

**A comprehensive examination of Internet banking user  
behaviour: Evidence from customers yet to adopt, currently using  
and stopped using**

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## **Abstract**

Despite the surge in interest in research on customers' adoption of internet banking (IB), how discontinued users can be brought back to IB has not received much attention. To respond to this question and to provide a comprehensive understanding of IB customer behaviour, we develop a conceptual model grounded on the extended technology acceptance model, and empirically validate it using a sample of 614 IB customers (including those yet to adopt, current users and discontinued users) from China. Perceived value is the most important driver for explaining all categories of customers' IB-related behaviours. Banks that implement measures that aim to increase the perceived usefulness of IB and enhance the value of IB are likely to be rewarded with increasing IB adoption amongst its customer base.

### ***Summary statement of contribution***

This is the first comprehensive IB customer behaviour study encompassing three categories of customers. We show that extending the technology acceptance model with perceived value and key constructs from the theory of planned behaviour helps to better explain customers' IB behaviour. The findings highlight the importance of examining the moderating effects of demographic variables in IB behaviour. The practical implications of this study serve as a basis for bank practitioners in China, potentially the largest IB market in the world, to increase IB adoption rates.

**Keywords:** *Internet banking behaviour; discontinued users; the technology acceptance model;*

*perceived value; partial least squares*

## **Introduction**

The rapid development of information technology and the Internet has significantly changed how banks operate their business and how consumers conduct their banking activities (Eriksson, Kerem & Nilsson, 2008; Yoon & Steege, 2012). While the drivers of internet banking (IB) users' and non-users' IB adoption behaviour have been investigated extensively, customers who have used IB but have discontinued, have generally been ignored. The question of "how discontinued users can be brought back to IB" remains largely unanswered in the existing literature. Similarly, there is a lack of IB adoption literature that addresses the complete process of adoption, which involves the customers' initial decision to adopt IB, actual implementation, continued use of IB, and sometimes discontinuance with IB and reuse of IB after such discontinuance. An understanding of the determinants of non-users' initial adoption of IB will help banks to acquire new customers, while that of the determinants of current users' helps to achieve customer retention and create opportunities for cross-promotion and sales, and generate referrals. However, an understanding of what brings discontinued users potentially back to IB is equally important because once these customers return to IB as a result of banks' efforts, they may become a strong and positive source of interpersonal influence for other customers in reinforcing their decisions to adopt IB or to continue using it (Parthasarathy & Bhattacharjee, 1998).

Given the above, the objective of this study is to examine IB non-users' (initial) adoption behaviour, current users' continuance adoption, and discontinued users' reuse of IB. Theoretically, this is the first study that examines the IB adoption behaviour across all categories of customers and highlights the complex nature of customers' IB adoption behaviour. Additionally, this study takes into account the effect of perceived value on customers' decision-making with respect to adopting IB. The importance of perceived value in services delivered

over online channels has been recognised (Chang & Wang, 2011; Kim, Chan & Gupta, 2007), however save for a few exceptions (e.g. Hitt, Xue & Chen, 2007), there is a paucity of studies that incorporate the influence of this very important construct in theoretically underpinned studies examining IB behaviours, especially from the perspective of attitude-based decision-making and technology acceptance theories. From a practitioner's viewpoint, our study sheds light on different strategies that could be applied in order to attract, retain, and retrieve the respective types of customer (i.e. non-users, current users and discontinued users). Given the unique cultural disposition, the economic transformation taking place and the different pace of infrastructure development, we believe that situating the study in China is beneficial on both theoretical and practical levels. The study of Chinese IB customers is further justified because it has been argued (e.g. Deng, Lu, Wei & Zhang, 2010; Park, Yang & Lehto, 2007) that the findings of IB adoption research conducted in other countries may not be directly applicable to understanding mainland Chinese customers' adoption behaviour and their reaction to IB. Furthermore, given the size and the potential of the market, it is surprising that only a few studies have been undertaken to investigate mainland Chinese customers' IB-related behaviour (e.g. Hua, 2009; Laforet & Li, 2005; Zhao, Hanmer-Lloyd, Ward & Goode, 2008; Zhao, Koenig-Lewis, Hanmer-Lloyd & Ward, 2010). To summarise, based on an extended technology acceptance model and empirical validation, we provide both theoretical and practical insights on IB behaviour across all three categories of bank customers.

The paper is structured as follows. The following section will provide background information on the constructs under examination in this study. Here we detail our hypotheses formulation and present our conceptual model. The research design is then presented in the subsequent section. Thereafter, we present the analysis and results of the study and discuss their

implications for academics and practitioners. We conclude our paper by examining the limitations of the study and directions for future research.

## **Conceptual foundations**

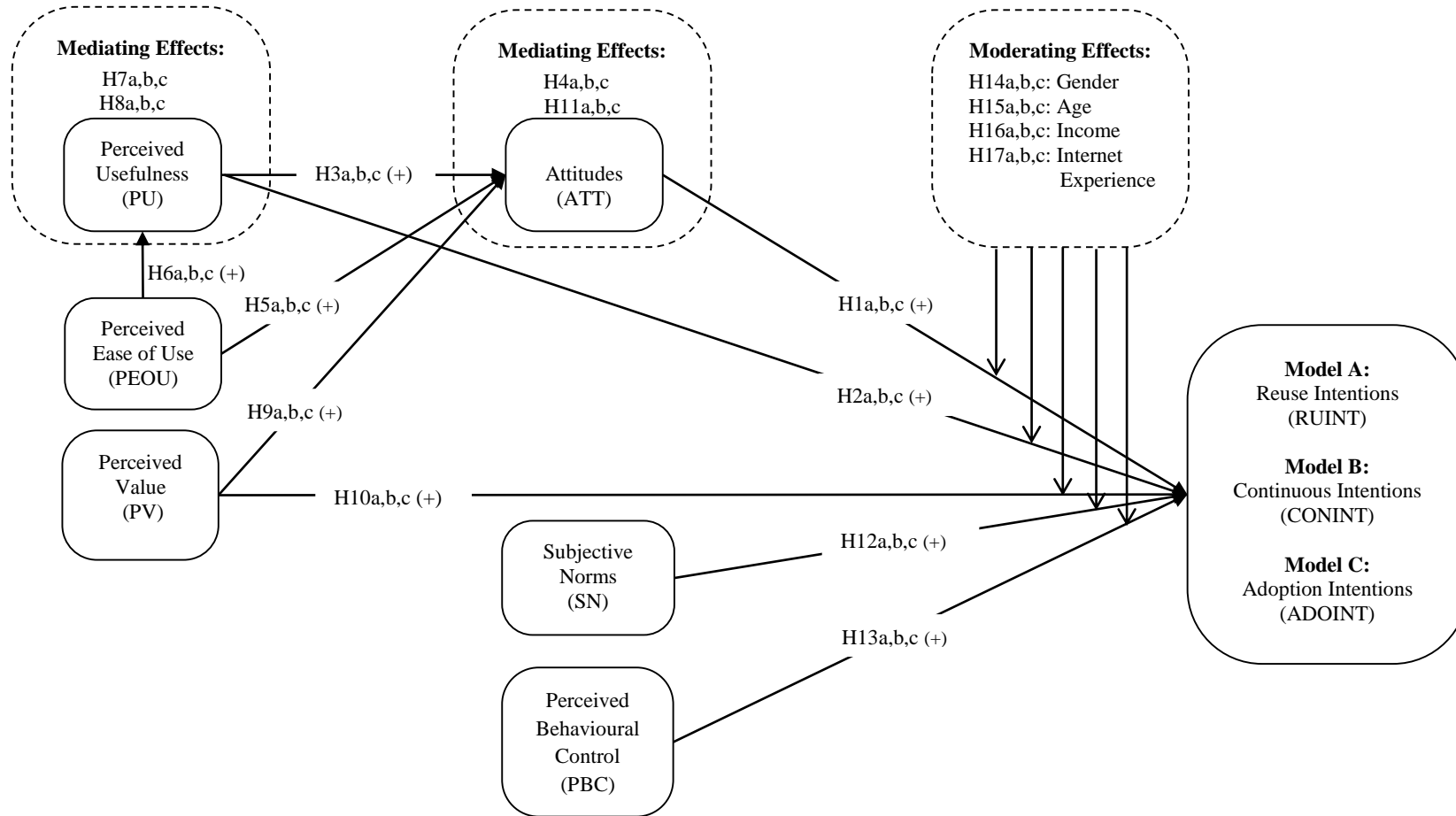
Over the years, researchers have consistently suggested that attitude-based behavioural decision theories provide a solid theoretical foundation for research into technology and innovation adoption including IB (e.g. Chau & Ngai, 2010; Chong, Ooi, Lin & Tan, 2010; Safeena, Date, Hundewale & Kammani, 2013). The theory of reasoned action (TRA) (Fishbein & Ajzen, 1975), which follows a cognition-affect-conation flow, is one of the most well-developed attitudinal models. The TRA stipulates that people's intention to perform a behaviour (i.e. conation) is the immediate determinant of that behaviour, and this behavioural intention is a function of two basic determinants: attitudes toward the behaviour (i.e. affect) and subjective norms, which reflects social influences and refers to people's belief that most referents important to them think they should or should not perform the behaviour (Fishbein & Ajzen, 1975). Later, Ajzen (1985) derived the theory of planned behaviour (TPB) from the TRA by incorporating the construct of perceived behaviour control, which reflects whether or not people perceive that they have the requisite resources and opportunities necessary to perform the behaviour in question. As asserted by the TPB, the more favourable the attitudes and subjective norms with respect to performing the behaviour of interest and the greater the perceived behavioural control, the stronger should be people's intention to perform the behaviour under consideration (Ajzen, 1988).

Davis, Bagozzi and Warshaw (1989) further derived the technology acceptance model (TAM) from the TRA to examine technology adoption and use. Being the most widely employed theory in the existing technology adoption literature (Benbasat & Barki, 2007), this specific,

parsimonious yet effective model (Lee, 2009) postulates that perceived usefulness and perceived ease of use are the two key cognitive belief constructs that determine users' attitudes toward using a new system, and those attitudes, in turn, are a key determinant of behavioural intention to use that ultimately predicts actual system use (Davis et al., 1989). The TAM also suggests a direct relationship between perceived usefulness and behavioural intention of using the technology-based system, irrespective of attitudes toward this system, provided that the use of the system is perceived to offer direct benefits to the users (Davis, 1989).

Our conceptual model (Figure 1) is grounded on the TAM, and it incorporates the construct of perceived value of using IB, for achieving an increased explanatory power for customers' IB adoption behaviour (Alsajjan & Dennis, 2010). The model also integrates the TAM and its origins of the TRA alongside the TPB. This is to keep in line with the suggestion of Benbasat and Barki (2007) that to reveal more antecedents to adoption intentions and behaviour, the technology adoption literature should go back to the TRA and the TPB to include the effects of social influences.

**Figure 1** Conceptual model



Note: H4a,b,c: Perceived Usefulness → Attitude → (a) Reuse Intentions / (b) Continuous Intentions / (c) Adoption Intentions  
 H7a,b,c: Perceived Ease of Use → Perceived Usefulness → Attitude  
 H8a,b,c: Perceived Ease of Use → Perceived Usefulness → (a) Reuse Intentions / (b) Continuous Intentions / (c) Adoption Intentions  
 H11a,b,c: Perceived Value → Attitude → (a) Reuse Intentions / (b) Continuous Intentions / (c) Adoption Intentions



As argued previously, different strategies should be applied in order to attract, retain, and retrieve the respective categories of IB customers, and treating different categories of customers as a whole in a conceptual model would not generate results that are adequately parsimonious to form foundations for the strategies. Additionally, the effects of factors that influence customers' initial adoption decisions may not have the same effect on their post-usage behaviours (e.g. continuous or reuse after discontinuing) (Spiller, Vlastic & Yetton, 2007). Therefore, the effects of constructs hypothesised in the conceptual model of this study are investigated separately with each category of IB customers. Accordingly, while having exactly the same conceptualisation of the relevant constructs and hypothesised interrelationships among them, the conceptual model has three variations: Model A has reuse intentions as its outcome construct, and is to be tested with discontinued users. Model B has continuance intentions as its outcome construct, and applies to current users who have used IB recently. Model C is applied to non-users who have never used IB before, and has adoption intentions as its outcome construct.

### ***Attitudes***

In keeping with the TRA, we define *attitudes* toward using IB as customers' general feeling of favourableness or unfavourableness for using IB. The direct positive association between attitudes and behavioural intentions of existing customers and non-adopters has been generally illustrated in banking technologies adoption studies (e.g. Al-Smadi, 2012; Çelik, 2008). With respect to discontinued users of IB, we argue that despite such customers stopping the usage of IB, they may still hold positive attitudes toward using IB, and these positive attitudes are expected to positively relate to their intentions to reuse IB. Therefore,

*H1a: Discontinued users' attitudes toward using IB are positively related to their intentions to reuse it.*

*H1b: Current users' attitudes toward using IB are positively related to their intentions to continue using it.*

*H1c: Non-users' attitudes toward using IB are positively related to their intentions to adopt it.*

### ***Perceived usefulness***

Perceived usefulness is users' perception of how useful the system is (Davis, 1989). Accordingly, *perceived usefulness* of using IB refers to the degree to which customers believe that using IB will be useful in performing their banking activities. Empirical evidence on the effects of perceived usefulness on customers' adoption intentions and continuance intentions has been well documented in the IB and mobile banking adoption literature (e.g. Al-Somali, Gholami & Clegg, 2009; Chong et al., 2010; Koenig-Lewis, Palmer & Moll, 2010). Nevertheless, the influence of perceived usefulness of IB on discontinued users' intentions to reuse it was not found to be reported in the existing literature. We however argue that even though discontinued users have stopped using IB, they will possibly reuse it if they perceive IB is still useful to them (or again becomes useful to them) in conducting their banking transactions. Hence,

*H2a: The perceptions of discontinued users on the usefulness of using IB are positively related to their intentions to reuse it.*

*H2b: The perceptions of current users on the usefulness of using IB are positively related to their intentions to continue using it.*

*H2c: The perceptions of non-users on the usefulness of using IB are positively related to their intentions to adopt it.*

The TAM posits that perceived usefulness has a direct effect on attitudes over and above behavioural intentions (Davis, 1989). Ample empirical evidence exists supporting this notion in different settings including IB adoption (e.g. Al-Somali et al., 2009; Lee, 2009). Therefore, we expect that for current users and non-users, perceived usefulness of using IB is positively related to their favourable attitudes toward using IB. Additionally, since it is commonly agreed (e.g. Peak, 1955; Rosenberg, 1956; Vroom, 1964, as cited in Davis et al., 1989, p.986) that positively-valued outcomes (i.e. usefulness) often increase people's affect towards the means to achieving those outcomes, and it could happen among consumers with different prior experiences of using a system (i.e. they could be either users or non-users) (Taylor & Todd, 1995a), it is plausible to infer that for discontinued users perceived usefulness is also positively associated with their attitudes toward (re)using IB. Accordingly,

*H3a: The perceptions of discontinued users on the usefulness of using IB are positively related to their attitudes toward using it.*

*H3b: The perceptions of current users on the usefulness of using IB are positively related to their attitudes toward using it.*

*H3c: The perceptions of non-users on the usefulness of using IB are positively related to their attitudes toward using it.*

Davis et al. (1989) suggested that attitudes partially mediate the relationship between perceived usefulness and behavioural intentions, and empirical evidence exists to show that attitudes have a significant mediating effect on the association between perceived usefulness of IB and the intentions of users and non-users to use IB (e.g. Çelik, 2008; Lee, 2009; Wessels & Drennan, 2010). Therefore,

*H4a: Discontinued users' attitudes toward using IB mediate the relationship between their perceptions of the usefulness of using IB and their intentions to reuse it.*

*H4b: Current users' attitudes toward using IB mediate the relationship between their perceptions of the usefulness of using IB and their intentions to continue using it.*

*H4c: Non-users' attitudes toward using IB mediate the relationship between their perceptions of the usefulness of using IB and their intentions to adopt it.*

### ***Perceived ease of use***

The TAM postulates that the greater the perceived ease of use of a given technology, the more favourable will be the attitudes toward using it (Davis, 1989). *Perceived ease of use* in our study refers to the degree to which a customer believes that using IB would be free of effort. The empirical findings in the relevant literature (e.g. Gefen, 2003; Suh & Han; 2002; Taylor & Todd, 1995a) suggest that the associations between perceived ease of use and attitudes exist among both inexperienced users and experienced users. Given that discontinued IB users have experience of using IB for conducting their banking transactions and meeting their banking needs, their perceptions of ease of use are also likely to relate to their attitudes toward (re)using IB. Hence,

*H5a: The perceptions of discontinued users on the ease of using IB are positively related to their attitudes toward using it.*

*H5b: The perceptions of current users on the ease of using IB are positively related to their attitudes toward using it.*

*H5c: The perceptions of non-users on the ease of using IB are positively related to their attitudes toward using it.*

A central tenant of the TAM is that if a given technological system is easy to use, efforts saved may be redeployed, enabling the users to accomplish more tasks for the same amount of effort, and increase task performance (Davis, 1989; Venkatesh & Davis, 2000). The expected overall

impact of the use of a system on task performance (including process and outcomes) is the usefulness of the system. Between two similar systems in terms of functions, users should find the one that is easier to use more useful (Davis, 1993). Researchers agree in IB adoption studies that perceived ease of use is a determinant of perceived usefulness of IB users and potential users (e.g. Al-Smadi, 2012; Al-Somali et al., 2009; Lee, 2009). Therefore, in keeping with the theory and the previous empirical findings, and to generate a better understanding of IB customers' IB-related perceptions and thus their behaviours, we hypothesise that:

*H6a: The perceptions of discontinued users on the ease of using IB are positively related to their perceptions of the usefulness of using it.*

*H6b: The perceptions of current users on the ease of using IB are positively related to their perceptions of the usefulness of using it.*

*H6c: The perceptions of non-users on the ease of using IB are positively related to their perceptions of the usefulness of using it.*

Existing literature consistently suggests that perceived usefulness is an important determinant of attitudes and is predicted by perceived ease of use. Hence, perceived usefulness may mediate the influence of perceived ease of use on attitudes. Lee (2009) and Suh and Han (2002) lend support to this notion by showing that the perceived usefulness of IB users and non-users partially mediates the effects of their perceived ease of use on attitudes toward using it. Additionally, a full mediation of perceived usefulness in the relationship between IB current users' perceived ease of use and their attitudes toward using IB was illustrated by Çelik (2008). Based on these findings and extending them to the category of IB discontinued users, we postulate that:

*H7a: The perceptions of discontinued users on the usefulness of using IB mediate the relationship between their perceptions of the ease of using IB and attitudes toward using it.*

*H7b: The perceptions of current users on the usefulness of using IB mediate the relationship between their perceptions of the ease of using IB and attitudes toward using it.*

*H7c: The perceptions of non-users on the usefulness of using IB mediate the relationship between their perceptions of the ease of using IB and attitudes toward using it.*

Consistent with the proposition of the TAM that the effect of perceived ease of use on behavioural intentions is entirely indirect via perceived usefulness (Davis et al., 1989), empirical findings regarding the role of perceived ease of use as a direct determinant of intentions to use often suggest it is of less significance, or even non-significant (e.g. Lu, Yao & Yu, 2005; Salisbury, Pearson, Pearson & Miller, 2001). Similarly, Eriksson, Kerem and Nilsson (2005) suggested that the perceived ease of use of IB does not directly influence the use of IB by users; in fact, perceived ease of use only influences the use of IB when perceived usefulness plays a significant mediational role. Applying the theory and the empirical findings to all three categories of IB customers, we advance that:

*H8a: The perceptions of discontinued users on the usefulness of using IB mediate the relationship between their perceptions of the ease of using IB and intentions to reuse it.*

*H8b: The perceptions of current users on the usefulness of using IB mediate the relationship between their perceptions of the ease of using IB and intentions to continue using it.*

*H8c: The perceptions of non-users on the usefulness of using IB mediate the relationship between their perceptions of the ease of using IB and intentions to adopt it.*

### ***Perceived value***

In the consumers' choice- and decision-making process, consumers evaluate the choice object by considering all possible benefits or utilities received and the potential sacrifices incurred (Dodds, Monroe & Grewal 1991; Thaler, 1985; Zeithaml, 1988). Perceived value reflects a cognitive trade-off between benefits and sacrifices (Ledden, Kalafatis & Samouel, 2007), and consumer behaviour with respect to repeat purchasing or product choice and purchase intentions, could be better understood when analysed through the customers' perceptions of the value of that product (Gallarza & Saura, 2006). Being an extensively investigated construct in the service evaluation and relationship quality evaluation literature (Gallarza & Saura, 2006), perceived value however is less commonly studied in the context of consumer choice- or decision-making using attitude-based decision-making theories, especially that relate to technology adoption using technology acceptance models. Nevertheless, including a direct measure of value in customer decision-making models could increase the ability of the models in explaining the variance in the customers' purchase intentions (Cronin, Brady, Brand, Hightower & Shemwell, 1997).

We conceptualise *perceived value* of using IB as a customers' overall evaluation of the benefits obtained from the ongoing use of IB, taking the costs associated with using it into consideration. Perceived value is independent of the timing of using the market offering, it can occur at various purchase/use stages including pre- and post-purchase/use, and therefore can be assessed with or without direct experience with the products/services (Eggert & Ulaga, 2002).

In the information system literature, users' attitudes are seen as reflecting the value of an information system to its users (Swanson, 1982). Following the cognition-affect-conation flow asserted by the TRA (Fishbein & Ajzen, 1975), perceived value of using IB, being a result of bank customers' cognitive evaluation of both the benefits and the costs associated with using it, is expected to explain customers' attitudes toward using IB. This has been shown by Cheng, Lam and Yeung (2006), which contended that value of the online distribution channel is determined by its cost and productivity; a lower cost and/or a higher productivity leads to customers' perception of a greater value, which in turn leads to more positive attitudes toward using this channel. Therefore,

*H9a: Discontinued users' perceptions of the value of using IB are positively related to their attitudes toward using it.*

*H9b: Current users' perceptions of the value of using IB are positively related to their attitudes toward using it.*

*H9c: Non-users' perceptions of the value of using IB are positively related to their attitudes toward using it.*

Empirical evidence for the positive effects of perceived value on customers' initial adoption and continuous usage of innovative products or services has been well documented (e.g. Hitt et al., 2007; Kim et al., 2007; Lewis & Soureli, 2006). Given that the value perceptions of using IB occur among customers with or without personal experience (Eggert & Ulaga, 2002), we derive from the aforementioned arguments and empirical findings and investigate across all three categories of IB customers the following hypotheses:

*H10a: Discontinued users' perceptions of the value of using IB are positively related to their intentions to reuse it.*



*H10b: Current users' perceptions of the value of using IB are positively related to their intentions to continue using it.*

*H10c: Non-users' perceptions of the value of using IB are positively related to their intentions to adopt it.*

We have already hypothesised the role of attitudes as a mediator in the relationship between perceived usefulness and the respective behavioural intentions of all categories of IB customers. Both perceived usefulness and perceived value are customers' cognitive evaluation of using IB, therefore, it is deemed theoretically and conceptually logical to infer that a mediational effect of attitudes also exists in the relationship between cognitive-based perceived value of using IB and the respective behavioural intentions. Hence, we propose:

*H11a: Discontinued users' attitudes toward using IB mediate the relationship between their perceptions of the value of using IB and their intentions to reuse it.*

*H11b: Current users' attitudes toward using IB mediate the relationship between their perceptions of the value of using IB and their intentions to continue using it.*

*H11c: Non-users' attitudes toward using IB mediate the relationship between their perceptions of the value of using IB and their intentions to adopt it.*

### ***Subjective norms***

The TRA asserts that people intend to perform a particular behaviour when they evaluate it positively and when they perceive social pressure to perform or not to perform the behaviour (i.e. subjective norms) (Fishbein & Ajzen, 1975). In keeping with this, we define *subjective norms* as customers' beliefs that most people who are important to them think they should or should not use IB. Research confirms that the positive influence of subjective norms on behavioural intentions do not significantly differ between experienced and inexperienced users

(Hernandez & Mazzon, 2007; Taylor & Todd, 1995a). Since discontinued users are experienced in using IB, we extend the application of the theory to studying discontinued users' IB reuse intentions, and propose that:

*H12a: The subjective norms of discontinued users are positively related to their intentions to reuse IB.*

*H12b: The subjective norms of current users are positively related to their intentions to continue using IB.*

*H12c: The subjective norms of non-users are positively related to their intentions to adopt IB.*

### ***Perceived behavioural control***

Following Ajzen (1988), we define *perceived behavioural control* in using IB as beliefs regarding access to the resources and opportunities needed to use IB, and beliefs about self-abilities in using it. Because of the remote and impersonal nature of the online environment, customers are not likely to have full control over their online banking transactions. Gerrard, Cunningham and Devlin (2006) identified that risk, lack of knowledge of IB services, inaccessibility to the resources and IT fatigue are the major factors that prevent Singapore bank customers from using IB, suggesting that lack of control over using IB explains customers' resistance to using IB. Therefore, the level of control over using IB as perceived by IB customers becomes particularly important and has been widely accepted to be a critical factor for understanding potential customers' intentions to adopt and the current users' actual usage of IB (e.g. Lee, 2009; Shih & Fang, 2004). Additionally, because using IB is not fully under the volitional control (Ajzen, 1985) of discontinued users, the construct of perceived behavioural control from the TPB, which intends to provide explanations to a wide range of

human behaviour (Ajzen, 1988), is deemed relevant to the discontinued users' IB reuse intentions. Accordingly,

*H13a: Discontinued users' perceptions of the behavioural control over using IB are positively related to their intentions to reuse it.*

*H13b: Current users' perceptions of the behavioural control over using IB are positively related to their intentions to continue using it.*

*H13c: Non-users' perceptions of the behavioural control over using IB are positively related to their intentions to adopt it.*

### ***Moderating variables***

Numerous studies have shown that demographic variables have moderating effects on the adoption of IB (e.g. Abu-Shanab, 2013; Kolodinsky, Hogarth & Hilgert, 2004; Riquelme & Rios, 2010; Yousafzai & Yani-de-Soriano, 2012), and differences in consumers' IB adoption behavioural intentions can be significantly affected by gender. For example, Flavián, Guinalú and Torres (2006) and Wan, Luk and Chow (2005) found that males are more inclined to adopt innovative banking technologies than females. Additionally, Riquelme and Rios (2010) confirmed that women are more reluctant to use mobile banking due to the influence of social norms, while the effect of ease of use on perceived usefulness are stronger among women than men. Moreover, Yousafzai and Yani-de-Soriano (2012) found that the effect of perceived usefulness on intentions is stronger and more significant for male IB customers, whereas the effect of perceived ease of use on intentions is significant only for females. Therefore,

*H14: Gender differences moderate the effects of attitudes, perceived usefulness, perceived value, subjective norms and perceived behavioural control on (a)*

*reuse intentions; (b) continuous intentions; and (c) adoption intentions of discontinued users, current users and non-users, respectively.*

Studies of gender differences can be misleading without reference to age (Levy, 1988). Older consumers are not as comfortable as younger ones with e-commerce and self-service technologies, given that these technologies lead to the disappearance of human interaction (Dean, 2008) and older consumers prefer direct contact with employees over the use of technology (Simon & Usunier, 2007). In the banking industry, age is a particularly useful segmentation variable in developing various products and services (Chau & Ngai, 2010). Kolodinsky et al. (2004) confirmed that young male customers are more likely to adopt IB compared to men over 65. Additionally, Yousafzai and Yani-de-Soriano (2012) found that the effect of perceived usefulness on intentions of using IB is stronger among younger customers, while the effect of perceived ease of use on intentions is significant only for older customers. Hence,

*H15: Age differences moderate the effects of attitudes, perceived usefulness, perceived value, subjective norms and perceived behavioural control on (a) reuse intentions; (b) continuous intentions; and (c) adoption intentions of discontinued users, current users and non-users, respectively.*

Previous research has suggested that younger, male computer users with a higher income are more likely to adopt IB (Hernandez & Mazzon, 2007). Abu-Shanab (2013) found that customers with higher incomes are more likely to be affected by perceived usefulness in forming adoption intentions of IB, demonstrating that income moderates the effects of perceived usefulness on IB adoption behaviours. Therefore,

*H16: Income differences moderate the effects of attitudes, perceived usefulness, perceived value, subjective norms and perceived behavioural control on (a) reuse intentions; (b) continuous intentions; and (c) adoption intentions of discontinued users, current users and non-users, respectively.*

Further, a typical IB user has been described as a relatively young and wealthy person with good knowledge of computers and the Internet (Karjaluoto, Mattila & Pento, 2002). Similarly, Wang and Yang (2006) confirmed that the association between social norms (influence) and adoption intentions of e-finance is moderated by internet experience. Internet experience is therefore deemed an important moderating variable in helping to understand customers' IB adoption behaviour. Accordingly,

*H17: Internet experience differences moderate the effects of attitudes, perceived usefulness, perceived value, subjective norms and perceived behavioural control on (a) reuse intentions; (b) continuous intentions; and (c) adoption intentions of discontinued users, current users and non-users, respectively.*

## **Research design**

Data, using questionnaires, was collected for the three different categories of IB users from urban Chinese bank customers who are also users of the Internet, because the majority of IB users in China were likely to be urban residents (China Internet Network Information Centre [CNNIC], 2013). Furthermore, the data came from mall (bank branch)-intercept personal interviews by approaching bank customers outside 32 bank branches for two reasons. First, 43 per cent of IB users do not use other electronic banking channels (China Financial Certification Authority [CFCA], 2013), and over 50 per cent of Chinese IB users registered for basic IB accounts only (i.e. IB accounts that only provide non-transactional services such as account

enquires) (iResearch, 2013), indicating that they still rely on branch banking for their banking needs. Therefore, although customers may vary in the number of service channels they prefer to use (Konus, Verhoef & Neslin, 2008), accessing IB customers via bank branches is justifiable because branch only or branch plus IB are still the most important banking channels for Chinese IB customers. Second, the rate of refusal-to-participate in personal interviews is typically lower than with telephone interviews and a self-administered survey, and Chinese consumers tend to rely on face-to-face contact more so than other cultures (Davies et al., 1995).

A market research company was employed to conduct the survey. The research assistants from the company, after training received from one of the authors, approached every fifth customer walking out of the designated bank branches and requested them to participate in the study on a voluntary basis. To ensure the representativeness of the sample, no more than 20 samples would be collected from each branch. A total of 614 usable responses was obtained: 276 were non-users, 292 were current users of IB, and 46 were discontinued users. In keeping with previous research in banking services (Analysys International, 2010; Nilsson, 2007) and other consumption contexts (e.g. Sawyer, Worthing & Sendak, 1979), discontinued users were defined as those who did not use IB during the last three months, but used IB previously. The number refusing to respond was noted and the survey in total achieved a valid response rate of 23.7 per cent. The sample consisted of 43.5 per cent of males and 56.5 per cent of females for current users, 52.2 per cent of males and 47.8 per cent of females for discontinued users, and 37.3 per cent of males and 62.7 per cent of females for non-users. All the study constructs (see Appendix 1) were measured with established and validated scales.

## **Data analysis**

Data were analysed using the Partial Least Squares (PLS) approach for structural equation modelling with SmartPLS (Ringle, Wende & Will, 2005). PLS method was chosen because of its suitability in building theories (Chin, 1998; Henseler, Ringle & Sinkovics, 2009) as well as testing models with a small sample size (Fornell & Bookstein, 1982) and high complexity (Chin, 2010). Additionally, in comparison to covariance-based SEM, PLS is more useful for coping with models containing many factors related to attitudes, opinions, perceptions and behaviours because these factors may not be fully captured using covariance-based SEM, and PLS or path analysis may be very useful for testing such models (Chin, 2010). As recommended by Baumgartner and Homburg (1996), the composite reliabilities and the average variance extracted (AVE) for scales were calculated. All items indicated high levels of internal consistency since composite reliabilities for the constructs ranged from 0.824 to 0.974, and Cronbach's alphas from 0.704 to 0.960. The high factor loadings (all greater than 0.60), AVE values being larger than 0.50 and the square root of AVE being larger than the correlation between the latent variable and all other latent constructs confirmed the convergent and discriminant validity of the sub-models (Table 1).

**Table 1** Average variance extracted (AVE), reliabilities, correlation matrix of the constructs, and square root of the AVE

	AVE	Cronbach's Alpha ( $\alpha$ )	Composite Reliability	Correlation						
<b>Model A</b>										
				ATT	PBC	PEOU	PU	PV	RUINT	SN
Attitudes (ATT)	0.766	0.898	0.929	<b>0.875</b>						
Perceived Behavioural Control (PBC)	0.702	0.706	0.824	0.296	<b>0.838</b>					
Perceived Ease of Use (PEOU)	0.757	0.840	0.903	0.288	0.166	<b>0.870</b>				
Perceived Usefulness (PU)	0.639	0.887	0.914	0.392	0.281	0.154	<b>0.799</b>			
Perceived Value (PV)	0.763	0.709	0.865	0.552	0.261	0.127	0.430	<b>0.873</b>		
Reuse Intentions (RUINT)	0.943	0.940	0.971	0.244	0.185	0.073	0.398	0.453	<b>0.971</b>	
Subjective Norms (SN)	0.835	0.866	0.909	0.123	0.284	0.072	0.170	0.051	0.032	<b>0.914</b>
<b>Model B</b>										
				ATT	CONINT	PBC	PEOU	PU	PV	SN
Attitudes (ATT)	0.664	0.831	0.887	<b>0.815</b>						
Continuance Intentions (CONINT)	0.605	0.832	0.883	0.381	<b>0.778</b>					
Perceived Behavioural Control (PBC)	0.759	0.705	0.863	0.304	0.371	<b>0.871</b>				
Perceived Ease of Use (PEOU)	0.764	0.846	0.907	0.321	0.348	0.333	<b>0.874</b>			
Perceived Usefulness (PU)	0.549	0.834	0.879	0.473	0.461	0.371	0.483	<b>0.741</b>		
Perceived Value (PV)	0.760	0.704	0.863	0.440	0.274	0.237	0.317	0.415	<b>0.872</b>	
Subjective Norms (SN)	0.794	0.743	0.885	0.051	0.042	0.134	0.058	0.117	0.063	<b>0.891</b>
<b>Model C</b>										
				ADOINT	ATT	PBC	PEOU	PU	PV	SN
Adoption Intentions (ADOINT)	0.926	0.960	0.974	<b>0.962</b>						
Attitudes (ATT)	0.803	0.918	0.942	0.348	<b>0.896</b>					
Perceived Behavioural Control (PBC)	0.845	0.817	0.916	0.377	0.449	<b>0.919</b>				
Perceived Ease of Use (PEOU)	0.866	0.922	0.951	0.336	0.419	0.626	<b>0.931</b>			
Perceived Usefulness (PU)	0.703	0.915	0.934	0.436	0.572	0.616	0.667	<b>0.838</b>		
Perceived Value (PV)	0.872	0.853	0.931	0.415	0.540	0.561	0.496	0.627	<b>0.934</b>	
Subjective Norms (SN)	0.885	0.871	0.939	0.309	0.334	0.407	0.446	0.426	0.416	<b>0.941</b>

Note: Bold and italicised values in the diagonal of correlation matrix are square root of the AVEs.



As with all research of this nature a potential concern is the existence of common method variance (CMV) (Froehle & Roth, 2004; Podsakoff & Organ, 1986). In order to examine the potential impact of CMV, we tested for method bias across the three sub-models using the CMV factor approach (Liang, Saraf, Hu & Xue, 2007; Podsakoff, Mackenzie, Moorman & Fetter, 2003). In each sub-model a method factor, of which observed variables comprised all the observed variables for latent variables in the model, was included. The variances of each observed variable that are substantively explained by its underlying latent variable and by the method factor were calculated, and the ratio of average variance of the observed variables explained by their substantive latent variables to average variance of the observed variables explained by the method factor was examined (Liang et al., 2007). The results show that for all three sub-models, most method factor loadings are non-significant, and none of the observed variables has its variance explained more by the method factor than by its substantive latent variable. Additionally, the ratios of substantive variance to method variance for Model A, B and C are around 24:1, 78:1, and 275:1, respectively. Given the small magnitude and insignificance of method variance across the three sub-models, CMV is deemed unlikely to be a serious concern for this study.

**Table 2** Results of hypotheses testing (direct relationships)

	Path	Model A		Model B		Model C	
		<u>Reuse Intentions (RUINT)</u>		<u>Continuance Intentions (CONINT)</u>		<u>Adoption Intentions (ADOINT)</u>	
		Coefficient	<i>p</i> -value	Coefficient	<i>p</i> -value	Coefficient	<i>p</i> -value
H1a, b, c	ATT → RUINT / CONINT / ADOINT (+)	-0.126	0.559	0.199	0.002***	0.098	0.201
H2a, b, c	PU → RUINT / CONINT / ADOINT (+)	0.374	0.015**	0.377	0.000****	0.244	0.006***
H3a, b, c	PU → ATT (+)	0.165	0.162	0.394	0.000****	0.449	0.000****
H5a, b, c	PEOU → ATT (+)	0.282	0.027**	0.092	0.183	0.026	0.706
H6a, b, c	PEOU → PU (+)	0.392	0.048**	0.695	0.000****	0.817	0.000****
H9a, b, c	PV → ATT (+)	0.534	0.000****	0.358	0.000****	0.362	0.000****
H10a, b, c	PV → RUINT / CONINT / ADOINT (+)	0.492	0.012**	0.029	0.636	0.204	0.009***
H12a, b, c	SN → RUINT / CONINT / ADOINT (+)	-0.098	0.516	-0.079	0.045**	0.132	0.079*
H13a, b, c	PBC → RUINT / CONINT / ADOINT (+)	0.101	0.498	0.284	0.000****	0.119	0.162

Note: \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$ ; \*\*\*\*  $p < 0.001$ .

ATT = attitudes toward using IB; RUINT = reuse intentions; CONINT = continuous intentions; ADOINT = adoption intentions; PU = perceived usefulness; PEOU = perceived ease of use; PV = perceived value of using Internet banking; SN = subjective norms; PBC = perceived behavioural control.

To provide evidence to support the hypothesised direct relationships between the latent variables in the conceptual model, the standardised path coefficients and the significance levels are provided in Table 2. Additionally, to evaluate the performance of the three structural models, the endogenous latent variables' variances ( $R^2$ ) that indicate the explanatory power of the models and the Stone-Geisser  $Q^2$  test (Geisser, 1975; Stone, 1974) for the predictive relevance of endogenous latent variables were examined. Results reported in Table 3 reveal that for all three sub-models, the respective structural model explains a satisfying amount of the variance ( $R^2$ ) of the dependent latent variable of that specific model, indicating the substantial explanatory power of the structural models (Chin, 1998).  $Q^2$  indices of the endogenous latent variables in the models, as reported in Table 3, are all positive, indicating that the models satisfy predictive relevance, hence enabling an interpretation to the hypothesised relationships in the models.

**Table 3**  $R^2$  and predictive relevance  $Q^2$

<b>Endogenous Latent Variables</b>	<b>Model A</b>		<b>Model B</b>		<b>Model C</b>	
	$R^2$	$Q^2$	$R^2$	$Q^2$	$R^2$	$Q^2$
Attitudes	0.651	0.448	0.561	0.361	0.622	0.493
Perceived Usefulness	0.154	0.085	0.483	0.264	0.667	0.4661
Reuse Intentions (Model A)	0.531	0.448	—	—	—	—
Continuous Intentions (Model B)	—	—	0.551	0.322	—	—
Adoption Intentions (Model C)	—	—	—	—	0.498	0.453

## Results

### *Direct and mediating effects*

Table 2 provides a summary of the hypotheses testing results of the direct relationships contained in all three sub-models, while Table 4 summaries the results of the hypothesised mediating (indirect) relationships. We find that perceived value is the most important construct

that is positively and directly related to discontinued users' IB reuse intentions (H10a), and non-users' intentions to adopt IB (H10c). Additionally, although perceived value was not found to be significantly associated with current users' continuance intentions (H10b), a significant indirect effect of perceived value on continuance intentions via attitudes was confirmed (H11b) using mediation analysis. The expected indirect effects of perceived value on discontinued users' reuse intentions and non-users' adoption intentions through the mediation of attitudes were not significant (H11a and H11c). Further, perceived value was found to have a positive and significant effect on the attitudes of all categories of customers toward using IB (H9a, H9b and H9c).

**Table 4** Results of hypotheses testing (mediating effects)

Path	Mediating Effect	90% Percentile Confidence Interval		95% Percentile Confidence Interval		99% Percentile Confidence Interval		p-value
		Lower	Upper	Lower	Upper	Lower	Upper	
<b><u>Model A</u></b>								
H4a: PU → ATT → RUINT	-0.021	-0.068	0.077	-0.086	0.122	-0.130	0.196	> 0.1
H7a: PEOU → PU → ATT	0.065	-0.015	0.211	-0.030	0.248	-0.058	0.349	> 0.1
H8a: PEOU → PU → RUINT	0.147*	0.021	0.345	-0.008	0.384	-0.094	0.446	< 0.1
H11a: PV → ATT → RUINT	-0.067	-0.264	0.133	-0.317	0.191	-0.478	0.262	> 0.1
<b><u>Model B</u></b>								
H4b: PU → ATT → CONINT	0.078***	0.038	0.128	0.031	0.137	0.013	0.163	< 0.01
H7b: PEOU → PU → ATT	0.273***	0.188	0.355	0.173	0.374	0.135	0.408	< 0.01
H8b: PEOU → PU → CONINT	0.262***	0.182	0.339	0.169	0.352	0.137	0.375	< 0.01
H11b: PV → ATT → CONINT	0.071***	0.033	0.115	0.026	0.128	0.013	0.147	< 0.01
<b><u>Model C</u></b>								
H4c: PU → ATT → ADOINT	0.044	-0.012	-0.003	-0.025	0.116	-0.040	0.149	> 0.1
H7c: PEOU → PU → ATT	0.367***	0.278	0.461	0.253	0.480	0.218	0.529	< 0.01
H8c: PEOU → PU → ADOINT	0.199***	0.081	0.328	0.055	0.353	0.003	0.407	< 0.01
H11c: PV → ATT → ADOINT	0.035	-0.010	0.087	-0.017	0.097	-0.035	0.134	> 0.1

Note: \* p < 0.1; \*\* p < 0.05; \*\*\* p < 0.01.

ATT = attitudes toward using IB; RUINT = reuse intentions; CONINT = continuous intentions; ADOINT = adoption intentions; PU = perceived usefulness; PEOU = perceived ease of use; PV = perceived value of using Internet banking; SN = subjective norms; PBC = perceived behavioural control.

We find that the more useful customers perceive IB to be, the more likely they intend to use it in the near future, regardless of their current status in using IB (H2a, H2b and H2c). Such findings are consistent with the TAM and other previous IB adoption studies, which demonstrate the significant association between perceived usefulness and the customers' initial use of IB (e.g. Chan & Lu, 2004) and their intentions to continue with it (e.g. Eriksson & Nilsson, 2007). Additionally, our results show that perceived usefulness is a driver of discontinued users' reuse intentions; this strongly supports the argument made in this study that although discontinued users stopped using IB at some point of time for whatever reason, they may consider reusing IB if they still perceive IB to be useful to them (or IB again becomes useful to them).

Apart from directly influencing customers' intentions with respect to using IB, perceived usefulness was found to indirectly influence current users' continuance intentions through the mediation of attitudes (H4b), while this indirect effect of perceived usefulness on behavioural intentions via attitudes was not found significant among discontinued users (H4a) and non-users (H4c). Compared with its effects on discontinued users and non-users' intentions, perceived usefulness appears to be a particularly important factor influencing current users' continuance intentions, both directly and indirectly via attitudes. A plausible reason for these findings is that current users have more recent experience with IB than discontinued users; they are also more knowledgeable in IB and have more hands-on experience compared to non-users. As a consequence, current users perceive a higher level of usefulness than the other two categories of customers as they are more aware how useful IB is, which in turn has a stronger effect on intentions.

Perceived ease of use was found in this study to directly influence discontinued users' attitudes (H5a). Consistent with Lee (2009) and Suh and Han (2002) perceived ease of use indirectly influences current users' and non-users' attitudes toward using IB through the mediation of perceived usefulness (H7b and H7c). Additionally, the direct effects of perceived ease of use on both current users' and non-users' attitudes were not found to be significant (H5b and H5c). Consistent with Çelik (2008), we conclude that for both current users and non-users, their perceived usefulness fully mediates the respective associations between their perceived ease of use and attitudes toward using IB. Across all categories of IB customers, perceived ease of use positively and significantly affects perceived usefulness (H6a, H6b and H6c). These findings lend support to the assertion of the TAM and are highly consistent with the majority of IB adoption studies (e.g. Al-Somali et al., 2009; Lee, 2009; Luarn & Lin, 2005). The effects of subjective norms on non-users' intentions to adopt IB are positive and significant (H12c), but are negatively significant on current users' continuance intentions (H12b); no significant impact was found on discontinued users' reuse intentions (H12a), showing that the effect of social influences is inconsistent among different categories of user. Contrary to our expectations, the effect of perceived behavioural control on behavioural intentions was only found to be significant among current users (H13b).

Attitudes appear to be relevant to current users' continuance intentions of using IB (H1b), but do not have a significant effect on discontinued users' reuse intentions (H1a) and non-users' adoption intentions respectively (H1c). These findings do not support the proposition of the TRA that attitudes determine people's behavioural intentions, which in turn lead to the performance of the behaviour. However, the above findings correspond to that of some previous studies suggesting that a positive attitude towards using a new technology is not an

invariably significant predictor of customers' intentions to use that technology (e.g. Jackson, Chowand & Leitch, 1997; Taylor & Todd, 1995b).

### ***Moderating effects***

PLS multi-group analysis results for moderating effects of gender, age, income and internet experience are reported in Table 5a, 5b and 5c. With respect to gender effects, we find significant variations of the effects of perceived usefulness on current users and non-users' respective continuous intentions and adoption intentions among male and female customers. Such effects appear to be stronger among male non-users (H14c:  $\Delta = 0.467$ ,  $p < 0.05$ ) and female current users (H14b:  $\Delta = 0.253$ ,  $p < 0.05$ ). Interestingly, our findings are at odds with those reported by Yousafzai and Yani-de-soriano (2012). The effects of perceived behavioural control on adoption intentions are stronger among female non-users than male non-users (H14c:  $\Delta = 0.421$ ,  $p < 0.05$ ). Although previous research (e.g. AbuShanab & Pearson, 2007; Riquelme & Rios, 2010) suggested a significant moderating role of gender in the relationship between social influence (norms) and IB adoption intentions, we find no such evidence.

We also find evidence showing the moderating effects of age. The effect of subjective norms on young discontinued users' reuse intentions was found negative and significant, while no significant effect amongst older discontinued users was detected (H15a:  $\Delta = 0.631$ ,  $p < 0.05$ ). The positive effects of subjective norms and perceived behavioural control on non-users' adoption intentions were found strong and significant among older non-users but not younger non-users (H15c:  $\Delta = 0.147$ ,  $p < 0.05$  and  $\Delta = 0.307$ ,  $p < 0.01$ , respectively). These findings contrast with that of AbuShanab and Pearson (2007), which argued that age does not moderate the effect of social influence (norms) on behavioural intentions relating to IB adoption.



Contrary to Yousafzai and Yani-de-Soriano (2012) we do not find that age moderates the effects of perceived usefulness on IB behavioural intentions.

For discontinued users with higher incomes we find that perceive value of using IB has a stronger impact on their reuse intentions (H16a:  $\Delta = 0.687$ ,  $p < 0.05$ ). Current users with lower incomes were found more likely to be affected by perceived value (H16b:  $\Delta = 0.326$ ,  $p < 0.05$ ), while high income current users are more affected by usefulness perceptions (H16b:  $\Delta = 0.254$ ,  $p < 0.1$ ). This lends support to Abu-Shanab (2013), which reported that perceived usefulness has a stronger effect on IB adoption intentions among customers with higher incomes. Following Wang and Yang (2006) we find that the effect of subjective norms on current users' continuous intentions is negative and significant among current users with more internet experience compared to users with less internet experience (H17b:  $\Delta = 0.073$ ,  $p < 0.001$ ).

**Table 5a** Summary of group comparison results for moderating effects (Model A)

Path	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Path Coefficient $\Delta$	p-value	Sig. of Difference
	<u>Total Sample</u>		<u>Male Sample</u>		<u>Female Sample</u>		<u>H14a: Gender Difference</u>		
ATT → RUINT	-0.126	0.588	0.364	0.886	-0.149	0.430	—	—	—
PU → RUINT	0.374**	2.539	0.552**	2.439	0.429*	1.686	0.123	0.262	n.s.
PV → RUINT	0.492***	2.611	0.500*	1.643	0.567*	1.725	0.067	0.319	n.s.
SN → RUINT	-0.098	0.655	0.271	1.539	-0.327	1.008	—	—	—
PBC → RUINT	0.101	0.683	0.351	1.442	0.052	0.191	—	—	—
	<u>Total Sample</u>		<u>Young Sample</u>		<u>Old Sample</u>		<u>H15a: Age Difference</u>		
ATT → RUINT	-0.126	0.588	0.196	0.706	-0.416	0.985	—	—	—
PU → RUINT	0.374**	2.539	0.275	1.323	0.649	1.583	0.374	0.206	n.s.
PV → RUINT	0.492***	2.611	0.181*	1.941	0.462*	1.950	0.281	0.294	n.s.
SN → RUINT	-0.098	0.655	-0.393*	1.761	0.238	0.812	0.631	0.041**	< 0.05
PBC → RUINT	0.101	0.683	0.382	1.550	-0.178	0.560	—	—	—
	<u>Total Sample</u>		<u>Low Income Sample</u>		<u>High Income Sample</u>		<u>H16a: Income Difference</u>		
ATT → RUINT	-0.126	0.588	-0.255	0.656	-0.224	0.784	—	—	—
PU → RUINT	0.374**	2.539	0.464*	1.657	0.610**	2.474	0.146	0.375	n.s.
PV → RUINT	0.492***	2.611	-0.090	0.155	0.597**	2.130	0.687	0.040**	< 0.05
SN → RUINT	-0.098	0.655	0.114	0.287	-0.095	0.462	—	—	—
PBC → RUINT	0.101	0.683	0.518	1.105	-0.133	0.670	—	—	—
	<u>Total Sample</u>		<u>Less Experienced Sample</u>		<u>More Experienced Sample</u>		<u>H17a: Internet Experience Difference</u>		
ATT → RUINT	-0.126	0.588	-0.090	0.054	-0.141	0.599	—	—	—
PU → RUINT	0.374**	2.539	0.073**	2.049	0.533***	2.952	0.460	0.377	n.s.
PV → RUINT	0.492***	2.611	0.890*	1.713	0.434**	2.135	0.456	0.456	n.s.
SN → RUINT	-0.098	0.655	-0.022	0.020	-0.152	0.867	—	—	—
PBC → RUINT	0.101	0.683	0.083	0.031	-0.003	0.016	—	—	—

Note: \* p < 0.1; \*\* p < 0.05; \*\*\* p < 0.01; \*\*\*\* p < 0.001.

ATT = attitudes toward using IB; RUINT = reuse intentions; PU = perceived usefulness; PEOU = perceived ease of use; PV = perceived value of using Internet banking; SN = subjective norms; PBC = perceived behavioural control.

**Table 5b** Summary of group comparison results for moderating effects (Model B)

Path	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Path Coefficient $\Delta$	p-value	Sig. of Difference
	<b><u>Total Sample</u></b>		<b><u>Male Sample</u></b>		<b><u>Female Sample</u></b>		<b><u>H14b: Gender Difference</u></b>		
ATT → CONINT	0.199***	3.068	0.235**	2.606	0.175**	1.961	-0.06	0.321	n.s.
PU → CONINT	0.377****	5.741	0.250**	2.281	0.503****	5.442	0.253	0.031**	< 0.05
PV → CONINT	0.029	0.474	0.158	1.404	-0.078	0.971	—	—	—
SN → CONINT	-0.079**	2.011	-0.042	0.729	-0.133*	1.884	-0.091	0.158	n.s.
PBC → CONINT	0.284****	5.019	0.213****	2.672	0.302****	3.769	0.089	0.234	n.s.
	<b><u>Total Sample</u></b>		<b><u>Young Sample</u></b>		<b><u>Old Sample</u></b>		<b><u>H15b: Age Difference</u></b>		
ATT → CONINT	0.199***	3.068	0.230***	2.774	0.199**	2.313	0.031	0.400	n.s.
PU → CONINT	0.377****	5.741	0.313****	3.885	0.377****	4.291	0.064	0.294	n.s.
PV → CONINT	0.029	0.474	0.135	1.625	0.029	0.339	—	—	—
SN → CONINT	-0.079**	2.011	-0.068	1.247	-0.079	1.406	—	—	—
PBC → CONINT	0.284****	5.019	0.213**	2.272	0.302***	3.169	0.089	0.234	n.s.
	<b><u>Total Sample</u></b>		<b><u>Low Income Sample</u></b>		<b><u>High Income Sample</u></b>		<b><u>H16b: Income Difference</u></b>		
ATT → CONINT	0.199***	3.068	0.168*	1.669	0.185**	2.329	0.017	0.459	n.s.
PU → CONINT	0.377****	5.741	0.240	1.486	0.494****	5.210	0.254	0.076*	< 0.1
PV → CONINT	0.029	0.474	0.260*	1.887	-0.066	0.722	0.326	0.023**	< 0.05
SN → CONINT	-0.079**	2.011	0.394****	4.059	0.346****	4.680	0.048	0.353	n.s.
ATT → CONINT	0.199***	3.068	0.168*	1.669	0.185**	2.329	0.017	0.459	n.s.
	<b><u>Total Sample</u></b>		<b><u>Less Experienced Sample</u></b>		<b><u>More Experienced Sample</u></b>		<b><u>H17b: Internet Experience Difference</u></b>		
ATT → CONINT	0.199***	3.068	0.357**	2.422	0.171**	2.477	0.186	0.123	n.s.
PU → CONINT	0.377****	5.741	0.434****	2.586	0.357****	4.896	0.077	0.329	n.s.
PV → CONINT	0.029	0.474	-0.170	1.441	0.084	1.177	—	—	—
SN → CONINT	-0.079**	2.011	-0.027	0.225	-0.100**	2.019	0.073	0.000****	< 0.001
PBC → CONINT	0.284****	5.019	0.243****	2.588	0.282****	4.204	0.039	0.408	n.s.

Note: \* p < 0.1; \*\* p < 0.05; \*\*\* p < 0.01; \*\*\*\* p < 0.001.

ATT = attitudes toward using IB; CONINT = continuous intentions; ADOINT = adoption intentions; PU = perceived usefulness; PEOU = perceived ease of use; PV = perceived value of using Internet banking; SN = subjective norms; PBC = perceived behavioural control.

**Table 5c** Summary of group comparison results for moderating effects (Model C)

Path	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Path Coefficient $\Delta$	p-value	Sig. of Difference
	<b><u>Total Sample</u></b>		<b><u>Male Sample</u></b>		<b><u>Female Sample</u></b>		<b><u>H14c: Gender Differences</u></b>		
ATT → ADOINT	0.098	1.281	-0.014	0.113	0.154	1.402	—	—	—
PU → ADOINT	0.244***	2.784	0.575****	3.340	0.108	0.990	0.467	0.011**	< 0.05
PV → ADOINT	0.204***	2.583	0.227*	1.733	0.185*	1.808	0.042	0.412	n.s.
SN → ADOINT	0.132*	1.766	0.147	1.007	0.125	1.509	—	—	—
PBC → ADOINT	0.119	1.402	-0.177	1.115	0.244**	2.500	0.421	0.012**	< 0.05
	<b><u>Total Sample</u></b>		<b><u>Young Sample</u></b>		<b><u>Old Sample</u></b>		<b><u>H15c: Age Difference</u></b>		
ATT → ADOINT	0.098	1.281	0.230*	1.908	0.007	0.064	0.223	0.187	n.s.
PU → ADOINT	0.244***	2.784	0.207*	1.641	0.230*	1.896	0.023	0.458	n.s.
PV → ADOINT	0.204***	2.583	0.243*	1.707	0.146*	1.643	0.097	0.361	n.s.
SN → ADOINT	0.132*	1.766	0.032	0.224	0.179**	2.306	0.147	0.042**	< 0.05
PBC → ADOINT	0.119	1.402	-0.040	0.298	0.267***	2.726	0.307	0.001***	< 0.01
	<b><u>Total Sample</u></b>		<b><u>Low Income Sample</u></b>		<b><u>High Income Sample</u></b>		<b><u>H16c: Income Difference</u></b>		
ATT → ADOINT	0.098	1.281	0.073	0.193	0.096	1.083	—	—	—
PU → ADOINT	0.244***	2.784	0.246**	2.424	0.289***	2.754	0.043	1.000	n.s.
PV → ADOINT	0.204***	2.583	0.748*	1.728	0.151*	1.687	0.597	0.262	n.s.
SN → ADOINT	0.132*	1.766	-0.177	0.461	0.138	1.578	—	—	—
PBC → ADOINT	0.119	1.402	0.378	0.815	0.107	1.173	—	—	—
	<b><u>Total Sample</u></b>		<b><u>Less Experienced Sample</u></b>		<b><u>More Experienced Sample</u></b>		<b><u>H17c: Internet Experience Difference</u></b>		
ATT → ADOINT	0.098	1.281	0.036	0.283	0.141	1.334	—	—	—
PU → ADOINT	0.244***	2.784	0.358**	2.565	0.174*	1.641	0.184	0.171	n.s.
PV → ADOINT	0.204***	2.583	0.276**	2.368	0.159*	1.695	0.117	0.244	n.s.
SN → ADOINT	0.132*	1.766	0.085	0.755	0.165	1.542	—	—	—
PBC → ADOINT	0.119	1.402	0.011	0.083	0.188	1.730	—	—	—

Note: \* p < 0.1; \*\* p < 0.05; \*\*\* p < 0.01; \*\*\*\* p < 0.001.

ATT = attitudes toward using IB; ADOINT = adoption intentions; PU = perceived usefulness; PEOU = perceived ease of use; PV = perceived value of using Internet banking; SN = subjective norms; PBC = perceived behavioural control.

## **Discussion**

This study examines the IB adoption-related behavioural intentions of three categories of customers, and contributes to the existing knowledge about customers' IB behaviour. It also extends and integrates the TAM to develop a tailored IB adoption model that takes into account customers' evaluation regarding the trade-off between benefits and sacrifices associated with using IB. In what follows we identify specific theoretical and practical implications of our study.

### ***Theoretical implications***

We make a number of important theoretical contributions. First, by investigating the behavioural intentions of three distinct categories of IB customers we deliver a comprehensive understanding of customers' IB adoption behaviour. Our study thus highlights a deficiency in the current IB adoption literature that focuses only on users and/or non-users. Second, our findings of significant effects of subjective norms and perceived behavioural control on current users' continuous intentions and non-users' adoption intentions lend support to the suggestion of Benbasat and Barki (2007) that the information technology adoption literature should go back to the TRA (i.e. the origin of the TAM) and the TPB. These findings indicate that integrating the TAM and the TRA/TPB provides a richer theoretical base to explain customers' adoption of IB. By doing so more antecedents to customers' adoption behaviour and/or relevant behavioural intentions can be revealed (Benbasat & Barki, 2007), and one of the limitations of the TAM (i.e. ruling out the effects of social influences) (Venkatesh & Davis, 2000) can be addressed. Third, by highlighting the crucial role of perceived value of using IB, both directly and indirectly, on the behavioural intentions of all three categories of IB customers', we illustrate that integrating a direct measure of value (which is based on quality/benefits and

sacrifices evaluation) to customers' IB adoption model could increase the ability of the model in explaining customers' IB adoption behaviour.

Fourth, our examination of the moderating effects of age, gender, income and internet experience highlights the potential dynamic nature of the customers' IB adoption, and demonstrates that a conceptual model including these moderators could provide a better insight. In light of the changing demographics of today's IB market (e.g. Internet users who are also potential customers of IB are increasingly elderly and female [CNNIC, 2013]), our study thus underscores the importance of including demographic variables as key moderating variables to the TAM-based IB adoption models. Finally, our study also contributes to the existing literature as it focuses on the Chinese IB market, which remains relatively under-examined, and reveals findings contrary to studies in other markets. For example, our findings that subjective norms negatively affect current users' continuance intentions and does not affect discontinued users' reuse intentions contrast with what was found in Brazil (Hernandez & Mazzon, 2007), and to the common view held in the relevant literature (e.g. Chan & Lau, 1998; Zhu & He, 2002) that Chinese consumers rely more on social influences in making decisions due to their collectivism culture (Hofstede, 2001). This study therefore provides useful insights into Chinese customers' IB adoption and serves as a call for more IB adoption studies focusing on China.

### ***Managerial implications***

Several managerial and practical implications can be drawn from the findings of this study. First, because IB customers are concerned about both benefits and costs when assessing the value of IB, banks would benefit from making efforts to create an impression of low costs and desirable benefits (e.g. functions and features that suit the banking needs of customers). Costs associated with using IB (especially efforts needed in using IB) can be reduced by making IB

websites more user-friendly, providing online demonstrations to help customers become familiar with the implementation of IB, and reducing the response time of dealing with customers' banking service requests submitted online. There are gains to be had by ensuring that tailored information is provided for different customer constituencies, thereby giving each group (e.g. customers with different levels of income) something convincing about the value of using IB.

Second, banks should explore means of enhancing the perceived usefulness of IB, because this is an essential factor in predicting IB-related behavioural intentions (especially for female current users, male non-users and current users with higher incomes), and may be effective in bringing back discontinued users. Furthermore, because both current users and discontinued users of IB were shown not to rely on other people's opinions (i.e. subjective norms) when making decisions on whether or not to continue with and reuse IB, bank practitioners should understand what makes customers think IB is useful to them, consistently promote the usefulness and advantages of using IB to the customers in comparison to traditional banking methods, and make efforts to enhance these advantages.

Third, due to the crucial role that perceived ease of use plays in IB behaviour, banks would benefit by creating IB systems (especially the user interface) that are more user-friendly and more appealing to their customers so that customers perceive IB to be useful (which in turn increases the adoption rate of IB). On a related note, because perceived behavioural control significantly affects non-users' adoption intentions (especially that of female or older non-users), banks could better communicate with the potential customers regarding the level of support and resources available to them, and thus increase the IB adoption rate. Extending this notion, we also suggest that support might come externally from the government, through

advances in Internet technology and Internet security technology (which assures attractiveness and safety of IB), and the continuous development of the Internet infrastructure (which enables faster Internet access speed and is important for IB customers). Internal support from the banks to the customer might include detailed online demonstrations, which is a useful tool to help customers become familiar with the implementation of IB therefore increasing the customers' levels of self-efficacy in using IB. Other support facilities such as detailed FAQ web pages and setting up a division in the bank's customer service centre dedicated to dealing with customers' IB-related technical queries will also help to enhance customers' self-efficacy and boost their confidence in using IB. Last but not least, our examination of the moderating effects of gender, age, income and internet experience will provide banks with valuable appropriate market segmentation strategies in promoting IB to increase the adoption rate of IB.

### **Limitations and further research**

It is prudent to consider the limitations of any research project, and any potential improvements that could be made. First, we recognise that the sample size of the discontinued users group should have been larger. That said, the number of responses from the discontinued users group is not surprising (and representative of the true population) given that the population of this user group is relatively small compared to those of IB current users and non-users (CFCA, 2013), the results should be interpreted with some caution. Second, we measured all constructs in our conceptual model with one survey conducted with the respondents simultaneously. While our survey design was intended to mitigate the CMV problem (we ensured that all constructs were separated and the order of construct measures were mixed in the questionnaire) and no evidence of it was found in the analysis, its impact can only be conclusively ruled out with data collected from different sources or through a longitudinal survey. Third, while we find that perceived value is the most important construct that is positively and directly related



to discontinued users' IB reuse intentions and non-users' intentions to adopt IB, this construct warrants further and detailed conceptualisation in order for customers' IB adoption behaviour to be even better understood which could help shape bank strategy in relation to IB adoption and use. For example, further research on the effects of perceived value (as conceptualised by Sheth, Newman & Gross (1991), i.e. perceived value is a concept containing the facets of functional value, social value, conditional value, epistemic value and emotional value) on IB could pave the way for a more nuanced understanding. Finally, given that it might be possible to identify constructs which could (or should) have been included in this study, it is suggested that further research into this area should attempt to extend the conceptual model developed and validated in this study by including factors that are possibly influential to IB-related behavioural intentions, and other possible factors that determine those found significant in this study (e.g. IB website design that may affect the customers' perceptions of ease of use and usefulness).

## References

- Abu-Shanab, E. (2013). Income divide: A determinant of technology acceptance. *International Arab Journal of e-Technology*, 3, 121-127. Retrieved from [http://www.iajet.org/iajet\\_files/vol.3/no.2/Income%20Divide\\_%20a%20Determinant%20of%20Technology%20Acceptance.pdf](http://www.iajet.org/iajet_files/vol.3/no.2/Income%20Divide_%20a%20Determinant%20of%20Technology%20Acceptance.pdf)
- AbuShanab, E. & Pearson, J.M. (2007). Internet banking in Jordan: The unified theory of acceptance and use of technology (UTAUT) perspective. *Journal of Systems and Information Technology*, 9, 78-97. DOI: 10.1108/13287260710817700
- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl & Beckmann, J. (Eds.), *Action control: from Cognition to behavior* (pp.11-35). Berlin: Springer-Verlag.
- Ajzen, I. (1988). *Attitudes, personality, and behavior*. Milton Keynes: Open University Press.
- Al-Smadi, M.O. (2012). Factors affecting adoption of electronic banking: An analysis of the perspectives of banks' customers. *International Journal of Business and Social Science*, 3, 294-309. Retrieved from <http://connection.ebscohost.com/c/articles/87607373/factors-affecting-adoption-electronic-banking-analysis-perspectives-banks-customers>
- Al-Somali, S.A., Gholami, R. & Clegg, B. (2009). An investigation into the acceptance of online banking in Saudi Arabia. *Technovation*, 29, 130-141. DOI: 10.1016/j.technovation.2008.07.004
- Alsajjan, B. & Dennis, C. (2010). Internet banking acceptance model: cross-market examination. *Journal of Business Research*, 63, 957-963. DOI: 10.1016/j.jbusres.2008.12.014
- Analysys International (2010). The centralization of China online banking market is increased, ICBC and CBC occupy 59% in Q1, 2010. Retrieved from <http://english.analysys.com.cn/article.php?aid=90903>
- Baumgartner, H. & Homburg, C. (1996). Applications of structural equation modeling in marketing and consumer research: A review. *International Journal of Research in Marketing*, 13, 139-161. DOI: 10.1016/0167-8116(95)00038-0
- Benbasat, I. & Barki, H. (2007). Quo Vadis, TAM? *Journal of the Association for Information Systems*, 8, 211-218. Retrieved from <http://aisel.aisnet.org/jais/vol8/iss4/16>
- Çelik, H. (2008). What determines Turkish customers' acceptance of internet banking? *International Journal of Bank Marketing*, 26, 353-370. DOI: 10.1108/02652320810894406
- Chan, R.Y. & Lau, L. (1998). A test of the Fishbein-Ajzen behavioral intentions model under Chinese cultural settings: Are there any differences between PRC and Hong Kong consumers? *Journal of Marketing Practice: Applied Marketing Science*, 4, 85-101. DOI: 10.1108/EUM00000000004490
- Chan, S. & Lu, M. (2004). Understanding internet banking adoption and use behavior: A Hong Kong perspective. *Journal of Global Information Management*, 12, 21-43. DOI: 10.4018/jgim.2004070102
- Chang, H.H. & Wang, H. (2011). The moderating effect of customer perceived value on online shopping behaviour. *Online Information Review*, 35(3), 333-359. DOI: 10.1108/14684521111151414
- Chau, V.S. & Ngai, L.W.L.C. (2010). The youth market for internet banking services: Perceptions, attitude and behaviour. *Journal of Services Marketing*, 24(1), 42-60. DOI: 10.1108/08876041011017880
- Cheng, T.C.E., Lam, D.Y.C. & Yeung, A.C.L. (2006). Adoption of internet banking: An empirical study in Hong Kong. *Decision Support System*, 42, 1558-1572. DOI: 10.1016/j.dss.2006.01.002

- Chin, W.W. (1998). The partial least squares approach to structural equation modeling. In A.M. George (Eds.), *Modern methods for business research* (pp.295-336). Mahwah, N.J: Lawrence Erlbaum Associates.
- Chin, W.W. (2010). How to write up and report pls analyses. In V.E. Vinzi, *et al.* (Eds.), *Handbook of partial least square: Concepts, methods and applications* (pp.655-689). Berlin, Heidelberg: Springer.
- China Financial Certification Authority [CFCA] (2010). *2010 Report on electronic banking in China*. Beijing: China Financial Certification Authority.
- China Financial Certification Authority [CFCA] (2013). *2013 Report on electronic banking in China*. Beijing: China Financial Certification Authority.
- China Internet Network Information Centre [CNNIC] (2013). Statistical report on Internet development in China. Retrieved from <http://www1.cnnic.cn/IDR/ReportDownloads/201302/P020130221391269963814.pdf>
- Chong, A.Y., Ooi, K., Lin, B. & Tan, B. (2010). Online banking adoption: An empirical analysis. *International Journal of Bank Marketing*, 28, 267-287. DOI: 10.1108/02652321011054963
- Cronin, Jr. J.J., Brady, M.K., Brand, R.R., Hightower Hr., R. & Shemwell, D.J. (1997). A cross-sectional test of the effect and conceptualization of service value. *Journal of Services Marketing*, 11, 375-391. DOI: 10.1108/08876049710187482
- Davies, H., Leung, T.K., Luk, S.T.K. & Wong, Y. (1995). The benefits of 'Guanxi': The value of relationships in developing the Chinese market. *Industrial Marketing Management*, 24(6), 207-214. DOI: 10.1016/0019-8501(94)00079-C
- Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13, 319-340. DOI: 10.2307/249008
- Davis, F.D. (1993). User acceptance of information technology: System characteristics, user perceptions and behavioral impacts. *International Journal of Man-Machine Studies*, 38, 475-487. DOI: 10.1006/imms.1993.1022
- Davis, F.D., Bagozzi, R.P. & Warshaw, P.R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35, 982-1003. DOI: 10.1287/mnsc.35.8.982
- Dean, D.H. (2008). Shopper age and the use of self-service technologies. *Managing Service Quality*, 18, 225-38. DOI: 10.1108/09604520810871856
- Deng, Z., Lu, Y., Wei, K.K. & Zhang, J. (2010). Understanding customer satisfaction and loyalty: An empirical study of mobile instant messages in China. *International Journal of Information Management*, 30, 289-300. DOI: 10.1016/j.ijinfomgt.2009.10.001
- Dodds, W.B., Monroe, K.B. & Grewal, D. (1991). Effects of price, brand, and store information on buyers' product evaluations. *Journal of Marketing Research*, 28, 307-319. DOI: 10.2307/3172866
- Eggert, A. & Ulaga, W. (2002). Customer Perceived Value: A substitute for satisfaction in business markets? *Journal of Business & Industrial Marketing*, 17, 107-118. DOI: 10.1108/08858620210419754
- Eriksson, K., Kerem, K. & Nilsson, D. (2005). Customer acceptance of internet banking in Estonia. *International Journal of Bank Marketing*, 23, 200-216. DOI: 10.1108/02652320510584412
- Eriksson, K., Kerem, K. & Nilsson, D. (2008). The adoption of commercial innovations in the former Central and Eastern European markets: The case of internet banking in Estonia. *International Journal of Bank Marketing*, 26, 154-169. DOI: 10.1108/02652320810864634
- Eriksson, K. & Nilsson, D. (2007). Determinants of the continued use of self-service technology: The case of internet banking. *Technovation*, 27, 159-167. DOI: 10.1016/j.technovation.2006.11.001

- Fishbein, M. & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Boston, MA: Addison-Wesley.
- Flavián, C., Guinalfú, M. & Torres, E. (2006). How bricks-and-mortar attributes affect online banking adoption. *International Journal of Bank Marketing*, 24, 406-423. DOI: 10.1108/02652320610701735
- Fornell, C. & Bookstein, F.L. (1982). Two structural equation models: LISREL and PLS applied to consumer exit-voice theory. *Journal of Marketing Research*, 19, 440-452. DOI: 10.2307/3151718
- Froehle, C.M. & Roth, A.V. (2004). New measurement scales for evaluating perceptions of the technology-mediated customer service experience. *Journal of Operations Management*, 22, 1-21. DOI: 10.1016/j.jom.2003.12.004
- Gallarza, M.G. & Saura, I.G. (2006). Value dimensions, perceived value, satisfaction and loyalty: An investigation of university students' travel behaviour. *Tourism Management*, 27, 437-452. DOI: 10.1016/j.tourman.2004.12.002
- Gefen, D. (2003). TAM or just plain habit: A look at experienced online shoppers. *Journal of End User Computing*, 15(3), 1-13. DOI: 10.4018/joeuc.2003070101
- Geisser, S. (1975). A predictive approach to the random effect model. *Biometrika*, 61, 101-107. DOI: 10.1093/biomet/61.1.101
- Gerrard, P., Cunningham, J.B. & Devlin, J.F. (2006). Why Consumers Are Not Using Internet Banking: A Qualitative Study. *Journal of Services Marketing*, 20, 160-168. DOI: 10.1108/08876040610665616
- Henseler, J. (2007). A new simple approach to multi-group analysis in partial least squares path modeling. In H. Martens, T. Næs, & M. Martens (Eds.), *Causalities explored by indirect observation: Proceedings of the 5<sup>th</sup> International Symposium on PLS and related methods* (pp. 104-107), Oslo.
- Henseler, J. (2012). PLS-MGA: A non-parametric approach to partial least squares-based multi-group analysis. In W. Gaul et al. (Eds.), *Challenges at the interface of data analysis, computer science, and optimization: Studies in classification, data analysis, and knowledge organization* (pp. 495-501), Berlin, Heidelberg: Springer-Verlag. DOI: 10.1007/978-3-642-24466-7\_50
- Henseler, J., Ringle, C.M. & Sinkovics, R.R. (2009). The use of partial least squares path modeling in international marketing. *Advances in International Marketing*, 20, 277-319. DOI: 10.1108/S1474-7979(2009)0000020014
- Hernandez, J.M. & Mazzon, J.A. (2007). Adoption of internet banking: Proposition and implementation of an integrated methodology approach. *International Journal of Bank Marketing*, 25, 72-88. DOI: 10.1108/02652320710728410
- Hitt, L.M., Xue, M. & Chen, P. (2007). The determinants and outcomes of internet banking adoption. *MSI Working Paper Series*, 99-122.
- Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations*. Thousand Oaks, CA: Sage Publications.
- Hua, G. (2009). An experimental investigation of online banking adoption in China. *Journal of Internet Banking and Commerce*, 14(1), 1-12. Retrieved from <http://aisel.aisnet.org/amcis2008/36/>
- Jackson, C.M., Chowand S. & Leitch, R.A. (1997). Towards an understanding of the behavioral intention to use an information system. *Decision Sciences*, 28, 357-389. DOI: 10.1111/j.1540-5915.1997.tb01315.x
- Karjaluoto, H., Mattila, M. & Pentto, T. (2002). Factors underlying attitude formation towards online banking in Finland. *International Journal of Bank Marketing*, 20, 261-272. DOI: 10.1108/02652320210446724

- Kim, H.W., Chan, H.C. & Gupta, S. (2007). Value-based adoption of mobile internet: An empirical investigation. *Decision Support Systems*, 43, 111-126. DOI: 10.1016/j.dss.2005.05.009
- Koenig-Lewis, N., Palmer, A. & Moll, A. (2010). Predicting young consumers' take up of mobile banking services. *International Journal of Bank Marketing*, 28, 410-432. DOI: 10.1108/02652321011064917
- Kolodinsky, J.M., Hogarth, J.M. & Hilgert, M.A. (2004). The adoption of electronic banking technologies by US consumers. *International Journal of Bank Marketing*, 22, 238-259. DOI: 10.1108/02652320410542536
- Konus, U., Verhoef, P.C. & Neslin, S.A. (2008). Multichannel shopper segments and their covariates. *Journal of Retailing*, 84(4), 398-413. DOI: 10.1016/j.jretai.2008.09.002
- Laforet, S. & Li, X. (2005). Consumers' attitudes towards online and mobile banking in China. *International Journal of Bank Marketing*, 23: 362-380. DOI: 10.1108/02652320510629250
- Ledden, L., Kalafatis, S.P. & Samouel, P. (2007). The relationship between personal values and perceived value of education. *Journal of Business Research*, 60, 965-974. DOI: 10.1016/j.jbusres.2007.01.021
- Lee, M. (2009). Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications*, 8, 130-141. DOI: 10.1016/j.elerap.2008.11.006
- Levy, J.A. (1988). Intersections of gender and aging. *Sociology Quarterly*, 29, 479-486. DOI: 10.1111/j.1533-8525.1988.tb01429.x
- Lewis, B.R. & Soureli, M. (2006). The antecedents of consumer loyalty in retail banking. *Journal of Consumer Behaviour*, 5, 15-31. DOI: 10.1002/cb.46
- Li, D., Browne, G.J. & Chau, P.Y.K. (2006). An empirical investigation of web site use using a commitment-based model. *Decision Sciences*, 37, 427-444. DOI: 10.1111/j.1540-5414.2006.00133.x
- Liang, H., Saraf, N., Hu, Q. & Xue, Y. (2007). Assimilation of enterprise systems: The effect of institutional pressures and the mediating role of top management. *MIS Quarterly*, 31(1), 59-87. Retrieved from <http://misq.org/assimilation-of-enterprise-systems-the-effect-of-institutional-pressures-and-the-mediating-role-of-top-management.html>
- Lu, J., Yao, J.E. & Yu, C. (2005). Personal innovativeness, social influences and adoption of wireless internet services via mobile technology. *Journal of Strategic Information Systems*, 14, 245-268. DOI: 10.1016/j.jsis.2005.07.003
- Luarn, P. & Lin, H. (2005). Toward an understanding of the behavioral intention to use mobile banking. *Computer in Human Behavior*, 21, 873-891. DOI: 10.1016/j.chb.2008.07.007
- Nilsson, D. (2007). A cross-cultural comparison of self-service technology use. *European Journal of Marketing*, 41(3/4), 367-381. DOI: 10.1108/03090560710728381ni
- Nitzl, C. & Hirsch, B. (2013). When do managers trust their management accountants? Retrieved from [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2127701](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2127701)
- Park, J., Yang, S. & Lehto, X. (2007). Adoption of mobile technologies for Chinese consumers. *Journal of Electronic Commerce Research*, 8, 196-206. Retrieved from <http://www.csulb.edu/journals/jecr/issues/20073/Paper3.pdf>
- Parthasarathy, M. & Bhattacharjee, A. (1998). Understanding post-adoption behavior in the context of online services. *Information Systems Research*, 9, 362-379. DOI: 10.1287/isre.9.4.362
- Peak, H. (1955). Attitude and motivation. In M.R. Jones, (Eds.), *Nebraska sympos on motivation* (pp.149-188). Lincoln: University of Nebraska Press.
- Podsakoff, P.M., Mackenzie, S.B., Moorman, R.H. & Fetter, R. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88, 879-903. DOI: 10.1037/0021-9010.88.5.879

- Podsakoff, P.M. & Organ, D.W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management*, 12, 69-82. DOI: 10.1177/014920638601200408
- Preacher, K.J. & Hayes, A.F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, 36, 717-731. DOI: 10.3758/BF03206553
- Ringle, C.M., Wende, S. & Will, A. (2005). SmartPLS (2.0 beta). Retrieved from <http://smartpls.de>
- Riquelme, H.E. & Rios, R.E. (2010). The moderating effect of gender in the adoption of mobile banking. *International Journal of Bank Marketing*, 28, 328-341. DOI: 10.1108/02652321011064872
- Rosenberg, M.J. (1956). Cognitive structure and attitudinal affect. *Journal of Abnormal and Social Psychology*, 53, 367-372. DOI:10.1037/h0044579
- Safeena, R., Date, H., Hundewale, N. & Kammani, A. (2013). Combination of TAM and TPB in internet banking adoption. *International Journal of Computer Theory and Engineering*, 5, 146-150. DOI: 10.7763/IJCTE.2013.V5.665
- Salisbury, W.D., Pearson, R.A., Pearson, A.W. & Miller, D.W. (2001). Perceived security and World Wide Web purchase intention. *Industrial Management & Data Systems*, 101, 165-176. DOI: 10.1108/02635570110390071
- Sawyer, A.G., Worthing, P.M., & Sendak, P.E. (1979). The role of laboratory experiments to test marketing strategies. *Journal of Marketing*, 43(3), 60-67.
- Sheth, J.N., Newman, B.I. and Gross, B.L. (1991). *Consumption values and market choices: Theory and applications*. Cincinnati, OH: South-Western Publishing.
- Shih, Y. & Fang, K. (2004). The use of a decomposed theory of planned behavior to study internet banking in Taiwan. *Internet Research*, 14, 213-223. DOI: 10.1108/10662240410542643
- Simon, F. & Usunier, J. (2007). Cognitive, demographic, and situational determinants of service customer preference for personnel-in-contact over self-service technology. *International Journal of Research in Marketing*, 24, 163-173. DOI: 10.1016/j.ijresmar.2006.11.004
- Sirdeshmukh, D., Singh, J. & Sabol, B. (2002). Consumer trust, value, and loyalty in relational exchanges. *Journal of Marketing*, 66(1): 15-37. DOI: 10.1509/jmkg.66.1.15.18449
- Spiller, J, Vlasic, A. & Yetton, P. (2007). Post-adoption behavior of users of internet service providers. *Information & Management*, 44, 513-523. DOI: 10.1016/j.im.2007.01.003
- Stone, M. (1974). Cross-validatory choice and assessment of statistical predictions. *Journal of the Royal Statistical Society*, 36, 111-147. Retrieved from <http://www.stat.washington.edu/~ebfox/courses/stat527/s13/readings/Stone1974.pdf>
- Suh, B. & Han, I. (2002). Effect of trust on customer acceptance of internet banking. *Electronic Commerce Research and Applications*, 1, 247-263. DOI: 10.1016/S1567-4223(02)00017-0
- Swanson, E.B. (1982). Measuring user attitudes in MIS research: A review. *The International Journal of Management Science*, 10, 157-165. DOI: 10.1016/0305-0483(82)90050-0
- Taylor, S. & Todd, P. (1995a). Assessing IT usage: The role of prior experience. *MIS Quarterly*, 19, 561-570. DOI: 10.2307/249633
- Taylor, S. & Todd, P. (1995b). Decomposition and crossover effects in the theory of planned behavior: A study of consumer adoption intentions. *International Journal of Research in Marketing*, 12, 137-155. DOI: 10.1016/0167-8116(94)00019-k
- Taylor, S. & Todd, P. (1995c). Understanding information technology usage: A test of competing models. *Information Systems Research*, 6, 144-176. DOI: 10.1287/isre.6.2.144
- Thaler, R. (1985). Mental accounting and consumer choice. *Marketing Science*, 4, 199-214. DOI: 10.1287/mksc.4.3.199

- Venkatesh, V. & Davis, F.D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, 46, 186-204. DOI: 10.1287/mnsc.46.2.186.11926
- Vroom, V.H. (1964). *Work and motivation*, New York, NY: Wiley.
- Wan, W.W.N., Luk, C.L., & Chow, C.W.C. (2005). Customers' adoption of banking channels in Hong Kong. *The International Journal of Bank Marketing*, 23, 255–272. DOI: 10.1108/02652320510591711
- Wang, H. & Yang, H. (2006). Do personality traits affect the acceptance of e-finance? *International Journal of Electronic Finance*, 1, 200-221. DOI: 10.1504/IJEF.2006.010316
- Wessels, L. & Drennan, J. (2010). An investigation of consumer acceptance of M-banking. *International Journal of Bank Marketing*, 2, 547-568. DOI: 10.1108/02652321011085194
- Yoon, H.S. & Steege, L.M.B. (2012). Development of a quantitative model of the impact of customers' personality and perceptions on internet banking use. *Computers in Human Behavior*, 29, 1133-1141. DOI: 10.1016/j.chb.2012.10.005
- Yousafzai, S. & Yani-de-Soriano, M. (2012). Understanding customer-specific factors underpinning internet banking adoption. *International Journal of Bank Marketing*, 30(1), 60-81. DOI: 10.1108/02652321211195703
- Zeithaml, V.A. (1988). Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. *Journal of Marketing*, 52(7), 2-22. DOI: 10.2307/1251446
- 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, 505-525. DOI: 10.1108/02652320810913864
- Zhao, A.L., Koenig-Lewis, N., Hanmer-Lloyd, S. & Ward, P. (2010). Adoption of internet banking services in China: Is it all about trust?. *International Journal of Bank Marketing*, 28, 7-26. DOI: 10.1108/02652321011013562
- Zhu, J.J.H. & He, Z. (2002). Perceived characteristics, perceived needs, and perceived popularity adoption and use of the internet in China. *Communication Research*, 29, 466-495. DOI: 10.1177/0093650202029004005

**Appendix 1 List of measurement items and their characteristics for the three categories of IB customers**

Measurement Items	<u>Discontinued Users</u>		<u>Current Users</u>		<u>Non-users</u>	
	Mean	Loading	Mean	Loading	Mean	Loading
<b><i>Attitudes toward using Internet Banking (ATT) (Taylor &amp; Todd, 1995c)</i></b>						
Using Internet banking is a (bad/good) idea.	5.130	0.944	5.740	0.846	4.344	0.888
Using Internet banking is a (foolish/wise) idea.	4.935	0.779	5.767	0.855	4.243	0.910
I (dislike/like) the idea of using Internet banking.	5.109	0.862	5.764	0.758	4.047	0.884
Using Internet banking is (unpleasant/pleasant).	4.870	0.908	5.640	0.797	4.138	0.903
<b><i>Perceived Behavioural Control (PBC) (Taylor &amp; Todd, 1995c)</i></b>						
I am able to use Internet banking.	4.761	0.916	5.545	0.898	4.149	0.930
I have the resources and the knowledge and the ability to make use of Internet banking.	4.522	0.752	5.435	0.844	4.101	0.909
<b><i>Perceived Ease of Use (PEOU) (Davis, 1989)</i></b>						
It is (was) easy for me to learn operating Internet banking.	4.826	0.883	5.572	0.888	4.239	0.931
It is (was) easy for me to remember how to conduct banking activities using Internet banking.	4.761	0.877	5.476	0.876	4.116	0.934
It is (was) easy for me to become proficient at using Internet banking.	4.870	0.849	5.651	0.858	4.130	0.926
<b><i>Perceived Usefulness (PU) (Davis, 1989)</i></b>						
Using Internet banking enables me to accomplish my banking activities more quickly.	4.783	0.792	5.668	0.769	4.482	0.853
Using Internet banking supports the critical aspects (e.g. accuracy, speed, and security) of my banking activities.	4.543	0.867	5.134	0.760	4.094	0.819
Using Internet banking enables me to accomplish more banking activities in a same period of time than would otherwise be possible.	5.000	0.757	5.589	0.636	4.377	0.827
Using Internet banking increases my productivity (efficiency) in conducting my banking activities.	4.913	0.835	5.507	0.743	4.261	0.876
Using Internet banking makes it easier to conduct my banking activities.	4.717	0.783	5.390	0.794	4.174	0.838
Overall, I find Internet banking useful in conducting my banking activities.	4.870	0.756	5.243	0.734	4.196	0.816
<b><i>Perceived Value of Using Internet Banking (PV) (Sirdeshmukh, Singh &amp; Sabol, 2002)</i></b>						
For the effort involved in using Internet banking, I would say using Internet banking is (not at all worthwhile/very worthwhile).	4.826	0.879	5.432	0.874	4.257	0.932
I would rate my overall perception of using Internet banking (extremely poor value/extremely good value).	4.891	0.867	5.277	0.869	4.159	0.935



<b>Subjective Norms (SN) (Taylor &amp; Todd, 1995c)</b>						
Most people who are important to me think that I should use Internet banking.	4.196	0.825	4.753	0.866	3.623	0.936
The people who influence my decisions think that I should use Internet banking.	4.065	0.995	4.719	0.915	3.507	0.946
<b>Reuse Intentions (RUINT) (Cheng et al., 2006)</b>						
I intend to use Internet banking again in the next twelve months.	4.826	0.971				
I see myself using Internet banking again in the next twelve months.	4.913	0.971				
<b>Continuance Intentions (CONINT) (Li, Browne &amp; Chau, 2006)</b>						
I intend to keep using Internet banking in the future.			5.692	0.854		
I intend to continue using Internet banking in the future.			5.616	0.847		
I expect my use of Internet banking to continue in the future.			5.723	0.791		
I am interested in new services provided by my Internet banking service provider (i.e. my bank).			5.592	0.614		
In the future I intend to increase my use of Internet banking services.			5.568	0.758		
<b>Adoption Intentions (ADOINT) (Salisbury et al., 2001)</b>						
I intend to use Internet banking in the next twelve months.					3.330	0.965
Using Internet banking is something I plan to do in the next twelve months.					3.279	0.964
I see myself using Internet banking in the next twelve months.					3.355	0.958

Note: Items eliminated in the measurement model finalisation procedures are not listed.

If not mentioned otherwise, all items were measured on 7-point scales ranging from 1 = *strongly disagree* to 7 = *strongly agree*.