, the more trust is required in order to engage in an interaction with that partner (Mayer *et al*., 1995).

The relationship between risk and trust is a complex one, whilst risk is necessary to the creation of trust, it is not an antecedent to trust which means the presence of risk does not automatically equate to the formation of trust (Pavlou, 2002). According to Mayer *et al*. (1995, p.711) "It is unclear whether risk is an antecedent to trust, or is an outcome of trust." Clearly, a gap of knowledge exists in this area, and further research is required so as to determine the relationship which risk has with trust, especially in the context of e-banking.

However the area that interests the authors of this research is the work by Pavlou (2002) which found that the effect of trust on transaction intention could be moderated through perceived risk. This is a relationship which was originally proposed by Mayer *et al*. (1995), who postulated that the level of trust needed to engage in a risk taking behavior is influenced by the perception of risk inherent in that behavior. Pavlou's (2002) work also called for future research so as to "examine the complex interrelationships among trust, perceived risk and behavioral intention to reach definite conclusions." (Pavlou, 2002, p.125). This research aims to answer that call by testing perceived risk in the internet as a moderator in the relationship between a consumer's trust in a bank's e-banking website and the consumer's willingness to use e-banking.

Theoretical Framework

The investigation of the role of trust in the use of e-banking necessitates the examination of two key theories - the theory of reasoned action by Azjen and Fishbein (1980) and the commitment-trust theory of relationship marketing by Morgan and Hunt (1994). The theory of reasoned action states that a person's behavior is determined by their behavioral intent, which is in turn shaped by attitude and subjective norms (Azjen and Fishbein, 1980). Increased trust means that when a

person's attitudes towards a particular behavior (in this case, using e-banking) are positive, it will likely increase a person's intent to perform that behavior. This has been supported by research in both the e-retailing context (Jarvenpaa *et al*., 2000), and also in the e-banking context (Liu *et al*., 2005), where trust has been shown to lead to a purchase intention. Further, Morgan and Hunt (1994) purports that by building trust over time, customers become committed to the relationship built, and will subsequently reciprocate with continued business. Past research in this area have extended the applicability of this commitment-trust relationship to the e-banking context (Casalo *et al*., 2007; Mukherjee and Nath, 2007; Vatanasombut *et al*., 2008). This gives rise to the first hypothesis for this research which forms the basic relationship between a consumer's trust in a bank's e-banking website (Specific Trust) and the consumer's willingness to use e-banking.

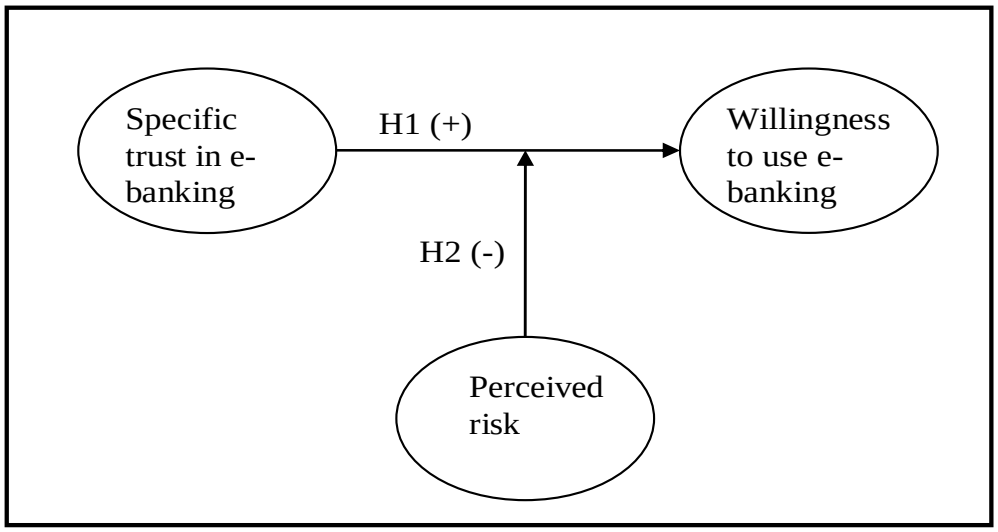
H1: Specific trust in e-banking has a direct effect on willingness to use e-banking

Perceived risk is defined in this research as a consumer's perceptions of risk in transactions using the internet, and is hypothesized to have a moderating role in the relationship between specific trust and the willingness to use e-banking. As mentioned previously in the literature review, there is little empirical research on the moderating effect of risk in the e-banking context. Work by Pavlou (2002) found that the effect of trust on transaction intention could be moderated by perceived risk, but called for further research in this area to confirm the complex interrelationships between these three constructs. Therefore, the authors of this research proposed the second hypothesis as:

H2: Perceived risk has a negative moderating effect on the relationship between specific trust and willingness to use e-banking.

The model tested in this research is thus summarized in Figure 1.

Figure 1: Model of Perceived Risk, Specific Trust and Willingness to Use E-banking



Methodology

To test the model, a cross-sectional survey was undertaken using an instrument containing 15 items. The 15 items used were established scales adapted from Doney and Canon (1995), Chow and Holden (1997), Jarvenpaa *et al*. (2000), Suh and Han (2002), Kim and Ahn (2006) and Verhagen *et al*. (2006) measuring specific trust, willingness to use and perceived risk. Great care was taken when adapting the scales to ensure that the original concepts being measured by the scale had theoretical congruence and relevance to this study. Each item is measured on a 7-point Likert scale with '0' denoting the low end and '6' the high end. The questionnaire was then pre-tested on a non-probability sample of university staff. Refinements were made to the questionnaire based on feedback from the pre-test. All items in the final instrument were then reviewed by marketing academics for content validity.

Measures

The scale used to measure perceived risk was adapted from a number of scales which have similar theoretical congruence with the definition of risk perception in the theoretical framework. A few of the items in the scale used was sourced from Verhagen *et al*. (2006), which measured "intermediary risk" and was defined as the "belief of a probability of suffering a loss due to the inability of the intermediary to provide sufficient protection against fraudulent and/or opportunistic sellers" (p.545) which is similar to the definition of the perception of risk on the

internet. In that, the consumer's belief in a possibility of loss or harm as a result of the medium – internet is being measured. The nature of the internet is such that, there is insufficient protection to consumers from fraudulent and/or opportunistic people, and so the use of items from Verhagen *et al.*'s (2006) scale on "intermediary risk" was appropriate. Other items in the scale were sourced from the work of Jarvenpaa *et al*. (2000), Kim and Ahn (2006), and Chow and Holden (1997), which measured concepts such as "risk perception" and "web-shopping risk", all of which was similar to the concept of perceived risk being operationalised. Minimal alterations were made to the items due the similarity of the concepts being measured. Whilst it would have been ideal to operationalise the construct of perceived risk in the internet with a singular scale, but there is a lack of scales in this area (Verhagen *et al.*, 2006), therefore the use of a composite scale was necessary. To measure specific trust in e-banking, items from work of Doney and Canon (1995), Suh and Han (2002) and Jarvenpaa *et al*. (2000) were adapted. These items were chosen due to their semantics and wording. Items directly relating to interpersonal trust including the service of e-banking, and a belief in the benefits and trustworthiness of e-banking were used as part of the scale. Lastly, in measuring the willingness to use e-banking, items that measure attitudes and intentions towards using e-banking were chosen. Items in the scale were sourced from scales published by Verhagen *et al*. (2006), Pavlou (2003), and Kim and Ahn (2006). Demographic data were also collected for the purpose of classification and determining the generalisability of the results.

Sample and Data Collection

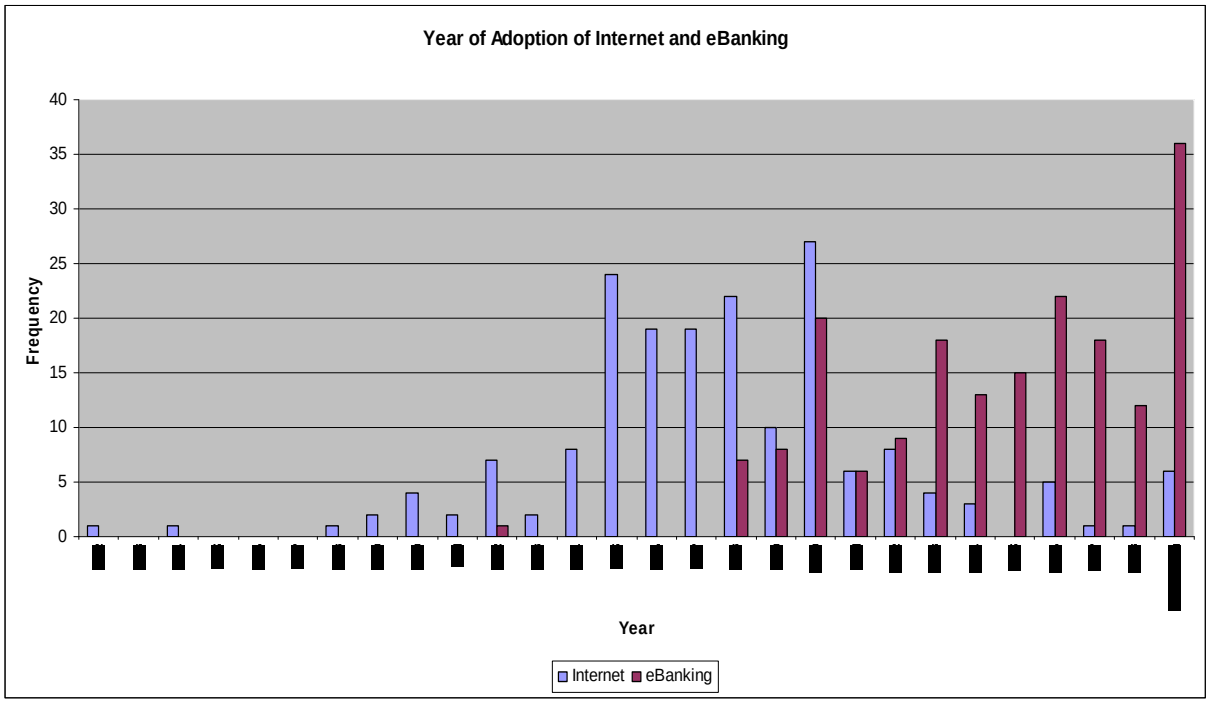
Representativeness, reliability of results as well as time and resource restraints were considered in determining the sample. The final sample was a non-probability sample of administrative and academic staff in ten departments across the five faculties of a large Australian university. University staff was chosen, as they were deemed to be more educated and informed about a range of issues. Therefore it is concluded that university staff would likely have a higher chance of responding to the survey, with more accuracy and honesty in their replies. Surveys were distributed physically and via online. Data collection took place over two weeks. A total of 218 returned questionnaires were yielded of which 202 passed manipulation checks and were usable. The response rate was 34.8%.

Results

Adoption of Internet and E-banking

Descriptive analysis was used and a bar chart (Figure 2) was constructed to compare the year of adoption of the internet and the year of adoption of e-banking. In relation to internet adoption, the results showed that there was a slow growth in the adoption of internet prior to 1995. The rate of adoption increased significantly in the years 1995 to 2000 and dropped significantly after. As for the adoption of e-banking, the results showed that there was no apparent usage of e-banking till the late 1990's and after which the adoption of e-banking rose reaching its peak in 2006. Figure 2 illustrates how the adoption of e-banking has not kept up with the pace of internet usage – this is consistent with the previous finding of White and Nteli (2004). Furthermore results also showed that there were still a significant number of people who have not adopted e-banking.

Figure 2: Year of Adoption of Internet and E-banking



Demographics and Specific Trust, Perceived Risk and the Willingness to Use Constructs

Demographic variables were examined across the three constructs of specific trust, perceived risk and the willingness to use. The results in Table 1 showed that there were significant

differences between gender and specific trust (sig. value – 0.010, *t*-value - 2.588) and perceived risk (sig. value – 0.029, *t*-value – 2.206) constructs. The means scores showed that males have higher specific trust (5.2748) and higher perceived risk (4.2916) as compared to females towards e-banking and the internet.

For age, the results showed a significant difference between age and willingness to use (sig. level - 0.017, *f*-value - 4.161). The difference was found between respondents of age groups 29 and under, and 50 and above. The means scores showed that respondents who were age 29 and below (mean – 5.603) were more willing to use e-banking as opposed to respondents who were 50 and above (mean - 4.8571).

For qualification, significant differences were present in the perceived risk (sig. level - 0.020, *f*-value – 4.991) and willingness to use (sig. level - 0.030, *f*-value – 4.932) constructs. In regards to perceived risk, the difference was found between respondents who have completed secondary school and respondents who have a post-graduate qualification. The means scores showed that respondents who had a post-graduate qualification (4.4355) have a higher perceived risk compared to those who had completed secondary school (3.4006). In relation to willingness to use, significant differences were found between three groups of respondents – those who had a trade qualification/diploma, a tertiary degree and a post-graduate qualification. The means scores showed that respondents who had a post-graduate qualification has a higher willingness to use e-banking (5.6871) compared to those who had a trade qualification/diploma (4.5259) and those who had a tertiary degree (5.5925).

Finally for income, significant differences were found between the different income groups in the perceived risk (sig. level - 0.049, *f*-value – 2.249) and willingness to use (sig. level – 0.003, *f*-value – 3.788) constructs. The two groups of respondents with income levels of $15,001 -$ 30,000 and $70,001 -$90,000 were found to be significantly different in the perceived risk construct. The means scores of the two groups showed that respondents with an income level of $70,001 - $90,000 had a higher perceived risk (4.6057) compared to respondents with an income level of $15,001 - $ 30,000. In relation to willingness to use, significant difference was found between two groups - $30,001 - $50,000 and $50,001 - $70,000. A comparison of the means

scores showed that respondents who had an income level of $50,001 - $70,000 (5.8625) were more willing to use e-banking compared to those who had an income level of $30,001 - $50,000 (4.6513).

Table 1: Summary of F and T Values for Specific Trust, Perceived Risk and Willingness to Use E-banking with Key Demographic Variables

	Gender	Age	Qualification	Income
Specific Trust	2.588*	1.296	2.151	1.683
Perceived Risk	2.206*	1.446	4.991*	2.249*
Willingness to Use	0.777	4.161*	4.932*	3.788*
*** Denotes p<0.050**				

Model Testing

In order to validate the measures of each construct, exploratory factor analysis was conducted using *principal components* extraction with *varimax* rotation. The items in each factor were then tested for scale reliability using standard Cronbach alpha indices.

As the items for both perceived risk and specific trust in e-banking were used together as a single scale in the survey instrument, factor analysis was ran on them both, to ensure that the two different factors were still valid. To check for the appropriateness of the data for factor analysis, the Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity was examined. Results showed that the KMO statistic for the data set was 0.885 and the Bartlett test showed that non-zero correlations exist at the 0.000 significance level. This indicates that the data is appropriate for factor analysis. The results of the factor analysis showed that two factors were indeed present, however, one of the items from the scale measuring specific trust in e-banking – 'Compared with other forms of banking, e-banking would be more risky' had moved to the factor measuring perceived risk (see Table 2 , item marked with asterisk). A reliability analysis was conducted on this adjusted factor; a Cronbach alpha index of .926 was obtained. The factor loading of the item, whilst not very high at .651 was much higher than the item's alternate factor loading which was .253. The item content was examined, and was found to also be applicable to the context of perceived risk due to the item's wording which could be interpreted as a higher perception of risk

in the medium of the Internet in comparison to other mediums. Given all these results, it was decided that the adjusted factor would be used as is in the analysis.

Table 2: Factor Analysis for Perceived Risk and Specific Trust

Factor	Items	Loadings	Alpha	Mean
Perceived risk	GT4.4	.891	.926	3.996
	GT4.5	.878		
	GT4.3	.824		
	GT4.2	.810		
	GT4.1	.770		
	ST4.10*	.651		
	GT4.6	.574		
Specific trust in e-banking	ST4.8	.923	.964	4.975
	ST4.9	.917		
	ST4.7	.913		

Items measuring the construct of willingness to use e-banking were also analysis to ensure that it was indeed a singular factor (Table 3). The results showed that the KMO statistic for the data set was 0.873 and the Bartlett test showed that non-zero correlations exist at the 0.000 significance level. This indicates that the data is appropriate for factor analysis. The results revealed a uni-dimensional structure, and corroborated that all five items in the scale loaded onto one factor. The factor loadings of each item were high, indicating strong relevance of each item within the scale. When in combination with the high Cronbach alpha of .957, the results of the analysis show that this factor is a highly useful measure.

Table 3: Factor Analysis for Willingness to Use E-banking

Factor	Items	Loadings	Alpha	Mean
Willingness to use e-banking	WU6.2	.960	.957	5.348
	WU6.3	.958		
	WU6.1	.947		
	WU6.5	.892		
	WU6.4	.878		

Regression Analysis

To test the relationship between the constructs of specific trust, perceived risk and willingness to use e-banking, hierarchical moderated regression was conducted. This method was proposed by Baron and Kenny (1986) to examine moderating effects. In conducting hierarchical moderated regression analysis, a series of regressions were performed. The first regression (Model 1) involved regressing the dependent variable (DV) on the independent variable (IV); the second regression (Model 2) involved regressing the DV on the IV and the moderator; and the final regression (Model 3) regressing the DV on the IV, the moderator, and a cross-product of the DV and the moderator.

Table 4: Relationship between Specific Trust, Perceived Risk and Willingness to Use E-banking - Model summary change statistics

Specific Trust in e-banking and Perceived risk - Model summary change statistics **Dependent variable: Willingness to use e-banking**			
	Model 1	**Model 2**	**Model 3**
R2	.396	.454	.508
R2 Change	.396	.058	.054
F Change	116.014	18.823	19.237
Df	177	176	175
Sig.	.000	.000	**.000**

Model 1 = Specific Trust

Model 2 = Specific Trust + Perceived Risk

Model 3 = Specific Trust + Perceived Risk + (Specific Trust x Perceived Risk)

The three regression models were tested for explanatory power, and yielded R-squared values of 0.396, 0.454, and 0.508 respectively (see Table 4). Results of the R-squared comparisons showed that Model 3, which included specific trust, perceived risk, and the cross product of specific trust and perceived risk, had significantly improved R-squared values from Model 1 and Model 2. The analysis yielded results quite different to what was hypothesized. Besides Model 1 where specific trust was the only IV in the regression, specific trust was shown not to have a direct influence on the DV of willingness to use e-banking. Rather, perceived risk was shown to have a direct influence on the DV of willingness to use e-banking in Models 2 and 3. Model 3, which had the greatest R-squared value, suggests that it is not specific trust that influences a consumer's

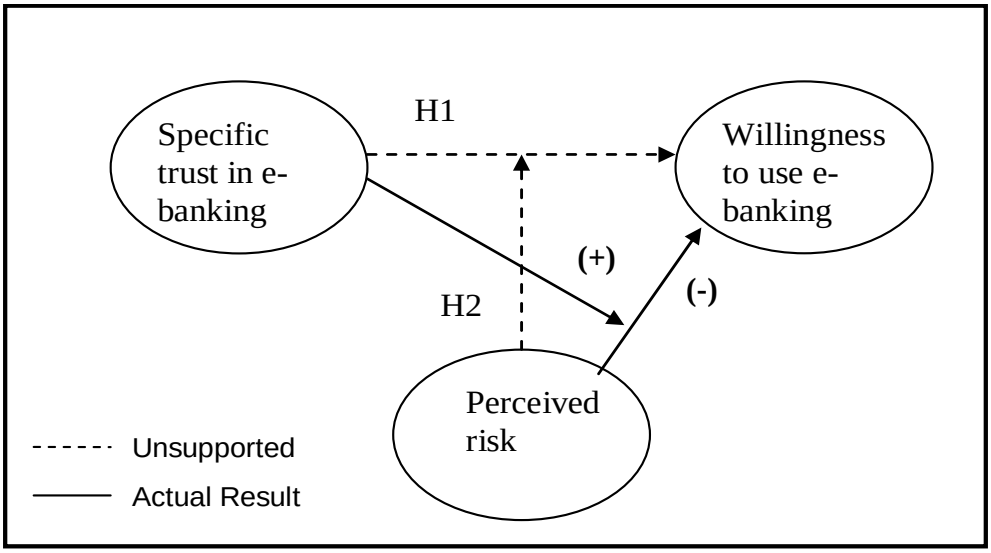
willingness to use e-banking, but rather perceived risk. The regression coefficients from Model 3 (see Table 5) showed that perceived risk had a significant negative impact on willingness to use e-banking (p = 0.000, Beta = -1.179, t = -5.588). Specific trust in e-banking instead was found to have a positive moderating influence on the relationship between perceived risk and willingness to use e-banking (p = 0.000, Beta = 0.759, t = 4.386).

Table 5: Regression Model 3 Coefficients

Perceived Risk and Trust - Model 3			
	Specific Trust	**Perceived Risk**	**Specific Trust x Perceived Risk**
Sig.	.210	**.000**	**.000**
Beta	-.206	**-1.179**	**.759**
t	-1.260	**-5.588**	**4.386**

The results derived from the regression analysis thus do not support the two hypotheses H1 and H2. It appears that the roles of the independent variable and the moderator have swapped. Figure 3 shows the amended model reflecting these new roles, where the independent variable of perceived risk is shown having a primary role with a direct influence on a consumer's willingness to use e-banking and specific trust in the bank's e-banking website having a secondary role as a moderator.

Figure 3: Amended Model



Discussion and Implications

Adoption of Internet and E-banking

The results showed that there was no apparent usage of e-banking till the late 1990s. This was firstly attributed to the late adoption of e-banking facilities by the four major banks in Australia. It was only at the end of 1997 when e-banking facilities were provided by the banks in Australia (Sathye, 1999). Secondly, a report by the Australia Bureau of Statistics (1999) stated that the use of internet by adults to pay bills and transfer funds were only approximately 2 per cent during that time. These findings deserve attention, as Australians were considered to be technology savvy being at the forefront of United States as the world's third highest users of electronic point of transfer (Eftpos) in the 1990's (Macfarlane, 1997). However there were other reasons for the late adoption of e-banking in Australia. These reasons include the lack of knowledge of service availability, the internet website being not user friendly, and security concerns (Sathye, 1999). In the last decade, banks have addressed these problems through the use of effective marketing strategies, education and adopting innovative technology in security measures and information technology. It has proven to be effective as the latest statistics showed that approximately 40% of the internet users in Australia have adopted e-banking (comScore, 2008). This proportion however is still relatively low, and concurs with the results of past research such as White and Nteli (2004), Lichtenstein and Williamson (2006), and the current research showing that the adoption of e-banking has not kept up with the pace of internet usage. This is despite figures for internet access quadrupling from 16% to 67% in the last decade from 1998 to 2007/08 (Australian Bureau of Statistics, 2008).

Demographics and Specific Trust, Perceived Risk and the Willingness to Use Constructs

Results showed that respondents who are aged 29 and below, earning an income level of $50,001 - $70,000 and with post graduate qualifications were more willing to use e-banking. This finding is congruent with the findings of past studies that claimed that consumers who are well educated and with higher incomes are more willing to engage e-banking services (Kolodinsky *et al*., 2000; Gartner, 2003). Furthermore results of this study concur with past research studies on the unwillingness to use e-banking by the older/elderly generation (Ilett, 2005; Perumal and Shanmugam, 2005). Further examination of the results showed that respondents who are

unwilling to use e-banking have a trade qualification/diploma and are earning an income of $30,001 - $50,000.

In relation to the perceived risk constructs, males who have a post graduate qualification and earning $70,001 -$90,000 have higher perceived risk. This finding is rather surprising as it does not concur with previous studies which found females to have a higher perceived risk. Females were found to be more concerned on the level of risk in technology (Lichtenstein and Williamson, 2006), more anxious with privacy protection and ethical standards (Shergill and Li, 2005) and have greater fears in new technologies such as the internet (Morahan-Martin, 2000) compared to males. Further examination of the results showed that respondents who have a lower perceived risk are females, earning an income of $15,001-$30,000 and have completed secondary school.

Results from this research showed that males have higher specific trust than females regardless of income, age and qualification. Drawing from the findings of the perceived risk construct, an interesting discovery was made – males have higher perceived risk as well as higher specific trust compared to the females. The authors of this study propose that a possible reason for this may be explained by a higher level of involvement in banking services in males. This should be confirmed by future research.

Model Discussion

The results of the regression analyses found that the construct of perceived risk had a direct negative influence on willingness to use e-banking. This was contrary to the original hypothesis that suggests specific trust having the direct influence on willingness to use e-banking. The theoretical framework for the original hypothesis was generated from the theory of reasoned action (Azjen and Fishbein, 1980) and the commitment-trust theory of relationship marketing (Morgan and Hunt, 1994), and supported by various studies such as Vatanasombut *et al*. (2008), Casalo *et al*. (2007), Mukherjee and Nath (2007), Liu *et al*. (2005), and Jarvenpaa *et al*. (2000). However research by Pavlou (2003), found that perceived risk was an antecedent to an intention to transact - providing support to the actual findings in this research. The results of the regression analyses also found that specific trust in a bank's e-banking website had a positive moderating

influence on the relationship between perceived risk and the willingness to use e-banking. Consumers who have low perceived risk of transacting on the internet are generally more willing to use e-banking. Their willingness to use e-banking was also shown to be more pronounced in cases where the consumer also trust their bank's e-banking website. These findings are of particular relevance to banks. It highlights that a consumer's willingness to use e-banking primarily depends on their perception of risk in transacting on the internet; trust of the specific e-banking website was secondary. This suggests the need for banks to not only employ mechanisms to build trust for their specific e-banking website, but that banks should first take measures to educate their customers and manage general consumer perceptions of the risks of transacting on the internet.

Managerial Implications

Despite banks' adoption of advance security measures such as mobile phone short message service (SMS) security notification, security token code and security encryption between customers and the bank to increase specific trust in their e-banking website, banks do not necessarily solve the core problem that is the customers' general distrust of the internet as a medium of exchange. This is a major finding in this research. As pointed out by Steward (1999), the key contributing factor of the failure of the internet in retail banking is the consumers' high perception of risk and lack of trust in transacting by electronic channels. Therefore reducing consumers' perceptions of risk on the internet is the key determinant in getting bank customers to use e-banking.

Self-efficacy has been shown to be one of the determinants of a consumer's perceptions of risk. As explained by Eastin and LaRose (2000), prior internet experience, positive outcome expectancies and internet use has a positive effect on internet self-efficacy; whereas internet stress and internet self-disparagement would have a negative effect on internet self-efficacy. Therefore banks could help customers with low internet self-efficacy through education by offering internet training programs or provide internet training manuals with comprehensive and detailed guidelines on using the internet for banking services to negate their high perceived risk in internet transactions.

This research has also identified the demographic characteristics of those who are not willing to use e-banking. They are consumers who have high perceived risk and low specific trust. By knowing the demographic characteristics of these consumers, banks are able to formulate more effective marketing strategies for e-banking adoption by specifically targeting these demographic segments. Advertising and promotional campaigns could be useful to create greater awareness of the benefits of e-banking. Holding information sessions and giving comprehensive informational booklets are some ways to educate customers on e-banking. To help minimize the negativity of e-banking among some users and non-users of e-banking, reassurance programs as suggested by Zhao *et al.* (2008) could prove to be useful. Dissemination of information is the key in the reassurance programs. Banks should constantly update and inform customers about the guidelines and latest security measures adopted by the banks. Besides that banks should not be biased on the type of information that is published on their website (Zhao *et al*, 2008). Information such as problems faced by the banks, for example the violation of the e-banking system should be related to their customers and the public, and also the solutions undertaken by banks to solve the problem and steps customers should take if the problem directly affect the customer. If the problems are handled effectively, it could help generate positive publicity or goodwill towards the bank (Zhao *et al*, 2008).

Limitations and Directions for Future Research

This research is limited by the non-probability sample used. Despite careful selection of both administrative and academic staff in ten departments across the five faculties of a large Australian university, the sample income and education levels are above that of the general population. Future research may address this issue by incorporating probabilistic sampling in data collection.

The scope of this study is limited to Australia, where the adoption of internet is at its maturity stage (Lichtenstein and Williamson 2006), and as such, these results may not be able to be generalized to other contexts where technological maturity has not been reached. Replications of this study in underdeveloped and developing countries or mature or elderly consumers are opportunities for further research.

Finally, there have been numerous research conducted on e-banking. With the advancement in technology, banks are beginning to introduce new avenues to deliver their products and services - one of which being mobile banking. Examining the role of specific trust and perceived risk in mobile banking is an opportunity for further research.

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