

**Risky Business: Perceived Risk, Trust and the Use of E-Banking**

*David H. Wong, Curtin University of Technology, David.Wong@cbs.curtin.edu.au*

*Claire Loh, Curtin University of Technology, Claire.Loh@cbs.curtin.edu.au*

*Bradley Turner, Curtin University of Technology, Brad.Turner@cbs.curtin.edu.au*

*Randall Bak, Curtin University of Technology, Randell.Bak@live.com.au*

*Kenneth B. Yap, University of Western Australia, kyap@biz.uwa.edu.au*

**Abstract**

The relationship between online risk and trust is a complex one. Existing studies have produced mixed results on the role of perceived risk in transacting online and trust of the online service provider. This study examines perceived risk as a moderator between consumer's trust of a bank's e-banking website and their willingness to use e-banking. The role of perceived risk as a moderator was not supported. Rather results show that a consumer's willingness to use e-banking depends on the consumer's perception of risk in transacting on the internet. Trust of the specific e-banking website was found to be the moderator instead. Therefore banks should educate their customers and manage general consumers' perception of the risks in transacting on the internet.

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

## **Risky Business: Perceived Risk, Trust and the Use of E-Banking**

### **Introduction**

In recent years, e-banking has experienced phenomenal growth and has become one of the main channels for banks to deliver their products and services (Amato-McCoy, 2005). Fox and Beier (2006) reported that in the United States alone, 63 million adults bank online, representing nearly half of internet users in the country. However, 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 to e-banking (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" (Vatanasombut *et al.*, 2008; Mukherjee and Nath, 2003).

Past literature recognises the role risk plays in the formation of trust (Chen and Dhillon, 2003; Pavlou, 2003), as such trust has been shown to affect perceptions of risk, as well as having mediating effects through risk (Pavlou, 2003). However, 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. This present study investigates the role of a customer's perception of risk in the internet as a moderator on the relationship between trust and the customer's willingness to use e-banking. By understanding the nature of risk and trust, banks can ascertain the steps 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 encapsulates these factors. Apart from the necessities of trust in order to get consumers to purchase online as per the theory of reasoned action (Ajzen 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).

Numerous studies have identified lack of trust as one of the main reasons that 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). Past studies 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), found that trust played a key role in the adoption and continued use of e-banking. Other research findings show that trust not only affects the intent to use e-banking (Liu *et al.* 2007, Suh and Han 2002), but serves as an antecedent to commitment to e-banking (Vatanasombut *et al.* 2008, Kassim and Abdulla 2006), and is useful in reducing the perceived risk that consumers feel is present in an online environment (Pavlou 2003). For e-banking to be a viable medium of service delivery then, banks must try to narrow the trust gap due to the higher degree of uncertainty and risk in an online environment compared to traditional settings.

## Perceived Risk and Trust

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 studies suggest the inclusion of perceived risk due to its importance in influencing online consumer behaviour (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).

Trust and risk are linked factors in the literature such that it is understood that risk gives rise to the need for trust when engaging in an activity whereby actions cannot be taken with complete certainty (Yousafzai, 2003; Chen and Dhillon; 2003). Two different types of risk have been identified in relation to trust. The first type of risk is associated with a partner (Büttner and Göritz, 2008) which 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. The second type of risk is associated with the nature of transaction (Büttner and Göritz, 2008) and 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. According to Mayer *et al.* (1995, p.711) "It is unclear whether risk is an antecedent to trust, or is an outcome of trust." This study answers this call for further clarification of the role of these two constructs in the context of e-banking.

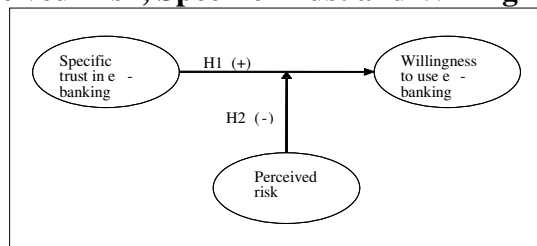
## Theoretical Framework

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 consumer's attitude towards a particular behavior (in this case, using e-banking) is positive, it will likely increase a consumer's intent to perform that behaviour. 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. Furthermore, Morgan and Hunt (1994) purport that by building trust over time, customers become committed to the relationship built, and will subsequently reciprocate with continued business. Past studies have extended the applicability of this commitment-trust relationship to the e-banking context (Vatanasombut *et al.*, 2008; Casalo *et al.*, 2007; Mukherjee and Nath, 2007). Hence the first hypothesis for this study 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*

As mentioned previously, there is little empirical research on the moderating effect of risk in the e-banking context. Work by Pavlou (2003) 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 second

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

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



## Methodology

A cross-sectional survey was undertaken using an instrument containing 15 items. The items measuring perceived risk, were adapted from Verhagen *et al.* (2006), to measure “intermediary risk” which was similar to the perception of risk on the internet and followed by 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 were similar to the concept of perceived risk being operationalised. To measure specific trust in e-banking, items directly relating to interpersonal trust including the service of e-banking, and a belief in the benefits and trustworthiness of e-banking were adapted from Doney and Canon (1995), Suh and Han (2002) and Jarvenpaa *et al.* (2000). Lastly, to measure the willingness to use e-banking, items measuring attitudes and intentions towards using e-banking were chosen from Verhagen *et al.* (2006), Pavlou (2003), and Kim and Ahn (2006). Each item was measured on a 7-point Likert scale with ‘0’ denoting the low end and ‘6’ the high end. The questionnaire was then pre-tested, refined, and reviewed for content validity. Factor analyses performed in this study yielded Cronbach Alphas of 0.926, 0.964 and 0.957. The final sample was a non-probability sample of administrative and academic staff in ten departments across five faculties of a large Australian University. Questionnaires were distributed physically and via online. A total of 218 returned questionnaires were yielded of which 202 passed manipulation checks and were usable. The response rate was 34.8%.

## Results

To test the relationship between the constructs of specific trust, perceived risk and willingness to use e-banking, hierarchical moderated regression was conducted as proposed by Baron and Kenny (1986) to examine moderating effects. 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 1: 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)

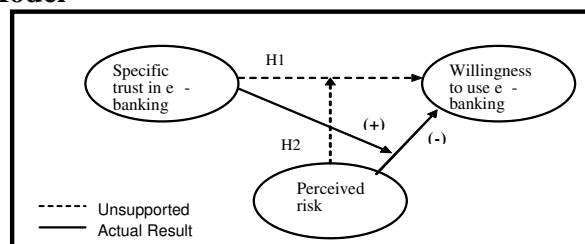
The three regression models were tested for explanatory power, and yielded R-squared values of 0.396, 0.454, and 0.508 respectively (see Table 1). Results of the R-squared comparisons showed that Model 3, which included specific trust, perceived risk, and the cross product of specific trust and perceived 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 2) 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 2: 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 do not support the two hypotheses H1 and H2. It appears that the roles of the independent variable and the moderator have swapped. Figure 2 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 2: Amended Model**



### Discussion and Implications

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 is 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 (Ajzen and Fishbein, 1980) and the commitment-trust theory of relationship marketing (Morgan and Hunt, 1994), and was supported by various studies such as Vatanasombut *et al.* (2008), Casalo *et al.* (2007), Mukherjee and Nath (2007), and Liu *et al.* (2005). 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 also found that specific trust in a bank's e-banking website has 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 are also shown to be more pronounced in cases where the consumer also has trust in their bank's e-banking website. These findings have significant implications to a bank's marketing strategy. 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 is 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. 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.

Past research found that self efficacy in using the internet has a significant effect on consumers' willingness to use e-banking (Gerrard *et al* 2006). Eastin and LaRose (2000) explained that having 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.

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 minimise 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**

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 generalised to other contexts where technological maturity has not been reached. Finally, with the advancement in technology, banks are beginning to introduce new avenues to deliver their products and services - one of which is mobile banking. Examining the role of specific trust and perceived risk in mobile banking especially in a cross-cultural context, is an opportunity for further research.

## References

- Amato-McCoy, D., 2005. Creating virtual value. *Bank Systems and Technology*, 42 (5), 22-28.
- Asher, J., 1999. Small business: Suddenly everyone wants a piece of it. *ABA Banking Journal*, 91 (4), 28-32.
- Azjen, I. & Fishbein, M., 1980. *Understanding attitudes and predicting social behavior*. New York: Prentice-Hall.
- Baron, R.M. & Kenny, D.A., 1986. The moderator-mediator variable distinction in social psychology research: conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, 51 (6), 1173-1182.
- Büttner, O. B. & Göritz, S., 2008. Perceived trustworthiness of online shops. *Journal of Consumer Behaviour*, 7 (1), 35-50.
- Casalo, L. V., Flavian, C., & Guinaliu, M. 2007. The role of security, privacy, usability and reputation in the development of online banking. *Online Information Review*, 31 (5), 583-602.
- Chen, S. C. & Dhillon, G. S. 2003. Interpreting dimensions of consumer trust in e-Commerce', *Information Technology and Management*, 4 (2-3 (April 1)), 303-318.
- Chow, S. & Holden, R. 1997. Towards an understanding of loyalty: The moderating role of trust. *Journal of Managerial Issues*, 15 (3), 275-298.
- Cunningham, L., Gerlach, J., & Harper, M. 2005. Perceived risk and e-banking services: An analysis from the perspective of the consumer. *Journal of Financial Services Marketing*, 10 (2), 165-178.
- Doney, P. M. & Cannon, J. P. 1997. An examination of the nature of trust in buyer-seller relationships. *Journal of Marketing*, 61 (2 (April 1)), 35-51.
- Eastin, M.S. & LaRose, R. 2000 Internet self-efficacy and the psychology of the digital divide. *Journal of Computer-Mediated Communication*, 6 (1), 25-39.
- Flavian, C., Guinaliu, M., & Torres, E. 2006. How bricks-and-mortar attributes affect online banking adoption. *The International Journal of Bank Marketing*, 24 (6), 406-423.
- Fox, S. and Beier, J., 2006. Online banking 2006: surfing to the bank. *Pew Internet & American Life Project*, [internet]. June.  
Available at: <http://www.pewinternet.org/Reports/2006/Online-Banking-2006.aspx> [Accessed 17 March 2009].
- Gerrard, P., Cunningham, J. B. & Devlin, J. F. 2006. Why consumers are not using internet banking: a qualitative study. *Journal of Services Marketing*, 20 (3), 160-168.
- Jarvenpaa, S. L., Tractinsky, N., & Vitale, M. 2000. Consumer trust in an Internet store. *Information Technology and Management*, 1 (1-2 (January 1)), 45-71.
- Kassim, N. M. & Abdulla, A. K. M. A. 2006. The influence of attraction on internet banking: an extension to the trust-relationship commitment model. *International Journal of Bank Marketing*, 24 (6), 424-442.
- Kim, M. & Ahn, J. 2006. Comparison of trust sources of online market-maker in the e-market: buyers' and sellers' perspective. *Journal of Computer Information Systems*, 47 (1), 84-94.
- Lichtenstein, S. & Williamson, K. 2006. Understanding consumer adoption of Internet banking: An interpretive study in the Australian banking context. *Journal of Electronic Commerce Research*, 7 (2), 50-67.
- Littler, D. & Melanthiou, D. 2006. Consumer perceptions of risk and uncertainty and the implications for behavior towards innovative retail services: the case of internet banking. *Journal of Retailing and Consumer Services*, 13, 431-443.

- Liu, C., Marchewka, J. T., Lu, J. & Yu, C.S. 2005. Beyond concern--a privacy-trust-behavioral intention model of electronic commerce. *Information & Management*, 42 (2), 289-304.
- Liu, T.C. & Wu, L.W. 2007. Customer retention and cross-buying in the banking industry: An integration of service attributes satisfaction and trust. *Journal of Financial Services Marketing: Special Issue on Customer Relationship Management*, 12 (2), 132-145.
- Luarn, P. & Lin, H.H. 2005. Towards an understanding of the behavioral intention to use mobile banking. *Computers in Human Behavior*, 21, 873-891.
- Mayer, R. C., Schoorman, F. D. & Davis, J. H. 1995. An integrative model of organizational trust. *Academy of Management. The Academy of Management Review*, 20 (3), 709-734.
- Morgan, R. M. & Hunt, S. D. 1994. The commitment-trust theory of relationship Marketing. *Journal of Marketing*, 58 (3), 20-38.
- Mukherjee, A. & Nath, P. 2003. A model of trust in online relationship banking. *International Journal of Bank Marketing*, 21 (1), 5-15.
- Pavlou, P. A. (2003). Consumer acceptance of electronic commerce: Integrating trust and risk with the technology acceptance model. *International Journal of Electronic Commerce*, 7 (3), 101-134.
- Rexha, N., Kingshott, R. P. J. & Aw, A. S. S. 2003. The impact of the relational plan on adoption of electronic banking. *The Journal of Services Marketing*, 17 (1), 53-65.
- Rotchanakitumnuai, S. & Speece, M. 2003. Barriers to internet banking adoption: A qualitative study among corporate customers in Thailand. *International Journal of Bank Marketing*, 21 (6), 312-323.
- Salam, A.F., Rao, H.R. & Pegels, C.C. 2003. Consumer-perceived risk in e-commerce transactions. *Communications of the ACM*, 46 (12), 325-331.
- Sarel, D. & Mamorstein, H. 2003. Marketing online banking services: The voice of the customer. *Journal of Financial Services Marketing*, 8 (2), 106-118.
- Sayar, C. & Wolfe, S. 2007. Internet banking market performance: Turkey versus the UK. *International Journal of Bank Marketing*, 25 (3), 122-141.
- Schlosser, A.E., White, T.B. & Lloyd, S.M. 2006. Converting web site visitors into buyers: how web site investment increases consumer trusting beliefs and online purchase intentions. *Journal of Marketing*, 70, 133-148.
- Stewart, K. 1999. Transference as a means of building trust in World Wide Web Sites. Proceedings of the 20th ICIS, Charlotte, North Carolina.
- Suh, B. & Han, I. 2002. Effect of trust on consumer acceptance of Internet Banking. *Electronic Commerce Research and Applications*, 1 (3), 247-263.
- Vatanasombut, B., Igbaria, M., Stylianou, A. C. & Rodgers W. 2008. Information Systems continuance intention of web-based applications customers: The case of online banking. *Information & Management*, 45 (7), 419-428.
- Verhagen, T., Meents, S. & Tan, Y.H. 2006. Perceived risk and trust associated with purchasing at electronic marketplaces. *European Journal of Information Systems*, 15, 542-555.
- Yousafzai, S. Y., Pallister, J. G. & Foxall, G. R. 2003. A proposed model of e-trust for electronic banking. *Technovation*, 23 (11), 847-860.
- Zhao, A. L., Hanmer-Lloyd, S., Ward, P. & Goode, M. M. H. 2008 Perceived risk and chinese consumers' internet banking services adoption. *International Journal of Bank Marketing*, 26 (7), 505-525.