DETERMINANTS OF INTERNET BANKING ADOPTION BY CORPORATE CUSTOMERS: A STUDY OF BEHAVIOURAL INTENTIONS IN TAIWANESE BUSINESSES

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Declaration

This is to declare that:

This thesis has been written by me.

I am responsible for the research work submitted in this thesis.

All verbatim extracts have been distinguished and the sources specifically acknowledged.

During the preparation of this thesis, some papers were prepared as listed below. The remaining parts of the thesis have not yet been published.

Chen, W. H. 2006. Determinants of cyberbanking adopted by corporate customers on behavioural intention - An empirical investigation of Taiwan's cyberbanking (paper presented at 6th Annual Hawaii International Conference on Business, Honolulu, Hawaii, USA, May 25-28).

Chen, W. H., D. C. Arnott, and S. Dibb. 2007. Determinants of cyberbanking adoption: A qualitative study of Taiwanese businesses (paper presented at Academy of Marketing Conference 2007, Kingston/Royal Holloway, University of London, UK, July 3-6).

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Abstract

The aim of this thesis is to investigate the determinants of the behavioural intention of Internet banking adoption among individual members of a corporate customer's buying centre, and to compare the difference between adopters (corporate customers) and non-adopters (companies that do not currently use Internet banking) with an emphasis on the factors that influence the adoption of Internet banking (IB).

Five theoretical models were applied: theory of reasoned action (TRA), theory of planned behaviour (TPB), technology acceptance model (TAM), decomposed theory of planned behaviour (DTPB), and technology readiness (TR). Responses were explored in terms of the intention, attitude, subjective norm, perceived behavioural control, usability and relevance, innovativeness, operational concerns, normative influence, self-efficacy, and facilitating condition, in relation to the intent to adopt IB.

The main purpose of the first qualitative study, which consisted of interviews with eight adopters, eleven non-adopters and three IB managers, was to understand the factors that influence corporate customers to adopt IB, and also to help formulate the design of the questionnaire. The main study involved the development and testing of a questionnaire with 431 respondents (257 adopters and 174 non-adopters). Factor analyses and multiple regressions were employed in the evaluation of the questionnaire.

It was found that (1) attitude, subjective norm, and perceived behavioural control are the major factors in the corporate customer's intentions toward IB adoption; (2) usability and relevance, innovativeness, and operational concerns are the key constructs that have influence over the corporate attitude towards the adoption of IB; (3) normative influence is found to be the construct that most heavily influences the subjective norm towards corporate adoption of IB; (4) self-efficacy and facilitating condition are the constructs that influence perceived behavioural control towards corporate adoption of IB; and (5) other than innovativeness, there was no significant difference between adopters' behavioural intention and non-adopters' behavioural intention.

The research contributes to the development of a theoretical framework that identifies and tests the antecedents of attitude, subjective norm, and perceived behavioural control of buying centre participants' intentions toward IB adoption. This study confirms that TR can be employed to explain the phenomena of the corporate customer's behavioural intentions toward IB. In addition, this study contributes to the literature through its comparison of the behavioural intentions toward IB adoption between adopters and non-adopters.

Keywords: attitude, behavioural intention toward adoption, corporate customer, Internet banking.

Abbreviations

Ad	adopter
ATT	attitude
B2B	business-to-business
B2C	business-to-consumer
CIB	corporate Internet banking
Cmpty	compatibility
DIS	discomfort
DTPB	decomposed theory of planned behaviour
EFA	exploratory factor analysis
EFF	self-efficacy
EOU	perceived ease of use
FAC	facilitating condition
IB	Internet banking
INN	innovativeness
INS	insecurity
INT	intention
NA	non-adopter
NI	normative influence
OPT	optimism
PBC	perceived behavioural control
PCA	principal component analysis
SMEs	small and medium-sized businesses
SN	subjective norm
TAM	technology acceptance model
TPB	theory of planned behaviour
TR	technology readiness
TRA	theory of reasoned action
TRI	technology readiness index
USE	perceived usefulness

Chapter 1 Introduction

1.1 Introduction

According to the International Telecommunication Union's (2008) world telecommunication indicators database, the global proportion of Internet users increased from 6.4% to 23.4% between 2000 and 2008. Due to the rapid growth of information technology, the Internet can now be used by businesses as a marketing tool. With the increasing popularity of the Internet, it brings new ideas and opportunities for business. A company could suffer critical deficits in competitiveness and eventually lose business if it is unable to keep up with this technology shift. In other words, customers' needs will change when the technology changes, and the business has to fulfill the customers' new needs.

Internet banking (IB) services are designed to fulfill the customers' banking needs more effectively. Customers can perform banking transactions, anytime and anywhere, without the need to visit high street bank branches (Cheng, Lam, and Yeung 2006, 1559). This is definitely helpful and attractive to computer literate customers (Rotchanakitumnuai and Speece 2003, 312; Tan and Teo 2000, 4).

Wells Fargo, a California-based bank, was the first bank to enable online transactions, back in 1995. Later in the same year, Security First Network Bank became the first branchless bank, providing only IB services (Polasik and Wisniewski 2009, 33). A large number of banks offer online banking services

nowadays. IB provides services similar to those of traditional banks. These include account balance-checking, bank statements and reports, money transfers, loan and bill payments, currency exchange, issuing letters of credit, and so on. Furthermore, many banks are offering customised and integrated services for their corporate customers, such as the new B2B (business to business) technology – "electronic bill presentation and payment (EBPP)" (Rotchanakitumnuai and Speece 2003, 312; Tan and Teo 2000, 28).

The main advantage of IB, the absence of restrictions on time and location of using banking services, appears to be beneficial both to banks and their customers (Cheng, Lam, and Yeung 2006). Banks benefit from not needing new physical branches, cutting down operational costs, and breaking geographical restrictions. The last is especially effective and efficient for those banks with overseas operations. By adopting IB, the corporate customers could compete in markets which were previously considered geographically too remote or financially unviable (Giannakoudi 1999, 205; Liao et al. 1999, 64; Polasik and Wisniewski 2009, 33). In addition, the provision of IB services enhances banks' images because it offers greater convenience to customers (Rotchanakitumnuai and Speece 2003, 312).

On the other hand, IB offers corporate customers greater convenience of financial management, allows them to transfer money on a safer and more efficient basis, and saves on labour and costs relating to financial activities. Since IB services can provide benefits for both banks and their consumers and is a key business area for banks, it is critical to understand key factors in customers'

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decisions in adopting IB. Such understanding would be beneficial for banks to lay down marketing strategies and to improve their operational efficiency.

It should be noted that at the time of this study, IB is still in the testing stage for developing countries. Although IB is already widely used in most western and developed societies, it is not the case in some economies, for example, Taiwan. According to a financial and banking service usage survey in Taiwan, the percentage of IB service usage for financial-product users is 34%, and the percentage using web-ATM[1] is 32.6% (InsightXplorer Limited 2007), revealing a huge potential for growth in usage.

Sampling for this study to be carried out in Taiwan has the following reasons. Firstly, according to the "Survey Report of the Taiwan Network Information Centre 2008", Taiwan has 14.35 million residents aged 12 and above who have had experience in using the Internet. In other words, 59.0% of the total population in Taiwan has Internet access, so usage of IB services is not restricted by communication infrastructure. Therefore, sampling in Taiwan can provide sufficient information because of the higher Internet usage. Secondly, as Tan and Teo (2000, 13) reported, "the pool of Internet banking respondents is very large worldwide, thus making it impractical for the survey to be worldwide." Thirdly, if the survey was conducted worldwide, the study would be complicated by issues as to whether or not adequate responses are received from each country, and the

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[1] Web-ATM refers to actions traditionally carried out using ATM machines, which can now be done via Internet.

existence of IB in particular countries (different countries will be at different stages) (Tan and Teo 2000, 13). Therefore, focusing on some smaller but widely varying areas worldwide seems to be a viable approach. Fourthly, the researcher is from Taiwan and hence has a particular interest in what is happening in Taiwan. Finally, by focusing solely on Taiwan, the results are more readily compared with previous studies conducted elsewhere, making the findings more insightful to researchers and practitioners (Tan and Teo 2000, 13). Thus, the primary data for the research were collected in Taiwan, which should be a suitable location for this sampling survey.

In general, the interaction between corporate customers and Internet banking service providers is considered to be more intensive and complex than that between banks and consumers, because the relationships between firms and banks are emphasised (Athanassopoulos and Labroukos 1999). For example, customer adoption of Internet banking may be influenced by friends, family or colleagues; however, decisions of corporate customers may be influenced by individuals, their colleagues, suppliers, and buyers. Also, it is noted that corporate customers have much larger trading values than individual consumers. In other words, corporate customers have more complicated banking and risk-management needs, and provide greater profit opportunities for banks (Gurau 2002a, 362; Rotchanakitumnuai and Speece 2003, 312).

According to the White Paper on Small and Medium Enterprises in Taiwan (Small and Medium Enterprises Administration 2008), 97.91% of enterprises in Taiwan are small and medium enterprises (SMEs). Further, the White Paper

(Small and Medium Enterprises Administration 2008) also revealed that 42% of loans from banks were to SMEs. Thus, SMEs form a very important customer base for banks.

Many studies have investigated consumer adoption of IB services (e.g. Aladwani 2001; Brown et al. 2004; Yousafzai and Yani-de-Soriano 2012; Zhou 2011; Zolait 2010; etc.). However, there are few studies of corporate adoption of IB. A better understanding of their behavioural intentions would help the financial service providers to attract more corporate customers by allowing them to develop competitive IB strategies distinct from traditional banks' strategies.

The purpose of this study is to examine key factors in the adoption of IB by querying individuals within a corporate customer's buying centre. Theoretical models applied here include the theory of reasoned action (TRA) (Fishbein and Ajzen 1975), the theory of planned behaviour (TPB) (Ajzen 1989), the technology acceptance model (TAM) (Davis, Bagozzi, and Warshaw 1989), the decomposed theory of planned behaviour (DTPB) (Taylor and Todd1995a), and the technology readiness (TR) (Parasuraman and Colby 2001). Although TRA, TPB, TAM and DTPB have been applied in previous literature, principally to the study of consumers' behavioural intentions (e.g. Caruana, Cohen, and Krentler 2006; Grandon and Mykytyn 2004), some researchers have used these models to investigate those factors (attitude, subjective norm, and perceived behavioural control) with regards to the corporate customer (e.g. Caruana, Cohen, and Krentler 2006; Grandon and Mykytyn 2004; Stevens et al. 2005). Since the survey respondents in this study would be individuals who are members of the corporate

customer's buying centre, TRA, TPB, TAM and DTPB models are therefore the most suitable theoretical models for this study, due to their focus on human behavioural intention.

Another issue discussed in previous studies is the perspective of users. Some research focuses on the behaviour of existing users/adopters of IB services (e.g. Liao and Cheung 2002). Other studies examine only the behavioural intention of non-users/non-adopters [2] (e.g. Gerrard, Cunningham, and Devlin 2006). Nonetheless, relatively few researchers consider both adopters' and non-adopters' behavioural intention within the corporate setting with respect to the adoption of IB. This study therefore examines the behavioural intentions of both adopters and non-adopters of corporate Internet banking (CIB).

In addition, previous research has mainly employed only the theories of TRA, TPB, TAM, and DTPB. Nonetheless, the purpose of this study is to determine the behavioural intention of an individual member in a corporate buying centre with regards to the adoption of CIB. According to several studies, the understanding of attitude, a key factor in disclosing intention, is further associated with TR (Lin, Shih, and Sher 2007; Lin and Hsieh 2006). Thus, TR is also employed in this research.

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[2] Non-user/non-adopter refers to those who do not adopt IB services in their business. Those who do not adopt IB services may either be potential corporate customers of IB, or never want to adopt IB at all.

1.1.1 Research objectives and questions

Although consumer behavioural intention has been examined extensively in previous research, few studies have focused on the corporate customer, and even fewer have looked into the intentions of buying centre members. Therefore the main goal of this research is to delve further into the determinants that influence IB adoption for a corporate customer.

Overall, the purpose of this research is to discover the behavioural intention towards IB of individuals in a corporate buying centre, in terms of their attitudes, subjective norm (e.g. social pressures) and perceived behavioural control (e.g. computer facilitation or Internet knowledge), so that the question of competitive advantage in IB can be explored.

The following research questions are proposed for this study, which is based on five models (i.e. TRA, TPB, TAM, DTPB, and TR):

1. What factors influence the adoption of IB for corporate customers? Do attitude, subjective norm, and perceived behavioural control influence corporate customers' intention to use IB services?

2. What are the differences between corporate customers (adopters) and prospective corporate customers (non-adopters) regarding the factors that influence the adoption of IB?

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1.1.2 Conceptual foundation and methodology

This study sets out to integrate the fragmented theories of TRA, TPB, TAM, DTPB, and TR, and provides a unified theoretical model that captures their essential elements. After factor cleaning, a revised model based on these theories is developed to encompass the factors influencing the behavioural intention of Taiwanese companies regarding the adoption of IB.

This research will begin with a detailed literature review. Then, a qualitative approach will be employed in order to design a questionnaire, after which a quantitative approach will be used in order to collect data and test theories. Semi-structured interviews help to "build a complex, holistic picture, formed with words, reporting detailed views of informants and conducted in a natural setting" (Creswell 1994, 2). The theoretical review and qualitative study provide the foundations for measurement items and constructs included in the integrated models. The quantitative research helps to test the theories "composed of variables, measured with numbers, and analysed with statistical procedures" (Creswell 1994, 2). This research employs a predominantly quantitative approach in order to test the hypotheses and to help us understand the related phenomena by the examining the relationships between various behavioural intentions, as well as comparing the differences between adopters and non-adopters.

1.2 Structure of the thesis

This thesis comprises eight chapters. Chapter One, Introduction, describes the background and scope of the study, and presents the objectives and questions the research will address. Chapter Two, Literature Review, focuses principally on literature regarding IB adoption, the factors influencing a corporate buying centre, and integrates the related literature on TRA, TPB, TAM, DTPB, and TR. The chapter ends by identifying gaps in existing research, and the expected findings.

Chapter Three describes the research framework and the development of the hypotheses. TRA, TPB, TAM, DTPB, and TR models are introduced, and connections concerning the reasons for adoption of CIB are made. Then, the variables from these five theories are explored. Finally, the factors that influence corporate customers to adopt IB are discussed, and the hypotheses are presented.

Chapter Four, Methodology, presents the philosophical stance, the research design, the data-collection approach, and the reliability and validity of the chosen measures. Lastly, data-analysis techniques are introduced and explained.

Chapter Five, Measurement Development, begins with the introduction of the qualitative study, which forms the basis for the development of the questionnaire in the main study. It then continues by introducing the properties of the measurement tools described and data-screening procedures presented, which includes both data cleaning and handling missing data and outliers.

Chapter Six, Quantitative Study, reports the results of the data analysis. The

preliminary outcomes of the measurement scale that was developed using existing literature are presented, the results of the scale's reliability and validity tests are reviewed, and the chapter concludes with the outcomes of the hypotheses testing.

Chapter Seven discusses the findings derived from the data analysis, and their relevance to previous studies. Evidence from the qualitative research phase is presented in order to provide support and verification in the discussion to the results.

Chapter Eight, Conclusion, summarises the key research findings and the thesis itself. It demonstrates the theoretical and managerial research implications, and goes on to identify and explain the limitations of the research. Finally, possible future research directions are identified.

The thesis concludes with the references and appendices. The appendices comprise the interview protocols and their background information, as well as the research questionnaire. The following chapter looks at the findings that are available in existing literature, and related to the thesis.

Chapter 2 Literature Review

2.1 Introduction

This chapter aims to review the existing literature that discusses the main conceptual pillars relevant to the topic of this thesis. It identifies what research has been conducted to date, and where the current study stands in relation to that research. The purpose of this study is to explore the behavioural intention of corporate customers toward IB adoption. The main domain of the literature studied relates to behavioural intention toward IB adoption. Furthermore, five theoretical models related to behavioural intention toward IB adoption will be introduced and then combined, in order to form the theoretical foundation of this study.

The first part of this chapter examines relevant theories, and reports on the empirical applications of these theories. The second section goes on to review the general literature on IB, in order to identify gaps in the research. The third section presents an overview of corporate buyer behaviours. The fourth section offers the theoretical models and related issues concerning TRA, TPB, TAM, DTPB, and TR. The final section briefly summarises the literature review.

2.2 General literature on Internet banking

The rapid development of the Internet and, subsequently, electronic business, has increased the number of people using new technology, and part of

this increase can be seen in the uptake of IB (AbuShanab, Pearson, and Setterstrom 2010; Aladwani 2001; Brown et al. 2004). Some of these people could be involved in buying centres of corporate customers, and thus influence their adoption of IB services. IB delivers banking services directly to its customers, the benefits of which can be enjoyed by consumers and corporations alike.

IB brings both advantages and disadvantages to banks and individual customers/corporations. For example, one of the disadvantages for banks is that heavy investment is required to develop and maintain online capabilities and support services – the cost of which cannot be shifted to customers in the form of high fees, because this would deter customers from using the system (Sarel and Marmorstein 2003, 115).

In contrast, the major advantage of IB is that, in the long term, IB ultimately offers the banks themselves time and cost savings, freedom from providing physical bank branches, worldwide access, improved marketing image, and increased market penetration (Gurau 2002b; Pikkarainen et al. 2004; Proença, Silva and Fernandes 2010; Yousafzai and Yani-de-Soriano 2012). The IB channel, once established, is undoubtedly the most cost-effective delivery channel that a bank can offer (Karjaluoto, Mattila, and Pento 2002; Sathye 1999). This also supports the view that traditional branch banking (i.e. face-to-face service) takes too much time and is too much effort for customers/corporations. Once IB is established, banks can downsize their branch networks and reduce the number of staff. Rotchanakitumnuai and Speece (2003, 320) also showed IB to be the best channel for certain interactions with the bank. In addition, the rapid developments

in IT mean that new financial products are constantly being created, and that competition among banking institutes is increasingly intensive. New trends in the diversity, integration, and globalisation of banking institutes support the need for the development of IB. It seems that customers' needs are diversified due to new trends that occur in society. As a result, there is a great need for banks to provide suitable tools like IB to satisfy the needs of both its individual and its corporate customers.

Gurau (2002b, 286) and Littler and Melanthiou (2006, 436) mentioned that for corporate customers, IB means greater convenience and reduced operational and administrative costs (e.g. to save time on trips to banks). IB also allows faster, near-immediate access to the most up-to-date financial information, such as exchange rates and interest rates. As a result, users get improved efficiency and effectiveness. Sayar and Wolfe (2007, 123) and Shih and Fang (2004, 213) reported that IB is attractive to individual customers, as it makes it possible for them to conduct banking transactions at any time, in any place, faster and with lower cost. These same advantages also bring economic benefits to enterprises. Therefore, from an economic perspective, IB could be greatly beneficial and useful to consumers and corporate customers alike.

2.2.1 Overview of Internet banking literature

Existing literature regarding IB focuses mainly on the following four major areas: (a) IB services and managerial strategies (Aladwani 2001; Byers and

Lederer 2001; Chen 1999; Dai and Kauffman 2002; Premkumar and Roberts 1999; Sarel and Marmorstein 2004); (b) the infrastructure of IB information systems (Ang and Straub 1998; Dratva 1995); (c) the quality of IB (Ettredge, Richardson, and Scholz 2001; Morrall 1995); (d) consumer behaviours towards IB (Liao and Cheung 2002; Wang et al. 2003).

Reviewing the literature on IB[3], theories used to investigate IB adoption include: (1) TRA (Fishbein and Ajzen 1975); (2) the social cognitive theory (Bandura 1977, 1982); (3) the innovation diffusion theory (IDT) (Rogers 1995, 2003); (4) TPB (Ajzen 1985); (5) TAM (Davis 1989); (6) DTPB (Taylor and Todd 1995a).

A review of IB literature reveals that there are various articles exploring IB adoption and the barriers to adoption. The factors determining whether or not adoption would take place include: attitude, subjective norm, perceived behavioural control, relative advantage, compatibility, trialability, risk,

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[3] Literature on IB: AbuShanab, Pearson, and Setterstrom (2010); Al-maghrabi, Dennis, and Halliday (2011); Alsajjan and Dennis (2010); Brown et al. (2004); Chan and Lu (2004); Eriksson, Kerem, and Nilsson (2005); Gerrard and Cunningham (2003); Guriting and Ndubisi (2006); Liao et al. (1999); Liao and Cheung (2002); Lockett and Littler (1997); Mattila, Karjarluoto, and Pento (2003); Mols, Bukh, and Nielsen. (1999); Ndubisi and Sinti (2006); Ozdemir and Trott (2009); Ozdemir, Trott, and Hoecht (2008); Proença and Rodrigues (2011); Proença, Silva, and Fernandes (2010); Ravi, Carr, and Sagar (2006); Rotchanakitumnuai and Speece (2003); Sathye (1999); Shih and Fang (2004); Tan and Teo (2000); Tao (2011); Terzidis, Papadopoulou, and Kosmidis (2013); Wang (2001); Wang et al. (2003); Yousafzai and Yani-de-Soriano (2012); Zhou (2011); Zolait (2010).

self-efficacy, government support, perceived usefulness, perceived ease of use, etc. (AbuShanab, Pearson, and Setterstrom 2010; Alsajjan and Dennis 2010; Brown et al. 2004; Cheng, Lam, and Yeung 2006; Curran and Meuter 2005; Eriksson, Kerem, and Nilsson 2005; Terzidis, Papadopoulou, and Kosmidis 2013; Tao 2011; Yousafzai and Yani-de-Soriano 2012; Zolait 2010).

Table 2.1 provides an overview of the factors affecting IB adoption, the theoretical models used, and the countries in which the studies took place. For example, Liao et al. (1999) and Tan and Teo (2000) adopted TPB (Ajzen 1985) and the diffusion theory (Rogers 1995) to examine IB adoption. Liao et al. (1999) and Tan and Teo (2000) used the determinants of attitude, subjective norm, and perceived behavioural control to evaluate the intention to adopt. Liao et al. (1999) investigated Hong Kong customers' intentions to adopt virtual banking. In their study, 200 questionnaires were sent out to staff in several companies, out of which 118 valid responses were returned. However, as fewer than 10 respondents had used IB (Liao et al. 1999, 69), the sample was not deemed representative, and further analysis was not possible. Liao et al. (1999) discovered that attitude, subjective norm (normative beliefs of image, visibility, and critical mass), and perceived behavioural control could be used to evaluate the intention to use virtual banking. Both attitude and perceived behavioural control had significant impacts on intention to adopt. However, the construct of subjective norm was not significantly related to intention to adopt because of the lack of high-reliability factors.

In another example, Tan and Teo's (2000) objective is "to identify the

attitudinal, social and behavioural control factors that are significant in explaining intentions to adopt Internet banking services in Singapore". Their research showed that attitude and perceived behavioural control play significant roles in influencing the intention to adopt. On the contrary, subjective norm did not have a significant effect on intention (Tan and Teo 2000, 31). The attitude construct was made up of relative advantage, compatibility, trialability, and risk, while perceived behavioural control was made up of confidence (in IB) and perception of government support for electronic commerce. Consequently, each of these factors was found to influence intention to adopt IB services (Tan and Teo 2000). Furthermore, Tan and Teo (2000, 34) suggested that a further study should be conducted to extend the research to corporate customers. The reason for this is that corporate customers focus on their company's needs, while individual customers focus on their personal needs.

Table 2.1: Literature on IB: Supporters of, and barriers to, adoption

Author	Factors influencing IB adoption	Theoretical foundation	Country/ respondents
AbuShanab, Pearson, and Setterstrom (2010)	Performance expectancy Social influence Self-efficacy Perceived trust Locus of control	UTAUT	Jordan/ Bank customers
Brown et al. (2004)	Relative advantage Compatibility Banking need Internet experience Trialability Risk Self-efficacy Government support	TPB IDT	Singapore and South Africa/ MBA student and online respondents
Chan and Lu (2004)	Subjective norm Computer self-efficacy Perceived ease of use Perceived usefulness	TAM SCT/ SLT	HK/ University students
Cheng, Lam, and Yeung (2006)	Attitude Perceived usefulness	TAM	HK/Bank customers
Curran and Meuter (2005)	Attitude Risk	TAM	USA/ Bank customers
Eriksson, Kerem, and Nilsson (2005)	Perceived usefulness	TAM	Estonia/ Bank customers
Gerrard, Cunningham, and Devlin (2006)	Perceptions about risk Need Lacking knowledge Inertia Inaccessibility Human touch Pricing IT fatigue	TAM TR IDT	Singapore/ Bank customers

Table 2.1: Literature on IB: Supporters of, and barriers to, adoption

Author	Factors influencing IB adoption	Theoretical foundation	Country/ respondents
Guriting and Ndubisi (2006)	Perceived usefulness Perceived ease of use	TAM	Malaysia, Borneo/ Bank customers
Hernandez and Mazzon (2007)	Relative advantage of control Relative advantage of security and privacy Result demonstrability Compatibility with lifestyle Trialability Image Subjective norm Self-efficacy	IDT TRA TAM TPB DTPB	Brazil/ City residents
Jaruwachi-rathanakul and Fink (2005)	Features of the website Perceived usefulness External environment	TPB DTPB	Thailand/ Internet users in large companies
Karjaluoto, Mattila, and Pento (2002)	Prior computer experience Prior technology experience Personal banking experience	TRA TAM	Finland/ Individual bank customers
Lallmaha-mood (2007)	Security and privacy Perceived usefulness Perceived ease of use	TAM	Malaysia/ Urban cities
Liao and Cheung (2002)	Expectations of user-friendliness Expectations of security Expectations of accuracy Expectations of network speed Expectations of convenience Expectations of user involvement	IDT TRA TAM	Singapore/ Web customers

Table 2.1: Literature on IB: Supporters of, and barriers to, adoption

Author	Factors influencing IB adoption	Theoretical foundation	Country/ respondents
Liao et al. (1999)	Attitude Perceived behavioural control Ease of use Relative advantage Compatibility Result demonstrability	IDT TPB	HK/ Virtual-banking consumers
Lockett and Littler (1997)	Complexity Risk of service Relative Advantage	IDT	UK/ Bank consumers and general public
Mattila, Karjaluoto, and Pento (2003)	Perceived difficulty in using computers Lack of personal service Insecurity	IDT	Finland/ Mature consumers
Mols, Bukn, and Nielsen (1999)	Less waiting time Spatial convenience	TDCS	Danish/ Consumers
Ndubisi and Sinti (2006)	Importance to banking need Compatibility Complexity Trialability Utilitarian orientation	TRA IDT	Malaysian/ Yahoo Newsgroups respondents
Pikkarainen et al. (2004)	Usefulness Information on online banking	TAM TPB	Finland/ Students, barber shop and customers
Ravi, Carr, and Sagar (2006)	Intention Beliefs Subjective norm Trust in the bank Attitude Perceived usefulness Security Perceived ease of use	TRA TPB TAM IDT	India/ Individual customers

Table 2.1: Literature on IB: Supporters of, and barriers to, adoption

Author	Factors influencing IB adoption	Theoretical foundation	Country/ respondents
Sathye (1999)	Lack of awareness about IB Security concerns	IDT	Australia/ Individual and business firms
Shih and Fang (2004)	Individual's belief Embracing attitude Subjective norm Perceived behavioural control	TRA TPB DTPB	Taiwan/ Individual customers
Tan and Teo (2000)	Relative advantage Compatibility Trialability Risk Confidence Government support	DTPB IDT	Singapore/ Internet users
Wang et al. (2003)	Perceived ease of use Perceived credibility Perceived usefulness Computer self-efficacy	TAM	Taiwan/ Individual consumers
Yiu, Grant, and Edgar (2007)	Perceived usefulness Perceived ease of use Personal innovativeness in IT Perceived risk	TAM	HK/ Retail customers
Yousafzai and Yani-de-Soriano (2012)	Perceived usefulness Perceived ease of use	TAM	UK/ IB users
Zolait (2010)	Relative advantage/ compatibility User's informational-based readiness Attitude Observability Technology facilitating condition Perceived behavioural control Self-efficacy	TPB	Yemen/ Bank customers

Table 2.1: Literature on IB: Supporters of, and barriers to, adoption

Author	Factors influencing IB adoption	Theoretical foundation	Country/ respondents

Note: DTPB: Decomposed theory of planned behaviour (Taylor and Todd 1995a)

IDT: Innovation diffusion theory (Rogers 1995, 2003)

TAM: Technology acceptance model (Davis, Bagozzi, and Warshaw 1989)

TRA: Theory of reasoned action (Fishbein and Ajzen 1975)

TPB: Theory of planned behaviour (Ajzen 1985)

TR: Technology readiness (Parasuraman 2000)

SCT/SLT: Social cognitive theory/social learning theory (Bandura 1977, 1982)

TDCS: Theory of distribution channel structure (Bucklin 1966)

UTAUT: Unified theory of acceptance and use of technology (Venkatesh et al. 2003)

Sathye (1999) used diffusion theory (Rogers 1995) to study the behaviour of Australian personal and business clients who intended to adopt IB, based on six key determinants: security, ease of use, awareness, price, resistance to change, and infrastructure. A 17-item questionnaire, sent by mail, was used to evaluate these six constructs. The major barriers to adoption in both groups were security concerns (78% of personal clients and 73% of business clients) and lack of awareness of IB and its benefits (73% of personal clients and 65% of business clients).

In addition, Wang et al. (2003) extended TAM to enhance understanding of an individual's acceptance of IB. They conducted 123 telephone interviews with IB users, to investigate the influence of an additional determinant, perceived credibility, on intention to adopt. Perceived credibility was defined to include both

security and privacy dimensions. The results demonstrated that perceived ease of use, perceived usefulness, and perceived credibility have significant direct effects on behavioural intentions to adopt IB. Computer self-efficacy had significant indirect effects on behavioural intention through perceived ease of use, perceived usefulness, and perceived credibility. Nevertheless, the R-square reported was relatively low; thus, the authors suggested that additional influencing variables should be identified – for example, social factors similar to subjective norm, and facilitating conditions similar to perceived behavioural control.

Rotchanakitumnuai and Speece (2003) conducted face-to-face interviews with financial/accounting officers and managers/directors of Thai firms, using judgment sampling. They included seven current and eight potential corporate customers, focusing their discussion on the adoption barriers. The results reported three main types of barriers to Internet-based service delivery, namely trust, legal support, and organisational constraints. Among these, trust, which included worries about the security of the system, low reliability of transactions, and distrust of the service providers, was particularly critical. In addition, legal support in dealing with liability was also mentioned, including the judicial capability to solve online cases efficiently, and protection of privacy by the law. Organisational barriers included management attitude, lack of resources, and lack of knowledge.

Chan and Lu (2004) applied TAM and the social cognitive theory to study potential and current student IB customers in Hong Kong. The study focused mainly on subjective norm, image, demonstrability of results, perceived risk, perceived usefulness, perceived ease of use, computer self-efficacy, and intention

to adopt/continue use of IB, and each of these factors' inter-correlations. The results showed that subjective norm and computer self-efficacy have indirect, yet important, effects on intention to adopt. Perceived ease of use has an insignificant effect on intention to adopt, but has an influence on perceived usefulness, which in turn has influence on intention to adopt.

Moreover, Shih and Fang (2004) used TRA, TPB, and DTPB to compare personal banking customers from 53 Taiwanese banks. They found that the intention to adopt was partially explained by TPB. Intention toward adoption was determined only by attitude and perceived control. Nonetheless, subjective norm was not found to be significant. TRA and TPB fitted well into the data. Furthermore, it was found that when the DTPB model was used, several determinants were not significant, namely the effects of subjective norm towards intention, compatibility towards attitude, as well as the effect of the facilitating conditions towards perceived behavioural control. Furthermore, the age distribution for IB users was quite different from that of ordinary bank customers, being much younger and with only 34% coming from the age group of 31 to 60. Shih and Fang (2004, 221) suggested that further research is needed to understand the group differences for the relationship of perceived behavioural control and behavioural intention between pre-behaviour and post-behaviour users.

According to the previous studies listed in Table 2.1, some researchers considered that some determinants were synonyms; for example, risk/insecurity, relative advantage/perceived usefulness, perceived ease of use/complexity (opposing concepts), image/subjective norm, and so on (Gerrard, Cunningham,

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and Devlin 2006, 165; Venkatesh et al. 2003).

Perceived usefulness was defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis 1989, 320). Perceived usefulness as a direct determinant of behavioural intention was introduced in TAM. Venkatesh et al. (2003, 447) compiled similar definitions of usefulness from previous studies: usefulness and extrinsic motivation (Davis, Bagozzi, and Warshaw 1989); usefulness and job-fit (Thompson, Higgins, and Howell 1991); usefulness and relative advantage (Davis, Bagozzi, and Warshaw 1989; Moore and Benbasat 1991; Plouffe, Vandenbosch, and Hulland 2001); usefulness and outcome expectations (Compeau and Higgins 1995a; Davis, Bagozzi, and Warshaw 1989); and job-fit and outcome expectations (Compeau and Higgins 1995b). In other words, many researchers supported the notion that perceived usefulness, usefulness, and relative advantage, were synonymous (e.g. Gerrard, Cunningham, and Devlin 2006; Venkatesh et al. 2003).

Perceived ease of use was defined as "the degree to which a person believes that using a particular system would be free of effort" (Davis 1989, 320). Perceived ease of use was also a direct determinant of attitude in TAM. In addition, Venkatesh et al. (2003, 450) acknowledged the similarities among ease of use, perceived ease of use, and complexity (opposing concepts). They further concluded, "the similarities among these constructs have been noted in prior research" (Davis, Bagozzi, and Warshaw 1989; Moore and Benbasat 1991; Plouffe, Vandenbosch, and Hulland 2001; Thompson, Higgins, and Howell 1991).

Gerrard, Cunningham, and Devlin (2006) reported that lack of knowledge

was one of the reasons why consumers were not using IB, and agreed that lack of knowledge was similar to ease of use (from TAM) and complexity (opposite direction, from diffusion theory, Rogers 1995). Other researchers also reported that "the similarities among these constructs have been noted in prior research" (Davis, Bagozzi, and Warshaw 1989; Moore and Benbasat 1991; Plouffe, Vandenbosch, and Hulland 2001; Thompson, Higgins, and Howell 1991).

The studies reviewed above contain available findings to date on the issue of IB adoption, and will be used as the foundation of this thesis.

2.2.2 Differences between this study and previous research on Internet banking adoption

Having reviewed the literature on consumer behaviour in relation to IB use, several gaps in the research were identified.

Previous papers studying the behaviour of IB customers have adopted TRA, TPB, TAM, DTPB, and so on, as their theoretical foundations (Table 2.1). A range of constructs from these models have been explored, such as intention (e.g. Ravi, Carr, and Sagar 2006), attitude (e.g. Cheng, Lam, and Yeung 2006; Curran and Meuter 2005; Liao et al. 1999; Ravi, Carr, and Sagar 2006; Zolait 2010), subjective norm (e.g. AbuShanab, Pearson, and Setterstrom 2010; Chan and Lu 2004; Hernandez and Mazzon 2007; Ravi, Carr, and Sagar 2006; Shih and Fang 2004), perceived behavioural control (e.g. Liao et al. 1999; Ravi, Carr, and

Sagar 2006; Shih and Fang 2004; Zolait 2010), perceived usefulness (e.g. Chan and Lu 2004; Cheng, Lam, and Yeung 2006; Eriksson, Kerem, and Nilsson 2005; Guriting and Ndubisi 2006; Jaruwachirathanakul and Fink 2005; Wang et al. 2003; Yousafzai and Yani-di-Soriano 2012; Zolait 2010), perceived ease of use (e.g. Chan and Lu 2004; Guriting and Ndubisi 2006; Ravi, Carr, and Sagar 2006; Wang et al. 2003; Yousafzai and Yani-di-Soriano 2012), compatibility (e.g. Brown et al. 2004; Hernandez and Mazzon 2007; Liao et al. 1999; Ndubisi and Sinti 2006; Tan and Teo 2000), normative influence (e.g. AbuShanab, Pearson, and Setterstrom 2010; Hernandez and Mazzon 2007; Ravi, Carr, and Sagar 2006; Shih and Fang 2004), self-efficacy (e.g. AbuShanab, Pearson, and Setterstrom 2010; Brown et al. 2004; Hernandez and Mazzon 2007; Tan and Teo 2000; Zolait 2010), facilitating condition (e.g. Brown et al. 2004; Jaruwachirathanakul and Fink 2005; Rotchanakitumnuai and Speece 2003; Tan and Teo 2000; Zolait 2010), etc.

Consumer behaviour vs. organisational buying behaviour

Nonetheless, most consumer-behaviour research examining the adoption of IB has focused primarily on consumers' intention to adopt IB (Table 2.1). There has been some research (e.g. Rotchanakitumnuai and Speece 2003) on the matter in a corporate customer context, but not a substantial amount. Given the nature of the corporate customer, the factors influencing their adoption of IB are likely to differ from those affecting individual consumers. This reveals a pressing need for studies examining the behaviour of corporate customers in relation to adoption, in order for the financial service industry to develop competitive IB strategies.

Although consumer-behaviour research has previously been undertaken in

relation to IB (Table 2.1), few studies have investigated the behaviour of individuals within corporate buying centres. Several previous studies (e.g. Brown et al. 2004; Chan and Lu 2004) examining the behaviour of individual consumers have used student samples, perhaps partly because young people were amongst the first group to adopt this mode of banking. Nevertheless, the findings of such studies cannot be applied to the organisational buying setting, since it usually involves a more complicated and sophisticated buying process. This drives the current study, which aims to address this gap in the literature by focusing on IB adoption within organisations, using employers and employees as the interviewees for data collection.

Adopters vs. non-adopters

Consumer-behaviour research conducted in the past has focused either on the behavioural intentions of users/adopters (e.g. Liao and Cheung 2002) or that of non-users/non-adopters (e.g. Gerrard, Cunningham, and Devlin 2006). Researchers to date have not compared and contrasted the behaviours of adopters and non-adopters.

Most of the papers reviewed did not differentiate between users and non-users and adopters and non-adopters of IB (e.g. Chan and Lu 2004; Curran and Meuter 2005; Karjaluoto, Mattila, and Pento 2002; Shih and Fang 2004; Tan and Teo 2000; Wang et al. 2003; Yiu, Grant, and Edgar 2007). Many prior studies focused either on users who had prior experience of using the Internet, or those who had already adopted CIB (e.g. AbuShanab, Pearson, and Setterstrom 2010; Cheng, Lam, and Yeung 2006), or non-adopters' behavioural intentions (e.g.

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Sathye 1999). Only a few papers, e.g. Gerrard and Cunningham (2003), Ozdemir, Trott, and Hoecht (2008), Ozdemir and Trott (2009) and Proença and Rodrigues (2011), have considered both groups of individual customers, and made comparisons between the two.

Gerrard and Cunningham (2003, 16) compared eight characteristics affecting the rate of IB adoption between their adopters and non-adopters. The eight characteristics, based on Rogers' diffusion of innovations (1995), which included five "main characteristics", along with interview results, were convenient, accessible, risky, compatible, PC proficient, economically beneficial, social desirable, and complex. There were 240 Singaporean adults, 111 adopters and 129 non-adopters, in their study. A t-test was applied in order to examine the two groups. The results showed that "adopters of IB perceive the service to be more convenient, less complex, more compatible to them, and more suited to those who are PC proficient". In addition, adopters were also found to be more financially innovative.

Ozdemir, Trott, and Hoecht (2008) examined the factors affecting the process of IB adoption and characterised differences between adopters and non-adopters in Turkey. This was carried out with convenience sampling of 155 Internet users based on individual consumers' behaviour in Turkey. A t-test was employed to compare the differences. Ozdemir, Trott, and Hoecht (2008, 212) found that there were "significant differences between adopters and non-adopters of the service in terms of their perceptual, experience and consumer-related characteristics. IB adopters perceived IB use as less risky, more user-friendly and

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more useful compared to IB non-adopters".

Ozdemir and Trott (2009) continued and added a semi-structured interview with 20 Turkyish Internet users. The findings (Ozdemir and Trott 2009, 284) showed that "adopters and non-adopters have different perceptual, experience-related, socioeconomic, and situational characteristics".

Proença and Rodrigues (2011, 192) examined "the behaviour of Portuguese users and non-users of self-service technologies (SSTs) in banking services". SSTs were included by ATMs, telephone banking (TB), and IB. 300 individuals were selected to compare the difference of word-of-mouth, intention to repurchase, price sensitivity, propensity to complain, satisfaction, propensity to change banks, and use of SST between two groups. The t-test revealed that SST users have a greater propensity to complain and more price-sensitive than non-users (Proença and Rodrigues 2011, 192).

2.3 Buying behaviour: Differences between organisational buyers and individual consumers

Kotler et al. (2008) reported that the major differences between the business market and the individual market for services include the following: fewer buyers; larger trading volume and value; closer relationships between suppliers and customers because corporate customers have higher demands in terms of product specification; technology and delivery terms; and geographical proximity that

helps to reduce costs. In a corporate setting, demand for products was in turn derived from the demand of the ultimate consumers. In addition, sensitivity to price could be relatively low, and there would be greater fluctuations in demand than for consumer products (the so-called acceleration principle, in economics). The corporate buying process involved decision makers, who are usually professionally trained and therefore not easily influenced by non-product factors. Within the buying centre, individuals were assigned to a variety of responsibilities; they thus played different roles, and multiple influences might therefore shape their buying decisions.

Overall, the differences between individual consumers and organisational buyers in terms of buying behaviour are as follows:

(1) The buying behaviour of ordinary consumers' is the action of one or more individuals; yet organisational buying behaviour is a collective decision made by a group of people in the buying centre (Kotler et al. 2008; Webster and Wind 1972).

(2) Fewer people are involved in consumer buying decisions, and there is less need for formal evaluation after the event. In organisational buying behaviour, there are more users involved in decision making, and there is usually a more formal process of post-purchase evaluation, involving the consideration of a much larger number of factors (Backhaus and Bauer 2001; Turnbull and Wilson 1989).

(3) With fewer factors to consider, the time required for the decision-making process in consumer buying is usually shorter, while organisational buying involves more participants in the decision-making process, and thus requires

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more time (Kotler et al. 2008; Webster and Wind 1972).

Existing literature on organisational buying behaviour could be grouped into several categories. There were studies about the organisational decision process (Dibb and Simkin 1996; Kelly 1974; Webster and Wind 1972), the organisational members involved (Patton 1997; Webster and Wind 1972), the information sources used (Sheth 1973), product choices (Cardozo and Cagley 1971; Kauffman 1994), the models of organisational buying behaviours (Choffray and Lilien 1978; Sheth 1973; Webster and Wind 1972), and the factors influencing buying behaviour within the buying centre (Wind and Thomas 1980).

Products and services could be targeted at individual consumers or organisational customers. Nonetheless, according to Peter and Donnelly (1986), the real marketing target of organisational customers was not the organisation itself, but the individuals and groups of people within that organisation. Therefore, the factor of the individual played an important role in corporate buyer behaviours.

It would be interesting to understand the behavioural intention of an individual member of the corporate buying centre by looking into: (1) personnel who are the organisation members involving behaviour within the decision making unit; and (2) what are the factors influencing buying behaviour within the buying centre.

2.3.1 Buying centre

There were different people involved on different levels in corporate buying decision making. The task-based project team, consisting of all participating individuals, was called a buying centre (Cyert, Simon, and Trow 1956). Purchasing decisions in organisations were often made by a group of people (the buying centre) whose members typically come from different departments and have different interests and motives (Kohli 1989, 50). Although organisational buying behaviour might be complex and involve inputs from many people at all levels in a firm (Johnston and Bonoma 1981, 144), there were similarities between the purchasing behaviour of B2B and B2C buyers (Kimiloglu 2004, 17).

Roles played within a buying centre included "user, influencer, decider, buyer, and gatekeeper (who controls the flow of information into the buying centre)" (Webster and Wind 1972, 14). Each person in a buying centre had a role to play and was assumed certain responsibilities. The buying behaviour of the organisation was strongly influenced by these constituent members (Peter and Donnelly 1986). Marketing and salespeople would not only need to be in close contact with different members of the buying centre, but they must also understand their colleagues' expectations and pay attention to the balance of their interrelationships.

Bonoma (1982) suggested that the influence buying centre members have on final buying decisions would be affected both by the hierarchy of the organisation and by their personal characteristics. Among these roles suggested above by Webster and Wind (1972) (i.e. initiator, decider, influencer, purchaser,

gatekeeper, and user, the idea of "expert power" meant that the influence of individuals might vary, because each had different levels of knowledge about the products available to them to purchase.

In a study examining influences on consumer behaviour, Beatty and Smith (1987) reported that information-search behaviour was affected by individual differences, such as roles, confidence, knowledge about products, etc. In the organisational buying context, similar roles were likely to be played by those in the buying centre. For example, the confidence of the members of a buying centre could affect their subjective image of a product, while their knowledge might have impact upon their objective understanding of the product.

Many researchers have discussed the importance of the roles in buying centres (Kotler et al. 2008; Laczniak 1979; Leigh and Rethans 1984; Patton 1997; Tanner 1998). For example, Kotler et al. (2008, 244) have mentioned that when offers from suppliers were very similar, buyers would have little choice over a product or service. For example, IB from different providers provided similar service functions for their customers. As such, the service functions might not play a major role in the customers' choice of IB service provider. Because the organisational goals could be satisfied by any of the providers, corporations might allow personal factors to play a larger role in their decision. Patton (1997) studied vendor selection involving individuals and groups of buyers within buying centres in order to find out whether the decisions made by individual decision-makers would be different from those made by buyers involved in joint decision making within a buying centre. The nationwide survey of 431 industrial buyers revealed

that nearly 58% of industrial vendor selection decisions were made by individuals acting on their own, rather than in groups.

Stevens et al. (2005) employed TPB to test the decision-making process of a group of senior financial executives (e.g. Chief Financial Officers (CFOs), etc.) when they made strategic choices about derivatives, junk bonds, and so on. The reason for using TPB was because TPB could examine a decision process that took place in a constrained environment, where social variables were also salient. The social variables or social pressure was called subjective norm in TPB. Stevens et al. (2005) proposed that social pressure from different classes of stakeholders (customers, competitors, suppliers, banks, courts, government, etc.) might influence the extent to which financial executives employ their company's ethics codes when making decisions. The research found that financial executives in many companies did not use their company's ethics codes in their decision-making process.

Forman, Lippert, and Kothandaraman (2007, 745) draw upon TRA for their research model to explore "the factors influencing buying centre's user of evaluation of performance of sellers' IT solutions". They conducted a qualitative study (i.e. an interview) first and then developed a mailed survey. The result indicated that "user attitudes toward technology, satisfaction with the new technology, users' overall understanding of supply chain management principles, and job-related consequences influence user evaluation of IT solutions" (Forman, Lippert and Kothandaraman 2007, 745).

Quaddus and Hofmeyer (2007, 202) investigated the adoption behaviour of

small businesses in relation to B2B trading exchanges in the context of Western Australia. The theoretical models used in the research were TRA and TPB. Their result revealed that "a positive attitude towards B2B trading exchanges leads to the intention to adopt B2B trading exchanges in small businesses. They also supported the idea that external (i.e. vendors), belief (i.e. perceived direct benefit and perceived indirect benefit which perform in terms of relative advantage, compatibility and complexity, according to Tornatzky and Klein 1982), contextual (e.g. business type, product type, etc.) and external control (i.e. supplier, customer and competitor) factors drive the attitudes toward B2B trading exchanges. In addition, Liu, Sia, and Wei (2008) applied TPB plus innovative organisational structure adoption theories (i.e. cost-benefit analysis and transaction cost theory, institutional theory and organisational capability-based theory) to test "a parsimonious model for predicting organisational adoption of IT-facilitated virtualisation in Singapore" (Liu, Sia, and Wei 2008, 429). Results indicated that "intent to virtualise an organisation was influenced by net perceived benefits (i.e. attitude towards the behaviour), external influences (i.e. subjective norm), and organisational capabilities (i.e. perceived behavioural control)" (Liu, Sia, and Wei 2008, 435), and especially that "external influences were the most important antecedents of intention to adopt virtualisation in B2B organisations" (Liu, Sia, and Wei 2008, 429).

2.4 Theoretical foundation of Internet banking adoption

Creswell (1994, 28) suggested that a literature review chapter should

contain "sections about the literature related to major independent variables, major dependent variables and studies that relate to the independent and dependent variables".

Several major theories have offered the theoretical basis for studies examining IB adoption (Table 2.1). These theories include TRA, TPB, TAM, and DTPB.

In addition, Parasuraman (2000, 307) developed and refined a multi-item scale to measure an individual's readiness to use new technology. As Parasuraman (2000, 308) stated, "TR refers to people's propensity to embrace and use new technology for accomplishing goals in home life and at work. TR constructs can be viewed as an overall state of mind resulting from a gestalt of mental enablers and inhibitors that collectively determine a person's predisposition to use new technologies". TR could also be used "to assess the technology readiness of internal customers (i.e. employees)" (Parasuraman 2000, 318). TR has not been previously applied in IB studies, yet it was especially relevant for understanding an individual's behavioural intentions. Given that the current study examines the intention of individual members within corporate customers' buying centres in relation to the adoption of CIB, TR should be included in order to obtain a unified view of IB adoption.

The reasons for using TRA, TPB, TAM, DTPB, and TR as research foundations are described below.

TRA (Fishbein and Ajzen 1975) was used to explain users' behavioural

intention. It emphasised that behavioural intention led to the decision to perform a specific behaviour. The behaviour came from an individual's willingness to adopt IB, and thus the decision to do so, was made by individual members of corporate customer buying teams.

TPB (Ajzen 1985) added perceived behavioural control into its model because of source limitation: it recognised that there were issues outside the control of the individuals that affected the decisions they made. It could happen in unexpected ways. For example, user's computer ability or available computer infrastructure could affect willingness to adopt IB. Therefore, the decision might not be made solely based on the individual willingness to adopt IB.

Based on TRA, TAM (Davis 1989) was further developed to investigate relationships between use of technology and cognitive/affective factors. TAM proposed that a new system's perceived ease of use determined a person's intention to use it. IB could be a new technology for some corporate customers. Whether they accepted this new technology or not depended on whether IB could do the same tasks as traditional banking, for example, if it could provide useful information, or be used or accessed easily.

DTPB (Taylor and Todd 1995c) analysed attitude, subjective norm, and perceived behavioural control as belief into multidimensional factors, e.g. "belief → attitude → intention", "belief → subjective norm → intention, and belief → perceived behavioural control → intention". The DTPB model helped to explain and understand the relationship between belief and behavioural intention, as well as to assess which factors have a greater effect on the behaviour.

Lastly, TR (Parasuraman 2000) was proposed to extensively evaluate an individual's attitude towards their acceptance and use of new technology. The technology readiness index (TRI) could measure acceptance of new technology and whether or not they would use it. So, TR was appropriate for measuring the corporate customer's intention to adopt IB.

Therefore, these five theoretical models, i.e. TRA, TPB, TAM, DTPB, and TR, will be applied in this research.

2.4.1 Theory of reasoned action (TRA)

Proposed in 1975 by Fishbein and Ajzen (1975), the TRA model originated from social psychology which was concerned with the determinants of consciously intended behaviours and has been widely studied since its conception (Ajzen and Fishbein 1980; Davis, Bagozzi, and Warshaw 1989, 983; Fishbein and Ajzen 1975). TRA could help to predict, explain, and possibly influence human behaviours (Ajzen and Fishbein 1980, 10).

TRA sees human beings as rational individuals, whose behaviour is conscious and voluntary. There are two main assumptions underlying TRA in relation to their behaviour and the use of information available to them (Ajzen and Fishbein 1980, 5):

(a) Most actions of social relevance are under volitional (self) control.

(b) A person's intention to perform (or not to perform) a specific behaviour is the immediate determinant of the action.

There are four main factors in TRA framework: behaviour, intention, attitude, and subjective norm. According to the model, behaviour is determined by a person's intention to perform that behaviour. That is, an individual's performance of a specific behaviour is determined by his or her behavioural intentions, which themselves are jointly determined by individual attitudes (which are personal) and subjective norm (reflecting social influence). According to Fishbein and Ajzen (1975, 302), subjective norm is "the person's perception that most people who are important to him/her think he/she should or should not perform the behaviour in question". Intention refers to the possibility of someone deciding to act in a certain way. Factors which influence intention are either internal or external. Internal factors are related to the personal attitude toward that behaviour, and external factors are from the social pressure, which is perceived when considering that behaviour. It is assumed that attitude and subjective norm are independent factors.

Attitude towards the behaviour is defined as "an individual's generally positive or negative feeling (evaluative affect) about performing the target behaviour" (Fishbein and Ajzen 1975, 216). Subjective norm is defined as "the person's perception that most people who are important to him think he should or should not perform the behaviour in question" (Fishbein and Ajzen 1975, 302). According to TRA, attitude towards behaviour is a function of the product of an individual's belief about consequences of performing the behaviour multiplied by an assessment rating of the desirability of the consequences. Subjective norm is a function of the product of an individual's normative belief, which is the "person's belief that the salient referent thinks he should (or should not) perform the

behaviour" (Ajzen and Fishbein 1980), and therefore becomes his/her motivation to comply with that recommendation.

In addition, the relative weights of the attitudinal and normative factors may vary from one person to another (Ajzen and Fishbein 1980, 5-6). Moreover, according to TRA, personal attitudes are a function of beliefs, and an evaluation of personal situations. "Belief about consequences" refers to the individual's subjective belief about the probability of consequences following certain behaviour. "Evaluation of consequences" refers to the individual's evaluation of the above-mentioned outcomes. A person's subjective norm is a function of normative beliefs, and motivation to comply (Figure 2.1) "Normative belief about person" is the individual's belief about whether the important others in the group would assent to particular behaviours. "Motivation to comply with person" is the individual's motivation to behave following the expectation of that certain group.

For example, to predict whether or not an individual member of the corporate customer's buying centre will adopt IB (their *actual behaviour*), the simplest approach is to ask him/her if he/she intends (their *intention to adopt*) to do so. In their evaluation of whether to adopt IB, some individuals have a positive attitude (*attitude toward IB*) and others have a negative attitude towards adopting. Moreover, these individuals may be influenced by people (*subjective norm*) who are important to them, and whether these important people think they should adopt or not. Such people may include their family, friends, line managers, or colleagues.
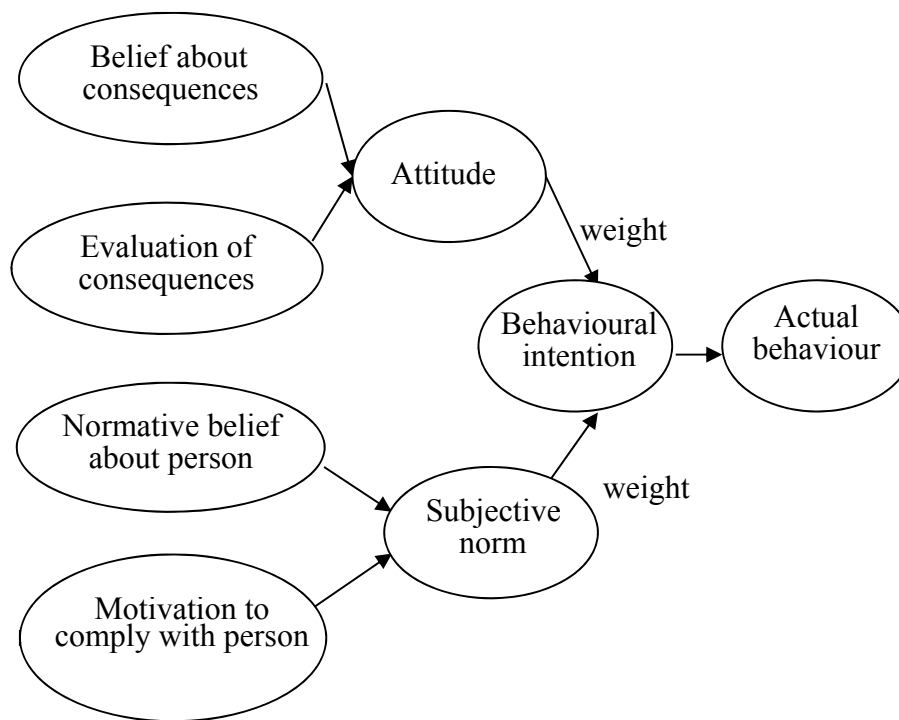
Figure 2.1: Theory of reasoned action (TRA) (Fishbein and Ajzen 1975)

2.4.1.1 Limitations of TRA

Biddle and Mutrie (2008) concluded that: (1) TRA is a one-way model, without taking into account the possibility of interaction; (2) TRA emphasises only cognitive factors and ignores other potentially important variables, such as environment; (3) TRA only predicts new behaviour (the intention of behaviour at a certain moment) rather than habitual behaviours; (4) TRA explains only behaviour controlled by willingness; (5) There are yet no precise tools for the measurement of behaviours; (6) TRA focuses on individual behaviours, and fails to explain optional behaviours; (7) TRA fails to address the instability of intention, which may change from time to time.

TRA is a powerful behavioural theory, attractive because it employs only a few variables to explain or predict human behaviour. Nonetheless, it does have limitations. The predictive and explanatory power of TRA will decrease in the following situations: (1) if the behaviour of an individual member of a corporate buying centre is influenced by involuntary acts, such as their skills, abilities, willpower, and variations in the opportunities open to them; (2) if the intention changes prior to performance; or (3) if the intention measure does not correspond to the behavioural criterion in terms of action, target, context, timeframe, and/or specificity (Ajzen 1985, 35; Sheppard, Hartwick, and Warshaw 1988, 325).

For example, many individuals state that they have a positive attitude toward adopting IB. Nevertheless, one who expresses an intention to adopt may not necessarily do so. The difference between attitude and actual behaviour in the adoption of IB may be the result of a lack of specificity in describing what happens, or because different criteria come into play when comparing personal and corporate accounts. TPB helps to handle some of the difficulties of TRA (Ajzen 1991).

2.4.2   Theory of planned behaviour (TPB)

TRA applies to behaviours that are under volitional control. TPB expands on TRA, permitting it to deal with behaviours affected by non-voluntary factors (Ajzen 1985, 30, 36). TPB incorporates three factors: attitude toward the behaviour, subjective norm, and perceived behavioural control (which is found to

predict behavioural intentions with a high degree of accuracy (Ajzen 1991, 206).

TRA (Figure 2.1) assumes that human beings are basically rational, and that they make systematic use of information available to them when making decisions. It also assumes that the behaviour being studied is under the totally volitional control of the performer (Madden, Ellen, and Ajzen 1992). TRA assumes that an individual's behaviour is determined by the individual's intention to perform that behaviour (Fishbein and Ajzen 1975). This behavioural intention is a function of two factors: an individual's attitude towards the behaviour and the subjective norm, as discussed previously.

TPB includes the non-voluntary factor of perceived behavioural control (Figure 2.2). This is a function of control beliefs and perceived facilitation. Control belief is the perception of the availability of requisite resources and opportunities needed to carry out the behaviour. Perceived facilitation is an individual's assessment of the importance of those resources in relation to achieving the outcomes (Ajzen and Madden 1986).

For example, to predict whether an individual member of a corporate customer's buying centre will adopt IB (their *actual behaviour*), other than intention, attitude, and extent of influences from other people, the degree to which they may be successful (*perceived behavioural control*) may also play an important role. The individual also has to judge whether the company can support the computer equipments and training requirements (*facilitating condition*) for the financial accountants, and the financial accountants will have a view of whether or not their computer skills are sufficient (*self-efficacy*) for dealing with the new

technology.
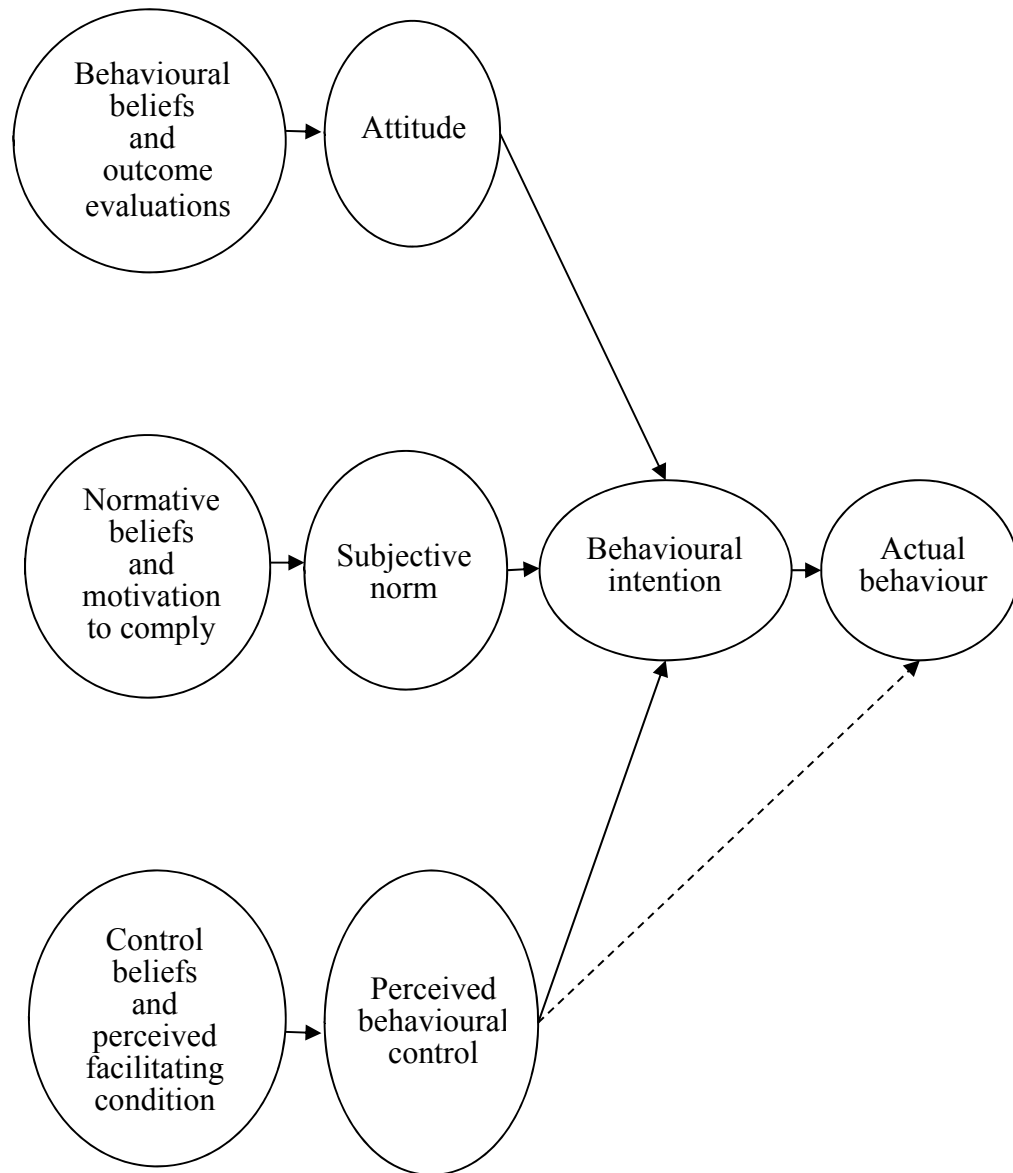
Figure 2.2: Theory of planned behaviour (TPB) (Ajzen 1989)

TPB has been widely used in the study of behaviour, including health behaviour, education behaviour, management behaviour, medical behaviour, technology behaviour, recreation, and sports behaviour, etc. There are three major areas in this field: (1) the exploration of fundamental theories and confirmation of constructs, for example, to investigate consumer behaviour, based on TPB; (2) extension from the main theory, e.g. the later developed TAM (Davis 1989), the unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al. 2003); (3) the discussion of intermediate variables.

Some papers on IB adoption and IT adoption have applied TPB (Brown et al. 2004; Harrison, Mykytyn, and Riemenschneider 1997; Liao et al. 1999; Mathieson 1991; Pikkarainen et al. 2004; Tan and Teo 2000). These studies support the TPB model and confirm that TPB is better than TRA in predicting human behaviour. For example, Harrison, Mykytyn, and Riemenschneider (1997) used TPB to explain and predict decisions by small businesses to adopt IT. The participating respondents were senior executives from 162 small businesses, all of whom were responsible mainly for making IT-adoption decisions. The results strongly supported the importance of attitude (about perceived positive and negative consequences for the firm), subjective norm (social expectations), and perceived control (resources to overcome obstacles) in relation to IT adoption.

Brown et al. (2004) applied TPB and IDT (Rogers 1995, 2003) to replicate the Singaporean study in South Africa, and compared the results between the two countries. The results confirmed that factors of attitude and perceived behavioural control influenced adoption in both countries, albeit with some differences. In

Singapore, the attitudinal factors included relative advantage, banking needs, Internet experience, perceived risk, and government support, while in South Africa, the key issue was compatibility.

2.4.2.1 Limitations of TPB

Although TPB (Ajzen 1988) suggested that three factors (attitude, subjective norm, and perceived behavioural control) determine human behaviour, Taylor and Todd (1995a) summarised other research (such as Bagozzi 1981, 1982, 1983; Shimp and Kavas 1984) and reported that TPB was criticised because of the way it combined multi-dimensional beliefs into a uni-dimensional construct. Such a monolithic set of beliefs may not be consistently kept in line with antecedents like attitude or subjective norm (Bagozzi 1982; Shimp and Kavas 1984; Taylor and Todd 1995a, 1995b).

Thus, when researchers use TPB to study individual behaviour, they need to consider whether or not there are any pre-determinants impacting upon attitude, subjective norm, or perceived behavioural control. By deconstructing the constructs, the specific concepts affecting behavioural intention will be disclosed. Furthermore, exploring human behaviour by dissecting those constructs has the following advantages (Taylor and Todd 1995a, 140): (1) a better understanding of the relationships between attitude, subjective norm, and perceived behavioural control versus belief; (2) a better understanding of beliefs, which can be applied in a variety of behavioural settings to solve problems caused by the application of

traditional intention models. Hence, Taylor and Todd (1995a) proposed DTPB.

2.4.3 Technology acceptance model (TAM)

Davis (1989) proposed TAM, an adaptation of TRA, which is specifically designed to explain the acceptance of IT (Figure 2.3). Davis, Bagozzi, and Warshaw (1989) observed that it is difficult to disentangle the direct effect of subjective norm on behavioural intention from the indirect effects via attitude, because of its uncertain theoretical and psychometric status. Therefore, the subjective norm was rejected, and the new TAM model was proposed. TAM used TRA as a theoretical basis for specifying the causal linkages between perceived usefulness and perceived ease of use, and users' attitudes/intentions and their actual computer-adoption behaviour.
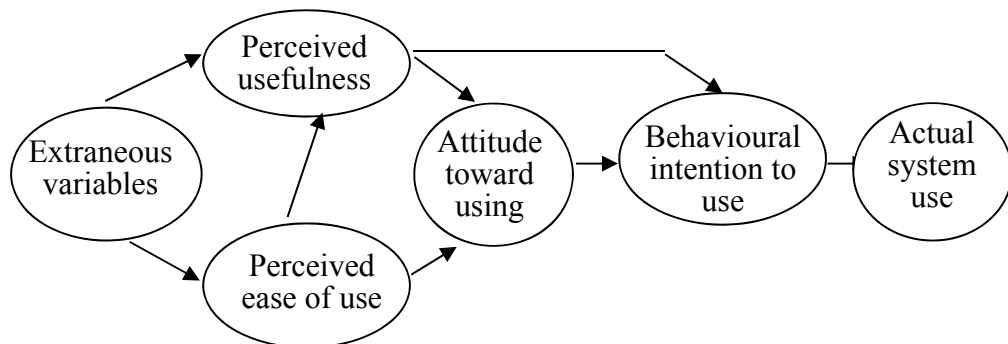
Figure 2.3: Technology acceptance model (TAM) (Davis, Bagozzi, and Warshaw 1989)

There are two particular constructs in TAM, "perceived usefulness" and "perceived ease of use". Perceived usefulness is defined as "the prospective user's subjective probability that using a specific application system will increase his or her job performance within an organisational context". Perceived ease of use refers to "the degree to which the prospective user expects the target system to be free of effort" (Davis, Bagozzi, and Warshaw 1989, 985).

TAM aims to explain and predict user acceptance of information systems from measurements taken after a brief period of interaction with the system. TAM is less general than TRA, being designed to apply only to computer usage behaviour. The approach incorporates findings accumulated from over a decade of information-system research, and so may be especially suited for modelling computer acceptance (Davis, Bagozzi, and Warshaw 1989, 983).

Davis, Bagozzi, and Warshaw (1989) addressed the ability to predict users' computer acceptance from a measure of user intentions, and the ability to explain their intentions in terms of attitude, subjective norm, perceived usefulness, perceived ease of use, and related variables. A total of 107 full-time MBA students provided data for testing TAM model, which was shown to account for 45% and 57% of variance in intention at the two periods, respectively, obtaining Cronbach's alpha values of between 0.82 and 0.95 for the four constructs: behavioural intention, attitude, perceived usefulness, and perceived ease of use. The findings indicated that perceived usefulness was significantly correlated with both self-reported current usage and self-predicted future usage; perceived ease of use was significantly correlated with current usage and future usage; and perceived

usefulness had a significantly greater correlation with usage behaviour than with perceived ease of use. The results of the study demonstrated that: (1) people's computer usage could be predicted reasonably well by their intention; (2) perceived usefulness was a major determinant of people's intention to use computers; and (3) perceived ease of use was a significant determinant of people's intention to use computers.

TAM, like TPB, assumes that an individual's actual behaviour will be influenced by their behavioural intention. Nonetheless, there are several differences between TAM and TPB (Mathieson 1991; Taylor and Todd 1995c):

1. TAM is more concise than TPB.

2. TPB emphasises general behavioural prediction, and is not specifically based on the acceptance of information systems.

3. TPB has developed assessment tools for measuring attitude, subjective norm, and perceived behavioural control, respectively, yet TAM focuses on evaluation of attitude only.

4. Constructs in TPB cannot be replaced completely by TAM; TAM is a better fit in relation to technology usage behaviours.

In short, TAM (Davis, Bagozzi, and Warshaw 1989) can be used in relation to a variety of computer systems and users. The model is concise and effective, and is based on the position of users.

2.4.3.1 Application of the TAM in the use of high technology

Taylor and Todd (1995c, 561) commented that:

A variety of models that incorporate attitudinal, social, and control factors have been advanced to explain IT usage (e.g. Davis 1989; Davis, Bagozzi, and Warshaw 1989; Hartwick and Barki 1994; Mathieson 1991; Moore and Benbasat 1991; Thompson, Higgins, and Howell 1991), of which the Technology Acceptance Model (TAM) (Davis 1989) is the most well known. One goal of such models is to develop diagnostic tools to predict information systems acceptance and facilitate design changes before users have experience with a system (Davis 1989).

Other researchers (Adams, Nelson, and Todd 1992; Hong et al. 2002; Igbaria, Guimaraes, and Davis 1995; Karahanna and Straub 1999; Segars and Grover 1993; Shih 2004; Szajna 1996; Venkatesh and Davis 1996) have replicated the TAM model, reporting that perceived usefulness and perceived ease of use significantly affected system use.

Adams, Nelson, and Todd (1992) replicated Davis's work (Davis 1989), and conducted two studies to test the validity of TAM's two constructs. Study 1 included email and voicemail across 10 organisations, while study 2 included word processing, spread sheets, and graphics. Study 1 in Adams, Nelson, and Todd (1992) supported the belief that the measurement scale of perceived ease of use and perceived usefulness were reliable and valid. Study 2 indicated that "a consistent information technology effect should not be expected" (Adams, Nelson,

and Todd 1992, 245). Adams, Nelson, and Todd (1992) further suggested that a possible reason could be that a variety of factors might have mediated in the relationship between ease of use and usage.

Igbaria, Guimaraes, and Davis (1995) developed an extended TAM model to investigate users' acceptance of microcomputer technology. The result supported the statement of Davis (1989, 334), "perceived usefulness is a strong correlate of user acceptance, and should not be ignored by those attempting to design or implement successful systems". The results showed that perceived usefulness had significant positive effects on perceived usage and variety of use. Here, perceived usefulness was determined by perceived ease of use and led to the acceptance.

Hong et al. (2002) used an extended TAM to investigate the factors that determine users' adoption of digital libraries. The results strongly supported the appropriateness of using TAM to understand users' adoption, and found that perceived usefulness exerted a stronger influence than perceived ease of use (115). The results also supported the view that computer self-efficacy and knowledge of search domain (individual differences) had positive effects on perceived ease of use of digital libraries. Relevance (system characteristics) had a significant effect on both perceived ease of use and perceived usefulness of digital libraries.

Shih (2004) developed an extended model based on the theories of TRA and TAM in order to predict e-shopping intention and user satisfaction. The results showed that attitudes toward e-shopping strongly and positively affected users' intention, and also supported the idea that ease of use indirectly led to consumer

acceptance of e-shopping, via their attitudes.

2.4.3.2 Limitations of TAM

Although TAM has been widely applied, it has its limitations. Only two constructs, perceived usefulness and perceived ease of use, are included to evaluate system users' behaviour. Yet there may be other constructs to influence IT users' behaviour. For example, Robertson (1989) suggested that social demands may influence system use. The fact that TAM lacks the construct of subjective norm is therefore problematic (Mathieson 1991, 186).

Although TAM is easy to apply, it can only be used to measure general information on system users' opinions (Mathieson 1991, 173). The model does not, for example, discuss specific information. Neither does it explore the views and opinions of IB users. In contrast, TPB contains more detailed information about attitude, subjective norm, and perceived behavioural control. It also gives more insight into an individual or group's intention on behavioural adoption (Mathieson 1991, 187). Thus, Mathieson (1991, 187) suggested that the models of TAM and TPB could be effectively used together.

2.4.4   Decomposed theory of planned behaviour (DTPB)

Ajzen (1991, 199) describes the extended TPB thus:

The theory of planned behaviour is, in principle, open to the inclusion

of additional predictors if it can be shown that they capture a significant proportion of the variance in intention or behaviour after the theory's current variables have been taken into account.

Taylor and Todd (1995c) combined TPB and TAM models and further decomposed the original TPB constructs of attitude, subjective norm, and perceived behavioural control. TRA and TPB have been used broadly in measuring individual behaviours, while DTPB has been applied to evaluate IT usage (Shih and Fang 2004). Some researchers (e.g. Jaruwachirathanakul and Fink 2005, 298) confirmed that "this decomposed TPB addresses the innovation literature as well as subjective norm and perceived behavioural control in relation to adoption more completely than traditional TPB".

Taylor and Todd (1995a, 1995b) proposed a decomposition approach that has several advantages over uni-dimensional belief structures like TPB. Firstly, DTPB includes several antecedents of intention, stressing the particular factors that influence intention. Secondly, it offers a set of reliable beliefs to be applied to various situations. This overcomes the problems of TPB model, i.e. difficulty in manipulating. Thirdly, the model avoids the problems of combining constructs that act in different directions together, by allowing opposing factors to cancel out (Taylor and Todd 1995a, 140). By splitting constructs into more factors (e.g. attitude into relative advantage, complexity, and compatibility), one can clearly see the factors weighing in on each decision. For example, when combining a positive attitude with a negative attitude, their effects will be cancelled out and would not be visible. Due to above advantages, Taylor and Todd (1995a)

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demonstrated that DTPB can more accurately evaluate human behaviour.

DTPB decomposes attitude into three main variables: relative advantage (or perceived usefulness); complexity (or perceived ease of use); and compatibility. Relative advantage refers to "the degree to which an innovation provides benefits which supersede those of its precursor and may incorporate factors such as economic benefits, image enhancement, convenience and satisfaction" (Rogers 1995). It is analogous to the "perceived usefulness" construct (Taylor and Todd 1995b, 152). Perceived usefulness is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis 1989, 985). Complexity represents "the degree to which an innovation is perceived to be difficult to understand, learn or operate" (Rogers 1995). It is analogous (in the opposite direction) to the perceived ease of use construct (Taylor and Todd 1995b, 152). Perceived ease of use, according to Davis, Bagozzi, and Warshaw (1989, 985), is the degree to which the prospective user expects the target system to be free of effort. Compatibility is "the degree to which the innovation fits with the potential adopter's existing values, previous experiences and current needs" (Rogers 1995; Taylor and Todd 1995b, 1995c).

Subjective norm's antecedent is to point out normative influence. Normative influence is caused by social influence and occurs when individuals confirm to the expectations of others (Taylor and Todd 1995b). Park (2003, 29) divided subjective norm into friends' influence, family influence, and media influence, in order to test consumers' intention to shop online. Lim and Dubinsky (2005, 847) proposed that Internet consumers' purchase decisions were likely to

be influenced primarily by their family. Taylor and Todd (1995b, 162) found that both peer and superior influences were significantly related to the subjective norm of individuals who used computers at computer resource centres. Gallion (2000, 3-4) suggested that "in the organisation user model, referent groups with normative influence in a data production organisation are co-workers, supervisors, and upper management". Hernandez and Mazzon (2007, 76) mentioned that "Normative beliefs are related to disagreement among the opinions of key reference groups in an organisational environment (peers, superiors, and subordinates)". It seemed that company suppliers, company peers, and company customers were potentially influential in the acceptance of new ideas.

Perceived behavioural control appeared to encompass two components: self-efficacy and facilitating condition. Self-efficacy was related to ability or perceived self-efficacy. Facilitating condition was related to such factors as time, money, and resources (Taylor and Todd 1995a, 141). Self-efficacy was said to be "confident of the ability to behave successfully in the situation" (Bandura 1977, 1982). Facilitating condition, on the other hand, reflected "the availability of resources needed to perform a particular behaviour" (Tan and Teo 2000, 12).

In Taylor and Todd (1995b), the researchers compared the power of interpretation of users' acceptance of IT among TPB, TAM, and DTPB. The findings reported that among the three models, DTPB provided slightly better prediction and power of interpretation of intention than TPB and TAM. In other words, Taylor and Todd (1995b) showed that DTPB provided a more comprehensive understanding of usage behaviour and intention, and thus offered

more effective guidance to information system managers (Figure 2.4).
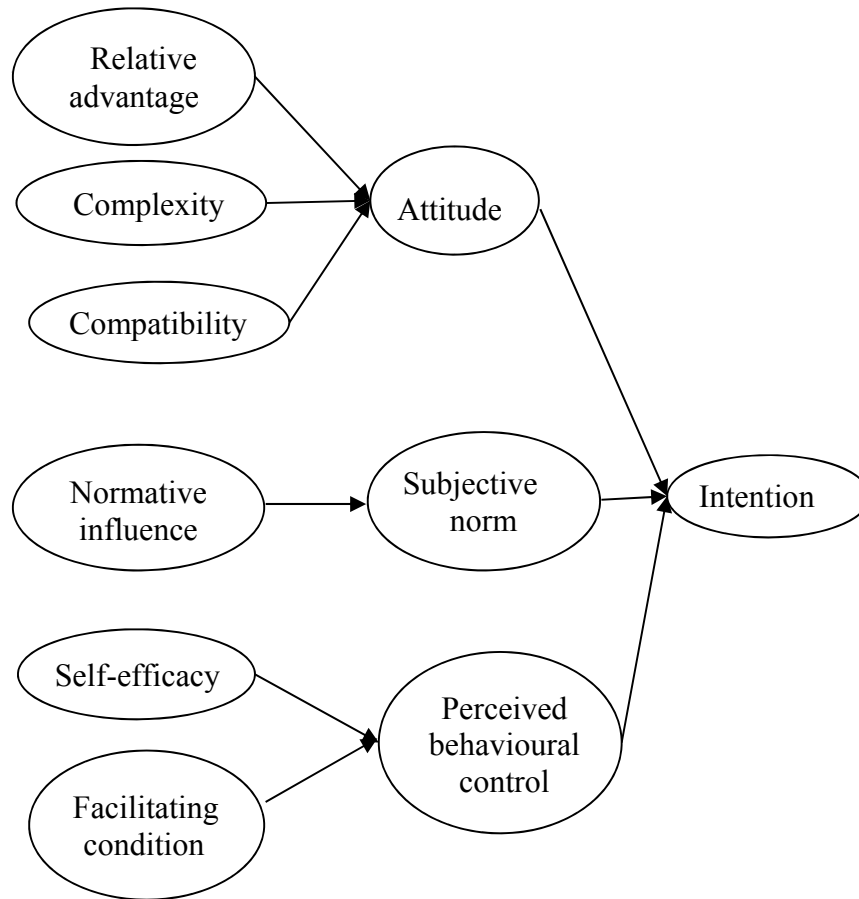
Figure 2.4: Decomposed theory of planned behaviour (DTPB)
(Taylor and Todd 1995b)

Venkatesh et al. (2003) have integrated eight models into a unified model –
UTAUT – which was designed to test user acceptance of IT. The eight models
included were TRA, TAM, TPB, a model combining TAM and TPB, a
motivational model, the model of PC utilisation, IDT, and social cognitive theory.
The unified model was tested and formulated with four core determinants of

intention and usage (performance expectancy, effort expectancy, social influence, and facilitating condition), and up to four moderators of key relationships (gender, age, experience, and voluntariness of use). The results showed that the unified model outperformed the eight individual models.

Many studies (e.g. Ajzen 1991; Bagozzi 1981, 1982; Conner and Armitage 1998; Miniard and Cohen 1983; Oliver and Bearden 1985; Ryan 1982; Shimp and Kavas 1984) have suggested that "decomposing the belief structures into multi-dimensional constructs improves our understanding of these relationships" (Taylor and Todd 1995a, 152). Therefore, Taylor and Todd (1995a, 1995b, 1995c, 1995d) combined TPB, TAM, and innovation literature (relative advantages/perceived usefulness, complexity/perceived ease of use) into a multi-dimensional model, now named as DTPB. Moore and Benbasat (1991) and Tornatzky and Klein (1982) suggested that relative advantage, complexity, and compatibility consistently relate to adoption decisions. These three sub-constructs were adapted from Rogers (1995). Relative advantage and compatibility were positively related to attitude, and complexity was negatively related to attitude (Taylor and Todd 1995a, 143-4).

Several studies (e.g. Burnkrant and Page 1988; Oliver and Bearden 1985; Shimp and Kavas 1984; Taylor and Todd 1995b) suggested assigning the decomposition of normative influence into relevant groups. In these studies, the relevant groups included customers, suppliers, and competitors. Normative influence was expected to have correlation with the subjective norm.

2.4.5 Technology readiness (TR)

Parasuraman and Colby (2007) have carried out qualitative research involving the customers of Rockbridge Associates. Their research suggested that people's beliefs about technology can have both positive and negative facets – contributors and inhibitors. The contributors were composed of optimism and innovativeness, and the inhibitors were composed of discomfort and insecurity (Figure 2.5).
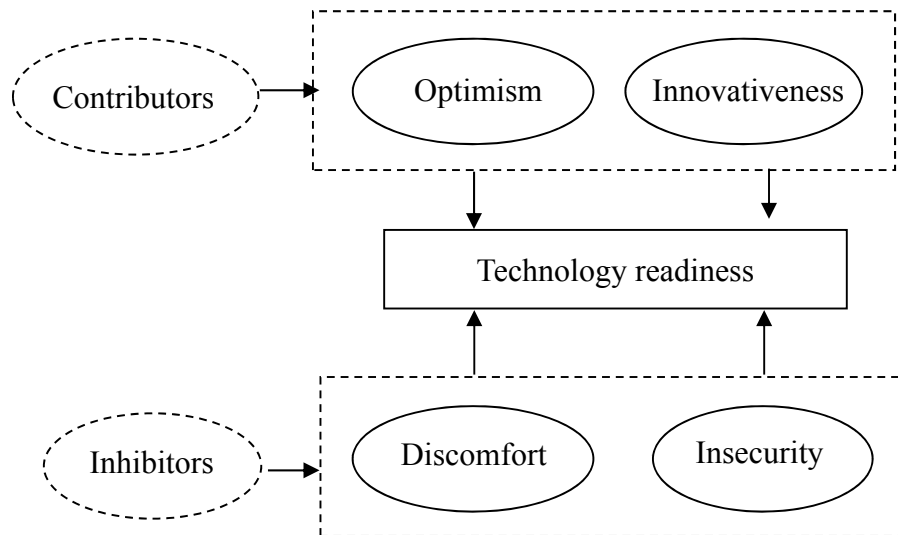
Figure 2.5: Drivers of technology readiness (TR) (Parasuraman and Colby 2001)

Parasuraman (2000, 308) found that the "technology readiness (TR) construct refers to people's propensity to embrace and use new technologies for accomplishing goals in home life and at work". In addition, Parasuraman and Colby (2001, 27) also mentioned that TR "is an overall state of mind rather than a measure of competency".

Technology has already become a part of everyday life. Although technological developments have benefited customers, there was also evidence of increasing customer frustration in dealing with technology (Mick and Fournier 1998, 123). TRI is a good indicator of the attitude of the employees of CIB customers in accepting or rejecting IT (Parasuraman 2000, 318).

Parasuraman (2000, 312) developed a 36-item scale, based on four dimensions: optimism, innovativeness, discomfort, and insecurity, as follows:

1. *Optimism: A positive view of technology and a belief that it offers people increased control, flexibility, and efficiency in their lives.*

2. *Innovativeness: A tendency to be a technology pioneer and thought leader.*

3. *Discomfort: A perceived lack of control over technology and feeling of being overwhelmed by it.*

4. *Insecurity: Distrust of technology and scepticism about its ability to work properly.* (311)

Previous research about TR has investigated domains like individual consumers (Gerrard, Cunningham, and Devlin 2006) and corporate customers (Richey, Daugherty, and Roath 2007). In addition, it has also been applied with regards to five different groups of adopters (e.g. explorers, pioneers, sceptics, paranoids, and laggards) (Demirci and Ersoy 2008; Lai 2008; Massey, Khatri, and Montoya-Weiss 2007; Matthing et al. 2006; Tsikriktsis 2004). TRI has also been used to measure the willingness of consumers in different countries to use new technology (Elliott, Meng, and Hall 2008). Additionally, TR has been used as a

moderating factor between two different constructs, such as attitude and intention (Lin and Chang 2011; Lin and Peng 2005; Ranaweera, Bansal, and McDougall 2008; Zeithaml, Parasuraman, and Malhotra 2002; Zhu et al. 2007). TR was reported to relate to both a customer's attitude (Theotokis, Vlachos, and Pramatari 2008) and their intention to adopt (Chen and Mort 2007; Lin, Shih, and Sher 2007; Lin and Hsieh 2006; Ranaweera, Bansal, and McDougall 2008; Zhu, Kraemer, and Xu 2006). A combined model (i.e. TR and TAM) has been tested (Lin, Shih, and Sher 2007; Walczuch, Lemmink, and Streukens 2007).

Some researchers considered TR to be related to customers' intention to adopt (e.g. Chen and Mort 2007; Lin, Shih, and Sher 2007; Lin and Hsieh 2006; Ranaweera, Bansal, and McDougall 2008; Zhu, Kraemer, and Xu 2006), and some researchers reported that some constructs might have mediation effects on TR and intention (e.g. Lin, Shih, and Sher 2007). Lin, Shih, and Sher (2007) and Lin and Hsieh (2006) employed TR as part of the theoretical foundation for testing the relationships between TR and intention. Lin and Hsieh (2006) examined how TR influenced customers' perceptions and adoption of self-service technologies to explore the relationships between TR and behavioural intentions toward self-service technologies. The results indicated that TR influenced behavioural intentions. Lin, Shih, and Sher (2007) integrated TR with TAM in the context of consumer adoption of e-service systems. A model integrating TR and TAM (called "TRAM") was established in order to address the issue of consumer adoption of e-services. Although Lin, Shih, and Sher (2007) found that a non-significant coefficient between TR and intention was indicated, the notion that TRAM was consistent with a chain of causality (TR → ease of use → usefulness → intention)

was well supported.

Walczuch et al. (2007) conducted a study on a Belgian multi-site financial service provider, and examined the relationship between TRI's personality trait dimensions – optimism, innovativeness, discomfort, and insecurity – and the cognitive dimensions of TAM. The results showed that: employees' optimism has the strongest impact on both perceived ease of use and perceived usefulness of IT usage; discomfort negatively impacts perceived ease of use; and that insecurity has a negative effect on perceived usefulness and perceived ease of use.

TR has been used by researchers to test the relationship between intention and other theories (Lin, Shih, and Sher 2007; Lin and Hsieh 2006; Ranaweera, Bansal, and McDougall 2008; Theotokis, Vlachos, and Pramatari 2008). Nonetheless, each of the models (i.e. TRA, TPB, TAM, DTPB, and TR) considered only part of the antecedents of behavioural intention. Thus, a study to apply an integrated model combining TRA, TPB, TAM, DTPB, and TR might overcome the fragmentative problems arising from the individual models. Based on the above findings, the following chapter integrates the related constructs in this study to discuss and explain IB-adoption intentions. A synthesised model is then developed to reveal a nuanced view of determinants for IB adoption.

2.5   Chapter summary

Past studies revealed that several factors were involved in determining behavioural intention in relation to the adoption of technology, and in particular,

IB. These factors included: (1) positive and/or negative attitudes held by customers about IB; (2) objective external social factors; (3) IT literacy of customers, and compatibility of related equipment to the adoption of IB. Table 2.1 summarised the literature relating to factors which influenced IB adoption.

A review of existing literature revealed that TRA, TPB, TAM, DTPB, and TR have all been widely used in explaining the reasons for individual behaviour at the consumer level. In TPB, the behaviour was determined by three factors: attitude, subjective norm, and perceived behavioural control (Ajzen 1985). The four alternative models, i.e. TRA, TAM , DTPB, and TR, also helped to specify the antecedents of IB adoption.

This chapter has provided an overview of the literature and has identified several points to be addressed. The first point was that instead of applying integrated models, past studies all focused on a single model when analysing the relationship between and influence of individual constructs and behavioural intentions toward the adoption of corporate IB. The second point was that previous research emphasised the behavioural intentions of individual customers, rather than the behavioural intentions of corporate customers. The third was that prior research only considered either adopters or non-adopters of CIB alone, and seldom made comparisons between these two groups. The fourth point was that no previous research has considered antecedents of CIB in Taiwan. Finally, previous studies rarely employed TR to study CIB adoption.

Chapter 3 Research Framework and Hypotheses

3.1 Introduction

Chapter Two presented existing literature with reference to several factors that affect the adoption of IB. The literature review provides the basis of this thesis. Following that, this chapter aims to propose research hypotheses and to develop a comprehensive model to support each of the research hypotheses. In order to examine the relationship of constructs involved with behavioural intention in each of the hypotheses, the following models are used as the theoretical foundation: TRA (Fishbein and Ajzen 1975); TPB (Ajzen 1985); TAM (Davis, Bagozzi, and Warshaw 1989); DTPB (Taylor and Todd 1995a); and TR (Parasuraman 2000).

This chapter is divided into four sections. The first section introduces the main research concept. The second section puts forward reasons as to why TRA, TPB, TAM, DTPB, and TR have been integrated in this study, and further discusses the synonymity of constructs from these models. The third section presents a composite model developed from the five relevant models described in the IB adoption literature, and introduces the conceptual framework and research hypotheses. This third section is divided into four sub-sections: (1) antecedents of intention; (2) antecedents of attitude; (3) antecedent of subjective norm; and (4) antecedents of perceived behavioural control. Finally, the last section concludes the chapter with a summary of all the hypotheses.

3.2 Synthesis of TRA, TPB, TAM, DTPB, and TR

This study will examine a variety of possible factors affecting the intention to adopt IB. It will also highlight possible impediments to adoption. Many studies, which have been based on theoretical models such as TRA, TPB, TAM, and DTPB, have addressed these issues. Although rarely featured in the literature, TR also offers elucidation to support the theoretical understanding of behavioural intention to adopt IT. Therefore, this study includes TR as part of the theoretical foundation.

There are several reasons as to why this study is appropriate for a synthesis of TRA, TPB, TAM, DTPB, and TR. Firstly, because this study focuses on an individual member of a corporation's buying centre, the consumer's theoretical models (e.g. TRA, TPB, TAM, and DTPB) can be applied to test the individual in a corporate setting (e.g. Stevens et al. 2005).

Secondly, this study focuses on an individual member of the corporate customer's buying centre and their intention to adopt IB. As Parasuraman (2000, 308) mentioned, "TR refers to people's propensity to embrace and use new technology for accomplishing goals in home life and at work. TR construct can be viewed as an overall state of mind resulting from a gestalt of mental enablers and inhibitors that collectively determine a person's predisposition to use new technologies". TR can also be used "to assess the technological readiness of internal customers (i.e. employees)" (Parasuraman 2000, 318). Thus, this study believes that TR is also a suitable model to be included in a unified view of IB

adoption.

Thirdly, although TRA, TPB, TAM, and DTPB are based on consumer behavioural studies, some studies also support the view that these theoretical models can be used to analyse organisational buying behaviour (Caruana, Cohen, and Krentler 2006; Grandon and Mykytyn 2004; Stevens et al. 2005). Thus, in extant literature, TRA and TPB are already widely used in analysing organisational buying behaviour (e.g. Forman, Lippert and Kothandaraman 2007; Quaddus and Hofmeyer 2007). Furthermore, TAM and DTPB are based on TRA and TPB, so TAM and DTPB can be further used in the field of organisational buying behaviour.

Fourthly, TPB, TAM, and DTPB are based on TRA. TRA's two main constructs are attitude and subjective norm. The definition of subjective norm is "the person's perception that most people who are important to him/her think he/she should or should not perform the behaviour in question". The construct of subjective norm is considered to be similar to "social pressure". Social pressure, in this instance, can refer to company suppliers, peers, and customers. Any of these may influence the decision-making process of an individual member of the corporate customer's buying centre. TPB, TAM, and DTPB are derived from TRA, thus can be applied to an individual member of the corporate customer's buying centre, because TRA's subjective norm can reflect the interaction within the buying centre.

Finally, the majority of corporations in Taiwan are SMEs (98% of business

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entities). The objective reality of SMEs' buying centres in Taiwan is that only one or a handful of individuals run the company. Therefore, it is appropriate to apply these theoretical models in this study.

Thus, this study follows the view that TRA, TPB, TAM, DTPB, and TR altogether can be applied to an individual member of the corporate customer.

In total, 16 constructs are included within the five theoretical models. Table 3.1 shows the 16 constructs: intention, attitude, subjective norm, perceived behavioural control, perceived usefulness, perceived ease of use, relative advantage, complexity, compatibility, normative influence, efficacy, facilitating condition, optimism, innovativeness, discomfort, and insecurity. As mentioned in section 2.2.1, many researchers support the notion that perceived usefulness and relative advantage are synonymous, and that perceived ease of use and complexity (opposing concept) are also synonymous (e.g. Gerrard, Cunningham, and Devlin 2006; Venkatesh et al. 2003). Thus, there are eventually 14 constructs adopted from the above-mentioned five theoretical models.

In addition, some researchers have further studied the above-mentioned constructs. The construct's definition is shown in detail in Table 3.2.

Table 3.1: Five theories with 14 constructs

	TRA	TPB	TAM	DTPB	TR
1	Intention	Intention	Intention	Intention	
2	Attitude	Attitude	Attitude	Attitude	
3	Subjective norm	Subjective norm		Subjective norm	
4		Perceived behavioural control		Perceived behavioural control	
5			Perceived usefulness	Relative advantage (Perceived usefulness)	
6			Perceived ease of use	Complexity (Perceived ease of use)	
7				Compatibi-lity	
8				Normative influence	
9				Self-efficacy	
10				Facilitating condition	
11					Optimism
12					Innovative-ness
13					Discomfort
14					Insecurity

Table 3.2: Construct definitions

Construct	Source	Original definition
Intention	Davis, Bagozzi, and Warshaw (1989, 984); Fishbein and Ajzen (1975, 288)	A measure of the strength of one's intention to perform a specified behaviour (behavioural intention).
Attitude	Davis, Bagozzi, and Warshaw (1989, 984); Fishbein and Ajzen (1975, 216)	An individual's positive or negative feelings (evaluative affect) about performing the target behaviour.
Subjective norm	Davis, Bagozzi, and Warshaw (1989, 984); Fishbein and Ajzen (1975, 302)	The person's perception that most people who are important to him/her think he/she should or should not perform the behaviour in question.
Perceived behavioural control	Ajzen and Madden, (1986, 457); Chau and Hu (2001, 702)	An individual's perception of the presence or absence of requisite resources or opportunities necessary for performing a specific behaviour.
Perceived usefulness	Davis (1989, 320)	The degree to which a person believes that using a particular system would enhance his or her job performance.
Perceived ease of use	Davis (1989, 320)	The degree to which a person believes that using a particular system would be free of effort.
Compatibility	Moore and Benbasat (1991, 195)	The degree to which an innovation is perceived as being consistent with the existing values, needs and past experiences of non-adopters.

Table 3.2: Construct definitions

Construct	Source	Original definition
Normative influence	Gallion (2000, 3-4); Taylor and Todd (1995b, 162)	Normative influence is deemed to be the antecedent of subjective norm. It may be family, friends, colleagues and relatives in an individual context, and peers, superiors and subordinates or company suppliers, peers and customers in an organisational context.
Self-efficacy	Tan and Teo (2000, 12)	An individual's self-confidence in his or her ability to perform a behaviour.
Facilitating condition	Tan and Teo (2000, 12)	It reflects the availability of resources needed to engage in the behaviour.
Optimism	Parasuraman (2000, 311)	A positive view of technology and a belief that it offers people increased control, flexibility, and efficiency in their lives.
Innovativeness	Parasuraman (2000, 311)	A tendency to be a technology pioneer and thought leader.
Discomfort	Parasuraman (2000, 311)	A perceived lack of control over technology and a feeling of being overwhelmed by it.
Insecurity	Parasuraman (2000, 311)	Distrust of technology and scepticism about its ability to work properly.

The next section discusses the conceptual framework and research hypotheses.

3.3 Conceptual framework and research hypotheses

The model shown in Figure 3.1 is developed from TRA, TPB, TAM, DTPB, and TR, in order to gain a deeper understanding of the roles played by an individual member within a corporate customer's buying centre in the adoption of CIB. In addition, this model (Figure 3.1) provides a comprehensive framework for understanding the relationships between the 14 constructs, namely intention, attitude, subjective norm, perceived behavioural control, perceived usefulness (the same as relative advantage), perceived ease of use (as the opposing concept to complexity), compatibility, optimism, innovativeness, discomfort, insecurity, normative influence, self-efficacy, and facilitating condition. Attitude's antecedents are: perceived usefulness, perceived ease of use, compatibility, optimism, innovativeness, discomfort, and insecurity. Subjective norm's antecedent is normative influence. Perceived behavioural control's antecedents are self-efficacy and facilitating condition. Attitude, subjective norm, and perceived behavioural control all influence intention.

These 13 determinants of intention, supported both theoretically and empirically by numerous studies (Table 2.1), have been proven to be influential to the use of IB services (e.g. Liao et al. 1999; Shih and Fang 2004). Because a company is more likely to emphasise efficient decision making than is an individual who emphasises the benefits he or she experiences, these 13 constructs help us to understand the process of adopting IB. Although these models (e.g. TRA, TPB) were usually applied to consumer behaviour studies, it is believed that these models have the potential to provide a valuable means of examining the

behaviour of an individual member within a corporate buying centre. For example, Stevens et al. (2005) has applied TPB to a survey of the behaviour of corporate leaders.

Many researchers have investigated how and why individuals adopt IB. This stream of research mainly employed either behavioural intention or IB adoption as a dependent variable (e.g. Chan and Lu 2004; Liao et al. 1999; Shih and Fang 2004; Tan and Teo 2000). While this stream of research made valuable contributions to the literature on user acceptance or adoption of IB, the theoretical models to be included in the present study will employ behavioural intention as the key dependent variable. The role of intention as a predictor is critical, and has been well-recognised in consumer behaviour studies as well as in related disciplines (Ajzen 1991; Sheppard, Hartwick, and Warshaw 1988; Taylor and Todd 1995b). The major difference between this study and previous studies is that this study focuses on individual members of a corporation's buying centre. The research framework and hypotheses are presented in Figure 3.1. Detailed associations between the five theoretical models will be presented in next sub-section.

Perceived usefulness

Perceived ease of use

Compatibility

Optimism

Innovative-ness

Discomfort

Insecurity

Attitude

Normative influence

Subjective norm

Intention

Behaviour

Self-efficacy

Facilitating condition

Perceived behavioural control
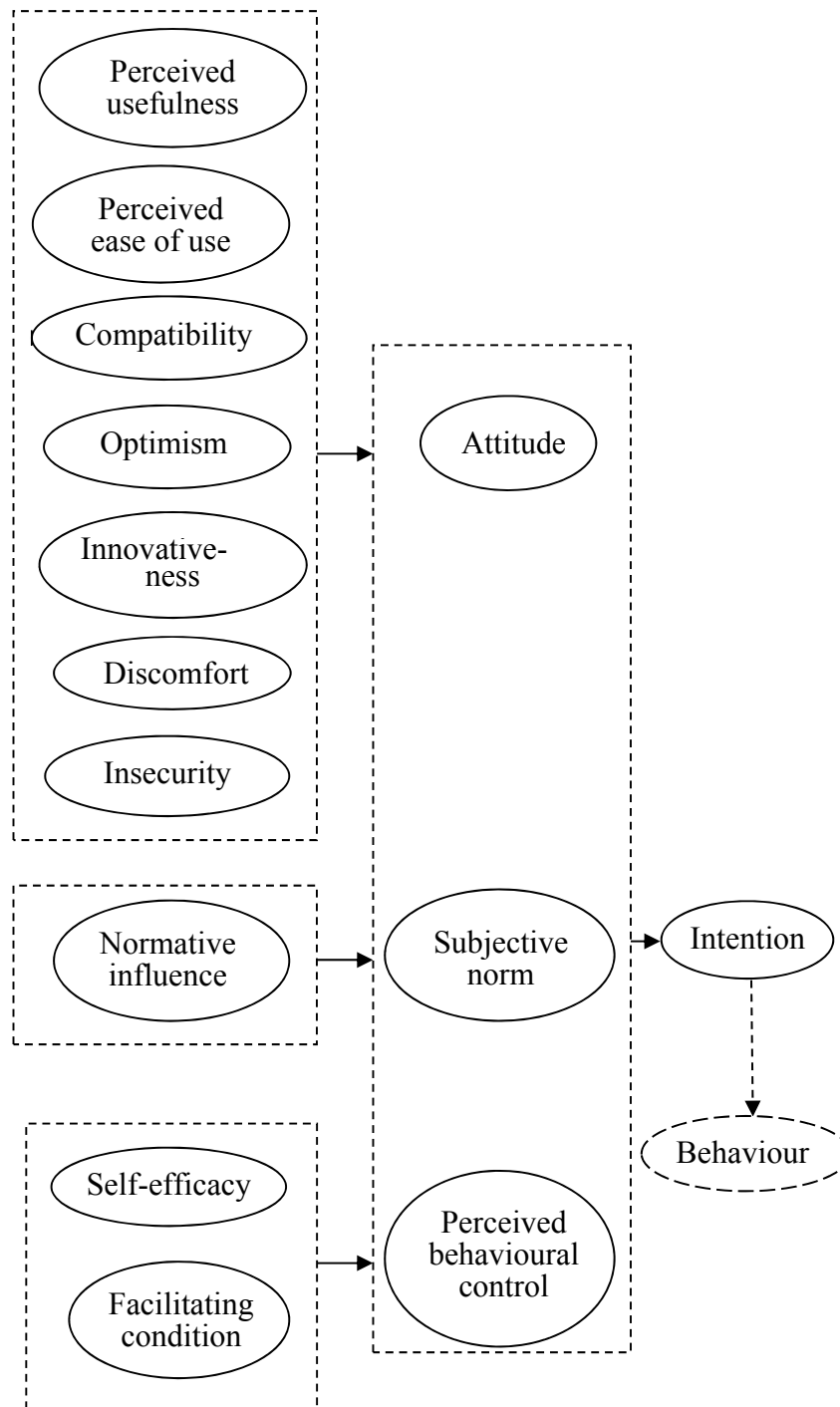
Figure 3.1: Framework for the behavioural intention toward IB adoption of an individual member of the corporate customers' buying centre

As shown in Figure 3.1, the framework postulates that:

(1) The behavioural intention of an individual member of the corporate customer's buying centre is determined by three factors: attitude, subjective norm, and perceived behavioural control (e.g. Liao et al. 1999; Liu, Sia, and Wei 2008).

(2) The attitude towards IB of an individual member of the corporate customer's buying centre is determined and affected by perceived usefulness, perceived ease of use, compatibility, optimism, innovativeness, discomfort, and insecurity (e.g. Celik 2008; Iivari 1995; Lin and Hsieh 2006; Tan and Teo 2000; Theotokis, Vlachos, and Pramatari 2008).

(3) The subjective norm of an individual member of the corporate customer's buying centre is determined by normative influence (e.g. Gallion 2000; Hernandez and Mazzon 2007; Lim and Dubinsky 2005).

(4) The perceived behavioural control of an individual member of the corporate customer's buying centre is determined by self-efficacy and facilitating condition (e.g. Chan and Lu 2004; Shih and Fang 2004).

Based on these four assumptions, this study proposes the following four hypotheses:

H1: The attitude, subjective norm, and perceived behavioural control of TPB are more likely to affect the intention of an individual member of the corporate customer's buying centre to adopt CIB.

H2: The perceived usefulness, perceived ease of use, compatibility, optimism,

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innovativeness, discomfort, and insecurity are more likely to affect the attitude towards an individual member of the corporate customer's buying centre in regards to CIB.

H3: The normative influence is more likely to affect the subjective norm of an individual member of the corporate customer's buying centre.

H4: The self-efficacy and facilitating condition is more likely to affect the perceived behavioural control of an individual member of the corporate customer's buying centre.

This research does not take into account the difference between actual usage of CIB and the intention to use CIB services. Some scholars supported the view that behavioural intention, behaviour and action, were clustered under the same concept (Ki and Hon 2007; Ray 1973). Sheppard, Hartwick, and Warshaw (1988, 336) conducted two meta-analyses to investigate the intention–behaviour relationship. Their work, which was based on 87 separate studies with a total sample-size of 11,566 observations, found a strong relationship between intention and behaviour (Chau and Hu 2002, 299). Ki and Hon (2007, 10) used the concept of "behavioural intention" instead of "behaviour" and employed the construct of "intention" to explain the organisation-public relationship, which could affect the public's attitudes. In short, prior studies in many different areas, such as information systems and technology, have indicated a positive and direct relationship between intention and behaviour (Taylor and Todd 1995a, 1995b; Venkatesh and Davis 1996; Venkatesh, Morris and Ackerman 2000).

3.3.1 Antecedents of intention

Fishbein and Ajzen (1985, 288) have defined intention as a "person's location on a subjective probability dimension involving a relation between himself and some action. Behavioural intention, therefore, refers to the probability that a person will perform some behaviour". Ajzen and Madden (1986, 454) supported this, adding that "the stronger a person's intention, the more the person is expected to try, and hence the greater the likelihood that the behaviour will actually be performed".

Intention could be predicted by three factors: attitude, subjective norm, and perceived behavioural control (Fishbein and Ajzen 1975). Many researchers have tested and subsequently supported Fishbein and Ajzen's proposed relationship between intention and attitude, subjective norm, and perceived behavioural control. Although this relationship has been confirmed in consumer settings (e.g. Caruana, Cohen, and Krentler 2006; Grandon and Mykytyn 2004; Stevens et al. 2005), it can apply to corporate settings as well (Zablah, Brown, and Donthu 2010).

Attitude is defined as an individual's positive or negative feelings (evaluative affect) about performing the target behaviour (Fishbein and Ajzen 1975). The attitude–intention relationship is fundamental to TRA, TPB, TAM, and DTPB. Heberlein and Black (1976, 474) examined the actual purchasing behaviour of regular gasoline customers and unleaded gasoline customers, and supported the view that the more specific the attitude, the higher the correlation

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with behaviour. Many researchers have verified empirically the causal relationship between attitude and intention (e.g. Bhattacherjee 2001; Taylor and Todd 1995a, 1995b, 1995c, 1995d). From their results, it was shown that the more positive the user's attitude, the greater the user's intentions are to adopt or to continue to use the product (e.g. IT usage, VCR buying behaviour). Furthermore, many studies have corroborated this relationship (e.g. Brown et al. 2004; Cheng, Lam, and Yeung 2006; Liao et al. 1999; etc.).

Based on the theoretical model developed above, and the literature considered in Chapter Two, this study inducts that attitude and behavioural intention presents a positive correlation. If an individual member of a corporate customer's buying centre believes (*attitude toward IB*) that adopting CIB would make his/her work more convenient, he/she will be more likely to positively evaluate (*evaluation of consequences*) the adoption of CIB. In contrast, he/she will be more likely to have a negative attitude towards adoption (*evaluation of consequences*) if he/she believes that adopting CIB is unsafe and would result in insecure transactions (*attitude toward IB*). Thus, it is proposed that:

H1a: The **attitude** of an individual member of the corporate customer's buying centre towards using IB services is positively related to behavioural **intention** toward IB.

Subjective norm refers to a person's perception that other people who are important to him/her think he/she should or should not perform the behaviour in question (Fishbein and Ajzen 1975, 302). The subjective norm-behavioural

intention relationship is fundamental to TRA and TPB.

Subjective norm and behavioural intention interact positively. That is, when the individual perceives a higher social expectation for certain behaviour, he/she is more willing to take advice from referential resources, and tends to comply with a stronger subjective norm over that behaviour, thus presenting a greater intention to perform that behaviour (Ajzen 1985, 1991). Hartwick and Barki (1994), in an empirical study of participation, also supported the relationship between "subjective norm concerning use" and "intention to use", and concluded that "early in the information system development, subjective norm is the crucial determinant" (Hartwick and Barki 1994, 462). Some researchers have also empirically verified the causal relationship between subjective norm and intention in the adoption of IB (e.g. Chan and Lu 2004; Hernandez and Mazzon 2007).

The results of related studies show that the user is more willing to use new technology when he/she perceives that an influential person thinks it would be useful to do so, e.g. Ajzen (1991), Chan and Lu (2004), Hernandez and Mazzon (2007), Nor and Pearson (2008), Ravi, Carr, and Sagar (2006), Shih and Fang (2004), and Taylor and Todd (1995a, 1995b, 1995c, 1995d).

Putting these ideas into the context of this research, an individual member of a corporate customer's buying centre may be influenced by social expectation (*subjective norm*) (i.e. his/her line customer's opinion). Suppose the individual is motivated to comply with the wishes of his/her line customer. If the person believes that his/her line customer thinks adopting CIB is the right thing to do

(*normative beliefs about person*), his/her subjective norm will exert pressure on him/her to perform this behaviour. So, this study is based on the assumption that there is a relationship between social expectation and behaviour, as suggested by previous research.

H1b: The **subjective norm** of an individual member of the corporate customer's buying centre supports the use of CIB services is related to behavioural **intention** toward adopting IB.

Perceived behavioural control refers to an individual's perception of the presence or absence of requisite resources or opportunities necessary for performing a specific behaviour (Ajzen and Madden 1986, 457). Based on the theoretical model developed above, and the literature outlined in Chapter Two, many researchers have empirically verified the causal positive relationship between perceived behavioural control and behavioural intention in the adoption of IB (e.g. Brown et al. 2004; Jaruwachirathanakul and Fink 2005; Shih and Fang 2004; Tan and Teo 2000). Details of the related studies are presented in Table 2.1. The related studies showed that the user's behavioural intention to use the system would be stronger when he/she believes that he/she has the ability to use such systems, or that his/her relevant resources, ability, and knowledge would be enhanced by using such a system.

In general, the greater the consumer's self-confidence about his/her computer literacy (*self-efficacy*) and the computer equipment (*facilitating condition*) that supports him/her, the more likely the adoption of IB will be. The

decision to perform the target behaviour relies on the individual's control over the various factors that may prevent it. Nonetheless, this study focuses on the corporate customer, which may be different from retail consumers. Weighing up the above discussion thus far, it is proposed that:

H1c: The **perceived behavioural control** of an individual member of the corporate customer's buying centre is positively related to the behavioural **intention** toward the use of CIB.

3.3.2 Antecedents of attitude

Taylor and Todd (1995b and 1995c) employed three antecedents of attitude in IT usage. The three different dimensions of attitude were: perceived usefulness, perceived ease of use, and compatibility. Taylor and Todd (1995a and 1995d) also used different concepts (relative advantage, complexity, and compatibility) to test the attitude towards intention. Liao et al. (1999) employed relative advantage, compatibility, ease of use, result demonstrability, and perceived-risk measurement for the attitude-intention relationship. Tan and Teo (2000) suggested that attitudes could be measured using five different dimensions: relative advantage, compatibility with values, Internet experience, banking needs, trialability, and risk.

Some researchers (e.g. Gerrard, Cunningham, and Devlin 2006, 162, 165; Hosein 2009, 56; Taylor and Todd 1995b, 152; Theotokis, Vlachos, and Pramatari

2008, 345; Venkatesh et al. 2003, 447; Wan, Luk, and Chou 2005, 257) supported the view that relative advantage is analogous to perceived usefulness (or usefulness), and that complexity is the opposing concept of perceived ease of use (or ease of use) in TAM (Davis 1989, 320). Gerrard, Cunningham, and Devlin (2006, 162, 165) further suggested that relative advantage is parallel to optimism and usefulness, and that complexity is the equivalent to discomfort as well as the opposing concept to perceived ease of use.

TAM's two constructs, perceived usefulness and perceived ease of use, have been developed by Davis (1989) and applied to many researches. **Perceived usefulness** refers to the degree to which a person believes using a particular system would enhance his/her job performance (Davis 1989, 320). The perceived usefulness-intention and perceived usefulness-attitude relationships are fundamental to TAM. **Perceived ease of use** is the degree to which a person believes that using a particular system would be free of effort (Davis 1989, 320). The perceived ease of use-attitude relationship is fundamental to TAM. So, TAM's perceived usefulness and perceived ease of use are also suitable for application in this study, and are deemed to be two antecedents of attitude.

Empirical studies on TAM have suggested that perceived usefulness and perceived ease of use have a positive effect on CIB adoption (Table 2.1). Eriksson, Kerem, and Nilsson (2005) referred the perceived usefulness of IB as the primary reason as to why Estonian bank customers use the Internet for banking. It is concluded that the perceived ease of use of IB does not directly increase the use of it, but that it does lead to greater perceived usefulness, which then, in turn,

increases that use (Eriksson, Kerem, and Nilsson 2005, 212). Yiu, Grant, and Edgar (2007, 345) offered evidence to demonstrate that the perceived usefulness and perceived ease of use of adopting IB have a direct relationship with actual adoption of IB.

For example, in a financial accountant's evaluation of adopting IB, some individuals may have a positive attitude (i.e. towards IB), and others a negative attitude. Such a positive attitude could change because of perceived usefulness and perceived ease of use. If the individual concerned is an accountant who has to go to the bank every day to check the balance of his/her account, then the adoption of IB would save him/her time travelling between the company and the physical bank branch. Therefore, this accountant would consider the adoption of IB beneficial because it would save him/her time. On the other hand, if the individual is the boss or business owner who needs current exchange rates and is not used to using computers and accessing the Internet, he/she might have been used to calling bank staff directly for the information he/she needs. Thus, the adoption of IB does not bring any extra advantage to him/her. In this case, there is no immediate need for him/her to adopt the use of IB. A negative attitude might therefore be held by him/her, in this case.

Additionally, a positive or negative attitude may also be related to perceived ease of use. For example, if the accountant regularly uses a computer for work, it would not be a problem for him/her to get access to the Internet to use their IB service. Therefore, the accountant would probably have a positive attitude toward CIB for its ease of use. On the contrary, if the individual is the

company owner who never uses a computer at work, it would be difficult for him/her to learn how to deal with electronic letters of credit (L/C) through IB. For this individual, a negative attitude would be very likely.

Thus, this study proposes that perceived usefulness and perceived ease of use might influence attitudes in a positive way. H2a and H2b are based on the fact that this relationship was found to be present in previous studies in the relevant context, and that it will also be the case in this study. This leads to the formation of the following hypotheses:

H2a: The **perceived usefulness** of an individual member of the corporate customer's buying centre is positively correlated with **attitude** towards using CIB.

H2b: The **perceived ease of use** of an individual member of the corporate customer's buying centre is positively correlated with **attitude** towards using CIB.

Compatibility, an essential factor for innovation adoption (Rogers 1995), has been identified as "the degree to which an innovation is perceived as being consistent with the existing values, needs and past experiences of potential adopters" (Moore and Benbasat 1991). Compatibility has been discussed in many previous studies, including Chau and Hu (2001), Cooper and Zmud (1990), Iivari (1995), Taylor and Todd (1995c), Tornatzdy and Klein (1982), etc. These authors reported that technology acceptance was more likely to be adopted when it was compatible with the individual's job responsibilities, e.g. CIB usage (Ndubisi and

Sinti 2006, 18). The findings of Tan and Teo (2000) showed that the intention to adopt IB services can be predicted by factors of attitude and perceived behavioural control. The attitudinal factors that are significant include relative advantage, compatibility with respondent's value, risk, and so on (Tan and Teo 2000, 31).

For example, when the accounting system (e.g. payroll system) of the company is compatible with the system provided by CIB, it will be more likely for the company to accept the idea of CIB. On the contrary, if the two systems are not compatible, there would be many technical problems that needed to be dealt with before the adoption of CIB would be possible. Therefore, consideration of adopting CIB would produce a negative result. Thus, it is proposed in this study that the greater the compatibility, the better the chance of adopting CIB. This leads to the following hypothesis:

H2c: **Compatibility** of an individual member of the corporate customer's buying
centre is positively correlated with **attitude** towards using IB services.

Parasuraman (2000) developed and refined a multiple-item scale to measure an individual's readiness to use new technology, namely the TRI. **Optimism** is defined as "a positive view of technology and belief that it offers people increased control, flexibility, and efficiency in their lives"; **innovativeness** is defined as "a tendency to be a technology pioneer and thought leader"; **discomfort** is defined as "a perceived lack of control over technology and the feeling of being overwhelmed by it"; and **insecurity** is defined as "distrust of technology and scepticism about its ability to work properly" (Parasuraman 2000,

311).

Empirical studies on TR (e.g. Chen and Mort 2007; Lin, Shih, and Sher 2007; Lin and Hsieh 2006; Ranaweera, Bansal, and McDougall 2008; Theotokis, Vlachos, and Pramatari 2008; Zhu, Kraemer, and Xu 2006) have suggested that both optimism and innovativeness have a positive effect on the adoption of technology, while discomfort and insecurity have a negative effect. Results of related studies showed that the stronger the user's contributing dimensions of technology readiness are, the more positive the user's attitude to adoption of IT will be. For example, Theotokis, Vlachos, and Pramatari (2008) proposed that TR is related to the customer's attitude towards technology-based retail services. Their results showed that insecurity and discomfort have had negative impact on attitude towards high technology-contact services, and innovativeness was positively associated with attitude towards high technology-contact services. Zeithaml et al. (2002) supported the notion that consumers' TR has a positive impact on their online service quality perceptions and online behaviours. On the contrary, the stronger the user's inhibiting dimensions of TR are, the more negative the user's attitude toward adoption of CIB will be.

The purpose of this study is to focus on the intention of an individual member of the corporate customer's buying centre, regarding the adoption of CIB. In the model provided, it is proposed that attitude is a key factor in disclosing intention. According to several studies, the understanding of attitude is further associated with TR (Lin, Shih, and Sher 2007; Lin and Hsieh 2006). Thus, TR is employed in this research. TR is employed in order to measure the attitude

towards IB of an individual member in a corporate customer's buying centre in two directions: positive and negative; and within four dimensions: optimism, innovativeness, discomfort, and insecurity.

For example, when one believes that the adoption of CIB will make banking tasks more convenient and accounting tasks more efficient, referred to as optimism, the attitude towards CIB adoption will be more positive. When one believes that the adoption of CIB will bring less or no extra problems related to the adoption process than expected, or when compared with other peer companies, the attitude towards CIB will be more positive. That is, the better the evaluation of innovativeness, the more positive the attitude towards CIB will become.

On the contrary, one might feel that to replace traditional banking tasks with IB services should be approached with caution, because IB might come with certain problems (e.g. system breakdowns or unexpected disconnection, etc.), or because one might believe that IB is designed for people with special technology skills, not for ordinary people. The more the person holds onto these worries and discomforts, the more negative the attitude towards adoption of CIB will become. Moreover, when one does not feel comfortable with making transactions online, or when one always needs confirmation of IB transactions with hard-copy documents, the more clearly this demonstrates one's sense of insecurity and/or uncertainty. The stronger the sense of insecurity or uncertainty, the more negative the attitude towards the adoption of CIB will be.

This study is based on the fact that previous research into relevant contexts

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found this relationship, and believes that this will also be applicable in this study. This leads to the following hypotheses:

H2d: **Optimism** of an individual member of the corporate customer's buying centre is positively correlated with **attitude** towards using IB services.

H2e: **Innovativeness** of an individual member of the corporate customer's buying centre is positively correlated with **attitude** towards using IB services.

H2f: **Discomfort** of an individual member of the corporate customer's buying centre is negatively correlated with **attitude** towards using IB services.

H2g: **Insecurity** of an individual member of the corporate customer's buying centre is negatively correlated with **attitude** towards using IB services.

3.3.3   Antecedent of subjective norm

In a society, individuals may be influenced by people (*subjective norm*) who are important to them. Such influences also impact whether they would or would not adopt IB. These people may include family members, line managers, and/or colleagues. They could also be suppliers, peers, or customers (**normative influence**). Normative influence is deemed to be an antecedent of subjective norm (Taylor and Todd 1995a). Many researchers have identified certain reference groups who may exert pressure on individuals or organisational customers, causing them to perform certain behaviours. For example, there are peers,

superiors, and subordinates in a business situation, and these diverse groups could hold different perspectives and views. If individuals from these groups play important roles in the mind of the user, they would then probably influence the user's thoughts on certain behaviours. As for an enterprise considering the adoption of CIB, the behavioural intention of an individual member of the corporate customer's buying centre could be affected by both that individual's personal attitude and by the external reference group (e.g. suppliers, colleagues, or customers, etc.) in frequent contact with that individual. These reference groups could also be significant factors in their decisions regarding the adoption of CIB.

In Ajzen's (1991) TPB, subjective norm refers to social pressure or group norm. Members in the reference group will press their own values, moral norms, or perceived information on the individual in the buying centre, and affect that individual's value, moral norm, or perceived information. In other words, attitudes and beliefs from members of the reference group could affect the individual in the corporate customer's buying centre. Here, subjective norm refers to the individual's perceptions of the social pressures, or group norm, to adopt or not to adopt a CIB service (Ajzen 1991).

Many studies also revealed that certain reference groups have significant influence on the behavioural intention, and that these different reference groups provide a wide variety of influences (Burnkrant and Page 1988; Grube, Morgan, and McGree 1986). For example, Burnkrant and Page (1988) and Grube, Morgan, and McGree (1986) found supporting evidence for the decomposition of normative belief structures.

Taylor and Todd (1995b) pointed out that the two major sources of reference groups are peer influence and superior influence. Taylor and Todd (1995d) also mentioned another two main reference groups, internal and external normative belief influences. It was reported that various influences of subjective norms from different groups might countervail with each other because of the interaction among these influences (Taylor and Todd 1995b). For example, a colleague might find that some newly installed software would cause enormous changes to the original task-processing flow, and therefore vote against the new application, whereas the manager might support the application for a possible enhancement of working efficacy due to adopting the software. In this case, the impact from subjective norm on intention to adopt would become insignificant and have no effect. Nevertheless, Taylor and Todd (1995a, 141) supported the notion that "a decomposition should not provide any additional insight" into the subjective norm. Moreover, some studies have failed to identify a multidimensional structure of the decomposition of normative belief structures (Oliver and Bearden 1985; Shimp and Kavas 1984). Considering all the opinions from different studies, this leads to the hypothesis:

H3: **Normative influence** of an individual member of the corporate customer's buying centre is significantly related to the **subjective norm** towards using IB services.

3.3.4 Antecedents of perceived behavioural control

Ajzen (2002, 665) reported that perceived behavioural control is "comprised of separable components that reflect beliefs about self-efficacy and about controllability". Tan and Teo (2000) suggested that perceived behavioural control can be measured by self-efficacy and facilitating condition. Chan and Lu (2004, 21) suggested that computer self-efficacy indirectly plays a significant role in influencing the intention to adopt IB. **Self-efficacy** is defined as "judgment of how well one can execute courses of action required dealing with prospective situations" (Bandura 1982, 122) and "an individual's self-confidence in his or her ability to perform a behaviour" (Tan and Teo 2000, 12). The viewpoint of perceived behavioural control is understood to be the same (Ajzen 1991) as, or similar (Ajzen 2002) to, the idea of "self-efficacy" in Bandura's Social Cognitive Theory (Bandura 1977; 1982). A **facilitating condition** is one that is defined thus: "it reflects the availability of resources needed to engage in the behaviour" (Tan and Teo 2000, 12).

Taylor and Todd (1995b, 162-163) examined the self-efficacy and resource-based facilitating conditions, which suggest that a person's behaviour is strongly influenced by one's confidence and one's beliefs regarding the availability of resources (that is, time- and cost-related measures) to perform it. Shih and Fang (2004, 219) applied DTPB to measure potential IB customers' intention to adopt this service, and suggested that self-efficacy is a significant determinant of perceived behavioural control. Although they did not establish a clear relationship between facilitating conditions and perceived behavioural

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control, their work may be included in this study if they are identified as important factors. Therefore, this study decomposes perceived behavioural control into self-efficacy and facilitating condition. This leads to the hypotheses:

H4a: **Self-efficacy** of an individual member of the corporate customer's buying centre is positively correlated with **perceived behavioural control** towards using CIB services.

H4b: **Facilitating condition** of an individual member of the corporate customer's buying centre is positively correlated with **perceived behavioural control** towards using CIB services.

Figure 3.2 below shows the research hypotheses, research framework and the relationship between the 14 constructs.

The following presents a list (Table 3.3) of all the research hypotheses in this study.
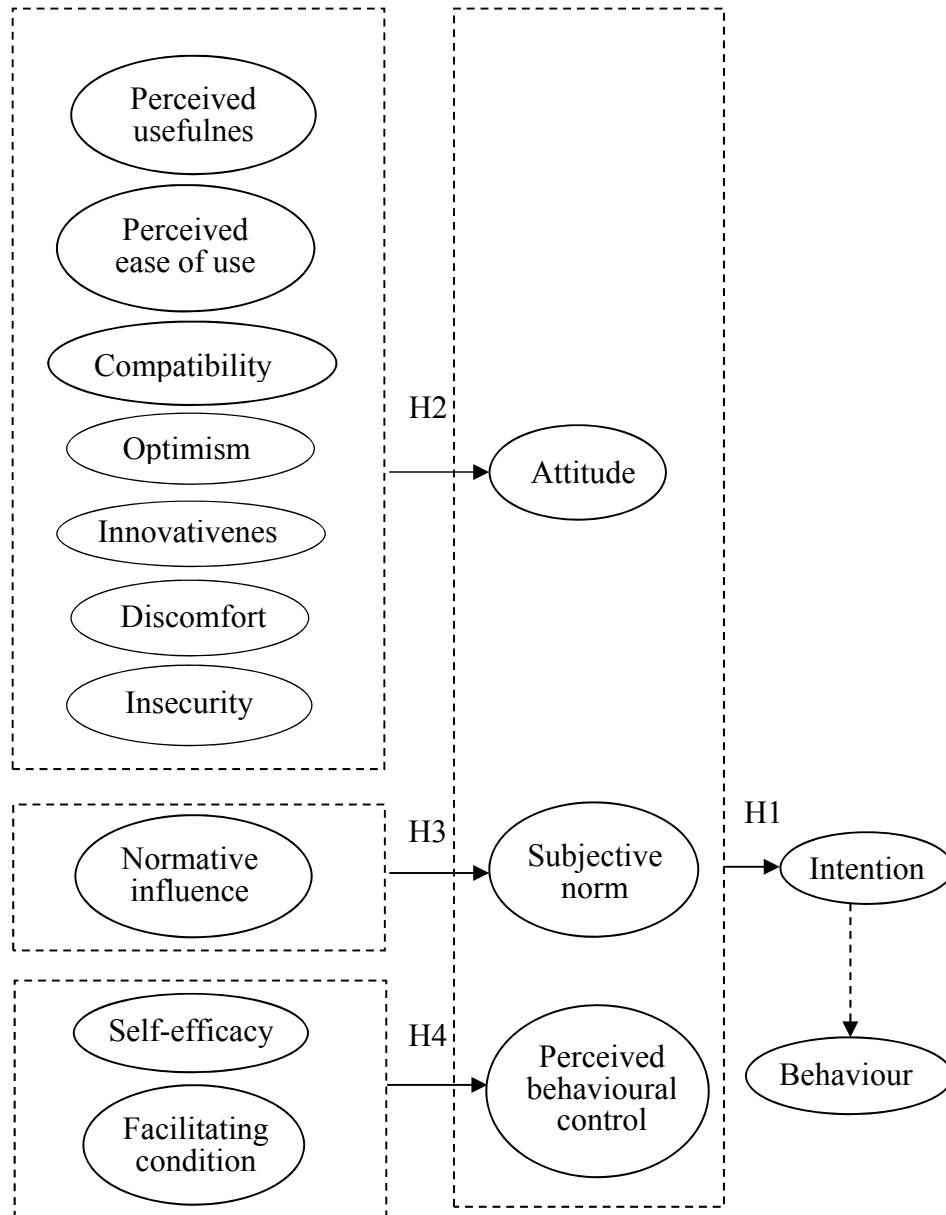
Figure 3.2: Hypotheses for behavioural intention toward IB adoption for an individual member of the corporate customer's buying centre

Table 3.3: Research hypotheses for the behavioural intention toward CIB

Hypotheses	Context
H1a	The **attitude** of an individual member of the corporate customer's buying centre towards using IB services will be positively related to behavioural **intention** toward IB.
H1b	The **subjective norm** of an individual member of the corporate customer's buying centre supports the use of IB services will be positively related to behavioural **intention** toward IB.
H1c	The **perceived behavioural control** of an individual member of the corporate customer's buying centre over the use of CIB will be positively related to behavioural **intention** toward IB.
H2a	The **perceived usefulness** is an individual member of the corporate customer's buying centre is positively correlated with **attitude** toward using CIB.
H2b	The **perceived ease of use** of an individual member of the corporate customer's buying centre is positively correlated with **attitude** toward using CIB.
H2c	**Compatibility** is an individual member of the corporate customer's buying centre is positively correlated with **attitude** toward using IB services.
H2d	**Optimism** of an individual member of the corporate customer's buying centre is positively correlated with **attitude** toward using IB services.
H2e	**Innovativeness** of an individual member of the corporate customer's buying centre is positively correlated with **attitude** toward using IB services.
H2g	**Insecurity** of an individual member of the corporate customer's buying centre is negatively correlated with **attitude** toward using IB services.

Table 3.3: Research hypotheses for the behavioural intention toward CIB

Hypotheses	Context
H3	The **normative influence** more likely affects the **subjective norm** of an individual member of the corporate customer's buying centre.
H4a	**Self-efficacy** of an individual member of the corporate customer's buying centre is positively correlated with **perceived behavioural control** toward using IB services.
H4b	**Facilitating condition** of an individual member of the corporate customer's buying centre is positively correlated with **perceived behavioural control** toward using IB services.

3.4 Chapter summary

This study built a model based on TRA, TPB, TAM, DTPB, and TR. The framework of this study was presented in Figure 3.2. The framework led the discussion into three basic sections: antecedents of attitude, subjective norm, and perceived behavioural control. This research traced and followed directions and linkages provided by previous studies. Many researchers have purported that attitude, subjective norm, and perceived behavioural control are three antecedents of intention (e.g. Cheng, Lam, and Yeung 2006; Curran and Meuter 2005; Jaruwachirathanakul and Fink 2005; Liao et al. 1999; Shih and Fang 2004; etc.). Perceived usefulness and perceived ease of use are two components of attitude that indirectly play a significant role in influencing the intention to adopt IB.

Thus, this study proposes that the behavioural intention of an individual

member of a corporate customer's buying centre is positively influenced by attitude, subjective norm, and perceived behavioural control. Attitude refers to perceptions about perceived usefulness, perceived ease of use, compatibility, optimism, innovativeness, discomfort, and insecurity. Normative influence is an important determinant of subjective norm. Finally, self-efficacy and facilitating condition are two important antecedents of perceived behavioural control.

Based on the literature review and earlier presentation of the main research concepts, Figure 3.1 illustrates the relationship between the perceived factors of CIB adoption and their intention behaviour. This involves the theories of TRA, TPB, TAM, DTPB, and TR. The inclusion of 13 constructs – attitude, subjective norm, perceived behavioural control, perceived usefulness, perceived ease of use, optimism, innovativeness, discomfort, insecurity, compatibility, normative influence, self-efficacy, and facilitating condition – is supported theoretically and empirically by many studies (Table 2.1).

TRA, TPB, TAM, DTPB, and TR include attitude, subjective norm, and perceived behavioural control as the fundamental determinants of behavioural intention, and link together the five theoretical models. A conceptual framework identifying the behavioural intention of an individual member of the corporate customer's buying centre, and the interrelationships among all the 14 determinants, is developed. The hypotheses have been developed from the literature review, and will be tested by conducting a large-scale survey.

Chapter 4 Methodology

4.1 Introduction

The main purpose of this chapter is to explain the research methodology and procedure. The chapter begins with the philosophical foundation of the research, evaluating the research methods selected, and continues by identifying the reasons for adopting quantitative methods. The chapter then presents the research procedure and the overall research design, including five main stages: interview conducted, measurement scales developed, pre-test study conducted, quantitative study adopted, and statistical methods examined. A research flow chart will be presented in order to demonstrate the steps involved in conducting the study.

This chapter comprises of four main sections. The first section is an outline of the chapter. The second section elaborates on the philosophical stance taken. The chapter continues by presenting the research procedure, including a discussion of the advantage of using a methodology to test the hypotheses, which includes several analytical methods, such as reliability and validity analyses, a factor analysis, and a multiple regression analysis. The chapter ends with a summary of the research methodology.

Interviews are conducted in order to identify the key members of the corporate customer's buying centre, with a view to determining the most suitable respondents within each company. Another purpose of the interview is to develop

the questionnaire by exploring the reasons as to why corporate customers adopt IB. Following the pre-test study, the questionnaire's wording is revised. Then, data are collected in the main study, and in the final stage, a statistical method is applied in order to interpret the collected data. The chapter concludes with a summary.

4.2   Philosophical stance

Burrell and Morgan (1979, 3) categorised two main research approaches: a subjectivist approach and an objectivist approach. The difference between these two approaches can be investigated via ontology and epistemology.

Ontology is mainly concerned with the nature of existence. That is to say, that it is about the essence of the target of investigation. In social science studies, the perception of core nature of knowledge is diverse because of the variation of research targets and knowledge backgrounds. That leads to discrepancies and the uncertainty of ontology. Even for events or facts that are considered identical, different interpretations or meanings might be constructed. The cause could be changes in social reality, or with the structure and development of the surrounding environment. Such differences in description can be captured by two distinct research approaches: the objectivist and the subjectivist approaches to social science. The objectivist approach considers the social reality as something that exists objectively, with an eternal law of operation. Such an approach, called realism, believes that truth exists objectively. In this study, the ontological stance is that of the realist. The belief of this study is that individuals in the buying centre

make their decisions through an objective, observable frame. In this case, it should be possible to recognise and then analyse the factors that influence those individuals' decisions regarding CIB adoption.

Epistemology discusses the nature of knowledge and approaches toward obtaining knowledge. Typical inquiries concern, for example, "What is considered as knowledge, or fact?", "How is knowledge formed?", "What is the nature of that knowledge?", "How can critical and experiential knowledge be distinguished?", "What is the standard for the verification of knowledge?", and "How is knowledge distributed and understood in daily life?" The epistemological concern in academic research is to understand the reality behind the phenomena, and consider the position and attitude held by the researcher at the time. In this study, the epistemological stance is positivism. According to the "realist" approach, new knowledge can be acquired from an examination of prior knowledge and evidence (Burrell and Morgan 1979).

Human nature refers to the relationships between human beings and the surrounding environment. All researchers have particular beliefs when studying phenomena which direct the process they follow. This raises questions about whether human beings are products of their environment, or whether they create their environment according to their needs. Determinists believe that man is always determined by the situation and the environment, with all human behaviours being driven by these causal forces. Voluntarists, on the other hand, believe that human beings are completely autonomous and possess free will, and act voluntarily in the creation their world (Burrell and Morgan 1979). Here,

human nature is active, self-actualising, and intuitive. In this study, the stance adopted on human nature is that of determinism. That is, every social entity is determined by its antecedents and causes; therefore, it is possible to trace the current occurrence of each back to its preceding affairs. Here, human behaviours and decisions are conditioned under the law of causality. In this study, the behavioural intentions shaping the adoption of IB by corporate customers are being considered, as are the attitudes involved in forming behavioural intentions. Adopting a determinist stance is consistent with investigating the antecedent factors of attitudes.

Methodology concerns the way in which researchers approach the real world, through which the basic assumptions, logic, principles, rules, and procedures of research are explored. It is a general, conceptual approach or philosophy that is employed in order to guide the conduct of research, dealing with methods and strategies for the discovery verification of the true nature of various phenomena and actions that occur during day-to-day human activities.

There are two extremes that are frequently discussed in research methodology: nomothetic and ideographic. A nomothetic approach considers that rules and principles in social relationships can be described in general terms. This approach is mainly objectivist, wherein the researcher focuses on logical reasoning and deduction, prediction, and the interpretation of the target entity. The ideographic approach basically rejects the notion that there are principles in factors within social lives, or that there is the possibility that such social relations could be generally understood. On the contrary, it states that an individual is

capable of establishing, modifying, and interpreting the meaning of society. Subjectivism emphasises a deeper recognition and understanding of social experiences via the frame of reference of the research target. The ideographic methodology will serve that function (Harmon and Mayer 1986, 289-290). In this study, the stance of the methodology is a nomothetic one, because it is an approach that employs the use of quantitative techniques in examining the factors. This might better predict the propensity of corporate customers to adopt CIB.

Thus, following the philosophical assumptions introduced by Burrell and Morgan (1979), this study adopts the ontological stance of the realist; the epistemological stance of the positivist; the human nature stance of the determinist; and the methodological stance of the nomothetic.

4.3   Research procedure

To minimise the possibility of a waste of efforts in a study, choosing an appropriate research design for the survey is very important (Churchill 1979, 64). The quality of good research depends on the selection of appropriate research methods (Baker 1994, 109; Silverman 2001, 25). Lambert and Harrington (1990, 6) suggested that "the best methods to get high response rates include advance letters or telephone calls, first-class outgoing main and hand-stamped return envelopes, monetary incentives, […] assurance of confidentiality for sensitive issues, […] follow-up questionnaires/letters". Applying an organised questionnaire in this study for the purpose of data collection, this study takes the above

recommendations: follow-up calls will be made, and two hot spring spa vouchers are provided in order to increase the likelihood of higher response rates.

An appropriate research method should contain a good research setting (Baker 1994), which will help researchers to understand social phenomena, in order to obtain good construct measurement and thus be able to validate the results (Calder, Phillips, and Tybout 1981; Eisenhardt 1989). Churchill (1979) mentioned in his paper that developing a better measure scale can improve the quality of research. Overall, the research procedure is established in line with the paradigm provided by Churchill and Iacobucci (2009), and is described below (Figure 4.1).

Methodology refers to the basic logic, characteristics, and rationale of the research methods, from the theoretical underpinning to the collection and analysis of data (Hussey and Hussey 1997, 54; Payne and Payne 2004, 148-151; Silverman 2001, 4). Methodology, "like theories, cannot be true or false, only more or less useful" (Silverman 2001, 4). Research methods are the practical procedures and steps used by researchers to help them identify research questions, to collect and analyse data, and to present findings (Hussey and Hussey 1997, 54; Payne and Payne 2004, 148-151; Silverman 2001, 4).

Research procedures   **Purpose**

| Literature review | | To access the needs and constructs |

↓

| Interviews | | To access the needs and constructs |

↓

| Questionnaire design | | To design questionnaire |

↓

| Pre-test | | To revise wording and meaning |

↓

| Main study | | To collect data |

↓

| Reliability analysis | | To check for reliability |

↓

| Validity | | To examine validity |

↓

| Refining research instrument | | To check for and amend and/or eliminate irrelevant items/constructs again |

↓

| Model examination (regression) | | To test each hypothesis and predict independent and dependent variable relationships |

↓

| Conclusion and discussion | | To explain determinants of Internet banking |

Figure 4.1: Research flow chart

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In general, qualitative research has a number of limitations: (1) it is not suitable for large-scale sampling at a macro level; (2) it is not capable of analysing direct consequential effects or correlations in certain conditions; (3) the results are not generalisable to other locations or populations. By contrast, the advantages of quantitative research include: (1) being able to conduct a statistical investigation of psychological phenomena at the macro level; (2) being able to examine theoretical hypotheses via systematic research instruments and approaches; (3) being able to collect representative information and results via sampling; (4) being able to precisely evaluate the reliability and validity of studies with standardised research tools and data-collection procedures; and (5) being able to investigate consequential and correlational relationships (Neuman 2011). In general, qualitative research focuses more on the process and procedure of data collection, while quantitative research is about revealing consequential and correlational relationships among recognised factors. Since this study is interested in the influence of a range of factors affecting the intention toward using IB, and in the relationship between them, a quantitative approach seems to be more appropriate.

The first stage of this research uses qualitative methods to interview participants, in order to discover more about the current situation in relation to the adoption of IB by corporates, considering particularly the experiences of individual members of corporate customers of using IB. The following stages continue with a questionnaire to collect quantitative data on the popularity and significance of the adoption of IB by corporate customers. Finally, the statistical methods (e.g. descriptive statistics, factor analysis and multiple regression

analysis) are performed and presented.

4.3.1 Interview

This study is primarily a quantitative study, accompanied by qualitative work. The qualitative-research stage involves an extensive literature review and interviews with IB managers, in order to obtain an initial understanding of current CIB development. Furthermore, bank managers, at this stage, recommend appropriate corporate customers of theirs to the interviewer. In this stage, finding out who the individual members of a buying centre are from the bank managers themselves could help us to determine who the correct respondents are (i.e. those most suitable for completion of the questionnaire for the purposes of this study) in their respective companies. Another reason for the employment of a qualitative study is to get a general idea of what causes corporate customers within banks to adopt or not to adopt IB, and to find out which individuals employed in the banks' buying centres would be the most suitable respondents, for the purposes of a further quantitative study.

In general, qualitative research can provide helpful and useful information in depth. The method of data collection is a semi-structured interview. Churchill (1979) asserted that semi-structured interviews can help generate domains and measurement items pertaining to the constructs in the model, and confirm the findings obtained from hypotheses testing. Moreover, the information collected during these interviews would be useful in detecting potential problems with data,

and confirming the validity of the findings, by using both quantitative and qualitative methods (Baker 1994, 284-285).

For the qualitative data, purposeful sampling is chosen for this research. Respondents will, first of all, be chosen based on the following screening standard: (1) the respondent's corporation has been established for at least three years; (2) the respondent has been in his/her current position for at least one year; (3) if the respondent's company has adopted IB services, then they should have used such services for at least one year. The purpose of such criteria is to make sure that the participating respondents have experience in using IB services in order that they may provide first-hand information and insights regarding IB.

The targets of the investigation are corporate customers in Taiwan. The reason for this is mainly because of the concern of the researcher's, and the customers there may fulfill the criterion of offering sufficientamount of companies yet to adopt CIB. All the interviews will take place in the interviewees' offices, therefore a suitably convenient environment for them. The interviews will be recorded with the respondents' permission, taking approximately one hour of face-to-face dialogue. In order to reinforce the hypothesis that individual members can influence corporate decisions, preliminary research indicated that within such companies, the buying centre for CIB adoption is small, and is often limited to comprising of just one or two individuals.

There are three versions of interview protocol (Appendices 4.1, 4.2, and 4.3 for the English version, and appendices 4.4, 4.5, and 4.6 for the Chinese version),

all of which have been designed based on the five theoretical models. The interview protocols will be mailed to qualified interviewees respectively, about a week before their interview.

These interviewees included CIB owners/managers and those employed in accounting departments. The three different interview protocols are for each of the groups, respectively: (1) those who have already adopted CIB; (2) those who have not yet adopted CIB; and (3) IB managers. All interviews will be conducted in Chinese. The interviews will be recorded, transcribed, and translated. The software WinMax will be used for analysing the recorded qualitative data. The interview results will be presented in Chapter Five.

4.3.2 Measurement development

The literature review and preliminary interview findings will be used to generate scale items for questionnaire development. The questionnaire will be distributed during the pre-test study, in which a small number of corporate customers will be presented with the questionnaire for pre-test research, prior to the finalisation of the final version for the main study.

The measurement-scale development of the pre-test study is discussed below. Firstly, two different English versions of the questionnaire, one for adopters and the other for non-adopters, will be developed from the literature review and preliminary interview results. Secondly, two English versions of the questionnaire

will be checked for content and checked for validity by two English scholars in the marketing field. Thirdly, the two English versions will be translated into Chinese, and a reverse translation will be conducted by the author, for three Chinese scholars to then compare the translation difference, in order to help revise and reduce possible translation errors.

Fourthly, the questionnaires will be tested in order to ensure that the questions are understood as intended, and to assess the feasibility of the survey approach, applied to both adopters and non-adopters. Content and face validity checks will be conducted again. The pre-test questionnaires are to be verified by three Taiwanese scholars (two in the marketing field and one in the organisational-behaviour field) and two banking staff members, both of whom work in the CIB department.

Fifthly, a small amount of the questionnaires in both Chinese versions will be distributed to sampling respondents, including both adopters and non-adopters of CIB. The questionnaire will then be modified again, with the help of English and Chinese scholars in both marketing and organisational-behaviour fields, banking staff members who work in the CIB department, corporate customers of CIB, and their potential customers. Finally, the final version of questionnaire for the main study will be created.

4.3.3 Preliminary questionnaire

The majority of the question items selected for both the preliminary and main study questionnaires have been previously developed, tested, and published in other research papers (e.g. Davis 1989; Fitzmaurice 2005; Harrison, Mykytyn, and Riemenschneider 1997; Hsieh, Rai, and Keil 2008; Parasuraman 2000; Shih and Fang 2004; Tan and Teo 2000; Taylor and Todd 1995a; Venkatesh et al. 2003; Wang et al. 2003). Thus, the question items are considered suitable to be tested again in this study.

The Likert scale "is a widely used rating scale that requires the respondents to indicate a degree of agreement or disagreement with each of a series of statements about the stimulus objects" (Malhotra and Birks 2007, 348). The advantage of the Likert scale is that it is "easy to construct and administer, respondents readily understand how to use the scale, making it suitable for Internet surveys, mail, telephone, or personal interviews" (Malhotra and Birks 2007, 349-350). Thus, this study will apply the Likert scale to collecting quantitative data for further analysis.

Most of these original questionnaire items used a seven-point Likert scale (e.g. Shih and Fang 2004; Tan and Teo 2000; Taylor and Todd 1995a; Venkatesh et al. 2003; etc.), with some using a five-point scale (e.g. Parasuraman 2000). Questions chosen for the study will use a seven-point Likert scale that ranged from "strongly disagree" to "strongly agree", "very unlikely" to "very likely", "not very interested" to "very interested", and so on. The reason of using a seven-point Likert

scale is that it could reduce measurement error, yet serve to increase constructs' differentiability (Churchill and Peter 1984).

The development of the questionnaire is based on research articles about IB adoption intention that were extracted from the literature review (Tables 2.1 and 3.1), as well as issues identified during interviews. The detailed question instruments will be described in Chapter Five.

Findings from the exploratory study will be used alongside key variables from previous models in order to guide the development of the questionnaire. A number of questionnaire items used in previous studies of TRA, TPB, TAM, DTPB, and TR will be included. After the preliminary questionnaire design, a pre-test study will be carried out. Neuman (2011) pointed out that when researchers have to choose a special case to provide a special message, they can adopt "purposive sampling". In this research, the pre-test study will be conducted with the help of night-school students from Jinwen University of Science Technology (JUST) in Taiwan. In general, the night-school students work in companies during regular business hours. Some of them may happen to be the key members in buying centres. This study asks for their consent to distribute the questionnaires to their corporate owners/employers, chief accountants, and general accounts. Each participating company is given only one questionnaire to answer. At first, for the purpose of testing and clarifying the meanings and wordings of the questionnaire items, only a small number of companies will be recruited. The intention is to identify who might have influence (or potential influence) over the decision to adopt IB, and to ensure conciseness and

completeness of the questionnaire.

4.3.4 Quantitative study

Most of the studies into adoption of an IB service were summarised in Table 2.1, focusing on individual consumers. Very few papers used corporate customers as respondents (e.g. Rotchanakitumnuai and Speece 2003).

There are several reasons as to why a predominantly quantitative method is employed for this study. Firstly, it is not necessary to apply both qualitative and quantitative research in a single study, because it could be expensive and time-consuming (Locke and Somers 1987). Secondly, from the literature reviewed in Chapter Two, it is evident that there are established theories in relevant areas, and these theories provide strong supports to the model described in Chapter Three. The research, which is based on the theories of TRA, TPB, TAM, DTPB, and TR, examines the relationships between the corporate customers' behavioural intention and their attitude, subjective norm, and perceived behavioural control, when they decide to either adopt, or not to adopt, CIB. These theoretical models have been studied extensively and provide a strong theoretical basis for research into consumer behaviour. Although these theoretical models are employed in consumer behaviour, there are examples for using them with corporate customers. Some of the papers also reported that TPB can be used in decision-making processes (e.g. Forman, Lippert and Kothandaraman 2007; Liu, Sia, and Wei 2008; Quaddus and Hofmeyer 2007; Stevens et al. 2005) for corporate customers. This study employs

five theoretical models as a foundation: TRA, TPB, DTPB, TAM, and TR, while TPB, DTPB, and TAM are based on TRA.

This study employs a predominantly quantitative method. In the main study, the research targets bank managers of IB divisions from major banks, as well as key members involved in corporate IB-adoption decisions, who are users, buyers, deciders, influencers, and gatekeepers (Kotler et al. 2008).

Many studies have examined IB adoption in a variety of locations around the world (Table 2.1), including Australia (Sathye 1999), Denmark (Mols et al. 1999), Estonia (Eriksson, Kerem, and Nilsson 2005), Finland (Karjaluoto, Mattila, and Pento 2002; Mattila, Karjaluoto, and Pento 2003; Pikkarainen et al. 2004), Hong Kong (Chan and Lu 2004; Cheng, Lam, and Yeung 2006; Liao et al. 1999), Singapore (Brown et al. 2004; Gerrard and Cunningham 2003; Liao and Cheung 2002; Tan and Teo 2000), South Africa (Brown et al. 2004), Taiwan (Shih and Fang 2004; Wang et al. 2003), Thailand (Jaruwachirathanakul and Fink 2005; Rotchanakitumnuai and Speece 2003), the UK (Lockett and Littler 1997; Moutinho and Smith 2000), and the US (Curran and Meuter 2005). Very few studies have focused on Taiwan, such as Shih and Fang (2004) and Wang et al. (2003). Nonetheless, Shih and Fang (2004) and Wang et al. (2003) investigated personal banking customers, therefore making it difficult to draw conclusive results.

For the main study, an extensive survey will then be used to collect data from corporate customers. According to their annual turnover, one from the ten

largest banks in Taiwan will be chosen to help conduct this study by distributing the research questionnaires to their corporate customers.

4.3.5 Data integration

The constructs of perceived usefulness, perceived ease of use, compatibility, normative influence, self-efficacy, and facilitating condition are measured by multiplication for each two items (i.e. belief and importance) (Cohen, Fishbein, and Ahtola 1972; Taylor and Todd, 1995b). Cohen, Fishbein, and Ahtola (1972) proposed the expectancy-value approach to evaluative component by using the multiplication for each two items (such as adequacy*importance). In addition, Taylor and Todd (1995b) have composed an equation to present attitude (A) as the outcome of the attitudinal belief (b_i) weighted by desirability of that certain outcome (e_i):

$$A = \Sigma\ b_i\ e_i$$

A new variable will be created after multiplication of belief and importance. For example, one item for perceived usefulness asks if "Relative to traditional banking, using CIB saves (should save) time", and another one asks if "Using CIB saves time and this is important to my company". The first item seeks to understand corporate customers' beliefs, and the second one seeks to measure their importance. Thus, a new measurement scale represents whether "Relative to traditional banking, using CIB saves (should save) time and it is important to my company".

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4.3.6 Statistical methods

Several analytical methods are planned in this study: descriptive statistics, factor analysis, and multiple regression analysis. The master survey is to be analysed using statistical software SPSS. Relevant analyses include:

Descriptive statistics describes each variable and summarises data by methods that generate numerical results (Daniel and Terrell 1995, 42). This study uses descriptive statistics to demonstrate background information, including their percentages, mean, and standard deviation.

Reliability analysis use Cronbach's coefficient alpha (Emory and Cooper 1991, 187). Reliability is the "extent to which a variable or set of variables is consistent with what it is intended to measure" (Hair et al. 1998, 90). "The Cronbach's alpha coefficient is a commonly used test of internal reliability [of scale] and provides a measurement between 0 and 1" (Bryman and Cramer 2001, 71).

Each variable will run a correlation analysis (Peter 1981). Correlation is a term "used to describe a linear relationship, or association, between two variables" (Brace, Kemp, and Snelgar 2000, 250).

Content validity and construct validity tests (Emory and Cooper 1991, 179; Peter 1981) as well as exploratory factor analysis (EFA) amend and/or eliminate irrelevant items and reduce the amount of items (Hair et al. 1998, 90).

Multiple regression analysis tests each hypothesis and confirms

relationships among independent and dependent variables (Hair et al. 1998, 148-149). It is also used to compare the difference between adopters and non-adopters.

When evaluating a questionnaire, there are three major considerations: reliability, validity, and practicality (Emory and Cooper 1991, 179). Although high reliability is no guarantee of good scientific results, scientific results will definitely be poor without it (Kerlinger and Lee 2000, 662). Reliability describes the accuracy and precision of a measurement procedure (Emory and Cooper 1991, 179). In practice, Cronbach's alpha is widely used by researchers because it has the greatest utility for multi-item scales at the interval level of measurement (Emory and Cooper 1991, 187). Cronbach's alpha coefficient can test the reliability of research instruments that use Likert scales (Kerlinger and Lee 2000, 656). Nonetheless, a highly reliable measure only tells researchers that the instrument is measuring something consistently. It may not be measuring what the researchers think it is measuring (Kerlinger and Lee 2000, 643).

Validity refers to the extent to which a test measures what it is actually supposed to measure (Emory and Cooper 1991, 179). A joint committee of the American Psychological Association, the American Educational Research Association, and the National Council on Measurements has prepared the most important classification of types of validity, such as criterion-related, concurrent, predictive, and construct validity, and validity of content (Cooper and Schindler 2008, 167; Emory and Cooper 1991, 184; Kerlinger and Lee 2000, 666).

4.3.7 Factor analysis

Factor analysis is usually the method of choice for many researchers when dealing with construct validity. Factors in measurement tools can be proposed by higher loading on one factor and lower on others. Factor analysis is "a multivariate technique for identifying whether the correlations between a set of observed variables stem from their relationship to one or more latent variables in the data, each of which takes the form of a linear model" (Field 2009, 786). "Factor analysis can be performed discover the important underlying factor or dimensions that encapsulate a particular form of behaviour" (Malhotra and Birks 2007, 215). This study mainly employs factor analysis to examine construct validity.

Principal component analysis (PCA) is one of the basic approaches of factor analysis, and it is "recommended when the primary concern is to determine the minimum number of factors that will account for maximum variance in the data for use in subsequent multivariate analysis" (Malhotra and Birks 2007, 652). PCA can also be used so "that a much smaller number of these components will account for most of the variance in the original set of variables and of course that we can meaningfully interpret the components" (Stevens 2009, 387). This study will use PCA, because the minimum number of factors will be included in further analysis, and can be used to reduce the items to be included in further analysis. Varimax and an orthogonal rotation are also used in the PCA. The reason for using varimax is that it is one of the most commonly used orthogonal rotation approaches (Hair et al. 2010).

For further instances of multiple regression analysis, the researcher has to select a suitable method of calculation instead of the original variables. In general, there are three data reduction options: single surrogate variable, summated scales, and factor scores. Hair et al. (2010, 128) suggested that the decision rules are as follows:

1. *If data are used only in the original sample or orthogonality must be maintained, factor scores are suitable.*

2. *If generalisability or transferability is desired, then summated scales or surrogate variables are more appropriate. If the summated scale is a well-constructed, valid, and reliable instrument, then it is probably the best alternative.*

3. *If the summated scale is untested and exploratory, with little or no evidence of reliability or validity, surrogate variables should be considered if additional analysis is not possible to improve the summated scale.*

Factor scores are selected to test correlation and multiple regressions, because data in this study are used only in the original sample (Hair et al. 2010, 128). Factor scores are based directly on factor loadings, and the amount of multiple variables could be reduced into a smaller number (Hair et al. 2010, 142).

4.3.8 Multiple regression

Multiple regression is "an extension of simple regression in which an outcome is predicted by a linear combination of two or more predictor variables". Hair et al. (2010, 169) defined multiple regression analysis as "a form of general linear modeling, is a multivariate statistical technique used to examine the relationship between a single dependent variable and a set of independent variables". Thus, multiple regression can be carried out to identify the determinants of IB adoption by corporate customers.

Normality, homoscedasticity and linearity of residuals

Before the application of multiple regression, there are several main assumptions in regression analysis (de Vaus 2002, 343-344; Hair et al. 2010, 182):

1) Linearity of the phenomenon screened in scatterplot;

2) Constant variance of the error terms tested in homoscedasticity of variance;

3) Independence of the error terms examined by Durbin-Watson;

4) Normality of the error term distribution screened by normal probability plots and diagnosed by z kurtosis, z skewness, and Kolmogorov-Smirnov (Hair et al. 1998).

Firstly, the linearity of the relation between dependent and independent variables is screened by creating a scatterplot representing the degree of change in the dependent variable relative to the independent variable (Hair et al. 1998). The Pearsos correlation is also calculated for the linearity of the relation between dependent and independent variables. The results will be presented in Chapter Six.

Secondly, homoscedasticity of variance is examined by the Levene test in order to assess whether the variance of a single metric variable is equal across all numbers of groups (Hair et al. 1998). With minimal violations of this assumption found, there is no corrective action needed (Hair et al. 2010, 208).

Thirdly, the independence of the error terms is checked to see that the predicted value (independent variables) is not related to any other prediction (dependent variables). Because the sampling in this study is cross-sectional data instead of time-series data, the independence of the error terms has resulted in no violation of this assumption.

Finally, the normality of the error term distribution is checked for kurtosis and skewness of the distribution, revealed by the results of a Kolmogorov-Smirnov test. With regards to normal distribution limitations, Field (2009, 144) stated that "with large sample sizes it is very easy to get significant results from small deviations from normality, and so a significant test does not necessarily reveal whether the deviation from normality is enough to bias any statistical procedures that we apply to the data". Pallant (2007, 204) also mentioned that "most of the techniques are reasonably "robust" or tolerant of violations of this assumption". Hair et al. (2010, 77) showed that non-normality effectively diminishes when sample sizes reach 200 or more. Bryman and Cramer (2001) and Micceri (1989) found that some variables in social science studies do show a non-normal distribution. Bryman and Cramer (1997, 96) stated that researchers often have to treat variables as if they are normally distributed.

"The objective of multiple regression analysis is to predict the changes in the dependent variable in response to changes in the independent variables" (Hair et al. 1998, 14). Below is the formula of multiple regression:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots + \beta_i X_i + r$$

In Chapter Six, there will be presentation of the results of multiple regression.

The purpose of the comparison between two groups is for understanding what the differences are between corporate customers (adopters) and prospective corporate customers (non-adopters) in relation to the factors that influence the adoption of IB. Such understanding would help banks to create marketing strategies and improve their operational efficiency. Thus, this study runs separate regressions on the dependent variables in two groups, and then calculates the z scores to compare the regression coefficients. The formula used for testing the equality of regression coefficients is listed below (Clogg, et al. 1995, 1276; Paternoster et al. 1998, 862).

$$Z = \frac{(b_1 - b_2)}{\sqrt{SEb_1^2 + SEb_2^2}}$$

b_i ： Unstandardised coefficients of regression

SEb_i ：Standard error of unstandardised coefficients

4.3.9 Respondents

About the respondents in this study, some studies suggested that there are five roles in a buying centre: users, influencers, deciders, buyers, and gatekeepers (Webster and Wind 1972, 17). In the main study, the questionnaire is completed by individuals within the banking services buying centre of Taiwanese corporations. The questionnaire respondents are selected on the basis of their responsibilities regarding deciding/buying/using/influencing the adoption of IB in their company. They may be corporate owners/employers, chief accountants, general accountants, and others (such as employees in the accounts department, a proxy, e.g. an attorney or staff member in an IT department). As for which members of the buying centres are most suitable for this study, this will be determined after the interviews.

For example, the user (financial officer) of IB is informed and convinced by the IB provider that IB is very convenient for regular tasks, such as requesting bank statements. Then the user persuades the decider (business owner) to set up IB accounts. Next, the decider asks the gatekeeper (secretary) to collect information about IB, e.g. what functions are offered by IB, how to use it, and the differences between IB and traditional banking. After evaluation, the decider allows the buyer (the financial officer) to open an IB account. Thus, the members of buying centre interact with each other (Haas 1992, 190) and play a variety of roles simultaneously. For example, the finance officer could be a user and a buyer at the same time. In addition, the client of that corporation could be a prospective influencer.

The participating corporations are Taiwanese corporate customers or potential customers of IB. Both adopters and non-adopters of CIB are included in this investigation. One of biggest banks in Taiwan helps with the study. The final research questionnaires are sent to its corporate customers through this bank in Taiwan.

4.3.10 Sample size

In this study, the sample size of the questionnaire survey is determined by three main factors: the sample size requirement of the multivariate analysis techniques (e.g. EFA), time, and financial constraints. Hair et al. (2010) suggested that the sample size should exceed 100, a minimum amount of at least five cases to each variable and an ideal amount of at least 10 cases to each variable. Moreover, Hair et al. (1998, 112) also provided more practical guidelines for identifying significant factor loadings based on sample size (Table 4.1).

In addition, Stevens (2009, 395) also recommended the following guidelines:

(1). *Components with four or more loadings above 0.60 in absolute value are reliable, regardless of sample size.*

(2). *Components with about 10 or more low (0.40) loading are reliable as long as sample size is greater than about 150.*

(3). *Components with only a few low loadings should not be interpreted unless the sample size is at least 300.*

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Table 4.1: Guidelines for identifying significant factor loadings based on sample size

Factor loading	Sample size needed for significance
0.30	350
0.35	250
0.40	200
0.45	150
0.50	120
0.55	100
0.60	85
0.65	70
0.70	60
0.75	50

Source: Computations made with SOLO Power Analysis, BMDP Statistical Software, Inc. 1993 (cited from Hair et al. 2010, 117).

Thus, the initial usable sample size will be set at a minimum of 300 (150 for adopters and 150 for non-adopters), which can meet all the above criteria. According to past experience and empirical studies (e.g. Rashman 2008, 193), the response rate is set at 50%. Based on this figure, it is estimated that over 600 questionnaires have to be sent out. In order to collect sufficient samples returned, a total of 1,000 questionnaires will be distributed to corporate customers in this study. The detailed data-collection procedure will be discussed in section 6. 2.

4.4   Chapter summary

This chapter has presented the philosophical stance taken, discussed the research procedure, and explained the intended statistical analysis.

The philosophical stance was presented in section 4.2. In the subsequent section, a research flow chart was presented in order to demonstrate the steps involved in the study. The researcher used mainly a quantitative method to collect and analyse the data. The measurement-scale development process was developed following the literature review and qualitative interview in order to identify features of corporate customers in terms of their attitude, subjective norm, and perceived behavioural control. A pre-test study was carried out before the main study, using the preliminary questionnaire design in order to finalise the questionnaire. Statistical methods were applied in order to treat the collected data and help to explain the collected information. Several analytical methods were used in order to fulfill the goals and to test research hypotheses of this study, including mainly factor analysis and multiple regression analysis.

In the next chapter, there will be a detailed description of the interview investigation, which leads to the development of the survey instrument and an understanding of the key members of buying centres in the corporations to whom the questionnaires would be distributed.

Chapter 5 Measurement Development

5.1 Introduction

This chapter introduces how the measurement scales were developed, and includes a qualitative study that aims to both discover who is involved in IB adoption and why customers either accept or reject IB, and identify further factors affecting the adoption of IB by individual members of corporate-customer buying centres.

The initial stage of questionnaire development is presented using five theoretical models, accompanied by interviews. Next, the properties of the measurement tool used in the main study are presented. The final section summarises how the measurement scales were developed.

5.2 Qualitative study

In order to explore the characteristics of the CIB industry, understand current CIB development, investigate patterns of CIB adoption, validate this research design, and investigate the reasons as to why corporate users, deciders, buyers, influencers, and gatekeepers choose to either adopt or not adopt CIB, interviews are conducted with corporate practitioners. Through conducting interviews, this study also aims to discover the differences in CIB adoption between adopters and non-adopters.

Rotchanakitumnuai and Speece (2003, 316) pointed out that "using a qualitative approach provides richer detail for exploring viewpoints at early stages of research, allowing the researcher to gain a better initial understanding of the problem and to identify phenomena, attitudes and influences" (e.g. Healy and Perry 2000).

Descriptors of Taiwan's corporate Internet banking (CIB)

Several approaches are applied in the study for sampling, including random sampling, convenience sampling, and purposeful sampling. Purposeful sampling is conducted by choosing interviewees in collecting qualitative study data in this stage. The reason for purposeful sampling has been discussed in section 4.3 (see first stage).

Respondents included three IB managers (B1 - B3) from three different banks, eight companies who have adopted CIB (Y1 - Y8), and eleven companies who have not adopted CIB (N1 - N11) (Appendices 5.1 - 5.7). These individuals were aged between 28 and 58, and their average time working at their respective companies was approximately six years. The interviews were recorded, transcribed, and translated. WinMax computer software[4] was used to analyse the resulting qualitative data. All interviews were conducted in Chinese, from the end of 2005 to the beginning of 2006. The follow-up analysis was conducted initially in Chinese, and later translated into English. The key findings are presented in the following sections.

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[4] WinMAX (1998) was the predecessor of MAXQDA, which is a tool for qualitative data analysis.

5.2.1 Corporate Internet banking in Taiwan

There are two main kinds of IB: stand-alone IB, and IB provided by traditional/major banks (Littler and Melanthiou 2006, 435). While there is no stand-alone IB service provider in Taiwan, most of the major/traditional banks provide auxiliary CIB services. At present, CIB in Taiwan is controlled entirely by the major banks.

Most companies in Taiwan have not yet adopted CIB. When searching for samples to use in this research, it was found that commercial companies that had adopted CIB were scarce when compared to those that had not adopted CIB. Manager B2 claimed that companies adopting CIB were outnumbered by the non-adopters, with a ratio of 1:4. Manager B3 said, *"In my bank, there are not many corporate customers who adopt CIB when compared to individual customers who adopt Internet banking"*. Obviously, there must be certain causes that are preventing corporate customers from adopting IB.

The usage situation of corporate Internet banking

While some corporate customers have applied for the CIB service, they rarely use it. For example, interviewees N1 and N2, who adopted the CIB service a while ago, stated that they had never used it. They applied for the CIB service mainly because of a promotion offered by bank employees; they opted not to use the service due to security concerns. However, where CIB has been adopted and used frequently, the companies were willing to continue using the service, as revealed by interviewees Y1 ~ Y8.

When corporate customers faced difficulty in using CIB services, they would seek telephone consultation or go to the physical bank branch for help. Managers B1 and B2 mentioned their CIB customer service line, and talked about how their staff assisted customers. Interviewees Y7 and Y8 welcomed those services. This demonstrates that perceived ease of use may be one of the main factors in the adoption of CIB. For example, IB can provide telephone consultation, and when users encounter problems with IB service, there is a support system in place to assist them.

Inquiry service is frequently used

Some companies that had already adopted CIB used the inquiry service frequently. However, only a few companies used other functions like the combined-inquiry and transaction function. Managers B1 and B3 confirmed this phenomenon. Few corporate customers apply for the limited-transaction function that transfers money from one account to another. The main concern was security. Table 5.1 shows the CIB functions used in Taiwanese companies.

One special example was company Y5, which was an investment and trust company, and belonged to a financial holding company in Taiwan. In order to advertise itself, Y5 used the CIB service with all the functions offered by its bank, which was another subsidiary of the parent company.

Table 5.1: CIB functions used in Taiwanese companies

Co.	CIB functions
Y1	Inquiry
Y2	Inquiry, transaction (limited)
Y3	Inquiry
Y4	Inquiry, transaction (limited)
Y5	Inquiry, transaction (all)
Y6	Inquiry
Y7	Inquiry
Y8	Inquiry, transaction (limited)

Source: Prepared by author

5.2.2 Corporate Internet banking acceptance

Manager B2 said that SMEs in Taiwan were more ready to accept CIB than large enterprises. Internal control and coordination issues made large companies more reluctant to adopt CIB. The final decision on whether or not to adopt CIB usually rested in the hands of owners or the chief managers of accountants. Unlike large enterprises, SMEs in Taiwan had fewer decision makers, and had better readiness to accept CIB. It might be because some large enterprises already have electronic pricing and payment systems, and such systems were not yet compatible with the CIB services offered. Furthermore, SMEs have fewer employees, and owners are usually also the accountants of the companies. Thus, CIB adoption rate

in SMEs was higher than in large enterprises. Approximately 50% of SMEs agreed to apply for the CIB service with bank B1, whereas only 20% of large enterprises applied for its CIB service. In addition, SMEs were more likely to adopt CIB, with owners making unilateral decisions to adopt. Compared to that, larger enterprises usually had to follow standard operating procedures, rules, and governance. In this case, gaining approval from the corporate managerial level for the adoption of CIB would be more difficult, or it would at least take longer for the process to happen. To conclude, size of organisation influenced the decision to adopt CIB.

5.2.3 Differences among industries for business customers' adoption of Internet banking

According to the interviewees' comments, industry as a factor did not play a role in the adoption of CIB. No particular industry was more likely to adopt CIB systems than others. For example, the financial industry and IT industry did not show any stronger intention or rate of adopting CIB. For the financial industry, the business activities between their companies and banks were too close and too complicated to be easily replaced by CIB services. As for companies in the IT industry, they were usually more cautious about CIB services because of security concerns.

Manager B1 said that, *"although there is no distinction in different industries for corporate customers who adopt CIB, large enterprises and SMEs have different decision process on adopting Internet banking."*

5.2.4 Computer equipments and adoption of corporate Internet banking

After the interviews, it was found that the relationship between computer equipment and CIB adoption was unclear. For example, interviewee N11 said that, "*computer equipment does not influence the decision on whether to adopt CIB. Since computer equipment expenses need only to be paid once, it is not a long-term expense. However, we already have the administration need for computer equipment.*" Another interviewee, Y8, said that online/Internet equipment may well influence the decision to adopt CIB, and that, "*if the online/Internet equipment quality is not good, you may not want to adopt the CIB, due to the operating efficiency.*" From the above interview dialogues, it is revealed that the facilitating condition might also be an important factor for CIB adoption.

5.2.5 Buying centre's members

These interviews could help to validate and confirm: (1) corporate users or potential users of CIB; (2) deciders or potential deciders in the adoption of CIB; (3) corporate buyers or potential buyers who sign the contract for CIB; (4) corporate influencers or potential influencers on decision making; and (5) gatekeepers or potential gatekeepers who regulate the contact with CIB.

Based on the interview results, CIB users, deciders, buyers, influencers, and gatekeepers play different roles in CIB adoption. Their roles will be discussed

below:

CIB users

In general, CIB users or potential users are owners, chief accountants, and accountants (please refer to Table 5.2). For example, interviewee Y3 said that, "*in my company, I usually use CIB except when on vacation. When I am off-duty, my attorney will use it, because I have taught her how to use the function.*" Interviewee Y5 said that, "*there are several steps when we use CIB. First, the assistant accountant files the request to use CIB. Then the chief accountant checks and implements the action. We can use the CIB account to examine the detailed account balance and bank statement. If we want to transfer funds, we need the authority of the accountant department manager.*

Table 5.2: Position and number of users in companies with CIB adoption

Co.	Positions of IB users	Number of users
Y1	Accountants	2
Y2	Accountants	3
Y3	Accountant	1
Y4	Owner	1
Y5	Owner and accountant	2
Y6	Accountants	4
Y7	Accountants	2
Y8	Owner	1

Source: Prepared by author

CIB deciders

After the interviews with Y1 ~ Y8 and N1 ~ N11, it was found that the role of deciders on whether to adopt CIB in commercial companies are played by owners and chief accountants of accounting departments. Only a few of them were accountants. Table 5.3 shows the people who make decisions.

Table 5.3: Positions held by CIB deciders

Co.	CIB deciders	Co.	CIB deciders
N1	Accountant	Y1	Chief accountants of accounting dept.
N2	Owner	Y2	Owner and accountant
N3	Owner	Y3	Chief accountants of accounting dept.
N4	Owner	Y4	Owner
N5	Owner	Y5	Owner
N6	Owner	Y6	Owner
N7	Owner	Y7	Owner
N8	Owner	Y8	Owner
N9	Owner		
N10	Owner		
N11	Owner		

Source: Prepared by author

CIB buyers

In general, the CIB buyers or potential buyers are companies' owners, their general accountants and chief accountants (please refer to Table 5.4).

Table 5.4: CIB buyers

Co.	CIB buyer	Co.	CIB buyer
N1	Accountant	Y1	Chief accountant
N2	Owner and accountant	Y2	Owner and accountant
N3	Owner and his wife	Y3	Owner and accountant
N4	Owner and accountant	Y4	Owner
N5	Owner	Y5	Owner
N6	Owner	Y6	Owner
N7	Owner and accountant	Y7	Owner
N8	Owner	Y8	Owner and accountant
N9	Accountant		
N10	Owner		
N11	Owner		

Source: Prepared by author

CIB influencers

Apart from the companies' accountants and bank employees, no one in the Taiwanese companies studied was an obvious CIB influencer. The main influencing factors were "job needs" and "active recommendation from bank employees to CIB influencers" (please refer to Table 5.5). For example, interviewee Y3 said that, "*before adopting CIB, we needed to call the bank every day to ask the bank about the account balance. We tried CIB due to its strong promotion by the bank employees. CIB will be very convenient after it has been evaluated. Thus, I also recommended my employer to adopt.*" Another example, interviewee Y8, said that, "*the bank employee was very enthusiastic to promote his*

bank's CIB service, and has convinced me to adopt CIB. He came to my company to teach me how to use CIB. After adopting CIB, I have found that it is very convenient."

Table 5.5: CIB influencers

Co.	CIB influencer	Co.	CIB influencer
N1	Nil	Y1	Payee
N2	Nil	Y2	Accountant
N3	Nil	Y3	Accountant
N4	Nil	Y4	Accountant
N5	Nil	Y5	Accountant
N6	Nil	Y6	Accountant
N7	Nil	Y7	Accountant
N8	Nil	Y8	Accountant
N9	Nil		
N10	Nil		
N11	Nil		

Source: Prepared by author

CIB gatekeepers

A CIB gatekeeper, such as an assistant, is the person who deals with the bank account at the physical bank branch. As mentioned by manager B2, "*the assistant accountant is our face-to-face customer because she/he may come to our bank every day. If our bank has any products to promote, she/he will be the first person for us to persuade. We also keep in touch with him/her to answer questions related to CIB.*"

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Table 5.6 summarises the roles of key members in the CIB context. There are the employers, the companies' accountants, including the assistant, general accountant and chief accountant in the accounting department, as well as those bank employees who are responsible for marketing CIB services.

Table 5.6: Buying centre's members in the CIB context

Buying centre	Roles
Gatekeepers	Corporate general accountants.
Deciders	Corporate owners/employers or chief accountants.
Users	Corporate owners/employers, chief accountants, or general accountants (employees in the accounts department or a proxy, e.g. an attorney).
Buyers	Corporate owners/employers or chief accountants.
Influencers	Corporate owners/employers or chief accountants.

Source: Prepared by author

5.2.6 Interview results: Adopters

There were several important factors here, all of which help to demonstrate why some companies had adopted CIB. They included convenience, immediate processing, demand, efficiency, correctness and clarity, tendency and novel sense, popularity of CIB usage, bank employee support, and direct promotion by bank employees.

Table 5.7: Main reasons to why companies adopt CIB

Main reasons	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8
Convenience with CIB	*	*	*	*	*	*	*	*
Immediate processing	*	*		*	*	*	*	*
Demand	*	*	*	*		*	*	
Saving time			*	*	*	*	*	*
Efficiency	*	*			*			
Correctness and clarity					*		*	*
Tendency and novel sense				*			*	*
Popularity of CIB usage						*	*	*
Bank employee support	*						*	*
Direct promotion by bank employee			*	*				*

Source: Prepared by author

Table 5.7 shows the main factors that corporate customers recognised when adopting CIB. All interviewees stated that convenience is a very important factor for adopting CIB, and most of them mentioned that immediate processing, demands, and saving time are also influential. Some dialogues with interviewees who have adopted CIB are recorded below.

These dialogues revealed the main reasons as to why companies adopt CIB. Y3 explained that CIB was adopted mainly for convenience. Interviewee Y3 said that, *"Before adopting CIB, we had to call the bank to inquire about account balance and check the rate of foreign exchange. Although our owner was worried about security, he still agreed to adopt CIB due to its convenience. Due to security*

reasons, I use the inquiry function rather than the transaction function of CIB." Interviewee Y4 also supported the notion that convenience is one of the main reasons for CIB adoption. Interviewee Y4 said that, *"I feel that CIB is very convenient. It can avoid typographical mistakes. In fact, our original reason for adoption was to check the account balance, because I need to know immediately whether remittances have gone into to my account or not. CIB can show the immediate clear result and the data is printable."* Not only was convenience emphasised by Interviewee Y5, but also correctness and efficiency. Interviewee Y5 said that, *"You cannot write off the convenience and accuracy of CIB. It is very efficient."* In addition to convenience, interviewee Y6 also shared his opinion about immediate processing and said that, *"many people already use it (CIB). We (the accountants) need it (CIB) and it is more convenient. Thus, we recommended the owner to adopt CIB so that we would not have to go to the bank: we can use the service to find out the account balance immediately. The function can show the remittance of overseas customers very clearly and in detail."* Interviewee Y7 mentioned that convenience was the primary factor for the adoption of CIB, along with timesaving. Interviewee Y7 said that *"it is more convenient and saves time from going out to the bank and back. Traveling and waiting is time-consuming. If the accountant has any accident when she goes out, the company bears the responsibility. Thus, it is better to stay in the building, without the need to go out. Beside, our workload is very heavy, so less time is wasted."* Interviewee Y8 stated that convenience, employee support, and direct promotion by bank employees were the main reasons for CIB adoption. Interviewee Y8 said that *"I chose a physical bank that was very near to my company building. But my company moved*

to a new location, which is far away from the physical bank. Adopting CIB was

very convenient for me. I can save time by not going out to the bank and back.

Actually, my computer skills are very poor, but a bank employee very

enthusiastically promoted their CIB service. He convinced me to adopt the service,

and came to my company to teach me to use CIB. After adopting CIB, I find that it

is very convenient."

5.2.7 Interview results: Non-adopters

There are several important factors that deter companies from adopting CIB. These factors include security, convenience of their physical bank branches, lack of perceived need for CIB, conservative approach by the deciders, operating skills, continued custom with the physical bank branches, and lack of knowledge about CIB. Please refer to Table 5.8 for details. Amongst all these factors, most interviewees stated that the most important concerns were security, the convenience of their physical bank and lack of perceived need for CIB.

Table 5.8: Main reasons for companies not to adopt CIB

Main reasons	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11
Worries about security	*	*	*	*	*	*	*	*	*	*	*
Convenience with traditional banks	*	*			*	*	*	*	*	*	*
Lack of perceived need to adopt CIB	*	*		*		*	*	*	*	*	
Deciders' conservative approach		*	*	*	*	*		*			
Operating skills			*		*	*		*	*		*
Accustomed to traditional bank			*		*					*	*
Unaware of CIB										*	

Source: Prepared by author

Some dialogues recorded, below, demonstrate typical comments from interviewees, with corresponding reasons for the decisions not to adopt CIB. Interviewee N2's and N8's dialogues supported the notion that security is one of the reasons why the respondents' companies do not adopt CIB. Interviewee N2 said that, *"my employer is afraid of computer viruses, so the computers in the accounting department cannot go online for security reasons."* Interviewee N8 said that, *"I don't believe in CIB. If someone is a computer expert, he/she can get into my account to steal my money."* Additionally, Interviewee N5 felt that, *"traditional banking is sufficiently convenient."* Thus, Interviewee N5 did not think about CIB adoption. Interview N5 said that, *"the bank staff can come to my office to pick up the transaction statements, if I ask for help. Moreover, we have*

been customers of the physical bank since my company was set up. It is very

convenient for us to use the physical bank. Hence, my employer doesn't want to

change this situation." Interviewee N1 described their "lack of perceived need to

adopt CIB", saying that, *"I applied for CIB a long time ago, but never used it. We*

do not need CIB, because we only use the most basic banking functions, such as

checking the account balance and transferring money. Furthermore, our bank is

very near to our company — just five minutes by walking." Interviewee N11

explained that, "*being accustomed to traditional bank*" and "*operating skill*" were

his major concerns, and added that, *"I can just call the familiar bank employee to*

ask for help to transfer money and then remedy the signature/stamp when I have

time. The traditional bank's service is very convenient for me. Also, I am always

outside on a construction site, not in the office. So it's impossible for me to find a

computer to deal with bank matters. Operating ability is important. If I adopt CIB,

I would need to learn how to operate CIB from the start."

5.2.8 Further analysis of exploratory interviews

Analysis showed that the decision about whether or not to adopt CIB was

not made until a discussion between owners and accountants (including assistant

accountants, general accountants and chief accountants) had taken place. The

results further led to the sampling in corporations for the distribution of research

questionnaires.

The main factors for adopting CIB are convenience, immediate processing,

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demand, saving time, efficiency, correctness and clarity, tendency and novel sense, popularity, bank employee support, and direct promotion by bank employees. Conversely, the main factors for not adopting CIB are security, convenience of the physical bank (branch), lack of perceived need for a CIB service, conservative approach by the key decision makers, operating skills, history of custom at the physical bank (branch), and lack of knowledge of CIB.

In addition, the findings showed that "worries about security" was one of the factors for non-adoption of CIB. Parasuraman's (2000, 311) definition of insecurity is, "distrust of technology and skepticism about its ability to work properly". One of the question items from Parasuraman's (2000, 312) measurement scale, INS2, was "You do not consider it safe (enough) to do any kind of financial business online". So, from INS2's wording, it could be viewed as having a similar meaning to "worries about security".

Based on these views, the interview results were analysed, categorised, and further summarised in Table 5.9 and 5.10; here, the relationship between all of the identified factors, the five theories of TRA, TPB, DTPB, and TR, and their constructs, are presented. The main reason is that these definitions of the constructs in the theoretical models possess a lexical similarity to those given in interviewees' statements. Thus, further quantitative study will test these relationships, which were proposed in hypotheses in Chapter Three.

Table 5.9: Relationships between the adoption factors and five theoretical models

Main reasons	Theories	Constructs
Convenience with CIB	TR	Optimism
Immediate processing	TAM	Perceived usefulness
Demand	TRA, TPB	Attitude
Saving time	TAM	Perceived usefulness
Efficiency	TAM	Perceived usefulness
Correctness and clarity	TAM	Perceived ease of use
Tendency and novel sense	TR	Optimism
Popularity of CIB usage	TRA, TPB	Attitude
Bank employee support	TPB	Perceived behavioural control
Direct promotion by bank employee	TRA, TPB	Subjective norm

Source: Prepared by author

Table 5.10: Relationships between the non-adoption factors and five theoretical models

Main reasons	Theories	Constructs
Worries about security	TR	Insecurity
Convenience of traditional bank	TPB	Perceived behavioural control
Lack of a perceived need to adopt CIB	TRA, TPB	Attitude
Deciders' conservative approach	TR	Insecurity
Operating skills	TPB	Perceived behavioural control
Accustomed to traditional bank	TAM	Perceived usefulness
Unaware of CIB		

Source: Prepared by author

5.3   Questionnaire design and distribution

The literature review and preliminary qualitative research findings were used to generate scale items for the preliminary questionnaire design. The questionnaire was assessed during the pre-test study, as a small number of corporate customers were tested with the questionnaire prior to the development of the finalised version for the main study. The detailed procedure of the preliminary questionnaire design was discussed in section 4.3.

The development of the questionnaire was based on the literature review (Table 2.1), and the interview results analysed (Table 5.9 and 5.10). The preliminary questionnaire has two versions (adopters and non-adopters), and its context intended to address questions with regards to the constructs in the conceptual framework (e.g. intention, attitude, subjective norm, perceived behavioural control, etc.), as well as demographics. Nonetheless, respondents suggested that this would cause them to be confused, and uncertain as to which version to answer. Therefore, a unified version was then developed and used in the main study.

The questionnaire of the main study derived from the interview results, preliminary questionnaire version, expert reviews, and results from a small pre-test testing sample. The final version of questionnaire consisted of five sections, which included a cover letter, two sections of questions regarding 14 constructs, and two demographics-related sections about the company and the individual, respectively.

The first part of the questionnaire is a cover letter. The second part consists of 21 questions, which are designed to ask the respondents about their companies' interactions with banks (A1 ~ A3, A5 and A9 ~ A12), to inquire as to the importance of the opinions posed by members of the buying centre in their companies (A4), to make sure the respondents are suitable and qualified (A6 ~ A8, A15 and A21), and to ask about their intentions toward CIB services (A13, A14 and A16 ~ A21). The third part consists of 58 questions, which aim to collect information about the other 13 constructs, which are attitude, subjective norm, perceived behavioural control, perceived usefulness, perceived ease of use, optimism, innovativeness, discomfort, insecurity, compatibility, normative influence, self-efficacy, and facilitating condition. The fourth part is about background information relating to the respondents' respective companies. The final part is relates to the respondents' own background information. The questionnaire mainly uses a seven-point Likert scale. The variety of response formats is an attempt to maintain the respondents' interest throughout its completion. Appendices 5.8 and 5.9 are the English and Chinese versions, of the final questionnaires for the main study respectively. Findings and analyses from the main study will be discussed in Chapters Six and Seven.

Table 5.11: Constructs, items, and sources used in the questionnaire

Construct	Items	Measures	References and their reliability	
Intention - adopters	A13. Will your company continue to use CIB during the next 12 months?	1=very unlikely 7=very likely 99=don't know	Wang et al. (2003, 519)	0.80
	A14. Will your company increase the usage of CIB during the next 12 months?			
	A16. Are you interested in using CIB?	1=not very interested 7=very interested		
Intention - non-adopters	A17. Will your company adopt CIB in the next 12 months?	1=very unlikely 7=very likely 99=don't know	Harrison, Mykytyn, and Riemenschneider (1997, 190)	0.95
	A18. Does your company have a plan to adopt CIB in the next 12 months?	1=no plan at all 7=certainly planned 99=don't know	Harrison, Mykytyn, and Riemenschneider (1997, 190) Shih and Fang (2004, 222)	0.95 0.88
	A19. Do you intend to use CIB if your company adopts it?	1=strongly disagree 7=strongly agree 99=don't know	Shih and Fang (2004, 222) Tan and Teo (2000) Taylor and Todd (1995a,154)	0.88
	A20. Will you recommend your company to use CIB?		By author	

Table 5.11: Constructs, items, and sources used in the questionnaire

Construct	Items	Measures	References and their reliability	
Attitude	B1. My company's adoption of CIB is (should be) a wise idea.	1=strongly disagree	Shih and Fang (2004, 222)	0.92
	B2. My company's adoption of CIB is (should be) valuable.	7=strongly agree	Taylor and Todd (1995a, 152)	0.89
	B3. CIB is (should be) helpful for my company.	99=don't know		
Subjective norm	B4. Most people who are important to my company think that my company should use CIB.	1=strongly disagree	Shih and Fang (2004, 223)	0.95
	B5. The people who influence my company decisions think that my company should use CIB.	7=strongly agree 99=don't know	Taylor and Todd (1995a, 153)	0.93
Perceived behavioural control	B6. My company has the resources to use CIB.	1=strongly disagree	Shih and Fang (2004, 223)	0.84
	B7. We (I and/or my colleagues) have the knowledge to use CIB.	7=strongly agree	Taylor and Todd (1995a, 154)	0.86
	B8. We have the ability to use CIB.	99=don't know		

Table 5.11: Constructs, items and sources used in the questionnaire

Construct	Items	Measures	References and their reliability
Optimism	B19. Using CIB makes (should make) banking tasks more convenient. B20. We like CIB, which is designed according to business needs. B21. CIB makes (or will make) accounting tasks more efficient. B22. CIB gives its users mobility, because it is not limited to a fixed office. B23. We are confident that computers do what we instruct them to do.	1=strongly disagree 7=strongly agree 99=don't know	Parasuraman (2000, 312) Above 0.7
Innovative-ness	B24. It seems that my company is learning more about the latest information about CIB than other companies (our business partners and competitors). B25. My company was (will be) among the first in my industry to acquire CIB when it was (is) adopted. B26. We usually (will probably) figure out the best way to use CIB without help from others. B27. My company keeps (should be able to keep) up with the latest CIB developments. B28. We can solve (should be able to solve) the challenge when (if) there are problems related to CIB. B29. My company has (will probably have) fewer problems than other companies in using CIB.	1=strongly disagree 7=strongly agree 99=don't know	Parasuraman (2000, 312) Above 0.7

Table 5.11: Constructs, items and sources used in the questionnaire

Construct	Items	Measures	References and their reliability	
Discomfort	B30. CIB is (should not be) not designed to be used by ordinary people. B31. One should be cautious in replacing traditional banking tasks with CIB because it might breakdown or get disconnected. B32. Computers has safety risks that are not discovered until people have used them.	1=strongly disagree 7=strongly agree 99=don't know	Parasuraman (2000, 312)	Above 0.7
Insecurity	B33. We do not feel confident to do company transactions on line. B34. Any banking transaction we do electronically should be confirmed later with hard copy document. B35. We need to check carefully whether online transactions make any mistakes, e.g. automated payments by CIB. B36. Those using CIB still need to interact with staff members of the bank occasionally. B37. When we call a bank, we prefer to talk to a person rather than a voice response system. B38. If we deliver information over the Internet, we can never be sure it really gets to the right place.	1=strongly disagree 7=strongly agree 99=don't know	Parasuraman (2000, 312)	Above 0.7

Table 5.11: Constructs, items and sources used in the questionnaire

Construct	Items	Measures	References and their reliability
Perceived usefulness	B09. Relative to traditional banking, using CIB saves (should save) time. B10. Using CIB saves time and this is important to my company. B11. Relative to traditional banking, using CIB has (should have) advantages. B12. Using CIB has advantages, and these additional advantages are important to my company.	B09* B10 B11* B12 1=strongly disagree 7=strongly agree 99=don't know	Shih and Fang (2004, 223) 0.66
Perceived ease of use	B13. Learning how to bank online is (should be) easy. B14. CIB, which is easy to learn, is important to my company. B15. Operation of CIB is (should be) easy. B16. CIB, which is easy to operate, is important to my company. B17. Using CIB can (should be able to) satisfy my company's needs easily. B18. CIB easily satisfies my company's needs, and this is important to my company.	B13* B14 1=strongly disagree B15* B16 7=strongly agree 99=don't know B17* B18	Davis (1989, 340) 0.94 Shih and Fang (2004, 223) 0.84 Venkatesh et al. (2003, 451) 0.70 Davis (1989, 340) 0.94 Shih and Fang (2004, 223) 0.84 By author

Table 5.11: Constructs, items and sources used in the questionnaire

Construct	Items		Measures	References and their reliability	
Compatibility	B55. Using CIB fits my company's work style.	B55*	1=strongly disagree	Shih and Fang (2004, 223)	0.75
	B56. CIB, which fits my company's work style, is important to my company.	B56			
	B57. Using CIB is suitable to my company's accounting system.		7=strongly agree	Taylor and Todd (1995a, 153)	0.84
	B58. We feel comfortable using CIB, which is suitable to my company's accounting system, and this is important to my company.	B57* B58	99=don't know		
Normative influence	B39. Most of my company's customers think that my company should use CIB.	B39*			
	B40. Generally speaking, my company wants to do what my company's customers think my company should do.	B40	1=strongly disagree	Shih and Fang (2004, 223)	0.95
	B41. Most of my company's suppliers think that my company should use CIB.	B41*	7=strongly agree	Taylor and Todd (1995a, 153)	0.80
	B42. Generally speaking, my company wants to do what my company's suppliers think my company should do.	B42	99=don't know		
	B43. Most of my company's peers think that my company should use CIB.	B43*			
	B44. Generally speaking, my company wants to do what my company's peers think my company should do.	B44			

Table 5.11: Constructs, items and sources used in the questionnaire

Construct	Items		Measures	References and their reliability
Self-efficacy	B45. My company can easily operate CIB on our own.	B45*		Shih and Fang (2004, 223)
	B46. Being able to operate CIB is important to my company.	B46		
	B47. We feel comfortable using CIB.	B47*	1=strongly disagree	
	B48. We feel comfortable using CIB on our own and this is important to my company.	B48	7=strongly agree	Taylor and Todd (1995a, 153
	B49. We are confident that we can solve CIB's operating problems on our own.	B49*	99=don't know	0.83 0.84
	B50. Being able to solve CIB's operating problems is important to my company.	B50		
Facilitating condition	B51. My company can (should able to) get CIB-specialised instructions all the time (e.g. CIB pamphlet or guide)	B51*	1=strongly disagree	Shih and Fang (2004, 223)
	B52. Being able to get CIB-specialised instructions all the time is important to my company.	B52	7=strongly agree	
	B53. My company can (should be able to) connect to the CIB website quickly.	B53*	99=don't know	Taylor and Todd (1995a, 153) 0.71 0.78
	B54. Connecting to the CIB website quickly is important to my company.	B54		

5.4 Properties of the measurement tool used in the main study

Table 5.11 showed the sources of the questions used in the questionnaire and the hypotheses for the final questionnaire, including intention (adopters for three items and non-adopters for four items), attitude (three items), subjective norm (two items), perceived behavioural control (three items), optimism (four items), innovativeness (six items), discomfort (two items), insecurity (six items), perceived usefulness (four items), perceived ease of use (six items), normative influence (six items), self-efficacy (six items), and facilitating condition (four items).

Both of the first two items (A13 and A14) measure adopters' intentions using a seven-point Likert scale, ranging from 1 to 7. There is a total of seven items relating to participants' intentions in the questionnaire. Among those, items A13, A14, and A16 are developed based on the research of Wang et al. (2003, 519), and are designated for adopters (companies who had already adopted CIB). Participants' answers are coded on a seven-point Likert scale, which are assigned to labels printed on the questionnaire (1 = "very unlikely"; 4 = "neutral"; 7 = "very likely"). In addition, items A17, A18, and A19 are derived from Harrison, Mykytyn, and Riemenschneider (1997, 190), Shih and Fang (2004, 190), Tan and Teo (2000), and Taylor and Todd (1995a, 154). These latter items are for non-adopters (companies who had not yet adopted CIB). These are revised to measure the intention of an individual member of a buying centre, using a

seven-point Likert scale. Due to the differences between the intentions of adopters and those of non-adopters, three items from Wang et al.'s (2003) intention measurement tool for adopters and four items for non-adopters (from Harrison, Mykytyn, and Riemenschneider 1997; Shih and Fang 2004; Tan and Teo 2000; Taylor and Todd 1995b) are appropriate.

All the other 13 hypothesised constructs are measured respectively on seven-point Likert scales that ranged from 1 to 7, from "strongly disagree" to "strongly agree", respectively. The constructs include attitude (B1 ~ B3), subjective norm (B4 ~ B5), perceived behavioural control (B6 ~ B8), optimism (B19 ~ B23), innovativeness (B24 ~ B29), discomfort (B30 ~ B32), insecurity (B33 ~ B38), perceived usefulness (B9 ~ B12), perceived ease of use (B13 ~ B18), compatibility (B55 ~ B58), normative influence (B39 ~ B44), self-efficacy (B45 ~ B50), and facilitating condition (B51 ~ B54).

5.5   Chapter summary

The measurement-scale development of the questionnaire was derived from the literature review and an analysis of the qualitative interviews, yet this study used mainly a quantitative method to collect and analyse the data.

This chapter described steps taken in the following order. The first step consisted of interviews with eight adopters, eleven non-adopters and three IB service providers. The results revealed that the key members in buying centres are the owners/employers and the companies' accountants, including chief

accountants, general accountants, and assistants in the accounting department. Through the interviews, ten main reasons for CIB adoption and seven reasons for non-adoption were identified. These reasons were also identified as features of corporate customers in terms of their attitude, subjective norm, perceived behavioural control, and so on. Next, a preliminary questionnaire was developed from the literature review and qualitative interviews. After the preliminary questionnaire design, a small-size pre-test was carried out before producing the final questionnaire. A total of 700 questionnaires were distributed, with 440 of them returned. Nine participants were withdrawn due to not meeting the study criteria. After the validity and reliability of the study data was checked, several analytical methods, such as descriptive, reliability analysis, validity analysis, factor analysis, and multiple regression analysis, are used in order to test the hypotheses. The results of which will be presented in the next chapter.

Chapter 6 Quantitative Study

6.1 Introduction

This chapter presents the findings from the large-scale survey, carried out using customers and potential customers of CIB in Taiwan. Descriptive statistics, correlation, and multiple regression analysis are used to analyse the data collected. In order to conduct these statistical analyses, this study used statistical software, SPSS Version 17.0, for data cleaning, checking, recording, and data analyses.

This chapter is divided into nine sections. Section 6.2 describes how participating banks were sampled, as well as the data-collection procedure. Section 6.3 describes the data coding policy. Section 6.4 presents background information on the respondents and participants in this study. Section 6.5 presents the EFA and scale-reliability results, with reasons for removal of several survey items. Following the EFA, a new conceptual framework was created (Figure 6.1) to replace the original conceptual framework, as shown in Figure 3.1. The revised conceptual framework (Figure 6.1) was developed from the literature review and in-depth interviews, and was matched with results from the EFA. Section 6.6 reportss the related factor scores from the revised conceptual framework. Section 6.7 presents the data attributions between CIB adopters and non-adopters. Section 6.8 provides the results of the regression analysis, and reveals the perceptual differences. The regression model includes perceptual differences from both adopters and non-adopters of CIB, and is applied to both groups. Section 6.9

concludes the research findings, and tests and answers the research hypotheses of this study.

6.2 Sampling and data collection

Based on information provided by the Financial Supervisory Commission (Financial Supervisory Comission Banking Bureau 2008, 363), the top 10 banks that have the largest total assets in Taiwan were chosen for this research. Due to time and budget considerations, random sampling was used to choose three out of these top 10 banks. Two of these three banks were reluctant to cooperate with the researcher. Only one bank offered to distribute this questionnaire to its corporate customers. The bank distributed the questionnaire to those of its corporate customers who had interacted with the bank within the last three months.

6.2.1 Data collection

One of the largest banks in Taiwan was chosen for this research. Due to their "commitment to confidentiality of customer information", the bank could not provide customers' direct contact information for this study. Nonetheless, this bank agreed to help distribute the questionnaire to its corporate customers.

A total of 1,000 blank hard-copy and electronic questionnaires were submitted to this bank. The questionnaire was distributed to business owners of

700 companies, which were randomly selected from the pool of this bank's corporate customers between December 2008 and March 2009. To encourage more responses from these corporate customers, measures such as phone call reminders and hot spring vouchers as rewards were used to promote their participation. Data from 440 respondents were collected, yielding a response rate of 63%. They included 257 (58%) companies who had already adopted CIB, and 183 (42%) companies who had not yet adopted CIB.

6.2.2 Data screening

As stated in the instructions to the questionnaire, the questionnaire should be answered by a member of the buying centre in the company, who could be the corporate owner/employer, chief accountant, or a general accountant. The specific participant is requested to identify his/her role in the company in the demographic data section. Chapter Five discussed the traditionally defined buying centre and the roles of gatekeepers, influencers, deciders, users, and buyers in the operation of a buying centre in the CIB context. The roles defined were those that involved decision-making power in the buying centre, namely corporate owners/employers, chief accountants, and general accountants.

Responses were removed from this study when they indicated that the respondent was very unlikely to influence/decide the adoption of IB within their company, or if they were not the first person contacted by bank staff. There are five items in the questionnaire aiming at checking the respondents' roles in their

respective companies. The deletion criteria are that when questions A6, A7, A8, and A21 in the questionnaire (Table 6.1) are answered with 1 ("very unlikely" or "very unimportant"), and when question A15 is answered with "No" in the same questionnaire, this certain set of responses should be excluded from the final analysis.

Table 6.1: Roles of the respondents in their companies

Member of buying centre	Item	Questions	Measurements
Gate-keeper	A6	When (if) your bank promoted (promotes) CIB to your company, how likely were (will) you (be) the first person to be contacted by them?	1=very unlikely 7=very likely
Influencer	A7	How likely are you to influence your company's adoption of CIB?	1=very unlikely 7=very likely
Decider	A8	When your company decided to adopt CIB, how important were you in influencing your company's adoption of CIB?	1=very unimportant 7=very important
User-adopter	A15	Are you personally involved in using CIB in your company?	yes no
User-non-adopter	A21	How likely will it be that you use CIB for your company, if your company adopts it?	1=very unlikely 7=very likely

For example, the essence of A6 is "When (if) your bank promoted (promotes) CIB to your company, how likely were (will) you (be) the first person to be contacted by them?" If the respondent answered 1 (very unlikely), it reveals that the respondent would not be likely a gatekeeper of the buying centre in his/her company. Likewise, A7, A8, and A21 similarly correspond to influencers, deciders and users (for non-adopters), respectively. A15 asks whether or not the respondent is a CIB user in his/her company.

As a result, nine sets of responses were screened out. A final sample of 431 (431/700 = 62%) companies was employed in the data analysis, consisting of 257 adopters and 174 non-adopters. Each company was given only one copy of the questionnaire.

6.2.3 Representativeness of sampling of respondents

In order to understand the representativeness of sampling of respondents in this study, the Chi-square goodness-of-fit test was applied to examine whether there were statistically significant differences between the location of the respondents' company headquarters, the sectors of main business activity within the respondents' companies, and the relevant population. The relevant population is referred from a 2010 white paper on SMEs. Table 6.2 showed that the values of the test statistic proved to be insignificant. In other words, there was no evidence that the sample frames were different from the target population. Therefore, the sampling was considered to be representative of the relevant population.

Table 6.2: Chi-square test of samples' representativeness

Question item		Observation			Population	
		N	%	Expectation	N	%
Company headquarters located (C3)	Northern	225	52.20	201	593,810	46.66
	Central	99	22.97	104	305,498	24.01
	Southern	97	22.51	112	330,703	25.99
	Eastern and off-island	10	2.32	14	42,497	3.34
	Total	431	100.00	431	1,272,508	100.00
	Chi-square test: $\chi^2 = 6.258$ df=3 Sig.=0.100 p>0.05					
Sectors of main business activity (C5)	Agriculture	6	1.39	4	10,989	0.86
	Manufacturing	91	21.11	78	231,631	18.20
	Service	334	77.49	349	1,029,888	80.94
	Total	431	100.00	431	1,272,508	100.00
	Chi-square test: $\chi^2 = 3.811$ df=2 Sig.=0.149 p>0.05					

6.2.4 Non-response bias

In order to assure the inferability of the research results, those unreturned questionnaires should be examined for possible non-response bias. Since no information would be available from those unreturned questionnaires, a method that was suggested by Armstrong and Overton (1977) was applied in this study. All the returned, valid questionnaires will be divided into two groups according to the time of reception by the researcher: the first 75% of answered questionnaires and the last 25%. Comparisons were conducted between the two groups. The main

assumption is that those questionnaires returned later in time would be relatively similar to those unreturned samples. Therefore, if there is no significant difference between the two groups in the test, the effect of the non-response bias could be ignored.

When running this test, the time of reception of returned questionnaires was the independent variable. The first 75% of valid responses were categorised as the first group, and the last quarter of received questionnaires was categorised as the second group. Answers to the items in section C of the questionnaire, which are about background information of participating companies, were collected as dependable variables. The equivalence of means in two groups was examined.

Table 6.3 showed the result of a MANOVA test of group means. There was no significant difference between the early and late respondents at 0.05 levels of significance ($p > 0.428$). Thus, non-response bias could be safely ignored in this study.

Table 6.3: Non-response bias test

	Effect	Value	F	Hypothesis df	Error df	Sig.
	Multivariate tests					
Intercept	Pillai's Trace	.557	49.746a	8.000	316.000	.000
	Wilks' Lambda	.443	49.746a	8.000	316.000	.000
	Hotelling's Trace	1.259	49.746a	8.000	316.000	.000
	Roy's Largest Root	1.259	49.746a	8.000	316.000	.000
Early/late respon-dents	Pillai's Trace	.037	.739	16.000	634.000	.755
	Wilks' Lambda	.964	.737[a]	16.000	632.000	.757
	Hotelling's Trace	.037	.736	16.000	630.000	.758
	Roy's Largest Root	.026	1.011[b]	8.000	317.000	.428

a. Exact statistic

b. The statistic is an upper bound on F that yields a lower bound on the significance level

c. Design: Intercept + early/late respondents

6.3 Coding policy

When coding responses, missing items in this study were coded as "9", and responses such as "don't know" were coded as "99". Hair et al. (1998) stated that "missing data under 10% for an individual case or observation can generally be ignored". Thus, the amount of missing data was low enough (under 10%) to avoid affecting the results, even if it operated in a non-random manner (Hair et al., 1998). Thus, missing data in this study could be ignored (see Appendices 6.1 and 6.2). In this study, means calculated from the valid responses of adopters and non-adopters were assumed to be applied in the case of missing data and "don't know" items, so

no potential biases existed in the patterns of missing data (Hair et al. 2010, 53; Malhotra 2010). Overall, the combined missing data and "don't know" responses were between zero and 6% for adopters, and between zero and 9% for non-adopters.

"Outliers" are observations that distinctly differ from other observations in the data. They were taken as a relatively insignificant portion in this case, since only seven (2.7%) outliers were detected, with 257 respondents of adopters, and no outliers detected with 174 respondents of non-adopters. Thus, they should be of little concern when there are only a few outliers within a large sample size (Kline 1994).

A number of assumptions about the data had to be tested before the analysis could be allowed to proceed:

1) Linearity of the phenomenon screened in a scatterplot;

2) Constant variance of the error terms tested in homoscedasticity of variance;

3) Independence of the error terms examined by Durbin-Watson;

4) Normality of the error term distribution screened by normal probability plots and diagnosed by z kurtosis, z skewness, and Kolmogorov-Smirnov test (Hair et al. 1998).

Firstly, results from the scatterplot between the dependent and independent variables did not indicate any nonlinear relationships in this study. The Pearson's correlation was also calculated for the linearity of the relationship between dependent and independent variables. The results are presented later in this chapter.

Secondly, the Levene test, showing homoscedasticity of variance, was performed. With minimal violations of this assumption found, there was no corrective action needed (Hair et al. 2010, 208) (Appendices 6.3 and 6.4).

Thirdly, the independence of the error terms was checked to see if the predicted value (independent variables) was related to any other prediction (dependent variables). Because the samples were cross-sectional data in this study, rather than consisting of time-series data, the independence of the error terms has shown no violation of this assumption.

Finally, the results of distribution normality were checked. Kurtosis and skewness of the distribution were calculated via a Kolmogorov-Smirnov test. The tests showed that some constructs were not normally distributed (with $p < 0.05$). Hair et al. (2010, 78) recommended that "data transformations can provide the principal means of correcting non-normality. [...] In many instances, the researcher may apply all of the possible transformations". This study has attempted to employ some possible transformations, which included the square root, logarithms, squared, cubed, and inverse, in order to gain the best-transformed results. After attempting these means of transformation, the results indicated that the squared root was the only and best means of transformation, and that only four constructs (i.e. adopter's "usability and relevance", non-adopter's "subjective norm", "operational concerns", and "normative influence") could be improved after the normality transformations were performed (Tabachnick and Fidell 2007, 98-99). The distribution properties before and after the transformation are shown in Tables 6.4 and 6.5.

Table 6.4: Normality test – adopters

<div align="right">**N=257**</div>

	Before			After	
	Skewness	Kurtosis	Kolmogorov -Smirnov Sig.	Transfor-mation	Kolmogorov -Smirnov Sig.
Intention	-0.938	0.696	0.000	a	0.000
Attitude	-0.767	2.641	0.000	a	0.000
Subjective norm	-1.447	2.676	0.000	a	0.000
Perceived behavioural control	-1.427	2.400	0.000	a	0.000
Usability and relevance	-1.053	1.502	0.000	Squared root	0.200
Operational concerns	-1.419	2.407	0.017	a	0.000
Innovative-ness	-0.830	1.333	0.008	a	0.000
Normative influece	0.265	-0.696	0.003	a	0.000
Self-efficacy	-0.484	-0.166	0.005	a	0.000
Facilitating condition	-0.451	-0.124	0.000	a	0.000

Note a: The transformation paths tried included square root, logarithms, squared, cubed, and inverse.

Table 6.5: Normality test – non-adopters

	Before			After	
	Skewness	Kurtosis	Kolmogorov-Smirnov Sig.	Transformation	Kolmogorov-Smirnov Sig.
Intention	0.357	-0.256	0.200		-----
Attitude	0.155	0.077	0.083		-----
Subjective norm	-0.457	0.224	0.001	Squared root	0.156
Perceived behavioural control	0.123	-0.119	0.052		-----
Usability and relevance	-0.077	-0.908	0.200		-----
Operational concerns	-0.714	-0.287	0.000	Squared root	0.015
Innovative-ness	-0.104	-0.154	0.200		-----
Normative influence	0.687	0.076	0.001	Squared root	0.200
Self-efficacy	0.139	-0.036	0.200		-----
Facilitating condition	0.133	0.185	0.094		-----

Although the results seemed to indicate a non-normal distribution for some constructs, the literature suggested some exceptions that would enable us to handle such violations. Curran, West, and Finch (1996, 26) found "significant problems

arising with univariate skewness of 2.0 and kurtoses of 7.0". In this study, normality problems were not serious, because all of the constructs' skewness coefficients were less than 2.0, while their kurtoses were less than 7.0.

In addition, Greene (2008, 18) mentioned that "normality is not necessary to obtain any of the results we use in multiple regression analysis, although it will enable us to obtain several exact statistical results". Pallant (2007, 204) also mentioned that "most of the techniques are reasonably "robust" or tolerant of violations of this assumption". Bryman and Cramer (2001) and Micceri (1989) found that some variables in social science studies do show a non-normal distribution. Bryman and Cramer (1997, 96) stated that researchers often have to treat variables as if they are normally distributed.

Finally, in order to avoid the difficulties with the interpretation of final results after a transformation of the data, this study will stay with the original data without transformation, because the normality problems of this study were not particularly serious.

6.4 Background information

Respondents' background demographics were analysed using frequency distribution, including: respondents' profession, number of years respondents' companies have been established, banks usage experience in respondents' companies, frequency of visits to banks, the importance of opinion in buying

centre (Tables 6.6-6.10).

A total of 84 (20%) questionnaires were completed by corporate employers/business owners; 121 (28%) were completed by corporate chief accountants; 165 (38%) were completed by corporate general accountants; and 61 (14%) were completed by people with other job functions, such as secretaries or executive assistants (Table 6.6)

Table 6.6: Respondents' positions

Question item (D1)	N	% of total
Employer/business owner	84	20
Chief accountant	121	28
General accountant	165	38
Other (e.g. secretaries, assistants)	61	14
Total	431	100

Table 6.7 shows the categorisation of sampling companies by the number of years they have been established. Among the 418 respondents' companies, 70 (16%) had been established for less than four years, 72 (17%) for four-to-eight years, 77 (18%) for eight-to-twelve years, and approximately half of the respondents' companies (199 respondents, 46%) had been established for twelve years or more. Overall, the majority of the respondents' companies (386, 93%) had been established for two years or more.

Table 6.7: Number of years respondents' companies being established

Question item (C2)	N	%
Fewer than 2 years	32	7
2 years to fewer than 4 years	38	9
4 years to fewer than 6 years	41	10
6 years to fewer than 8 years	31	7
8 years to fewer than 10 years	42	10
10 years to fewer than 12 years	35	8
12 years or more	199	46
Total	418	97
Missing value	13	3
Total	431	100

The objective of this section is to demonstrate the current bank-usage patterns for the respondents' companies, based on the frequency-distribution analysis in Table 6.8. More than half of the respondents' companies (212 respondents, 52%) regularly use two or three different banks (Table 6.8).

Table 6.8: Bank usage experience in respondents' companies

Question item (A1)	N	%
1 bank	55	13
2 banks	110	27
3 banks	102	25
4 banks	58	14
5 banks	34	8
6 banks	11	3
7 or more banks	39	9
Total	409	100
Missing value	22	5
Total	431	

In terms of frequency of visiting physical banks (branches), Table 6.9 shows that 257 (60%) respondents have visited banks on behalf of the companies between one and 10 times per month in the past three months. It would be interesting to further investigate why adopters of CIB still frequently visit physical branches. Possible reasons may be for deposits or cash withdrawals.

Table 6.9: Frequency of visits to banks

Question item (A2)	All respondents	
	N	%
Never/almost never	26	6
Less than once a month	35	8
1 ~ 5 times a month	174	41
6 ~ 10 times a month	83	19
11 ~ 15 times a month	36	8
16 ~ 20 times a month	27	6
21 times or more a month	39	9
Total	420	97
Missing value	11	3
Total	431	100

Table 6.10 shows the importance of business owners', chief accountants' and general accountants' opinions on the decision of CIB adoption. Of all the respondents, 361 (84% of all respondents) agreed that their own opinions were important for CIB adoption by answering "slightly important" to "very important". For chief accountants, the figure was 351 (81%), while the figure was 279 (65%) for general accountants. This revealed that the opinions of business owners, chief accountants, and general accountants were considered to be a strong influence on IB adoption.

Table 6.10: The importance of members opinions in buying centres

| | Question items | A4.1 | | A4.2 | | A4.3 | |
| | Whose opinion | Owners | | Chief accountants | | General accountants | |
		N	%	N	%	N	%
1	Very unimportant	10	3	7	2	12	3
2	Unimportant	9	2	9	2	11	2
3	Slightly unimportant	5	1	9	2	12	3
4	Neutral	44	10	50	12	112	26
5	Slightly important	44	10	41	9	63	15
6	Important	70	16	112	26	91	21
7	Very important	247	58	198	46	125	29
	Total	429	100	426	99	426	99
	Missing value	2	0	5	1	5	1
	Total	431	100	431	100	431	100
	Mean		6.03		5.90		5.29

6.5 Factor analysis

The results of the EFA are shown in Appendices 6.5–6.14, including five groups of factors for adopters and non-adopters. The five groups are (1) the intention construct, (2) constructs of attitude, subjective norm and perceived behavioural control, (3) constructs of perceived usefulness, perceived ease of use, compatibility, optimism, innovativeness, discomfort, and insecurity, (4) constructs of normative influence, and (5) constructs of self-efficacy and facilitating condition.

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6.5.1 Intention

An EFA was conducted in order to define the underlying structure of a large number of items (Hair et al. 2010). In this study, PCA and orthogonal (varimax) rotation, the most commonly used forms of EFA, were utilised in order to extract the number of factors in the data set (Hair et al. 2010). The reason of using orthogonal (varimax) rotation was that it is more simplified, making the interpretation of the factors easier than using oblique rotations in the context of the factor-pattern matrix and structure matrix. Tacq (1997) also recommended that it is better to use orthogonal rotation before any oblique rotation. Item-to-total correlations, which are for evaluating the reliability of the measures, were computed separately for each dimension (Hair et al. 2010). Kaiser-Meyer Olkin (KMO) and Barlett's test of sphericity were performed for the sampling adequacy and the factorability of the data.

The KMO values measured to verify the sampling adequacy for the analysis were 0.59 for adopters and 0.73 for non-adopters. The values suggested that it was safe to accept the sampling of data collection (Field 2009, 671; Kaiser and Rice 1974).

Bartlett's test of sphericity (Barlett, 1954) reached statistical significance, with χ^2 (3) = 93.95, p = .000 for adopters and χ^2 (6) = 421.06, p = .000 for non-adopters, supporting that the conduction of factor analysis was appropriate.

An initial analysis was run in order to figure out the major factors among these questionnaire items. The results showed that only one component with the

eigenvalue exceeding 1, explaining the 56.3% (for adopters) and 72.68% (for non-adopters) of the variance. Appendices 6.5 (for adopters) and 6.6 (for non-adopters) show the factor loading after rotation. The items that clustered on the same component suggested that the component represents "intention to adopt" for adopters and "intention toward non-adoption" for non-adopters. This was not a surprise, according to TPB.

For the construct of intention in this study, the Cronbach's alpha coefficients were 0.61 (adopters) and 0.87 (non-adopters) (Table 6.11).

Malhotra (2010, 319) mentioned that "a value of 0.6 or less generally indicates unsatisfactory internal-consistency reliability. An important property of coefficient alpha is that its value tends to increase with an increase in the number of scale items". Leech, Barrett and Morgan (2005, 67) also described that "it is common to see journal articles where one or more scales have somewhat lower alphas (e.g. in the 0.6-0.69 range), especially if there are only a handful of items in the scale". In addition, Kline (1994) pointed out that when assessing psychological constructs, Cronbach's alpha coefficient values of less than 0.7 could be commonly expected.

The measure of Cronbach's alpha reliability varies from 0 to 1. Although it would preferably be higher than 0.7 (George and Mallery 2003), a Cronbach's alpha coefficient value of 0.6 could also be seen as acceptable by Hair et al. (2010, 92), Malhotra (2010, 319), and Leech, Barrett, and Morgan. (2005, 67). In a case like this, with only three items in the measure, there is a tendency for the

Cronbach's alpha coefficient to be underestimated as reliability (Raykov 1997, 1998). Therefore, it should be safe to ignore the small deficit (Churchill and Iacobucci 2005, 283).

Table 6.11: Cronbach's α and question items retained – intention

Original constructs	Original question items	Question items retained	Cron bach's α	Total Cronbach's α	Items retained abbreviation
Intention - adopter (N = 257)	A13	A13			INT1- Ad
	A14	A14	0.61	0.61	INT2- Ad
	A16	A16			INT3- Ad
Intention - non-adopter (N = 174)	A17	A17			INT1- NA
	A18	A18			INT2- NA
	A19	A19	0.87	0.87	INT3- NA
	A20	A20			INT4- NA

Note 1: Intention (INT); adopter (Ad); non-adopter (NA)

6.5.2 Antecedents of intention

Adopters:

Factor loading of the three constructs were respectively 0.59 (attitude), 0.49 (subjective norm) and 0.42 (perceived behavioural control) (for adopters). PCA was conducted on the items related to attitude, subjective norm, and perceived behavioural control. KMO value of this analysis was 0.86, and Bartlett's test of sphericity also reached statistical significance as $\chi^2(21) = 1649.53$, $p = .000$.

Three components had the eigenvalue over 1, explaining 88.92% of the variance.

Appendix 6.7 shows the factor loading after rotation. The items that cluster on the same component suggested that component 1 represents "attitude toward CIB", component 2 for "subjective norm", and component 3 for "perceived behavioural control", as expected by the theory of planned behaviour. The satisfaction with attitude, subjective norm, and perceived behavioural control scales had good internal consistency, with Cronbach's alpha coefficients from 0.82 to 0.94 having been reported. In the study, the Cronbach's alpha coefficient of items related to all the three antecedents of intention in TPB (attitude, subjective norm, and perceived behavioural control) was 0.93. For items related to each individual antecedent, the Cronbach's alpha coefficients were 0.94, 0.93, and 0.82, respectively (Table 6.12), which was deemed acceptable (Hair et al. 2010, 125).

Non-adopters:

PCA was then conducted on the eight items (B1-B8) with orthogonal rotation (varimax) for the non-adopters. The KMO value was 0.82, and Bartlett's test of sphericity also reached statistical significance as $\chi^2(28) = 824.37, p = .000$. There were three components with the eigenvalue of over 1, explaining 81.04% of the variance.

Appendix 6.8 shows the factor loading after rotation. The items that clustered on the same component suggested that the component 1 represented "attitude towards non-adopt CIB", component 2 represented "subjective norm",

and component 3 represented "perceived behavioural control", as anticipated by TPB. The satisfaction with attitude, subjective norm, and perceived behavioural control scales had good internal consistency. In the study, the Cronbach's alpha coefficient of items related to all the three antecedents of intention in TPB for non-adopters (attitude, subjective norm, and perceived behavioural control) was 0.88. For items related to each individual antecedent, the Cronbach's alpha coefficients were 0.89, 0.87, and 0.82, respectively (Table 6.12). Such results also offered positive supports to connection between these items and the constructs.

**Table 6.12: Cronbach's α and question items retained –
antecedents of intention**

Original constructs	Original question items	Question items retained	Cron-bach's α	Total Cron-bach's α	Items retained abbre-viation
Adopter (N = 257)
	B1	B1			ATT 1
Attitude	B2	B2	0.94		ATT 2
	B3	B3			ATT 3
Subjective norm	B4	B4	0.93	0.93	SN 1
	B5	B5			SN 2
Perceived behavioural control	B6	deleted[1]			deleted[1]
	B7	B7	0.82		PBC 2
	B8	B8			PBC 3
Non-adopter (N = 174)
	B1	B1			ATT 1
Attitude	B2	B2	0.89		ATT 2
	B3	B3			ATT 3
Subjective norm	B4	B4	0.87	0.88	SN 1
	B5	B5			SN 2
Perceived behavioural control	B6	B6			PBC 1
	B7	B7	0.82		PBC 2
	B8	B8			PBC 3

Note 1: PBC1 (B6) is deleted because of cross-loading.

   2: Attitude (ATT); Subjective norm (SN); Perceived behavioural
      control (PBC)

6.5.3 Antecedents of attitude

Adopters:

A total of 25 question items from seven constructs were included in this section after two items were deleted because of their results of item-total correlation. In this study, all items showed item-total correlations above 0.3, which was encouraging.

PCA was conducted on the 18 items with orthogonal rotation (varimax) for the adopters. The KMO = 0.91; Bartlett's test of sphericity also reached statistical significance (χ^2 (153) = 2941.44, p = .000. Three components came with the eigenvalue over 1, explaining 64.90% of the variance. Appendix 6.9 shows the factor loading after rotation. The items that clustered on the same component suggested that component 1 represented "usability and relevance", component 2 for "innovativeness", and component 3 for "operational concerns". The Cronbach's alpha coefficient of items related to all the antecedents of attitude was 0.92. For items related to each individual antecedent of attitude, the Cronbach's alpha coefficients were 0.94, 0.83, and 0.82 respectively (Table 6.13).

Table 6.13: Cronbach's α and question items retained – antecedents of attitude – adopters

<div align="right">(N=257)</div>

Original constructs	Constructs combined and renamed	Original question items	Question items retained and combined	Reason deleted	Items retained abbreviation
Optimism		B19	B19		OPT 1
		B20	B20		OPT 2
		B21	B21		OPT 3
		B22	B22		OPT 4
		B23	deleted	cross loading	
Perceived usefulness	Usability and relevance (Cronbach's α=0.94)	B09*B10	B09*B10		USE 1
		B11*B12	B11*B12		USE 2
Perceived ease of use		B13*B14	B13*B14		EOU 1
		B15*B16	B15*B16		EOU 2
		B17*B18	B17*B18		EOU 3
Compatibility		B55*B56	deleted	cross loading	
		B57*B58	deleted	cross loading	
Innovativeness	Innovativeness (Cronbach's α=0.83)	B24	deleted	cross loading	
		B25	B25		INN 2
		B26	deleted	cross loading	
		B27	deleted	cross loading	
		B28	B28		INN 5
		B29	B29		INN 6
Insecurity	Operational concerns (Cronbach's α=0.82)	B33	deleted		
		B34	B34		INS 2
		B35	B35		INS 3
		B36	deleted	item-total	
		B37	B37		INS 5
		B38	B38		INS 6
Discomfort		B30	deleted	item-total	
		B31	B31		DIS 2
		B32	B32		DIS 3

Note: 1. Total Cronbach's α = 0.92

     2. Optimism (OPT); Perceived usefulness (USE); Perceived ease of use (EOU); Innovativeness (INN); Insecurity (INS); Discomfort (DIS).

Non-adopters:

PCA was then conducted on the 23 items for the non-adopters. The KMO = 0.89, Bartlett's test of sphericity also reached statistical significance, as $\chi^2 (253) =$ 2902.56, p = .000. There were three components with eigenvalue over 1, explaining 64.09% of the variance. The items that clustered on the same component suggested that component 1 represented "usability and relevance", component 2 represented "innovativeness", and component 3 represented "operational concerns" (Appendix 6.10). The Cronbach's alpha coefficient of items related to all three antecedents of attitude for non-adopters was 0.93. For items related to each individual antecedent, the Cronbach's alpha coefficients were 0.94, 0.90, and 0.88 respectively (Table 6.14).

Table 6.14: Cronbach's α and question items retained – antecedents of attitude – non-adopters

<div align="right">(N = 174)</div>

Original constructs	Constructs combined and renamed	Original question items	Question items retained and combined	Reason deleted	Items retained abbreviation
		B19	B19		OPT 1
		B20	B20		OPT 2
Optimism		B21	B21		OPT 3
		B22	B22		OPT 4
		B23	deleted	Cross loading	
	Usability and relevance (Cronbach's α=0.94)	B09*B10	B09*B10		USE 1
Perceived usefulness		B11*B12	B11*B12		USE 2
Perceived ease of use		B13*B14	B13*B14		EOU 1
		B15*B16	B15*B16		EOU 2
		B17*B18	B17*B18		EOU 3
Compa-tibility		B55*B56	deleted	Cross loading	
		B57*B58	deleted	Cross loading	
	Innovativeness (Cronbach's α=0.90)	B24	B24		INN 1
		B25	B25		INN 2
Innova-tiveness		B26	B26		INN 3
		B27	B27		INN 4
		B28	B28		INN 5
		B29	B29		INN 6
	Operational concerns (Cronbach's α=0.88)	B33	B33		INS 1
		B34	B34		INS 2
Insecurity		B35	B35		INS 3
		B36	B36		INS 4
		B37	B37		INS 5
		B38	B38		INS 6
		B30	deleted	Item-total	
Discomfort		B31	B31		DIS 2
		B32	B32		DIS 3

Note: 1. Total Cronbach's α = 0.93

2. Optimism (OPT); Perceived usefulness (USE); Perceived ease of use (EOU); Innovativeness (INN); Insecurity (INS); Discomfort (DIS).

6.5.4 Antecedent of subjective norm

Adopters and non-adopters:

PCA was conducted on three of the items (B39*B40, B41*B42 and B43*B44) with orthogonal rotation (varimax) for the adopters and non-adopters. As the KMO = 0.72, Bartlett's test of sphericity suggested the adequacy of this factor analysis as χ^2 (3) = 604.33, p = .000 for adopters and χ^2 (3) = 287.11, p = .000 for non-adopters. Only one component came with the eigenvalue exceeding 1, explaining 86.27% (adopters) and 80.94% (non-adopters) of the variance. The items clustered on the same component suggested that the component represented normative influence, as would be expected from DTPB (Appendices 6.11 and 6.12). The satisfaction with normative influence scale had good internal consistency, with Cronbach's alpha coefficients of 0.92 and 0.88 having been reported (adopters and non-adopters, Table 6.15).

Table 6.15: Cronbach's α and question items retained – antecedent of subjective norm

Original constructs	Constructs combined and renamed	Original question items	Question items retained and combined	Cron-bach's α	Items retained abbreviation
Normative influence (adopter, N = 257)	Normative influence	B39*B40	B39*B40		NI 1
		B41*B42	B41*B42	0.92	NI 2
		B43*B44	B43*B44		NI 3
Normative influence (non-adopter, N =174)	Normative influence	B39*B40	B39*B40		NI 1
		B41*B42	B41*B42	0.88	NI 2
		B43*B44	B43*B44		NI 3

Note: Nomative influence (NI)

6.5.5 Antecedents of perceived behavioural control

Adopters and non-adopters:

PCA was conducted on the five items with orthogonal rotation (varimax) for the adopters and non-adopters. The KMO values of 0.85 (adopters) and 0.84 (non-adopters) and Bartlett's test of sphericity with $\chi^2 (10) = 890.96$, $p = .000$ for adopters and $\chi^2 (10) = 550.49$, $p = .000$ for non-adopters both confirmed the appropriateness of the factor analysis. Two components having eigenvalues of over 1 explained 84.57% (adopters) and 84.46% (non-adopters) of the variance.

The items clustered on the same component suggested that component 1 represented "self-efficacy" and component 2 represented "facilitating condition", as would be expected from DTPB (Appendices 6.13 and 6.14). The components of self-efficacy and facilitating condition showed good internal consistency. In this case, the Cronbach's alpha coefficients of self-efficacy and facilitating condition were 0.89 and 0.84 for adopters, and 0.88 and 0.87 for non-adopters (Table 6.16), which were acceptable results (Hair et al. 2010, 125).

Table 6.16: Cronbach's α and question items retained – antecedents of perceived behavioural control

Original constructs	Constructs combined and renamed	Original question items	Question items retained and combined	Cronbach's α	Total Cronbach's α	Items retained abbreviation
		Adopter (N = 257)				
Self-efficacy	Self-efficacy	B45*B46 B47*B48 B49*B50	B45*B46 B47*B48 B49*B50	0.89		EFF 1 EFF 2 EFF 3
Facilitating condition	Facilitating condition	B51*B52 B53*B54	B51*B52 B53*B54	0.84	0.91	FAC 1 FAC 2
		Non-adopter (N = 174)				
Self-efficacy	Self-efficacy	B45*B46 B47*B48 B49*B50	B45*B46 B47*B48 B49*B50	0.88		EFF 1 EFF 2 EFF 3
Facilitating condition	Facilitating condition	B51*B52 B53*B54	B51*B52 B53*B54	0.87	0.91	FAC 1 FAC 2

Note: Self-efficacy (EFF); Facilitating condition (FAC)

Tables 6.11 to 6.16 summarise the Cronbach's alpha coefficients and question items retained for adopters (N = 257) and non-adopters (N = 174). After the EFA, a new conceptual model was built, as demonstrated in Figure 6.1. The difference between Figures 3.1 and 6.1 was that the seven constructs (optimism, innovativeness, discomfort, insecurity, perceived usefulness, perceived ease of use, and compatibility) in Figure 3.1 are reduced to three constructs ("usability and relevance", "innovativeness", and "operational concerns") in Figure 6.1.

6.5.6 Development of revised framework

Having cleaned the data, the previous section explained how the 14 constructs in the original framework were revised and reduced to ten constructs. A new framework (Figure 6.1) was set to explain the interdependence of the variables based on regression analysis. The previous section presented detailed information on the results from the statistical analyses of sampled data following data cleaning. These results highlighted the patterns and interrelationships between the key constructs. Thus, the precise conceptual model (Figure 6.1) postulated that there are four main hypotheses.

H I: The attitude, subjective norm, and perceived behavioural control of TPB are more likely to affect the intention of an individual member of the corporate customer's buying centre to adopt CIB.

H II: The "usability and relevance", "innovativeness", and "operational concern"

are more likely to affect the attitude of an individual member of the corporate customer's buying centre towards the adoption of CIB.

H III: The normative influence is more likely to affect the subjective norm of an individual member of the corporate customer's buying centre.

H IV: The self-efficacy and facilitating condition are more likely to affect the perceived behavioural control of an individual member of a corporate customer's buying centre.

With this general overview, the next section presents the correlations and research hypotheses, and tests the revised conceptual model.
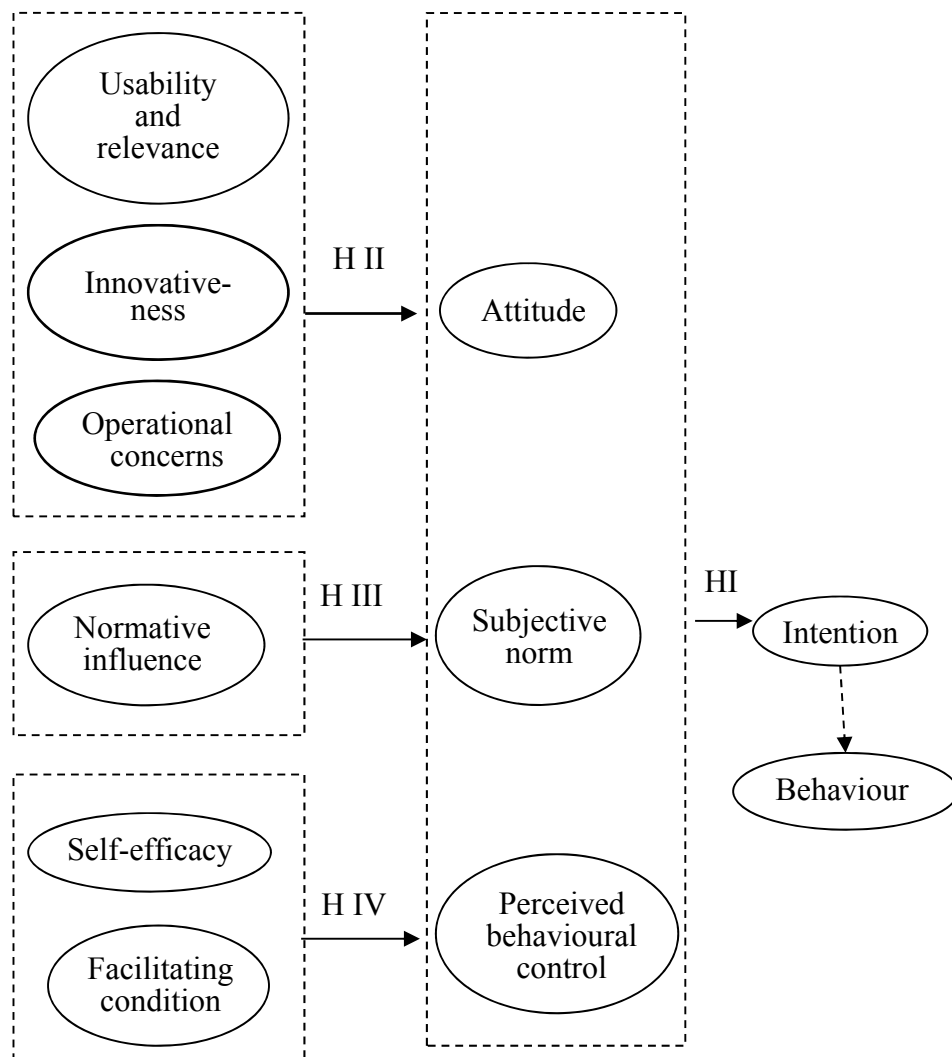
Figure 6.1: Revised framework for behavioural intention toward IB adoption of an individual member of the corporate customer's buying centre

6.6 Factor scores

After data purification, most of the constructs have been retained and given the same name, i.e. attitude, subjective norm, perceived behavioural control, innovativeness, normative influence, self-efficacy, and facilitating condition. On the other hand, perceived usefulness, perceived ease of use and optimism have been merged and renamed as "usability and relevance", while discomfort and insecurity have been merged and renamed as "operational concerns".

Tables 6.17-6.20 illustrate the correlations between constructs in the hypothesised model and the independent variables. The tables include factor scores to construct the correlated scales. Pearson's correlation coefficients were calculated for the relationship between the variables. Eight variables were found to have a high level of correlation (Tables 6.17–6.20).

6.6.1 Intention

Table 6.17 indicates that there were positive relationships between intention and attitude for adopters (r = 0.433) and for non-adopters (r = 0.510), low positive relationships between intention and subjective norm for adopters (r = 0.172) and for non-adopters (r = 0.300), and medium-to-low positive relationships between intention and perceived behavioural control for adopters (r = 0.346) and for non-adopters (r = 0.196), which supported the findings from Ajzen (1989) that were built into TPB.

Shih and Fang (2004, 219) indicated that attitude is significantly related to intention. Jaruwachirathanakul and Fink (2005, 305) found in their study that "the attitudinal factor and the perceived behavioural control factor appear to encourage the adoption of Internet banking". Tan and Teo (2000, 31) noted that "intention to adopt Internet banking services can be predicted by attitudinal and perceived behavioural control factors". In addition, Huang et al. (2011) found that attitude, subjective norm, and perceived behavioural control of TPB are factors influencing the customer's decision-to-purchase behaviours.

Table 6.17: Correlation table using revised scales – intention and its antecedents

		Intention	Attitude	Subjective norm	Perceived behavioural control
Adopter (N=257)	Intention	1.000			
	Attitude	0.433***	1.000		
	Subjective norm	0.172***	0.000	1.000	
	Perceived behavioural control	0.346***	0.000	0.000	1.000
Non-adopter (N=174)	Intention	1.000			
	Attitude	0.510***	1.000		
	Subjective norm	0.300***	0.000	1.000	
	Perceived behavioural control	0.196***	0.000	0.000	1.000

***Correlation is significant at the 0.01 level (one-tailed).

6.6.2 Attitude

A high level of correlation was found between attitude and "usability and relevance" for adopters (r = 0.601) and non-adopters (r = 0.5888). Before data purification in this study, perceived usefulness, perceived ease of use and optimism were classified as "usability and relevance".

From the original constructs, Chan and Lu (2004) and Pikkarainen et al. (2004) found that perceived usefulness has a positive effect on the use of IB. Moreover, Lallmahamood (2007) and Wang et al. (2003) put forward the idea that perceived usefulness and perceived ease of use have a significant positive effect on behavioural intention. There was low correlation relationship between attitude and innovativeness for non-adopters (r = 0.171). Gerrard and Cunningham (2003, 24) suggested that "those customers who are strongly innovative are more likely to adopt a new financial product after its launch". Lallmahamood (2007) supported the idea that perceived security has a significant effect on behavioural intention. Finally, attitude displayed a weak positive correlation with "operational concerns" (r = 0.175) (Table 6.18).

Table 6.18: Correlation table using revised scales – attitude and its antecedents

		Attitude	Usability and relevance	Innova-tiveness	Operational concerns
	Attitude	1.000			
Adopter	Usability and relevance	0.601***	1.000		
(N=257)	Innovativeness	0.005	0.000	1.000	
	Operational concerns	0.175***	0.000	0.000	1.000
	Attitude	1.000			
Non-adopter	Usability and relevance	0.588***	1.000		
(N=174)	Innovativeness	0.171**	0.000	1.000	
	Operational concerns	0.083	0.000	0.000	1.000

***Correlation is significant at the 0.01 level (one-tailed).

** Correlation is significant at the 0.05 level (one-tailed).

6.6.3 Subjective norm

Results indicated that there was a medium-to-high positive correlation between subjective norm and normative influence (r = 0.400 for adopters and r = 0.477 for non-adopters) (Table 6.19). In this study, normative influence referred to the company's customers, suppliers and peers. Liao et al. (1999, 67) proposed that "subjective norm about the use of virtual banking is dependent upon normative beliefs of image, visibility and critical mass", and their study found that image and critical mass have low correlations with subjective norm. Shih and Fang (2004),

adapting normative influence (e.g. family and important people) to predict customers' intention to adopt IB, identified that normative influence was a significant determinant of subjective norm.

Table 6.19: Correlation table using revised scales – subjective norm and its antecedent

		Subjective norm	Normative influence
Adopter (N=257)	Subjective norm	1.000	
	Normative influence	0.400***	1.000
Non-adopter (N=174)	Subjective norm	1.000	
	Normative influence	0.477***	1.000

***Correlation is significant at the 0.01 level (one-tailed).

6.6.4 Perceived behavioural control

A weak positive relationship was found between perceived behavioural control and self-efficacy (r = 0.269 for adopters and r = 0.174 for non-adopters); and a low-to-medium positive relationship was found between perceived behavioural control and facilitating condition (r = 0.288 for adopters and r = 0.230 for non-adopters) (Table 6.20). Tan and Teo (2000, 32) found that "self-efficacy toward using Internet banking services and the facilitating condition of perceived government support for Internet commerce were both significant influences on intentions to adopt Internet banking services".

Table 6.20: Correlation table using revised scales – perceived behavioural control and its antecedents

		Perceived behavioural control	Self-efficacy	Facilitating condition
Adopter (N=257)	Perceived behavioural control	1.000		
	Self-efficacy	0.269***	1.000	
	Facilitating condition	0.288***	0.000	1.000
Non-adopter (N=174)	Perceived behavioural control	1.000		
	Self-efficacy	0.174**	1.000	
	Facilitating condition	0.230***	0.000	1.000

***Correlation is significant at the 0.01 level (one-tailed).

** Correlation is significant at the 0.05 level (one-tailed).

Table 6.17 to 6.20 also show the correlations between the different independent variables, which can be referred to as discriminant validity. Discriminant validity was referred to as "a type of construct validity that assesses the extent to which a measure does not correlate with other constructs from which it is supposed to differ" (Malhotra and Birks 2007, 809).

After using the factor scores, this study revealed that attitude, subjective

norm, and perceived behavioural control did not correlate with each other. Likewise, "usability and relevance", "innovativeness", and "operational concerns" did not correlate with each other either. Furthermore, self-efficacy did not correlate with facilitating condition. The lower the correlation is, the better the discriminant validity that is provided (Churchill 1979, 70). Thus, these independent variables had very high discriminant validity. The following section shows the results of data differences between CIB adopters and non-adopters. Section 6.8 shows the results of multiple regression analysis for testing the relationship between the independent variables and dependent variables.

6.7 Difference of data attributes between corporate Internet banking adopters and non-adopters

The independent two-sample t-test was conducted in order to compare the differences between the attributes of adopters and non-adopters. There were ten different constructs, covering aspects such as intention, attitude, subjective norm, perceived behavioural control, usability and relevance, innovativeness, operational concerns, normative influence, self-efficacy, and facilitating condition (Table 6.21). Five decomposed constructs, namely usability and relevance, operational concerns, normative influence, self-efficacy, and facilitating condition, were adapted from Taylor and Todd (1995a), and were primarily combined with the evaluative component using the expectancy-value approach (Cohen, Fishbein, and Ahtola 1972) suggested in TRA and TPB (i.e. behavioural belief X outcome

evaluations) (Shih and Fang 2004, 218).

For intention, there was a significant difference found between scores of adopters (Mean = 5.53, SD = 1.21) and non-adopters (Mean = 3.41, SD = 1.42; t (331.10) = 16.15, p = .00, two-tailed). For attitude, there was significant difference between the scores of adopters (Mean = 6.10, SD = 1.10) and non-adopters (Mean = 4.73, SD = 1.25; t (337.88) = 11.68, p = .00, two-tailed). Adopters felt that CIB adoption was a wise idea, a valuable and helpful choice. Nonetheless, limited non-adopters held the same opinions on the matter. For subjective norm, there was significant difference between scores of adopters (Mean = 5.73, SD = 1.30) and non-adopters (Mean = 4.29, SD = 1.45; t (429) = 10.77, p = .00, two-tailed). Adopters believed that "most people think that their companies should use CIB". "Most people" here refer to those who are important to their companies or who influence their companies' decisions. Again, fewer non-adopters held the same opinions towards the matter. For perceived behavioural control, there was significant difference between scores of adopters (Mean = 6.01, SD = 1.21) and non-adopters (Mean = 4.31, SD = 1.43; t (329.54) = 12.91, p = .00, two-tailed). Adopters believed that they had enough knowledge and ability to use CIB. Nevertheless, non-adopters had less positive feelings.

Table 6.21: Descriptive statistics for the perceptual differences between CIB adopters and non-adopters

Constructs	Adopter status	N	Mean	Std. deviation	Std. error mean	t-test for equality of means
Intention	adopters	257	5.53[1]	1.21	0.08	0.00[2]
	non-adopters	174	3.41	1.42	0.11	
Attitude	adopters	257	6.10	1.10	0.07	0.00
	non-adopters	174	4.73	1.25	0.10	
Subjective norm	adopters	257	5.73	1.30	0.08	0.00
	non-adopters	174	4.29	1.45	0.11	
Perceived behavioural control	adopters	257	6.01	1.21	0.08	0.00
	non-adopters	174	4.31	1.43	0.11	
Usability and relevance	adopters	257	23.91	5.99	0.37	0.00
	non-adopters	174	18.10	7.21	0.55	
Innova-tiveness	adopters	257	5.25	1.25	0.77	0.00
	non-adopters	174	4.27	1.26	0.10	
Operational concerns	adopters	257	23.91	1.00	0.06	0.60
	non-adopters	174	18.10	0.96	0.07	
Normative influence	adopters	257	26.12	12.59	0.79	0.00
	non-adopters	174	20.37	11.45	0.87	
Self-efficacy	adopters	257	32.77	11.91	0.74	0.00
	non-adopters	174	24.13	11.97	0.91	
Facilitating condition	adopters	257	37.57	11.17	0.70	0.00
	non-adopters	174	28.33	13.16	1.00	

Note 1: Mean entries are from a scale with 1 indicating that the criterion is strongly disagreed and 7 indicating that the criterion is strongly agreed.

2: Independent-samples tests for perceptual differences between adopters and non-adopters of CIB (two-tailed).

For usability and relevance, there was also significant difference between scores of adopters and non-adopters. Adopters held the opinion that compared to traditional banking, using CIB saved more time and also had other advantages. Apparently, adopters were more technology-oriented. They agreed that CIB was easy to learn and to operate, and easily satisfied their companies' needs. Adopters indicated that using CIB made banking tasks more convenient and efficient.

For innovativeness, there was also a significant difference between adopters and non-adopters. Adopters showed more agreement than non-adopters in innovativeness. For example, most adopters believed that their company was among the first in their industry to acquire CIB. They also believed that "they can solve the challenges when there are problems related to CIB", and that "their company has fewer problems than other companies in using CIB". In contrast, non-adopters were not so receptive, which was as expected.

For operational concerns, there was an insignificant difference between the scores of adopters and non-adopters. There was only one insignificant difference for the whole set of independent sample tests for perceptual differences between adopters and non-adopters of CIB. It revealed that the respondents' opinions were similar with regards to their discomfort and insecurity perceptions.

For normative influence, a significant difference between the scores of adopters and non-adopters was reported. Adopters believed that most of their customers, suppliers and peers thought that their companies should use CIB. According to the results, adopters seem to perceive more pressure from their

referent groups, i.e. customers, suppliers, and peers, when it came to adopting CIB than non-adopters do.

For self-efficacy, a significant difference between the scores of adopters and non-adopters was also found. Adopters held the opinion that, when compared to non-adopters, their companies could more easily operate CIB on their own. Adopters felt more comfortable using CIB, were more confident that they could solve CIB operating problems on their own, and felt that CIB was more important to their companies. As expected, adopters had more confidence in their operating ability than non-adopters did.

With regards to facilitating condition, a significant difference between the scores of adopters and non-adopters was also found. More adopters than non-adopters believed that their companies could get CIB support, and that they had the appropriate equipment required for them to adopt CIB.

The independent sample t-test revealed that there were significant differences between CIB adopters and non-adopters with respect to nine of the ten constructs: intention, attitude, subjective norm, perceived behavioural control, usability and relevance, innovativeness, normative influence, self-efficacy, and facilitating condition, $p = 0.000$. Only the results for the construct of operational concerns revealed an insignificant difference between the two groups ($p = 0.60$; Tables 6.21).

This section reported results from examinations of the differences between adopters and non-adopters of CIB in terms of their relative perceptions of nine

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constructs. The findings revealed that there were significant differences between these two groups. The attitude of adopters was more positive toward adoption compared to that of non-adopters. More adopters than non-adopters perceived that people who are important to their companies or who have influence over their company's decisions are influential to CIB adoption. These "important people" are mainly company customers, company suppliers and company peers. More adopters than non-adopters also perceived that company resources, users' knowledge and ability regarding CIB adoption were significant influences when it came to adoption of CIB (Table 6.21).

6.8 Multiple regression

"The objective of multiple regression analysis is to predict the changes in the dependent variable (e.g. intention) in response to changes in the independent variables (e.g. attitude, subjective norm, and perceived behavioural control)" (Hair et al. 1998, 14). The purpose of the comparison between the two groups was to understand what were the differences between corporate customers (adopters) and prospective corporate customers (non-adopters) in relation to the factors that influenced the adoption of IB.

6.8.1 Intention

Overall, the regression model (Table 6.22) explained a significant amount of

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the variance in intention. The models' adjusted R²s were 0.329 (adopters) and 0.378 (non-adopters), indicating that the two regression models were respectively strong and accurate predictors of intention using the independent variables of attitude, subjective norm, and perceived behavioural control. In addition, the method for comparing regression coefficients between the models of adopters and non-adopters was a calculation of the z score (Clogg et al. 1995, 1276; Paternoster et al. 1998, 862).

$$z = \frac{(b_1 - b_2)}{\sqrt{SEb_1^2 + SEb_2^2}}$$

b_i ： Unstandardised coefficients of regression

SEb_i ： Standard error of unstandardised coefficients

Table 6.23 reveals the results calculated, showing no significant difference between adopters' and non-adopters' regression coefficients for attitude, subjective norm, and perceived behavioural control.

Table 6.22: Regression on intention

Independent variable	Unstandardised coefficients β	Std. error	Standardised coefficients β	t
Adopters (N=257)				
(Constant)	1.660E-005	0.051		0.000
Attitude	0.433	0.051	0.433***	8.453
Subjective norm	0.172	0.051	0.172***	3.366
Perceived behavioural control	0.346	0.051	0.346***	6.765
Statistics				
R^2			0.337	
Adjusted R^2			0.329	
F (p value)			42.848***	
Non-adopters (N=174)				
(Constant)	-3.314E-007	0.060		0.000
Attitude	0.510	0.060	0.510***	8.512
Subjective norm	0.300	0.060	0.300***	5.012
Perceived behavioural control	0.196	0.060	0.196***	3.270
Statistics				
R^2			0.389	
Adjusted R^2			0.378	
F (p value)			36.092***	

Dependent variable: Intention

Note: *** $z < 0.01$

Table 6.23: Regression on intention between two groups

Independent variables	z score		Difference
Attitude	$\dfrac{(0.510 - 0.433)}{\sqrt{0.06^2 + 0.051^2}}$	=0.9838	insignificant
Subjective norm	$\dfrac{(0.300 - 0.172)}{\sqrt{0.06^2 + 0.051^2}}$	=1.6252	insignificant
Perceived behavioural control	$\dfrac{(0.196 - 0.346)}{\sqrt{0.06^2 + 0.051^2}}$	=-1.9067	insignificant

Dependent variable: Intention

6.8.2 Attitude

A regression analysis between attitude and its antecedents was performed. The model's adjusted R^2 was 0.385 for adopters and 0.371 for non-adopters. In Table 6.24, for adopters, "usability and relevance" (β = 0.601) and "operational concerns" (β = 0.175) were positively and significantly related to attitude, yet "innovativeness" was insignificantly relevant to attitude. Of these two constructs, "usability and relevance" made the largest unique contribution (β = 0.588), and "operational concerns" made a statistically significant contribution (β = 0.171).

In addition, for non-adopters, "usability and relevance" and "innovativeness" were positively and significantly related to attitude, yet "operational concerns" was insignificantly related to attitude. Of these two constructs, "usability and relevance" made the largest unique contribution (β = 0.588), and "innovativeness" also made a statistically significant contribution (β = 0.171).

With 95% confidence level, the innovativeness regression coefficients were proven to show a significant difference between two groups. Table 6.25 illustrates the results from z score calculations for the differences between adopters and non-adopters. The results from the survey showed that only the construct of innovativeness was significantly different between adopters and non-adopters.

Table 6.24: Regression on attitude

	Independent variable	Unstandardised coefficients		Standardised coefficients	t
		β	Std. Error	β	
	(Constant)	-9.341E-007	0.049		0.000
	Usability and relevance	0.601	0.049	0.601***	12.272
	Innovativeness	0.005	0.049	0.005	0.098
Adopters (N=257)	Operational concerns	0.175	0.049	0.175***	3.566
	Statistics				
	R^2			0.392	
	Adjusted R^2			0.385	
	F (p value)			54.440***	
	(Constant)	4.124E-007	0.060		0.000
	Usability and relevance	0.588	0.060	0.588***	9.751
Non-adopters (N=174)	Innovativeness	0.171	0.060	0.171***	2.830
	Operational concerns	0.083	0.060	0.083	1.369
	Statistics				
	R^2			0.382	
	Adjusted R^2			0.371	
	F (p value)			34.986***	

Dependent variable: Attitude

Note: *** $z < 0.01$

Table 6.25: Regression on attitude between two groups

Independent variables	z score		Difference
Usability and relevance	$\dfrac{(0.588 - 0.601)}{\sqrt{0.06^2 + 0.049^2}}$	=-0.1725	Insignificant
Innovativeness	$\dfrac{(0.171 - 0.005)}{\sqrt{0.06^2 + 0.049^2}}$	=2.1345**	Significant
Operational concerns	$\dfrac{(0.083 - 0.175)}{\sqrt{0.06^2 + 0.049^2}}$	=-1.1864	Insignificant

Dependent: Attitude

Note: ** z < 0.05

6.8.3   Subjective norm

The regression models explained a significant amount of variance of the subjective norm (See Table 6.26). The model's adjusted R^2 is 0.157 (for adopters) and 0.223 (for non-adopters), indicating that the regression models were accurate predictors of subjective norm using normative influence as an independent variable. In addition, at 95% confidence level, none of the variables were proven to be significant between the two groups for their regression coefficients, thus the models were not taken into account, and the hypothesis that the determinants of subjective norms are different between adopters and non-adopters was rejected. Table 6.27 reveals the results from calculation of z scores for the difference between adopters and non-adopters.

Table 6.26: Regression on subjective norm

	Independent variable	Unstandardised Coefficients		Standardised Coefficients	t
		β	Std. error	β	
	(Constant)	-2.348E-008	0.057		0.000
Adopters	Normative influence	0.400	0.057	0.400***	6.977
(N=257)	Statistics				
	R^2			0.160	
	Adjusted R^2			0.157	
	F (p value)			48.682***	
	(Constant)	2.273E-007	0.067		0.000
Non-adopters	Normative influence	0.477	0.067	0.477***	7.122
(N=174)	Statistics				
	R^2			0.228	
	Adjusted R^2			0.223	
	F (p value)			50.717***	

Dependent variable: Subjective norm

Note: *** z < 0.01

Table 6.27: Regression on subjective norm between two groups

Independent variables	z score	Difference
Normative influence	$\dfrac{(0.477 - 0.400)}{\sqrt{0.067^2 + 0.057^2}}$ =0.8707	insignificant

Dependent variable: Subjective norm

6.8.4 Perceived behavioural control

The regression models shown on Table 6.28 explained a significant amount of variance of perceived behavioural control. The model's adjusted R^2 were 0.141 (for adopters) and 0.064 (for non-adopters), indicating that the regression model was an accurate predictor of perceived behavioural control by using self-efficacy and facilitating condition as independent variables. In addition, comparisons of their regression coefficients showed that there was no significant difference between two groups (adopters and non-adopters). Thus the model was not taken into account and the hypothesis that determinants of perceived behavioural control are different between adopters and non-adopters was rejected. Table 6.29 illustrates the detailed results calculated for the difference between adopters and non-adopters.

Table 6.28: Regression on perceived behavioural control

	Independent variable	Unstandardised coefficients		Standardised coefficients	t
		B	Std. Error	B	
	(Constant)	-5.330E-005	0.058		-0.001
	Self-efficacy	0.266	0.059	0.262***	4.530
Adopters	Facilitating condition	0.285	0.059	0.281***	4.850
(N=257)	Statistics				
	R^2			0.148	
	Adjusted R^2			0.141	
	F (p value)			22.023***	
	(Constant)	2.091E-006	0.073		0.000
	Self-efficacy	0.173	0.077	0.165**	2.249
Non-adopters	Facilitating condition	0.229	0.077	0.218**	2.971
(N=174)	Statistics				
	R^2			0.075	
	Adjusted R^2			0.064	
	F (p value)			6.942***	

Dependent variable: Perceived behavioural control

Note: *** $z < 0.01$; ** $z < 0.05$

Table 6.29: Regression on perceived behavioural control between two groups

Independent variables	z score		Difference
Self-efficacy	$\dfrac{(0.173 - 0.266)}{\sqrt{0.077^2 + 0.059^2}}$	=-0.9602	insignificant
Facilitating condition	$\dfrac{(0.229 - 0.285)}{\sqrt{0.077^2 + 0.059^2}}$	=-0.5811	insignificant

Dependent: perceived behavioural control

Tables 6.22, 6.24, 6.26, and 6.28 showed the results of four separate regression analyses of the relationship between the related constructs and the dependent variables for adopters and non-adopters, respectively. The other four tables (Tables 6.23, 6.25, 6.27, and 6.29) showed the differences between results from the analysis of adopters and non-adopters from the multiple regression coefficients by calculating z scores (Clogg et al. 1995, 1276; Paternoster et al. 1998, 862).

6.9 Chapter summary

The present research set out to integrate the five theoretical models (TRA, TPB, TAM, DTPB, and TR) and tested the integrated model that was reduced from the original 14 constructs into ten renamed constructs. After factor analyses were conducted, the 14 constructs were cut down to ten, namely intention, attitude, subjective norm, perceived behavioural control, usability and relevance (this is mainly a mixture of optimism, perceived usefulness, and perceived ease of use), innovativeness, operational concerns (this is mainly related to discomfort and insecurity), normative influence, self-efficacy, and facilitating condition.

The findings supported all the hypotheses regarding the determinants of adoption intention towards CIB, except one (Figures 6.2 and 6.3). For adopters, only innovativeness was found to be unrelated to attitude. In addition, for non-adopters, only "operational concerns" was found to be unrelated to attitude.

This chapter provided information on the results from the statistical analyses

through multiple regression. Figures 6.2 and 6.3 presented two models (adopters and non-adopters) of behavioural intention of an individual member of the corporate customer's buying centre toward the adoption of IB, derived from the observations.

Four main hypotheses (H I ~ H IV), together with their nine sub-hypotheses (H Ii, H Iii, H Iiii, H IIi, H IIii, H IIiii, H III, H IVi and H IVii), were identified and tested. Each hypothesis was tested for both adopters and non-adopters. A significant difference was found between the adopters and non-adopters for only for one hypothesis. Seven of the eight hypotheses found that there were no significant differences between adopters and non-adopters. Only innovativeness was found to display a significant difference between adopters and non-adopters. Table 6.30 shows the summary of hypothesis test results.
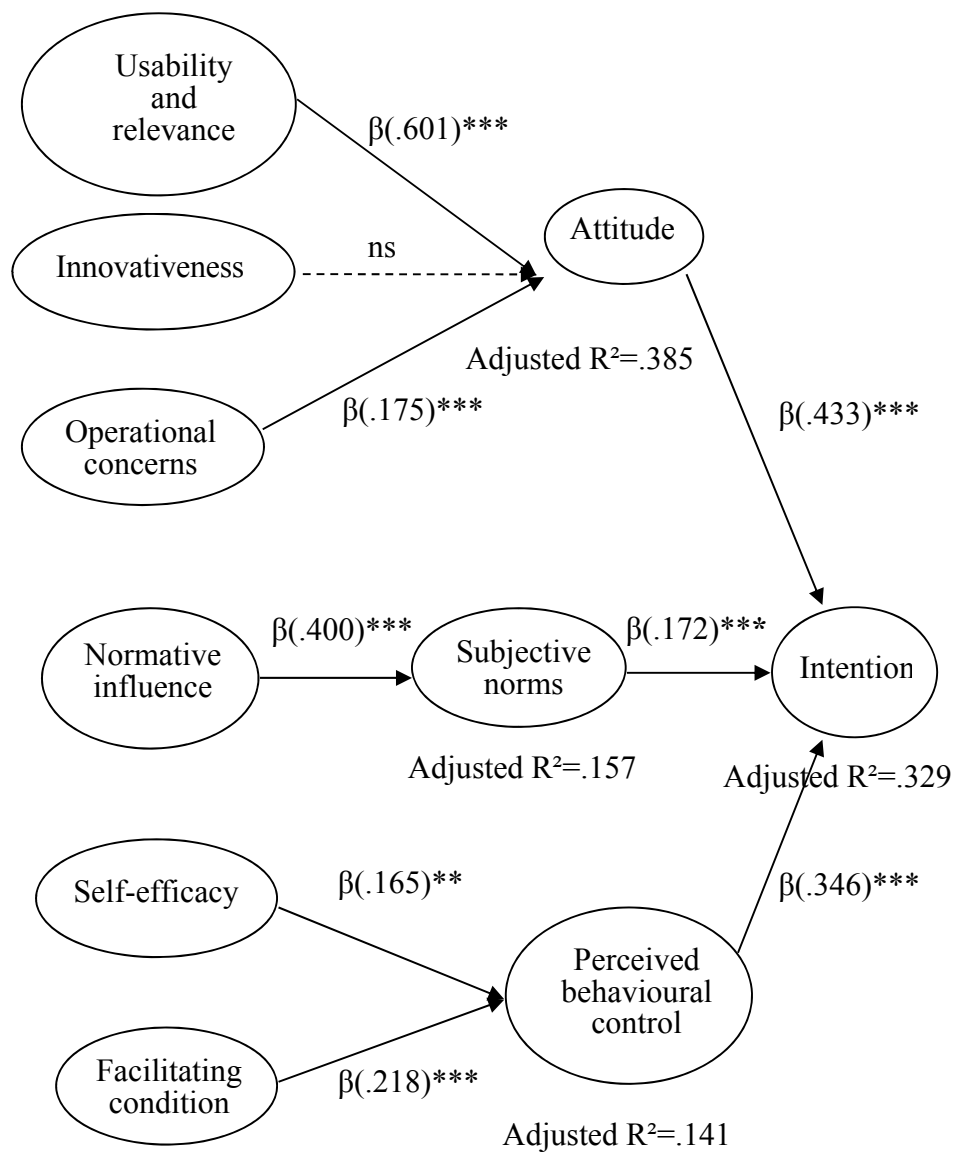
Figure 6.2: A model of behavioural intention toward IB adoption of an individual member of the corporate customers' buying centre – adopters
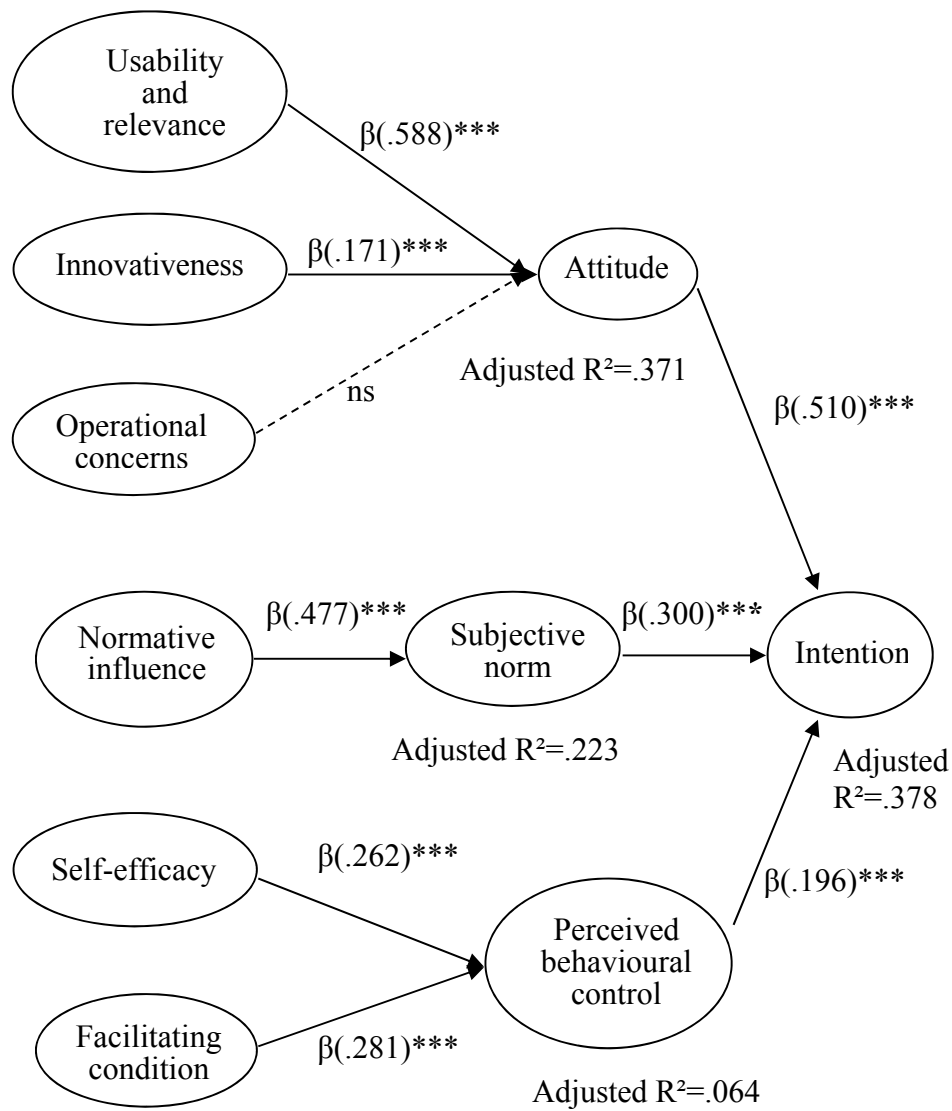
Figure 6.3: A model of behavioural intention toward IB adoption of an individual member of the corporate customers' buying centre – non-adopters

Table 6.30: Hypothesis test results

Hypothesis		Adopter	Non-adopter	Difference
H I i	The **attitude** of an individual member of the corporate customer's buying centre toward using IB services is positively related to behavioural intention toward IB *Attitude → Intention*	Accepted	Accepted	Insigni-ficant
H I ii	The subjective norm of an individual member of the corporate customer's buying centre supports the notion that the use of CIB services is related to behavioural intention toward IB. *Subjective norm → Intention*	Accepted	Accepted	Insigni-ficant
H I iii	The perceived behavioural control of an individual member of the corporate customer's buying centre over the use of CIB will be positively related to behavioural intention toward IB. *Perceived behavioural control → Intention*	Accepted	Accepted	Insigni-ficant
H II i	"**Usability and relevance**" is significantly related to the attitude toward using CIB services. *Usability and relevance → Attitude*	Accepted	Accepted	Insigni-ficant
H II ii	"**Innovativeness**" is significantly related to the attitude toward using CIB services. *Innovativeness → Attitude*	Rejected	Accepted	Signi-ficant

Table 6.30: Hypothesis test results

	Hypothesis	Adop-ter	Non-adopter	Differ-ence
H II iii	"**Operational concerns**" is significantly related to the attitude toward using CIB services. *Operational concerns → Attitude*	Accepted	Rejected	Insigni-ficant
H III	"**Normative influence**" is significantly related to the subjective norm toward using CIB services. *Normative influence →Subjective norm*	Accepted	Accepted	Insigni-ficant
H IV i	"**Self-efficacy**" is significantly related to the perceived behavioural control toward using CIB services. *Self-efficacy → Perceived behavioural control*	Accepted	Accepted	Insigni-ficant
H IV ii	"**Facilitating condition**" is significantly related to the perceived behavioural control toward using CIB services. *Facilitating condition → Perceived behavioural control*	Accepted	Accepted	Insigni-ficant

The findings showed that the attitude, subjective norm, and perceived behavioural control of an individual member of the corporate customer's buying centre towards using IB services were positively related to behavioural intention toward IB. With their antecedents, the influential factors included "usability and

relevance" (that is, optimism, perceived usefulness, and perceived ease of use), innovativeness (non-adopters only), and operational concerns (adopters only), normative influence (e.g. suppliers, peers, and customers), self-efficacy (e.g. being able to solve CIB's operating problem) and facilitating condition (e.g. connecting to CIB website quickly).

Chapter 7 Discussion

7.1 Introduction

This study investigated the adoption of CIB service via theoretical models consisting of four major factors: behavioural intention, attitude, subjective norm, and perceived behavioural control. In addition, there were three major findings regarding IB adoption. First, the results confirmed that attitude, subjective norm, and perceived behavioural control were all antecedents of intention (see Section 7.2). Second, for non-adopters, this study found two antecedents of attitude, which were "usability and relevance" (see Section 7.3.1), and "innovativeness" (see Section 7.3.2). For adopters, two antecedents of attitude were "usability and relevance" (see Section 7.3.1), and "operational concerns" (see Section 7.3.3). In addition, for the factor "innovativeness", adopters and non-adopters showed a significant difference in the importance of innovativeness in their attitudes (see Section 7.3.2).

Generally speaking, the decision about whether or not a business should adopt IB services is made by members in the buying centre. Thus, the decision depends mainly on the consideration and intention of staff members in buying centres. When buying centre members are considering whether or not to adopt IB, it is likely that they will be influenced by both individual, subjective beliefs and external, objective social factors. Decision-makers (the buying centre members) may consider opinions of important people regarding new technology (such as IB)

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as a major deciding factor (Ajzen 1991; Chan and Lu 2004; Hernandez and Mazzon 2007; Nor and Pearson 2008; Ravi, Carr, and Sagar 2006; Taylor and Todd 1995a; Wu and Chen 2005).

The antecedents that affect the final decision may include: (1) buying centre members' perceptions about and attitudes towards the IB service; (2) attitudes of individuals other than buying centre members, e.g. suppliers, peers, customers, and colleagues; (3) self-efficacy of members in the buying centre regarding their ability to use online services, and recognition of suitable corporate equipment and conditions for adopting IB. All the above factors constitute the behavioural intention toward adopting IB.

The discussion centres first on the literature review findings, followed by the interview findings, and then the quantitative analysis findings. In detail, the chapter is divided into six sections. The next section will discuss the findings around behavioural intention, and the difference between adopters and non-adopters of CIB. The following sections (Sections 7.3, 7.4, and 7.5) will present the major findings on attitude, subjective norm, and perceived behavioural control, and the difference between adopters and non-adopters of CIB. Section 7.6 will discuss the common method bias. The last section will summarise the discussions in this chapter.

7.2 Intention

This discussion in this section will place heavy emphases on subjective norm, because differences between the results of this study and those of previous research have been discovered regarding subjective norm. Shih and Fang (2004) and Tan and Teo (2000) found that subjective norm was not the antecedent of intention. Nonetheless, the results of this research were in line with TPB, which states that subjective norm is indeed an antecedent of intention.

Tan and Teo (2000, 31) mentioned that Singaporean banks could immediately provide relevant information about IB to adopters, so that these adopters did not need to ask for friends' opinions about it. IB was a new technology at that time, so it was uncommon for people to be able to make any recommendations about it. Shih and Fang (2004, 221) also postulated that IB was very new in Taiwan, and their results showed that there was no significant relation between subjective norm and intention to adopt IB. Additionally, the results for the samples from Taiwan showed that there is no significant relation between subjective norm and intention to adopt IB ($\beta = 0.026$, $p>0.05$). On the contrary, it was found that there was a significant relation between subjective norm and intention to adopt in some other studies (Hartwick and Barki 1994; Taylor and Todd 1995a, 1995b, 1995c, 1995d).

In addition, this research proposed that subjective norm is the corporation's perception that "people who are important to the corporation think he/she should or should not perform the behaviour in question", and that normative influence

was deemed to be the antecedent of subjective norm. Such important people, in an organisational context, may be suppliers, peers, or customers.

In this study, Hypothesis I asserted that attitude, subjective norm, and perceived behavioural control have significant relationships with intention (Figures 7.1 and 7.2). This suggested that the more positive the attitude, subjective norm, and perceived behavioural control are, the stronger the behavioural intention toward CIB adoption will be. An ample body of literature has addressed the relationships between intention and its three antecedents: attitude, subjective norm, and perceived behavioural control (Bagozzi 1981; Burnkrant and Page 1988; Taylor and Todd 1995a, 1995b, 1995c, 1995d). Additionally, these papers also supported the notion that the three antecedents of intention were multi-dimensional constructs, rather than unidimensional. In fact, the multi-dimensional approaches have more predictive power in understanding a variety of behavioural intentions than do uni-dimensional approaches.

Some researchers supported the idea that attitude, subjective norm, and perceived behavioural control were antecedents of behavioural intention in banking-related literature (Cheng, Lam, and Yeung 2006; Curran and Meuter 2005; Liao et al. 1999; Nor and Pearson 2008; Ravi, Carr, and Sagar 2006; Shih and Fang 2004). The relationships between intention and attitude, subjective norm, and perceived behavioural control were not just found in the literature related to the IB industry, but also other industries. It was agreed that these three constructs were antecedents of behavioural intention (Bhattacherjee 2001; Harrison, Mykytyn, and Riemenschneider 1997; Karahanna, Straub, and Chervany 1999;

Limayem, Khalifa, and Ma 2002; Riemenschneider, Hardgrave, and Davis 2002, etc.).
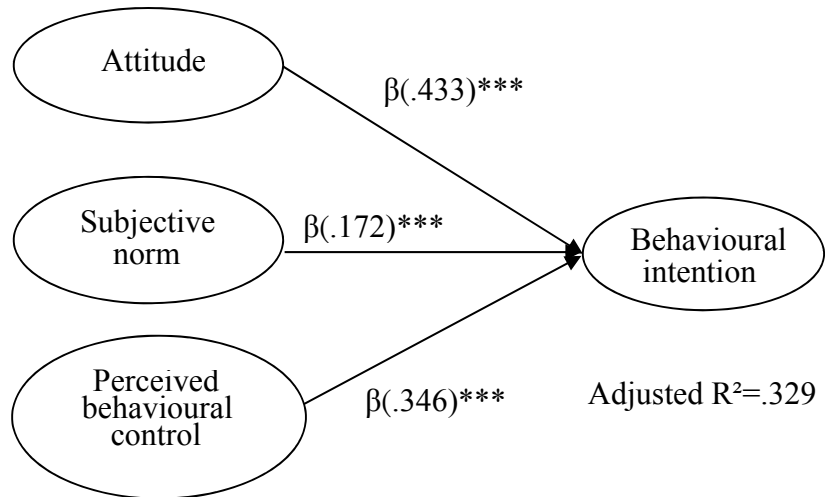
Figure 7.1: Influential factors of intention – adopters
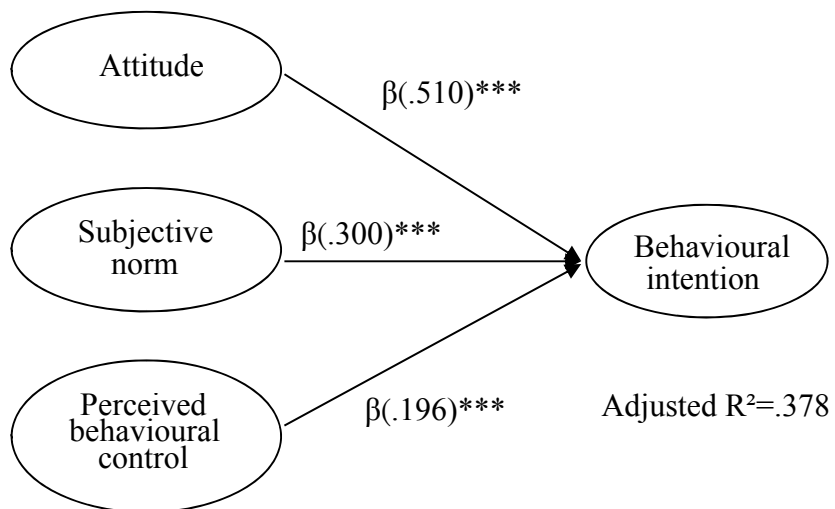
Figure 7.2: Influential factors of intention – non-adopters

Findings from this study supported Hypothesis I by revealing a significant, positive impact related to behavioural intention (for adopters, attitude: $\beta = 0.43$, $p < 0.01$; subjective norm: $\beta = 0.17$, $p < 0.01$; perceived behavioural control: $\beta = 0.35$, $p < 0.01$; for non-adopters, attitude: $\beta = 0.51$, $p < 0.01$; subjective norm: $\beta = 0.30$, $p < 0.01$; perceived behavioural control: $\beta = 0.20$, $p < 0.01$). In other words, for corporate customers, attitude ($\beta = 0.43$ for adopters; $\beta = 0.51$ for non-adopters) was the most significant factor, followed by subjective norm, or perceived behavioural control. This result was consistent with previous studies on TPB.

Additionally, exploratory interviews from the current study also supported the idea that attitude, subjective norm, and perceived behavioural control had a positive influence on behavioural intention with regards to CIB adoption. The detailed information was illustrated as follows.

Attitude:

According to results of interviews, many interviewees showed positive attitudes toward the adaptation of CIB. For example, two participants listed below explicitly expressed that CIB was either valuable or helpful.

Originally, my company used traditional banking services, and the accountant had to physically visit the bank once a week. As the workload increased, the accountant had to visit the bank at least twice a week, then eventually almost once every day. We found Internet banking very valuable, because we do not have to visit the bank every day now that we have adopted Internet banking;

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instead, we could do the banking through Internet. (Y1)

We phone bank staff and ask for bank statements. Sometimes, bank employees can't fax bank statements immediately to my company and we had to wait until the next working day. This is highly inefficient. After discussing possible solutions, we [the staff of the accounting department] *adopted Internet banking. We can then check bank statements online immediately and it [Internet banking] is very helpful.* (Y2)

Subjective norm:

Before adopting Internet banking, the agents in my company kept coming to the accounting department and wanted to check the status of money remittance from their customers, because it relates to their performances and salaries and etc. […] Because some customers don't inform them after paying the insurance fees […] lots of agents bothered me for this, and some of them suggested me to adopt CIB. So, we adopted Internet banking and it immediately solved the problem. (Y1)

Perceived behavioural control:

Every clerical worker has at least one [their own computer] *in my company and all the computers are connected to the Internet. Thus, equipment will not become a problem if we decide to adopt Internet banking.* (Y7)

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Firstly, the above interview results indicated that the buying centre's subjective evaluations over the target behaviour would result in a particular outcome, and the implicit evaluation by the member of the buying centre would bring feedback associated with that outcome (attitude). Secondly, they showed the buying centre's perception of how referent groups would view the behaviour, and the evaluations were usually expressed as the buying centre's motivation to comply with these reference groups (subjective norm). Thirdly, they also revealed the buying centre's perception that the potential user possessed the necessary skills, resources, or opportunities to successfully perform the activity (perceived behavioural control). These findings concurred with TPB theory and previous studies (Chan and Lu 2004; Liao et al. 1999; Shih and Fang 2004, etc.).

In this study, adopters and non-adopters had similar results, neither displaying significant differences in their attitude, subjective norm, or perceived behavioural control. Therefore, it would no longer be necessary for later studies to consider the effects of adopters and non-adopters separately.

Such results indicated that, for both adopters and non-adopters, IB service providers should first and foremost place an emphasis on understanding corporate customers' attitudes toward IB. Then, the service providers need to recognise the ways in which corporate customers are influenced by their peers and allies. Additionally, the service providers should help customers by providing direct and explicit consulting services for their operations, in order to remove the initial obstacles that prevent the adoption of CIB.

7.3 Attitude

Due to the inconsistency of antecedents of attitude from previous research, this section will place an emphasis on the antecedents of attitude (including perceived usefulness, perceived ease of use, optimism, innovativeness, discomfort, insecurity, etc.). After statistical analyses, there were two significant factors for adopters and non-adopters respectively. They were "usability and relevance" and "operational concerns" for adopters, and "usability and relevance" and "innovativeness" for non-adopters.

Fishbein and Ajzen (1975, 216) mentioned that in TRA, attitude could be defined as positive feelings (optimism or innovativeness) or negative feelings (discomfort or insecurity) about engaging in a certain behaviour. Perceived usefulness and perceived ease of use were antecedents of attitude in TAM (Hernandez and Mazzon 2007).

The research domain focused on corporate customers in Taiwan. As revealed in the literature review, there were different findings reporting a variety of antecedents to attitude (perceived usefulness, relative advantage, perceived ease of use, complexity, compatibility, optimism, innovativeness, etc.). Nonetheless, this study found only two significant constructs: "usability and relevance" and "operational concerns" for adopters, and "usability and relevance" and "innovativeness" for non-adopters.

The results (Figure 7.3) indicated that, in the case of adopters, "usability and relevance" and "operational concerns" were the dimensions that had a significant

positive influence on attitude. In addition, the results (Figure 7.4) illustrated that, in the case of non-adopters, "usability and relevance" and "innovativeness" were the dimensions that had a significant positive influence on attitude. Partial Hypothesis II was supported (usability and relevance, $\beta = 0.60$ adopters/$\beta = 0.59$ non-adopters, $p < 0.01$; innovativeness, $\beta = 0.17$, $p < 0.01$ for non-adopters; operational concerns, $\beta = 0.18$, $p < 0.01$ for adopters). Nonetheless, in the case of adopters, innovativeness was a construct that had an insignificant influence on attitude. "Operational concerns" then was a construct that has insignificant influence on attitude for non-adapters. Overall, for adopters, in the regression equation containing attitude and its two antecedents ("usability and relevance" and "operational concerns"), $R^2 = 0.39$, which means that 39% of the variance was explained by these constructs. Among them, the factor of "usability and relevance" was shown to have the most significant impact, followed by "operational concerns". In addition, for non-adopters, in the regression equation containing attitude and its two antecedents ("usability and relevance" and "innovativeness"), $R^2 = 0.37$, which means that 37% of the variance was explained by these constructs. Among them, the factor of "usability and relevance" showed the most significant impact, followed by "innovativeness". From the original definition, "usability and relevance" was derived from optimism (from TR), perceived usefulness, and perceived ease of use (from TAM). Innovativeness was derived from TR. Operational concern was derived from discomfort and insecurity, which were also from TR.
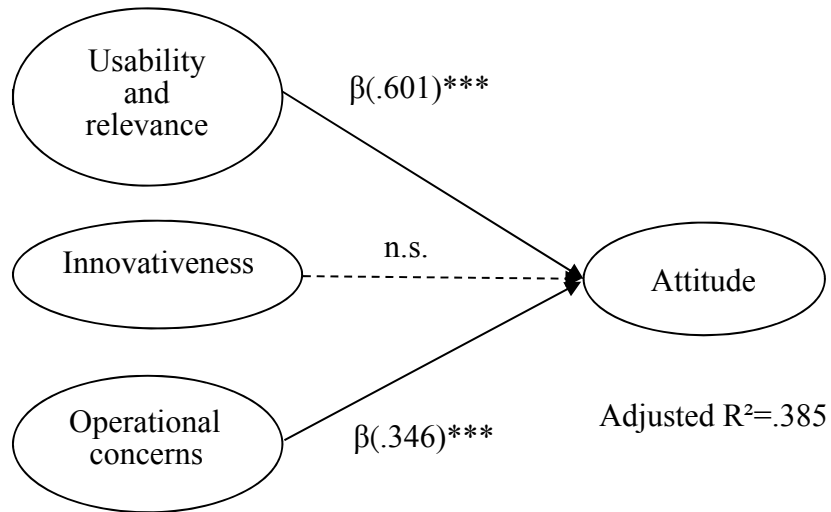
Figure 7.3: Influential factors of attitude – adopters
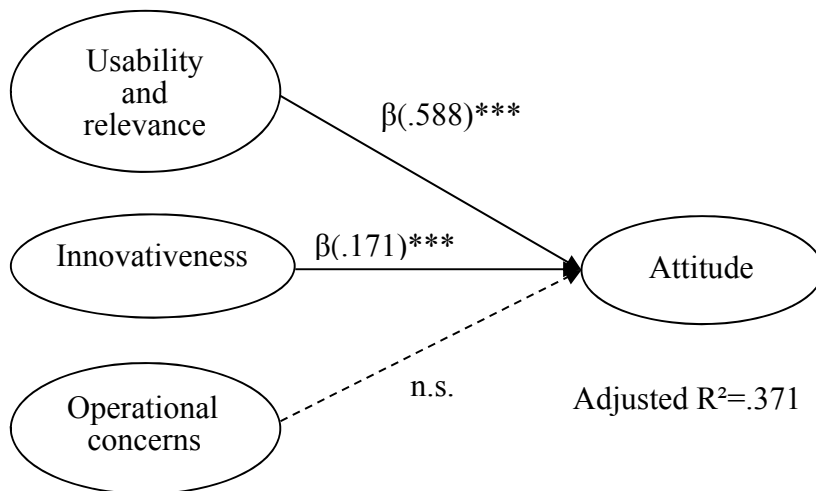
Figure 7.4: Influential factors of attitude – non-adopters

This study has discovered evidence which supports the notion that the two constructs for both adopters ("usability and relevance" and "operational concerns") and non-adopters ("usability and relevance" and "innovativeness") were considered to be antecedents of attitude in CIB adoption – evidence that is also further supported by Chan and Lu (2004), Cheng, Lam, and Yeung (2006), Eriksson, Kerem, and Nilsson (2008), Liao et al. (1999), and Pikkarainen et al. (2004), etc. This result was consistent with previous studies on DTPB, TAM, and TR.

7.3.1 Usability and relevance

In the current study, "usability and relevance" was derived from TR's optimism, TAM's perceived usefulness (or DTPB's relative advantage), and TAM's perceived ease of use (or DTPB's complexity). For "usability and relevance", it came from the three original constructs: perceived usefulness, perceived ease of use, and optimism, as mentioned in section 6.5.2.

Gerrard, Cunningham, and Devlin (2006, 162) suggested that perceived usefulness from TAM was synonymous with optimism from TR. Likewise, the definition of optimism was substantially similar to that of perceived ease of use. Thus, it was not surprising that these three constructs were re-categorised into "usability and relevance".

Several researchers in previous studies mentioned the significant role of optimism, e.g. optimism (Liljander et al. 2006), need for banking services (Brown

et al. 2004), expectations of convenience (Liao and Cheung 2002), convenience (Moutinho and Smith 2000), and their importance to banking needs (Ndubisi and Sinti 2006). Researchers also reported the effects of perceived usefulness on attitude, e.g. Alsajjan and Dennis (2010), Chan and Lu (2004), Cheng, Lam, and Yeung (2006), Eriksson, Kerem, and Nilsson (2005), Guriting and Ndubisi (2006), Jaruwachirathanakul and Fink (2005), Wang et al. (2003), etc. With regards to perceived ease of use, researchers such as Chan and Lu (2004), Guriting and Ndubisi (2006), and Ravi, Carr, and Sagar (2006) mentioned its relationship to attitude.

Firstly, part of "usability and relevance" was derived from TR's optimism. It implied a positive view of technology and a belief that it offered people increased control, flexibility, and efficiency in their lives. There were strong influences from "usability and relevance" on both adopters and non-adopters, which reflected its importance to technology adoption, i.e. adoption of CIB. These factors were strongly influenced by the convenience of online access to financial information, and the convenience of facilitating financial transactions, etc. (Chan and Lu 2004; Cheng, Lam, and Yeung 2006; Eriksson, Kerem, and Nilsson 2008; Liao et al. 1999; Pikkarainen et al. 2004).

Some results from the interviews also supported the notion that "usability and relevance" was partially related to TR's optimism.

Precisely, that's just more convenient [...] Our customers remit money to my company and ask for instant delivery. Before shipping the goods to our customers, we need to make sure we have received

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the payment. Once the payment is received, then the goods will be

delivered to our customers. (Y2)

Secondly, "usability and relevance" was also related to TAM's perceived usefulness. It indicated the degree to which an adopter (or potential adopter) considered IB to be more advantageous than traditional banking methods (usefulness/relative advantage). These findings concurred with TAM and the results of previous studies in IB adoption (Chan and Lu 2004; Cheng, Lam, and Yeung 2006; Liao and Cheung 2002; Dabholkar 1996; Eriksson, Kerem, and Nilsson 2008; Theotokis, Vlachos, and Pramatari 2008). The findings were also consistent with previous online shopping studies (Al-Somali, Gholami, and Clegg 2009; Al-maghrabi, Dennis, and Halliday 2011; Celik 2008; Childers et al. 2001; Gefen, Karahanna and Straub 2003; Koufaris 2002; Limayem, Khalifa, and Frini 2000).

For example, Pikkarainen et al. (2004) used Davis, Bagozzi, and Warshaw's (1989) "perceived usefulness" construct, and concluded that perceived usefulness was one of the main factors influencing IT acceptance. Some researchers also suggested that "perceived usefulness" would increase the use of IB (Chan and Lu 2004; Cheng, Lam, and Yeung 2006; Eriksson, Kerem, and Nilsson 2005; Guriting and Ndubisi 2006; Jaruwachirathanakul and Fink 2005; Ravi, Carr, and Sagar 2006; Wang et al. 2003; Yiu, Grant, and Edgar 2007). Relative advantages found to influence the intention to adopt IB services were revealed by Brown et al. (2004), Hernandez and Mazzon (2007), Liao et al. (1999), Lockett and Littler (1997), as well as Tan and Teo (2000).

In addition, some interviews revealed directly that "usability and relevance" was one of the main factors influencing CIB adoption.

It is inconvenient to physically visit the bank, because we don't have much time and the bank is far away from my company. After adopting Internet banking, we could check the account balance and transfer money through the Internet. (Y7)

This finding indicated that corporate customers might not adopt CIB if the service did not provide attractive benefits. Thus, marketers should stress the advantages brought by CIB to the business, e.g. timesaving and no transportation costs (e.g. to save the time it takes to travel to and from physical bank branches; to avoid traffic accidents during trips to and from physical bank branches, etc.). Advantages also included the provision of updated information from the bank, such as exchange rates, interest rates, etc. The company could directly translate these benefits into income. Therefore, economically speaking, it was worth businesses adopting IB.

Thirdly, "usability and relevance" was also related to TAM's perceived ease of use. It referred to the degree to which IB was perceived as easy to understand and use (perceived ease of use). This finding concurred with the TAM model and the results of previous studies on IB adoption (Chan and Lu 2004; Cheng, Lam, and Yeung 2006; Dabholkar 1996; Liao and Cheung 2002; Theotokis, Vlachos, and Pramatari 2008), as well as studies into online shopping (Al-Somali, Gholami, and Clegg 2009; Celik 2008; Childers et al. 2001; Gefen and Straub 1997, 2000; Koufaris 2002; Limayem, Khalifa, and Frini 2000). Additionally, data from

interviews also supported "usability and relevance" (from TAM's perceived ease of use) as being one of the main factors influencing CIB adoption.

> *I feel it* [Internet banking] *is very easy to use. My company just needs a set of password, which includes numbers and letters, to access the website through the Internet. Everything else in Internet banking is user-friendly.* (Y3)

This finding implied that corporate customers need a user-friendly interface or website so that they could easily find the necessary information. Content of websites was related to the fundamental concern of perceived ease of use, because when a website provided information that the websites of other banks did not provide, it was more likely to attract CIB customers. IB should also focus on certain target customers, such as VIP customers, and try its best to make these VIP customers trust the bank's website for providing customised information. In this way, CIB's corporate customers would be willing to revisit the bank's website, thus reinforcing their loyalty by doing so.

7.3.2 Innovativeness

This section will focus on the differences between adopters and non-adopters when it comes to the construct of innovativeness.

Only a few researchers discussed the comparison of adopters/users and non-adopters/non-users. Hernandez and Mazzon (2007) broke down

innovativeness into relative advantage, visibility, result demonstrability, compatibility with lifestyle, ease of use, trainability, and image. Hernandez and Mazzon (2007, 86) found that there was almost no difference in innovativeness between adopters (Internet users) and non-adopters (Internet non-users). People who used the Internet but did not use IB shared similar beliefs to non-Internet users. Both of them were less likely to adopt IB (Hernandez and Mazzon 2007, 86). Theotokis, Vlachos, and Pramatari (2008, 349) concluded that "innovativeness is positively associated with attitude towards high technology-contact services but negatively associated with attitude towards low technology-contact services".

Regarding the construct of "innovativeness", Lassar, Manolis, and Lassar (2005, 176) confirmed "the positive relationship between Internet-related innovativeness and online banking adoption". Poon (2008, 63) deemed that "features referring to services available on e-banking and product innovation is associated with the availability of appropriate technology and technical support, proper introduction and the development of electronic services". Poon's results (2008, 59) indicated that innovativeness (featuring availability) is significant with respect to the users' adoption of e-banking services. Another research paper (Theotokis, Vlachos, and Pramatari 2008, 349) indicated that "innovativeness is positively associated with attitude towards high technology-contact services". Aldás-Manzano et al. (2009, 53) also indicated that "consumer innovativeness is a key construct to improving e-banking adoption".

Innovativeness implied a tendency for a person to be both a pioneer and a thought leader when it comes to technology. Many previous studies had supported

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the notion that innovativeness was positively associated with attitude. This finding concurred with TR and the results of many previous studies (Aldás-Manzano et al. 2009; Dabholkar 1996; Hernandez and Mazzon 2007; Poon 2008; Theotokis, Vlachos, and Pramatari 2008).

Nonetheless, a few researchers comparing adopters and non-adopters showed statistically significant differences in impacts on innovativeness. Theotokis, Vlachos, and Pramatari (2008, 349) concluded that "innovativeness is positively associated with attitude towards high technology-contact services but negatively associated with attitude towards low technology-contact services".

In this study, innovativeness was positively associated only with the attitude of non-adopters, with significant differences in innovativeness detected between these two groups (adopters: $\beta = 0.05$, $p > 0.05$; non-adopters: $\beta = 0.17$, $p < 0.01$). In other words, for IB, adopters were less likely than non-adopters to consider innovativeness. For non-adopters, consistent with extant research, innovativeness was found to have significantly positive effects on the adoption of CIB (Gerrard and Cunningham 2003, 24; Lassar, Manolis, and Lassar 2005, 176). It suggested that corporate customers who are strongly innovative were more likely to adopt CIB.

The results of the interviews also showed innovativeness to be one of the main factors influencing CIB adoption.

Innovativeness:

Internet banking is not a new technology for me, because I have been using it for a long time. (Y1)

Internet banking is newer than traditional banking, because Internet banking provides more functions. It is easy to use, so we adopted Internet banking. (Y2)

My bank staff always promotes their new products, such as Internet banking. Thus, my boss agreed to try and adopt Internet banking. (Y6)

I think Internet banking takes some time to be understood and accepted. The speed of adopting new technology is slow, and a step-by-step guide is required to adopt the new technology. (N9)

We will probably adopt Internet banking later. If we don't use it [Internet banking], *it would seem like we are unable to keep up with the newest trends. If other companies have no trouble using Internet banking, we should try it.* (N8)

IB could develop marketing programmes of innovativeness to encourage their potential corporate customers (i.e. non-adopters) to adopt IB services (i.e. advertisement innovation, technology innovation, etc.). For example, IB could not only rely on providing practical benefits (i.e. timesaving and convenience) but also seek to provide other more value-adding features, like multilingual interface,

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24-hour banking services for information checking and transactions, etc. In addition to this, the service could also include more interactive online activities, such as making phone calls, sending faxes, checking emails, and browsing websites, etc., to help customers to use IB services more conveniently. There might also be the need for professional customer service in order to satisfy various kinds of requests from customers.

7.3.3 Operational concerns

"Operational concerns" in this research were derived from TR's discomfort and insecurity. Parasuraman and Colby (2007) suggested that people's beliefs about technology have both positive (contributors) and negative (inhibitors) facets. The negative (inhibitors) facets were composed of discomfort and insecurity. Thus, discomfort and insecurity could be categorised as "operational concerns", which was, in actual fact, from the inhibitors' facet.

This implied a perceived lack of control over technology, and a feeling of being overwhelmed by it (discomfort). It could also refer to distrust of technology, and scepticism about its capability to work properly (insecurity). The findings showed that "operational concerns" had a positive relationship with attitude of adopters, but that this relationship was not significant for non-adopters, and thus Hypothesis IIiii was supported by adopters, but not by non-adopters.

Previous research presented inconsistent results. For example, Chen, Chen,

and Chen (2009, 1248) supported the belief that "TR's inhibitors, discomfort and insecurity, have no significantly negative influence on continuance intention towards adopting SST services". The insignificant result of Chen, Chen, and Chen (2009) was consistent with non-adopters' operational concerns in this current study.

Nevertheless, some researchers confirmed that operational concerns (e.g. perceived trust, risk and perceived credibility) were the significant influences on the attitude of IB adoption (AbuShanab, Pearson, and Setterstrom 2010; Tan and Teo 2000; Wang et al. 2003). Their results were consistent with adopters' perception of this study. This suggested that operational concerns would have influence on adopters' attitude towards CIB adoption.

7.4 Subjective norm

The results (Figures 7.5 and 7.6) indicated that normative influence had a significant influence on subjective norm, and thus Hypothesis III was supported. Overall, for adopters, the antecedent of subjective norm (i.e. normative influence) explained 16% of the variance (adjusted $R^2 = 0.16$, $\beta = 0.40$, $p < 0.01$), and for non-adopters, the antecedent of subjective norm (i.e. normative influence) explained 22% of the variance (adjusted $R^2 = 0.22$, $\beta = 0.48$, $p < 0.01$). This result was consistent with previous studies on DTPB. This suggested that the more positive the normative influence is, the more positive the subjective norm in CIB adoption will be. This observation was proven to be valid not only in the IB

industry (e.g. Shih and Fang 2004), but also in different industries (i.e. Adams, Nelson, and Todd 1992; Chang 1998; Hartwick and Barki 1994; Igbaria, Guimaraes, and Davis 1995; etc.)
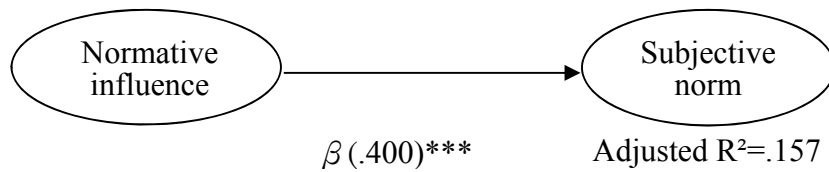
Figure 7.5: Influential factor of subjective norm – adopters
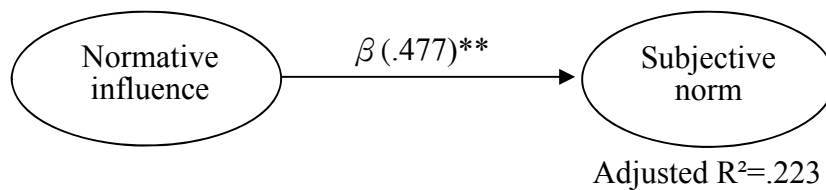
Figure 7.6: Influential factor of subjective norm – non-adopters

7.4.1 Normative influence

Normative influence was found to have a positive significant effect on intention to use IB through the subjective norm for both adopters and non-adopters. This finding suggested that the influence of company suppliers, peers, and clients would affect corporate customers' intentions to adopt IB services.

In this study, interviewees expressed the view that suppliers, peers, and

clients were parties that would affect decisions on the adoption of IB services. Exploratory interviews in the study found that the interviewees also tended to support the view that normative influence positively influenced subjective norm on CIB adoption. Results of interviews also supported the notion that normative influence is the main factor that influences CIB adoption.

> *My company is a flower shop. Before my company adopted Internet Banking, our business was rather sluggish. Some customers recommended my company to adopt a virtual payment system so that people could order flowers online.* (Y8)

In the example above, corporate customers would submit an order online, and the florist would have to check the account for confirmation of payment before delivering the order. This demonstrates that reference groups (clients, suppliers, and peers) do influence corporate customers' attitudes towards the adoption of IB services. In other words, in adopting IB services, corporate customers considered not only their own attitudes but also those of their reference groups.

Generally speaking, people in Chinese society often emphasise harmony and prefer collectivism (Hofstede 1980; Leung and Bond 1984; Shenkar and Ronen 1987). There are social networking relations between corporate customers and their referent groups, and their shared preferences create a foundation for mutual trust. In this case, for example, a business transaction could be settled by a phone call. This could prevent uncertainty between the two parties of a deal, thereby reducing the cost of business in the long run. In modern society,

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businesses place more emphases on relationships in a social network. IB service providers, their corporate customers, and the corporate customers' reference groups form a typical social network. All parties in the social network rely on and correlate closely with each other. The relationships among them include not only economical and technical interactions, but also social relations.

In addition, with the development of the Internet, marketing approaches through IB services continue to shift from traditional, one-way broadcasting methods to more interactive ones. Some human social activities are being replaced by Internet-ready computers. Using automatic and customised services will enhance the interaction between banks and their corporate customers. With a better understanding of their customers, the banks are able to provide service of better quality.

Therefore, the findings implied that IB service providers should bring in more effective advertising and promotional efforts. They could place more emphases on convenience and capability of online banking (e.g. execution of accounts receivable, financing of accounts payable, the supply chain system, etc.). In addition to marketing strategies, they would have to deliver the positive influences to reference groups as well, so that both the corporate customers and their reference groups would realise the advantages of using IB services, which would provide corporate customers with better incentives to adopt IB services.

7.5 Perceived behavioural control

The results (Figures 7.7 and 7.8) indicated that self-efficacy and facilitating condition had a significant influence on perceived behavioural control, and thus Hypothesis IV was supported. In other words, the more confident corporate customers are about their own ability, and the more confidence they have in the facilitating condition available to support their use of IB, the more likely it is for them to adopt it. Overall, for adopters, the antecedents of perceived behavioural control (i.e. self-efficacy and facilitating condition) accounted for 14% of the variance (adjusted $R^2 = 0.14$, $\beta = 0.26$, $p < 0.01$ for self-efficacy and $\beta = 0.28$, $p < 0.01$ for facilitating condition). Additionally, for non-adopters, the antecedents of perceived behavioural control (i.e. self-efficacy and facilitating condition) accounted for 6.4% of the variance (adjusted $R^2 = 0.064$, $\beta = 0.17$, $p < 0.05$ for self-efficacy and $\beta = 0.22$, $p < 0.05$ for facilitating condition).

This result was consistent with previous studies on DTPB. These results suggested that the more positive the self-efficacy or facilitating condition is, the stronger the perceived behavioural control will be in CIB adoption. Not only was the result found in the IB industry (e.g. Brown et al. 2004; Chan and Lu 2004; Hernandez and Mazzon 2007; Karjaluoto, Mattila, and Pento 2002; Tan and Teo 2000; Wang et al. 2003, etc.), but also in different industries (e.g. Butler and Peppard 1998; Limayem, Khalifa, and Frini 2000).
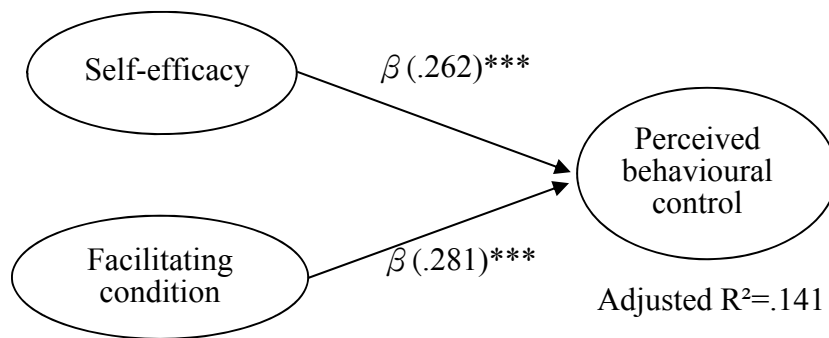
Figure 7.7: Influential factors of perceived behavioural control – adopters
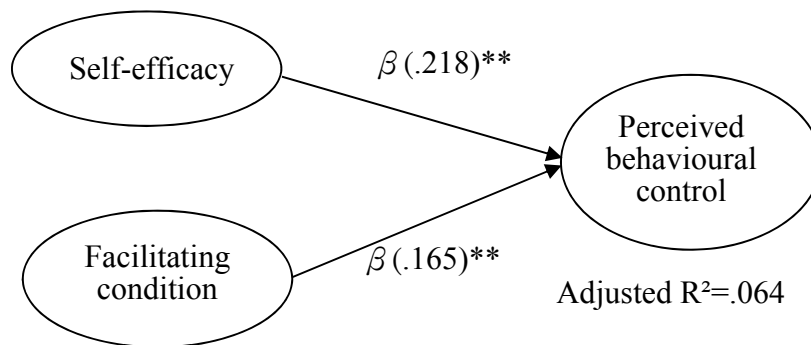
Figure 7.8: Influential factors of perceived behavioural control – non-adopters

These findings indicated that adoption of IB was not totally under the corporate customers' volitional control and/or reference groups' influence. In fact, it also depended on the resources and capabilities available for them to use the Internet for account inquiries, transactions, etc.

7.5.1   Self-efficacy and facilitating condition

Self-efficacy and facilitating condition were suggested as having significantly positive influences on the behavioural intention to use IB through perceived behavioural control for both adopters and non-adopters. It was perceived that a reasonable level of computer proficiency would be needed for them to adopt IB. By being more confident at solving problems in the operation of IB, both adopters and non-adopters showed the same perception. These findings suggested that the influence of resources (that is, constant specialised instructions, loading speed of IB, and accessibility) could impact corporate customers' perceptions of the ease or difficulty of engaging in IB activities. Moreover, the abilities of corporate customers, i.e. being confident in solving CIB operational problems and being comfortable in using CIB, were the factors that affected corporate customers' perception of CIB adoption.

Besides, the exploratory interviews of the current study found that the interviewees also tend to support self-efficacy and facilitating condition as factors that have positive influences on CIB adoption. Typical comments from the interviewees were similar to the following:

Self-efficacy:

Our chief accountants […] her computer ability is very good. Normally, only I can check the account balance. In my company, I usually use Internet banking except when I am on vacation. When I am off-duty, my replacement will use the function to check the account

balance because I have taught her how to use it. I believe that there is

no problem with my computer-operating skills. (Y3)

Facilitating Condition:

It is not difficult to use Internet banking. If I encounter a problem, I

could just phone the bank staff and ask for help. Therefore, I do not

worry about how to use it. It is very helpful that the bank provides

Internet banking technical support. (Y7)

In short, the interviews demonstrated that the higher the computer self-efficacy of the corporate customers, the more the perceived behavioural control they gain. These findings implied that when corporate workers are more confident about their capabilities, they are then more likely to adopt IB services. This suggested the importance of consumer education. Helping consumers to become more capable of using IB services would, in turn, promote the adoption of IB services. In general, compared to individual customers, corporate customers were more familiar with computers and technical operations. For example, if a company has clerks with at least college-level education, it would be reasonable to assume that such clerks would have a fundamental knowledge of how to operate a computer system. For these corporate customers, service providers were encouraged to provide full support to these IB services. Some promotion strategies like free-trial IB services would be helpful.

In addition, corporate customers with higher facilitating conditions were found to experience higher perceived behavioural control. This is an important

implication for marketers, who, it would seem, should be more concerned with the quality of the information provided by IB. Whenever a corporate customer has problems or questions, the bank's customer service department should be able to offer immediate consulting services, further training, or even homebound services. If the obstacles that could potentially occur before corporate adoption of IB were to be removed, corporate customers would be more willing to try the service.

7.6 Common method bias

There may be a possibility for the existence of the common method bias in this study, because all the data were based on responses from a self-reporting survey, through self-administered questionnaire answering at a single point of time.

"When measures of […] are collected from the same respondents and the attempt is made to interpret any correlations among them", this arises the well-known problem of common method bias (Podsakoff and Organ 1986, 533). Podsakoff, MacKenzie, and Podsakoff (2012, 539) have suggested several approaches to evaluating the statistical remedies for the occurrence of common method bias, such as the unmeasured latent method factor technique, the correlation-based marker variable technique, the regression-based marker variable technique, the instrumental variable technique, the CFA marker technique, the directly measured latent method factor technique, and the measured response style technique (553-559). Approaches listed above have been reviewed and

summarised by Podsakoff, MacKenzie, and Podsakoff (2012, 553-559) and Podsakoff et al. (2003, 896). Podsakoff, MacKenzie, and Podsakoff (2012, 559) also recommended that "there is no single best method for handling the problem of common method bias".

This study was to use the Harman's single factor-test (Podsakoff et al. 2003, 889), because this test is one of the most widely used approaches by researchers, such as Wang, He, and Li (2013, 39).

Besides the statistic remedy, this study has also taken some procedural measures to prevent the incidence of common method bias, as also suggested to be necessary by Podsakoff et al. (2003), such as protecting respondents' anonymity.

According to Podsakoff et al. (2003, 889), "if a substantial amount of common method bias is present, either (a) a single factor will emerge from the factor analysis or (b) one general factor will account for the majority of the covariance among the measures". So, this study employed the unrotated, varimax, principal component, and EFA, in order to assess the common method bias problem. After factor analyses were carried out, there were 36 variables for adopters (three-variable intention, three-variable attitude, two-variable subjective norm, two-variable perceived behavioural control, nine-variable usability and relevance, three-variable innovativeness, six-variable operational concerns, three-variable normative influence, three-variable self-efficacy, and two-variable facilitating condition) and 41 variables for non-adopters in the study (four-variable

intention, three-variable attitude, two-variable subjective norm, three-variable perceived behavioural control, nine-variable usability and relevance, six-variable innovativeness, eight-variable operational concerns, three-variable normative influence, three-variable self-efficacy, and two-variable facilitating condition).

The results of Harman's one-factor test revealed that the first factor did not account for the majority of the variance, and that there was no single general factor in the unrotated factor structure. Appendices 7.1 (for adopters) and 7.2 (for non-adopters) showed the factor loading after unrotation. This study fulfilled both criteria proposed by Podsakoff et al. (2003). Therefore, there are reasons to believe that common method bias may not cause a serious problem of common method bias in this study. Nonetheless, it might be necessary in the future for some further discussion to be conducted, which will be addressed in the following chapter.

7.7   Chapter summary

In this chapter, the research findings were discussed. These findings supported all hypotheses except one. Attitude, subjective norm, and perceived behavioural control were found to play significant roles in the behavioural intention toward CIB adoption. Findings indicated that the more positive the attitude towards IB services, the higher the subjective norm, or the more positive the perceived behavioural control becomes, the higher the behavioural intention toward IB adoption will be. On the other hand, the more negative the attitude

towards IB services is, the lower the subjective norm is, or the more negatively the perceived behavioural control performs, the lower the behavioural intention toward IB adoption will be. It was revealed that out of attitude, subjective norm, and perceived behavioural control, attitude had the biggest impact on corporate customers' intentions toward adopting IB services, followed by subjective norm. For non-adopters, perceived behavioural control had the least impact on corporate customers' intentions toward adopting IB services. As for adopters, attitude had the biggest impact on corporate customers' intentions toward adopting IB services, followed by perceived behavioural control, while subjective norm had the least impact on corporate customers' intentions toward adopting IB services.

This study also revealed that "usability and relevance" and "operational concerns" could influence the attitude of CIB adopters, and "usability and relevance" and innovativeness could influence the non-adopters' attitude in corporate customers. Normative influence could affect the subjective norm of CIB. In other words, customers, suppliers, and peers could significantly influence a company's decision regarding the adoption of CIB. Self-efficacy and facilitating condition could also influence perceived behavioural control.

In addition, the results from the survey showed that between adopters and non-adopters, only the construct of innovativeness is significantly different. Following the discussion of the results, the next chapter presents the research contributions, research limitations, and directions for further research.

Chapter 8 Conclusion

8.1 Introduction

This chapter presents a holistic and integrated conclusion of this study and, from the results, identifies its academic contributions and limitations. Such contributions and limitations can be used as reference for the banking industry and its customers, providing suggestions for future academic research.

There are four sections in this chapter, beginning with this introduction. Section Two summarises the contributions of this research study in academic and practical fields. Section 8.3 lists the academic and practical limitations of the research, and Section 8.4 indicates possible areas for further research, based on the findings in this study.

8.2 Research contribution

This research was designed to answer two main questions:

Q1. What factors influence corporate customers' IB adoption?

Q2. What are the differences between corporate customers (adopters) and prospective corporate customers (non-adopters) in relation to the factors that influence IB adoption?

To this end, answering the above two questions through the qualitative

empirical phase (interviews) and quantitative methods (statistical analyses) enhances both the theoretical development and practical consideration. Finally, this study produces several contributions, as listed below.

8.2.1 Theoretical contribution

Firstly, this research contributes to the literature around the behavioural intention of corporate customers toward IB adoption. According to the objective of the research in question one, after recognising the contributions in this study, question one was answered.

The objective of this research is to explore the antecedents of the behavioural intention of an individual member of a corporate customer's buying centre regarding the adoption of IB. The literature review showed how the behavioural intention of individual consumers regarding IB adoption has been studied (e.g. Shih and Fang 2004; Tan and Teo 2000). Furthermore, the literature review identified that the behavioural intention of corporate customers toward the adoption of IB has not been researched in depth (and that there is almost no literature around the intentions of buying centre members), and that there was a gap in the academic literature.

This paper developed a theoretical framework that identifies and tested the antecedents of attitude, subjective norm, and perceived behavioural control of buying centre members' intentions toward IB adoption. The findings shed light on

the reasons as to why corporate customers would want to adopt IB. As previously explained, there has been little or no research into the relationship between an individual member in the corporate buying centre and their stance on the adoption of IB. Their antecedents were unclear regarding the corporate customers' behavioural intentions toward IB adoption.

Thus, this research contributed to the literature around the behavioural intentions of corporate customers toward IB adoption, and supports the notion that attitude, subjective norm and perceived behavioural control are three antecedents to corporate customers' behavioural intentions, with results which demonstrated that the more favourable the attitude, subjective norm and perceived behavioural control, the greater is the corporate customer's intention to perform the behaviour.

Secondly, this study contributed to the literature by adding new evidence, by way of comparing the two groups' behavioural intentions toward IB adoption. This finding answered the second research question.

Previous research provided very little information about the differences between adopters and non-adopters (potential adopters) with regards to their intentions toward IB adoption (except Hernandez and Mazzon 2007; Ozdemir and Trott 2009; Ozdemir, Trott, and Hoecht 2008), since most of the previous studies only sampled either adopters or non-adopters, which were themselves sampled only on an individual-customer basis.

Few of the studies focused on the adoption intention of corporate customers toward IB, and almost no papers addressed the comparison between adopters and

non-adopters of CIB.

In this case, this study makes a contribution by investigating the differences between adopters and non-adopters of IB in corporate buying centres. It fills the gap by providing a comprehensive understanding of the psychological states of adopters and non-adopters (potential adopters). The study has identified the factors influencing the behavioural intention of individual members (both adopters and non-adopters) in buying centres toward the adoption of IB. It has also compared both roles (adopters and non-adopters) with regards to their influence on behavioural intention.

In this study, empirical evidence demonstrated that there is no significant difference between corporate-customer adopters and non-adopters, in terms of the relationships between intention and its antecedents, except innovativeness. Thus, this study contributes to the literature by adding new evidence by way of the comparison of the two group's behavioural intentions toward IB adoption.

Thirdly, the study offers theoretical contributions to the existing literature by integrating TRA, TPB, TAM, DTPB, and TR. For attitude, the antecedents are found to be usability and relevance, innovativeness (non-adopters only), and operational concerns (adopters only). The antecedent of subjective norm is normative influence, and the antecedents of perceived behavioural control are self-efficiency and facilitating condition.

Previous studies have employed TRA, TPB, TAM, and DTPB in order to understand the behavioural intentions of IB service users (see Table 2.1).

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Nonetheless, no previous studies have attempted to integrate the above five theoretical models, especially where TR was involved. Parasuraman (2000, 317) suggested that "the Technology Readiness Index is a multiple-item scale with sound psychometric properties that companies can use to gain an in-depth understanding of the readiness of their customers (both external and internal, i.e. employee) to embrace and interact with technology, especially computer/Internet-based technology".

This study successfully supports the notion that TR can be incorporated in order to explain the phenomena of the behavioural intention of corporate customers towards IB adoption. It is hoped that this study will help in the understanding of corporate customers' intentions toward adopting IB by incorporating a comprehensive theory from the corporate customer's perspective.

After integrating the five theoretical models of TRA, TPB, TAM, DTPB, and TR, this study provided strong empirical support to the integrated model, which posits three direct determinants of behavioural intention (attitude, subjective norm, and perceived behavioural control), two antecedents of attitude ("usability and relevance" and operational concerns, for adopters; "usability and relevance" and innovativeness, for non-adopters), one determinant of subjective norm (normative influence), and two antecedents of perceived behavioural control (self-efficacy and facilitating control).

With most of the hypotheses in this study having been supported by the research results, it is posited that this integrated model regarding corporate

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intention toward adoption of IB makes considerable sense. This finding also contributed to answering the first research question.

Finally, this finding provided empirical evidence to clarify the inconsistent and contradictory results regarding the factors that influence the adoption of IB.

Previous studies have been inconsistent and contradictory in terms of results regarding the factors that influence the adoption of IB (e.g. Chan and Lu 2004; Shih and Fang 2004; Tan and Teo 2000), especially when it comes to perception of subjective norm.

This study supports the notion that subjective norm plays an important role in influencing intention, and explains the interaction between members of a buying centre and their company's suppliers, peers, and customers. In this study, the measurement has been rigorously tested for validity and reliability. From a theoretical perspective, this finding provided empirical evidence that subjective norm has a significant positive influence on individual members of the corporate customer's buying centre when it comes to the adoption of IB.

All of these findings contribute to the design of marketing strategies, because successful marketing requires managers to understand how corporate customers view service providers. According to the objective of the research in questions one and two, after recognising the contributions in the above sections, questions one and two were answered.

8.2.2 Managerial implication

This study offers some practical guidelines for banks in terms of the understanding of corporate customers' behavioural intentions toward IB adoption. Several factors affecting corporate customers' behavioural intentions toward IB adoption were identified, such as usability and relevance, innovativeness, operational concerns, normative influence, self-efficacy, and facilitating condition. The principal implications are described below.

Usability and relevance

For corporate customers, "usability and relevance" means having total control over their bank accounts, so that they can access account information and/or make financial transactions without any restrictions. Marketers should emphasise the benefits of IB (e.g. timesaving and no transportation costs, which can translate into income for corporate customers), in order to persuade corporate customers to use IB. IB should provide a user-friendly interface or website so that corporate customers can easily find the information they need without spending too much time on learning how to use it.

IB service providers could offer corporate customers a free IB service for the first few weeks to so that they can experience it without any monetary cost to them. If they are satisfied with it, they are more likely to develop the intention to adopt the IB service. Furthermore, focusing on the IB needs of target customers, such as VIP corporate customers, can help to retain existing customers.

Innovativeness

Being able to offer an innovative service is one of the major factors that influences potential corporate customers to adopt IB. For example, a multilingual interface, a 24-hour banking service that enables them to check information and offer off-hours trading are the major features and attractions of IB. Some corporate customers may be too busy during their working day to have enough time to handle banking-related tasks. Therefore, the only time they are free may be in the evenings or at weekends, when all the physical bank branches are closed; so a 24-hour banking service will therefore be the most suitable option for them.

Also, some corporate customers may not use the same language as the other corporate customers. Therefore, multilingual interfaces could solve this problem by providing an interface that uses their own language, so that corporate customers can understand the information presented to them without having to ask someone for a translation.

Operational concerns

The determinant of operational concerns is devised by TR's insecurity and discomfort constructs. A major concern of customers regarding the Internet has always been the issue of security and confidentiality. Only when such security concerns are addressed can online transactions have room for growth. An increasing number of online fraud cases have impeded the evolution of the IB sector, inhibiting the activity of both customers and banking service providers. Alongside the development and growth of Internet transactions and trades, there

have been concerns over the accuracy and safety of online transactions, as well as issues around personal privacy – concerns that have hindered the progress of IB development. The technology required for the safety of transactions must be able to guarantee that online transaction data and the associated details will not be stolen or modified, and ensure that transactions will be completed smoothly. Practically, to boost CIB acceptance, banks need to develop strategies that enhance corporate customers' confidence in using IB services.

Suggested strategies include improvements to encryption and firewall technologies, cooperation with online-security firms, adoption of privacy and security policies, a transference of risk from customers to insurance companies, protection of consumers' privileges against hi-tech failures or disasters, a ready-access, toll-free telephone number for customer service and complaints, and so on. In this way, corporate customers would probably be more willing to fully adopt IB services. However, that's said, if the environment changes so that IB becomes as common place as ATM machines, people would not concerned too much about security issues, because IB not only allows a customer to check his or her account balance, but also to transfer money from one account to another.

Normative influence

In general, Chinese society emphasises collectivism and interpersonal harmony. Corporate customers could make suggestions after they have used IB, so that the bank has the opportunity to improve its service based on their feedback. With frequent interaction between the bank and its corporate customers, the

service will begin to develop a trustworthy reputation. This would prevent uncertainty and doubt held by both sides, and reduce the running costs of business. Automatic and customised IB services allow more interactions, shifting IB from traditional, one-way broadcasting methods to more interactive, two-way methods. Reference groups (i.e. customers, peers and suppliers) play an important role in helping corporate customers realise the advantages of adopting IB. In general, people often implicitly trust those who are important to them, because they believe that these friends, family and peers will always be totally honest with them, without exception. Thus, through the influence of their respective reference groups, corporate customers are more likely to adopt an IB service.

Self-efficacy and facilitating condition

Corporate customers should possess a certain level of computer skills, and a knowledge of how to use the Internet to access relevant information, so that they will be more confident of their ability to use IB.

For marketers, the matter of the real-time customer service offered alongside IB services is very important. This is due to the fact that IB users won't encounter problems with their IB service until they have attempted to use it, and may therefore require round-the-clock assistance. The customer service for IB should ideally provide 24-hour online customer service, so that any problems can be solved immediately, preferably before customers actually adopt the IB service. Because time is money for corporate customers, they want to have an IB service that is easy to use and efficient.

8.3 Research limitations

This research has provided a detailed investigation of the determinants of the behavioural intentions of corporate customers toward IB adoption, making several theoretical contributions to knowledge for academics, and addressing some managerial implications for practitioners. Nonetheless, there are several limitations to this research that deserve a mention, which will be presented in the following paragraphs.

Firstly, although common method bias has been examined previously by Harman's one-factor test, it was considered insufficient by some researchers (e.g. Podsakoff, MacKenzie, and Podsakoff 2012, 539). Nonetheless, further remedial tests, e.g. the CFA marker technique, require a marker variable in the questionnaire. As defined by Lindell and Whitney (2001), a marker variable is "a variable that is theoretically unrelated to substantive variables and for which its expected correlation with these substantive variables is 0" (Williams, Hartman, and Cavazotte 2010, 505). Since a variable like this was not included in the questionnaire used in this study, the CFA marker technique is not applicable here in this study.

Secondly, the normality of the error-term distribution, screened by normal probability plots and diagnosed by z kurtosis, z skewness and the Kolmogorov-Smirnov test, was yet corrected successfully by various attempts of modification approaches. As some researchers (e.g. Greene 2008) supported the use of the original data in order for the analyses to be deemed acceptable, this

could still be a said to be a minor flaw in this study.

Thirdly, the language used in the questionnaires was Chinese. The language differences might result in a difference in response to the questions. In this study, the respondents were all from Taiwan, and Chinese was the language used when distributing the interview and questionnaire. However, questionnaires employed in previous studies were designed and sent out using mostly English. Participants from different language backgrounds might have different perceptions of certain questionnaire items. Thus, that difference in language interpretation could be one of the limitations in this study.

8.4   Suggestions for further research

This study emphasises the antecedents of the behavioural intentions of corporate customers toward IB. The main research objective is to help corporations to successfully adopt IB. Apparently, "behavioural intention toward CIB" is limited to the pre-adoption of technology, rather than the consequences of technology adoption, or the problems for companies following the decision to adopt new technology. Most of the studies in the current literature are about pre-adoption, and only a few involve post-adoption situations. Therefore, it is suggested that there should be further examination into post-adoption phenomena.

An integrated model has been formed and tested on the CIB industry in this study. For further research, inquirers may further test and compare the differences

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between these models (i.e. TRA, TPB, TAM, DTPB, TR, and this study's integrated model). The discriminatory power of each will be examined before assuming that they can be concatenated to come up with an integrated model, in order to then be able to predict and understand the corporate customer's behaviour in relation to the adoption of IB. The comparison can be based on model-fit indices and explanatory powers in predicting the intention to adopt IB. In comparing this study's integrated models, it may offer more managerial advantage because of its ability to deliver more specific information than that of the other five models. Thus, it can be assumed that this study's integrated models can assume an important role in predicting and explaining the corporate customer's behavioural intention toward adopting IB, and thus provide a more solid theoretical basis for such studies.

From the results of the comparison between adopters and non-adopters in this study, it is very interesting that the results of the current study and previous studies are different (e.g. Hernandez and Mazzon 2007; Ozdemir and Trott 2009; Ozdemir, Trott, and Hoecht 2008). Ozdemir, Trott, and Hoecht (2008, 212) and Ozdemir and Trott (2009, 82-83) proposed to explore the perceptual differences between IB adopters and non-adopters. They adopted convenience sampling with Internet users in Turkey. They found that there were significant differences in the perceptual, experience-related, demographic, socio-economic, and situational characteristics.

This study also found that no significant difference was observed between the behavioural intention of adopters and that of non-adopters for most of the

determinants. The difference in results might come from the different respondents (B2C and B2B), different countries (Turkey, Brazil, and Taiwan), different sampling (convenience sampling and random sampling), and so on. The differences in results also produced a new direction for further research, namely to make comparisons between the results of each study, and to explore the reasons for their differences. Therefore, further study should compare different countries with the same constructs, in order to study the relationship between attitudes, subjective norm, and perceived behavioural control in relation to intention toward IB adoption.

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Appendices

Appendix 4.1: Interview protocol – IB managers (English)

1. Please tell me about the current CIB situation.

2. Please describe the characteristics of corporate customers of CIB.

3. Please tell me why CIB corporate customers accept CIB.

4. When CIB is rejected by corporate customers, how do they overcome the difficulties? (All Internet banks in Taiwan are wholly owned subsidiaries of principal banks; there are only a few physical bank branches that don't provide CIB services).

5. Who among corporate customers decides or has influence over whether CIB is adopted? On the other hand, who do you have to convince for adoption of CIB among your corporate customers?

6. Please describe the attribution of corporate customers adopting CIB. For example, which groups or industries prefer to adopt CIB, e.g. IT and technology, telecommunications, or service industries?

7. What proportion of customers belongs to those industries or groups?

8. Please tell me about your CIB security precautions.

9. Would you share with me anything related to CIB that you think may be relevant to this research?

Appendix 4.2: Interview protocol – adopters (English)

1. Please tell me about the progress of CIB adoption in your company.

2. Please tell me why your company is adopting CIB.

3. Please tell me who in your company uses the CIB function.

4. Who in your company decides whether or not to adopt CIB?

5. Please tell me who in your company may influence the deciders to adopt CIB.

6. Please tell me your attitude toward the adoption of CIB, positive or negative. Why?

7. Please tell me who convinces the deciders to adopt CIB, e.g. CIB employee, family, friends, or colleagues?

8. Please tell me how your operating ability affects the use of CIB? How about the deciders' ability?

9. Please evaluate the computer facilities (or equipment) in your company at the moment.

10. How do you compare CIB to traditional banking practices with a physical bank branch?

11. Do you need someone in general to help you to operate CIB?

12. Would you share with me anything related to CIB, which you think may be relevant to this research?

Appendix 4.3: Interview protocol – non-adopters (English)

1. Please tell me about the progress of CIB adoption in your company.

2. Please tell me why your company is not adopting CIB.

3. Please tell me who, if your company adopts CIB, will use the CIB function?

4. Who in your company decides whether to adopt CIB?

5. Please tell me who in your company may influence the deciders to adopt CIB?

6. Please tell me your attitude toward adopting CIB, positive or negative. Why?

7. Please tell me who convinces the deciders to adopt CIB, e.g. CIB employee, family, friends, or colleagues?

8. If your company does adopt CIB, please tell me how your operating ability will affect the use of CIB? How about the deciders' ability?

9. Please evaluate the computer facilities (or equipment) in your company at the moment.

10. Would you share with me anything related to CIB that you think may be relevant to this research?

Appendix 4.4: Interview protocol – IB managers (Chinese)

與網路銀行經理之訪談大綱：

1. 請說明貴網路銀行，企業客戶的使用情形。

2. 請描述網路企業客戶的特性。

3. 請說明網路企業客戶，接受採用網路銀行的理由，通常為何？

4. 當企業客戶，拒絕申請貴行的網路銀行時，貴行是如何克服被拒絕的困難？

5. 請說明貴網路銀行的企業客戶中，誰有權力決定（或影響）網路銀行的採用。

6. 請描述在網路銀行的企業客戶的特質。如他們是來自那些族群別、性質別、產業別、或行業別（如大、中小型企業；資訊業、服務業、電子業、或、、、、、）？

7. 他們的比重約為如何？

8. 可否介紹一下，貴行在網路銀行安全性的設計情形？

9. 在訪談結束前，請給我任何有關網路銀行的建議？或任何你想讓我知道的事情？

Appendix 4.5: Interview protocol – adopters (Chinese)

與已經採用網路銀行之企業客戶之訪談大綱：

1. 請說明　貴公司，採用網路銀行的情形。

2. 請說明　貴公司，為什麼會採用網路銀行的理由。

3. 請說明　貴公司，是由誰使用網路銀行的功能。為什麼？

4. 請說明　貴公司的成員中，誰有權力決定網路銀行的採用。為什麼？

5. 請說明在貴公司中，誰有可能會去影響決定者，採用網路銀行。為什麼？

6. 請說明你對於網路銀行的採用態度如何，正面或反面，為什麼？

7. 請說明誰曾經去遊說，決定者採用網路銀行，如網路銀行的僱員、同事、家人、朋友？

8. 請說明你對網路銀行的使用能力如何？決定者，對於網路銀行的使用能力又如何？

9. 請說明目前　貴公司電腦、網路的設備如何？

10. 請比較網路銀行，及傳統銀行在操作上的差異。

11. 一般的狀況下，你是否需要他人協助你使用網路銀行？

12. 在訪談結束前，請給我任何有關網路銀行的建議？或任何你想讓我知道的事情？

Appendix 4.6: Interview protocol – non-adopters (Chinese)

與尚未採用網路銀行之潛在企業客戶之訪談大綱：

1. 請說明　貴公司，採用網路銀行的情形。

2. 請說明　貴公司，為什麼不採用網路銀行的理由。

3. 請說明假如貴公司，採用網路銀行，將由誰使用網路銀行的功能。為什麼？

4. 請說明　貴公司的成員中，誰有權力決定網路銀行的採用。為什麼？

5. 請說明在貴公司中，誰有可能會去影響決定者，採用網路銀行。為什麼？

6. 請說明你對於網路銀行的採用態度如何，正面或反面，為什麼？

7. 請說明誰曾經去遊說，決定者採用網路銀行，如網路銀行的僱員、同事、家人、朋友？

8. 請說明假如貴公司採用網路銀行，你本人對網路銀行的使用能力如何？決定者，對於網路銀行的使用能力又如何？

9. 請說明目前貴公司電腦、網路的設備如何？

10. 訪談結束前，請給我任何有關網路銀行的建議？或任何你想讓我知道的事情？

Appendix 5.1: Interviewee demographic information – adopters (Y1 ~ Y2)

	Basic interviewee data	Y1 (1st Accountant)	Y1(2nd Accountant)	Y2
1.	Interviewee position	accountant	accountant	accountant
2.	Interviewee gender	female	female	female
3.	Interviewee age	39 years old	33 years old	27 years old
4.	Interviewee education	university	university	university
5.	Interviewee working years	5 years	6 years	3 years
6.	Interviewee online experience years	10 years	10 years	over 5/6 years
7.	Industry	financial industry	financial industry	electronics industry
8.	When to be established	1982	1982	1992
9.	Capital	NT$400,000,000	NT$400,000,000	NT$12,704,000,000
10.	Business volume/per year	NT$3,500,000,000	NT$3,500,000,000	NT$24,000,000,000
11.	How many persons in the company	350~400 people	350~400 people	2,000 person
12.	How many persons in accounting dept.	30 people	30 people	30 person
13.	How many persons use CIB	2 people	2 people	3 person
14.	How many years used CIB	5.5. years	5.5. years	2~3 years
15.	How many CIB to be used	10 banks	10 bank	over 5 banks
16.	Which function to be used in CIB	inquiry	inquiry	inquiry, transaction (limited)
17.	Who are the CIB deciders	chief accountant	chief accountant	owner and accountant
18.	Who is the CIB user	accountants	accountants	accountants
19.	Who is the CIB influencer	payee	payee	bank employee
20.	Who is the CIB buyer	chief accountant	chief accountant	owner and accountant

Source: Prepared by author

Appendix 5.2: Interviewee demographic information – adopters (Y3 ~ Y5)

	Basic interviewee data	Y3	Y4	Y5
1.	Interviewee position	accountant	owner	accountant
2.	Interviewee gender	female	male	female
3.	Interviewee age	28 years old	50 years old	30 years old
4.	Interviewee education	university	Ph.D.	university
5.	Interviewee working years	2 years	15 years	1 year
6.	Interviewee online experience years	10 years	6 years	6~7 years
7.	Industry	manufacturing industry	high technology industry	financial industry
8.	When to be established	1985	1989	1991
9.	Capital	NT$10,000,000	NT$200,000,000	NT$300,000,000
10.	Business volume/per year	NT$35,000,000	NT$450,000,000	NT$500,000,000
11.	How many persons in the company	40 people	30 people	40 people
12.	How many persons in accounting dept.	2 people	5 people	6 people
13.	How many persons use CIB	1 person	1 person	3 people
14.	How many years used CIB	1 year	5 years	3~4 years
15.	How many CIB to be used	1 bank	1 bank	2 banks
16.	Which function to be used in CIB	inquiry	inquiry, transaction (limited),	inquiry, transaction (everything)
17.	Who are the CIB deciders	Chief accountant	foreign exchange	owner
18.	Who is the CIB user	accountant	owner	owner and accountants
19.	Who is the CIB influencer	bank employee and accountant	owner	accountant
20.	Who is the CIB buyer	owner and accountant	bank employee/owner	owner

Source: Prepared by author

Appendix 5.3: Interviewee demographic information – adopters (Y6 ~ Y8)

	Basic interviewee data	Y6	Y7	Y8
1.	Interviewee position	accountant	accountant	owner
2.	Interviewee gender	female	female	female
3.	Interviewee age	31 years old	30 years old	40 years old
4.	Interviewee education	university	junior college	university
5.	Interviewee working years	2 years	6 years	16 years
6.	Interviewee online experience years	5, 6 years	4 years	5 years
7.	Industry	electronics industry	manufacturing industry	service industry
8.	When to be established	1998	2003	1985
9.	Capital	NT$400,000,000	NT$10,000,000	NT$3,000,000
10.	Business volume/per year	NT$850,000,000	NT$10,000,000	NT$15,000,000
11.	How many persons in the company	140 people	20 people	11 people
12.	How many persons in accounting dept.	4 people	2 people	1 person
13.	How many persons use CIB	4 people	2 people	1 person
14.	How many years used CIB	4 years	1.5 years	5 years
15.	How many CIB to be used	1 banks	1 banks	2 banks
16.	Which function to be used in CIB	Inquiry	Inquiry	inquiry and transaction (limited)
17.	Who are the CIB deciders	owner	owner	owner
18.	Who is the CIB user	accountants	accountants	owner
19.	Who is the CIB influencer	accountants	bank employee and accountant	bank employee
20.	Who is the CIB buyer	owner	owner	owner and accountant

Source: Prepared by author

Appendix 5.4: Interviewee demographic information – non-adopters (N1 ~ N3)

Basic interviewee data	N1	N2	N3
1. Interviewee position	accountant	accountant	accountant
2. Interviewee gender	female	female	female
3. Interviewee age	40 years old	33 years old	30 years old
4. Interviewee education	junior college	university	university
5. Interviewee working years	13 years	9 years	3 years
6. Interviewee online experience years	4~5 years	2~3 years	over 5/6 years
7. Industry	trading industry	construction industry	trading industry
8. When to be established	1985	1992	1979
9. Capital	NT$57,000,000	NT$29,000,000	NT$10,000,000
10. Business volume/per year	NT$650,000,000	NT$350,000,000	NT$84,000,000
11. How many persons in the company	32 people	31-33 people	20 people
12. How many persons in accounting dept.	4 people	3-4 people	2 people
13. How many persons use CIB	0 person	0 person	0 person
14. How many years used CIB	0 year	0 year	0 year
15. How many CIB to be used	0 bank	0 bank	0 bank
16. Which function to be used in CIB	none	none	none
17. Who are the CIB deciders	accountant	owner	owner
18. Who is the CIB user	accountant	accountant	owner
19. Who is the CIB influencer	no-one	no-one	no-one
20. Who is the CIB buyer	accountant	owner and accountant	owner and his wife

Source: Prepared by author

Appendix 5.5: Interviewee demographic information – non-adopters (N4 ~ N6)

Basic interviewee data	N4	N5	N6
1. Interviewee position	accountant	accountant	accountant
2. Interviewee gender	female	female	female
3. Interviewee age	34 years old	40 years old	32 years old
4. Interviewee education	university	university	university
5. Interviewee working years	1 year	5 years	2 years
6. Interviewee online experience years	5~6 years	3 years	over 5/6 years
7. Industry	electronics industry	E. E. industry	electronics industry
8. When to be established	2000	1979	1997
9. Capital	NT$20,000,000	NT$20,000,000	NT$10,000,000
10. Business volume/per year	NT$10,000,000	NT$50,000,000	NT$20,000,000
11. How many persons in the company	55 people	100 people	13 people
12. How many persons in accounting dept.	5 people	5 people	3 people
13. How many persons use CIB	0 person	0 person	0 person
14. How many years used CIB	0 year	0 year	0 year
15. How many CIB to be used	0 bank	0 bank	0 bank
16. Which function to be used in CIB	none	none	none
17. Who are the CIB deciders	owner	owner	owner
18. Who is the CIB user	chief accountant and owner	owner and accountant	accountant
19. Who is the CIB influencer	no-one	no-one	no-one
20. Who is the CIB buyer	owner and accountant	owner	owner

Source: Prepared by author

Appendix 5.6: Interviewee demographic information – non-adopters (N7 ~ N9)

Basic interviewee data	N7	N8	N9
1. Interviewee position	accountant	accountant	accountant
2. Interviewee gender	female	female	male
3. Interviewee age	28 years old	34 years old	23 years old
4. Interviewee education	university	junior College	university
5. Interviewee working years	1 year	2 years	2 years
6. Interviewee online experience years	6~7 years	5~6 years	over 5/6 years
7. Industry	retailing industry	manufacturing industry	electronics industry
8. When to be established	1973	2000	1993
9. Capital	NT$6,000	NT$15,000,000	NT$5,000,000
10. Business volume/per year	NT$4,000,000	NT$45,000,000	NT$20,000,000
11. How many persons in the company	3 people	20 people	10 people
12. How many persons in accounting dept.	1 person	2 people	2 people
13. How many persons use CIB	0 person	0 person	0 person
14. How many years used CIB	0 year	0 year	0 year
15. How many CIB to be used	0 bank	0 bank	0 bank
16. Which function to be used in CIB	none	none	none
17. Who are the CIB deciders	owner	owner	owner
18. Who is the CIB user	accountant	accountant	accountant
19. Who is the CIB influencer	accountant	no-one	no-one
20. Who is the CIB buyer	owner and accountant	owner	accountant

Source: Prepared by author

Appendix 5.7: Interviewee demographic information – non-adopters (N10 ~ N11)

Basic interviewee data	N10	N11
1. Interviewee position	owner	owner
2. Interviewee gender	female	male
3. Interviewee age	58 years old	44 years old
4. Interviewee education	high school	junior college
5. Interviewee working years	17 years	13 years
6. Interviewee online experience years	long time ago, forget	5 years
7. Industry	manufacturing industry	construction industry
8. When to be established	1986	1976
9. Capital	NT$50,000,000	NT$97,000,000
10. Business volume/per year	NT$150,000,000	NT$100,000,000
11. How many persons in the company	6 people/Taiwan; 300 people/China	8 people
12. How many persons in accounting dept.	1 person	1 person
13. How many persons use CIB	0 person	0 person
14. How many years used CIB	0 year	0 year
15. How many CIB to be used	0 bank	0 bank
16. Which function to be used in CIB	none	none
17. Who are the CIB deciders	owner and his wife	owner
18. Who is the CIB user	accountant	owner
19. Who is the CIB influencer	no-one	no-one
20. Who is the CIB buyer	owner	owner

Source: Prepared by author

Appendix 5.8: English version of main questionnaire

Mr./Ms. XXX
Owner/CFO/Accountant of XXX Co.
Address

December 2008
Dear Sir/Madam,

Corporate adoption of Internet banking services

Dear Sir/Madam,

The rapid development of Internet banking is affecting corporate activities all over the world. As part of a major research project about Internet banking adoption in Taiwan, the views of companies like yours on the use of Internet banking, are being sought. The information gathered from the study will help improve Internet banking services.

The study is designed to understand the factors affecting a company's decision to adopt Internet banking. Furthermore, it also aims to evaluate users' and potential users' perceptions of such service. Therefore, the study results will provide a benchmark for corporate Internet banking (CIB) implementation for banks, business owners, chief financial officers (CFO) and CIB decision-makers.

If you are a business owner or a member of an accounting/financial department, please fill out the questionnaire. All responses will be confidential and the identities of individuals will not be revealed. **Please return** the completed questionnaire **before 6ᵗʰ March, 2009** and mail it back in the enclosed prepaid, self-addressed envelope. To show appreciation of your time, all respondents will **receive two hot spring spa vouchers (www.jyq.com.tw)**. If you would like any further details about this study, please contact Wen-Hui Chen on 091-668-2020, or by email at phd04wc@mail.wbs.ac.uk/whchen@just.edu.tw.

With many thanks for your time and contribution.

Yours faithfully,

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Section A: Please indicate the appropriate answer from your company's
standpoint with a tick. If a questions is not relevant to you, please tick
"Don't know".
Please note that corporate Internet banking is abbreviated as "CIB".

A1. With how many banks does your company have accounts?
☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 or more ☐don't know

A2. On average, how often did you or your colleagues visit the main bank in person for your company in the past three months?

☐ never/almost never ☐ less than once a month

☐ 1-5 times a month ☐ 6-10 times a month

☐ 11-15 times a month ☐ 16-20 times a month

☐ 21 times or more a month ☐ don't know

A3. For the following CIB (CIB) products/services, could you please indicate your opinion on the level of usefulness to your company?	Not very useful		Neutral		Very useful		Don't know
	1	2	3	4	5	6	7	

Deposit enquiry (e.g. deposit balance enquiry and enquiry of bank book's subsidiary ledger) ☐ ☐ ☐ ☐ ☐ ☐ ☐   ☐

Loan enquiry (e.g. loan balance enquiry and enquiry of bank book's subsidiary ledger) ☐ ☐ ☐ ☐ ☐ ☐ ☐   ☐

Foreign currency account enquiry (e.g. account balance enquiry and enquiry of L/C) ☐ ☐ ☐ ☐ ☐ ☐ ☐   ☐

Inter-account transfers – Taiwanese dollar ☐ ☐ ☐ ☐ ☐ ☐ ☐   ☐

Inter-account transfers – Foreign currency ☐ ☐ ☐ ☐ ☐ ☐ ☐   ☐

Payment transactions (e.g. utility bills, taxes) ☐ ☐ ☐ ☐ ☐ ☐ ☐   ☐

Fund management (e.g. fund application, purchase, transference, and redemption). ☐ ☐ ☐ ☐ ☐ ☐ ☐   ☐

Bill finance management (e.g. bill account balance enquiry) ☐ ☐ ☐ ☐ ☐ ☐ ☐   ☐

Other financial management information (e.g. gold to be bought or sold and gold price enquiry) ☐ ☐ ☐ ☐ ☐ ☐ ☐   ☐

Interest rate or exchange rate enquiry ☐ ☐ ☐ ☐ ☐ ☐ ☐   ☐

A4. When (if) your company decided (decides) to adopt CIB, how important was (will be) the following people's opinion?

Very unim-portant	Neu-tral	Very impor-tant	Don't know
1 2 3	4	5 6 7	

Corporate owner's or employer's opinion. ☐ ☐ ☐ ☐ ☐ ☐   ☐

Corporate chief accountant's opinion. ☐ ☐ ☐ ☐ ☐ ☐   ☐

Corporate general accountant's opinion. ☐ ☐ ☐ ☐ ☐ ☐   ☐

A5. When (if) your company decided (decides) to adopt CIB, how important was (will be) the promotion of CIB by your bank?

Very unimportant ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 Very important
☐ Don't know

A6. When (if) your bank promoted (promotes) CIB to your company, how likely were (will) you (be) the first person to be contacted by them?

Very unlikely ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 Very likely

A7. How likely are you to influence your company's adoption of CIB?

Very unlikely ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 Very likely

A8. When your company decided to adopt CIB, how important were you in influencing your company's adoption of CIB?

Very unimportant ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 Very important

A9. Has your company adopted CIB?
☐ Yes.   ☐ No. If no, please go to A17.
☐ Don't know. ☐ Please go to A17.

A10. How many CIB service providers does your company regularly use?
☐ 0 ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 or more   ☐ Don't know

A11. How often does your company use CIB?

☐ Never/almost never   ☐ Once per six days or longer

☐ Once per five days   ☐ Once per four days

☐ Once per three days   ☐ Once per two days

☐ Once per day or more   ☐ Don't know

A12. How long has your company been using CIB?

☐ 10 years or more   ☐ 8 to less than 10 years

☐ 6 to less than 8 years   ☐ 4 to less than 6 years

☐ 2 to less than 4 years   ☐ Less than 2 years

☐ Never/almost never   ☐ Don't know

A13. Will your company continue to use CIB during the next 12 months?

Very unlikely   ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7   Very likely

☐ Don't know

A14. Will your company increase its usage of CIB during the next 12 months?

Very unlikely   ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7   Very likely

☐ Don't know

A15. Are you personally involved in using CIB in your company?

☐ Yes.   ☐ No.

A16. Are you interested in using CIB?

Not very interested ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 Very interested

Please go to Section B

A17. Will your company adopt CIB in the next 12 months?

Very unlikely   ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7   Very likely

☐ Don't know

A18. Does your company plan to adopt CIB in the next 12 months?

No plan at all   ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 Certainly planned

☐ Don't know

A19. Do you intend to use CIB if your company adopts it?

Strongly disagree ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 Strongly agree

A20. Will you recommend that your company uses CIB?

Strongly disagree ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 Strongly agree

A21. How likely will it be that you use CIB for your company, if your company adopts it?

Very unlikely   ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7   Very likely

Section B: According to following statements, please indicate the extent of agreement or disagreement, based on your company's standpoint. If you feel the question is not clear enough, please tick "Don't know". Please note that corporate Internet banking is abbreviated as "CIB".

	Strongly disagree 1 2	Neutral 3 4 5	Strongly agree 6 7	Don't know
B1. My company's adoption of CIB is (should be) a wise idea.	☐ ☐	☐ ☐ ☐	☐ ☐	☐
B2. My company's adoption of CIB is (should be) valuable.	☐ ☐	☐ ☐ ☐	☐ ☐	☐
B3. CIB is (should be) helpful for my company.	☐ ☐	☐ ☐ ☐	☐ ☐	☐
B4. Most people who are important to my company think that my company should use CIB.	☐ ☐	☐ ☐ ☐	☐ ☐	☐
B5. The people who influence my company's decisions think that my company should use CIB.	☐ ☐	☐ ☐ ☐	☐ ☐	☐
B6. My company has the resources to use CIB.	☐ ☐	☐ ☐ ☐	☐ ☐	☐
B7. We (I and/or my colleagues) have the knowledge to use CIB.	☐ ☐	☐ ☐ ☐	☐ ☐	☐
B8. We have the ability to use CIB.	☐ ☐	☐ ☐ ☐	☐ ☐	☐
B9. Relative to traditional banking, using CIB saves (should save) time.	☐ ☐	☐ ☐ ☐	☐ ☐	☐
B10. Using CIB saves time and this is important to my company.	☐ ☐	☐ ☐ ☐	☐ ☐	☐
B11. Relative to traditional banking, using CIB has (should have) advantages.	☐ ☐	☐ ☐ ☐	☐ ☐	☐
B12. Using CIB has advantages and these additional advantages are important to my company.	☐ ☐	☐ ☐ ☐	☐ ☐	☐
B13. Learning how to bank online is (should be) easy.	☐ ☐	☐ ☐ ☐	☐ ☐	☐
B14. CIB, which is easy to learn, is important to my company.	☐ ☐	☐ ☐ ☐	☐ ☐	☐

	Strongly disagree 1	2	3	Neutral 4	5	Strongly agree 6	7	Don't know
B15. Operation of CIB is (should be) easy.	☐	☐	☐	☐	☐	☐	☐	☐
B16. CIB, which is easy to operate, is important to my company.	☐	☐	☐	☐	☐	☐	☐	☐
B17. Using CIB can (should be able to) satisfy my company's needs easily.	☐	☐	☐	☐	☐	☐	☐	☐
B18. CIB can easily satisfy my company's needs and this is important to my company.	☐	☐	☐	☐	☐	☐	☐	☐
B19. Using CIB makes (should make) banking tasks more convenient.	☐	☐	☐	☐	☐	☐	☐	☐
B20. We like CIB, which is designed according to business needs.	☐	☐	☐	☐	☐	☐	☐	☐
B21. CIB makes (will make) accounting tasks more efficient.	☐	☐	☐	☐	☐	☐	☐	☐
B22. CIB gives its user mobility, because it is not limited to a fixed office.	☐	☐	☐	☐	☐	☐	☐	☐
B23. We are confident that computers do what we instruct them to do.	☐	☐	☐	☐	☐	☐	☐	☐
B24. It seems that my company is learning more about the latest information on CIB than other companies (our business partners and competitors).	☐	☐	☐	☐	☐	☐	☐	☐
B25. My company was (will be) among the first in my industry to acquire CIB when it was (is) adopted.	☐	☐	☐	☐	☐	☐	☐	☐
B26. We usually (will probably) figure out the best way to use CIB without help from others.	☐	☐	☐	☐	☐	☐	☐	☐
B27. My company keeps (should be able to keep) up with the latest CIB developments.	☐	☐	☐	☐	☐	☐	☐	☐
B28. We can solve (should be able to solve) the challenge when (if) there are problems related to CIB.	☐	☐	☐	☐	☐	☐	☐	☐

	Strongly disagree 1 2 3	Neutral 4 5	Strongly agree 6 7	Don't know
B29. My company has (will probably have) fewer problems than other companies in using CIB.	☐ ☐ ☐	☐ ☐	☐ ☐	☐
B30. CIB is not (should not be) designed to be used by ordinary people.	☐ ☐ ☐	☐ ☐	☐ ☐	☐
B31. One should be cautious in replacing traditional banking tasks with CIB because it might break down or become disconnected.	☐ ☐ ☐	☐ ☐	☐ ☐	☐
B32. Computers have safety risks that are not discovered until people have used them.	☐ ☐ ☐	☐ ☐	☐ ☐	☐
B33. We do not feel confident to do corporate transactions online.	☐ ☐ ☐	☐ ☐	☐ ☐	☐
B34. Any banking transaction we do electronically should be confirmed later with hard copy documentation.	☐ ☐ ☐	☐ ☐	☐ ☐	☐
B35. We need to check carefully whether online transactions have made any mistakes, e.g. automated payments by CIB.	☐ ☐ ☐	☐ ☐	☐ ☐	☐
B36. Those using CIB still need to interact with staff members of the bank occasionally.	☐ ☐ ☐	☐ ☐	☐ ☐	☐
B37. When we call a bank, we prefer to talk to a person rather than a voice response system.	☐ ☐ ☐	☐ ☐	☐ ☐	☐
B38. If we deliver information over the Internet, we can never be sure that it really gets to the right place.	☐ ☐ ☐	☐ ☐	☐ ☐	☐
B39. Most of my company's customers think that my company should use CIB.	☐ ☐ ☐	☐ ☐	☐ ☐	☐
B40. Generally speaking, my company wants to do what my company's customers think my company should do.	☐ ☐ ☐	☐ ☐	☐ ☐	☐
B41. Most of my company suppliers think that my company should use CIB.	☐ ☐ ☐	☐ ☐	☐ ☐	☐
B42. Generally speaking, my company wants to do what my company's suppliers think my company should do.	☐ ☐ ☐	☐ ☐	☐ ☐	☐

	Strongly disagree		Neutral		Strongly agree			Don't know
	1	2	3	4	5	6	7	know
B43. Most of my company peers think that my company should use CIB.	☐	☐	☐	☐	☐	☐	☐	☐
B44. Generally speaking, my company wants to do what my company's peers think my company should do.	☐	☐	☐	☐	☐	☐	☐	☐
B45. My company can easily operate CIB on its own.	☐	☐	☐	☐	☐	☐	☐	☐
B46. Being able to operate CIB is important to my company.	☐	☐	☐	☐	☐	☐	☐	☐
B47. We feel comfortable using CIB.	☐	☐	☐	☐	☐	☐	☐	☐
B48. We feel comfortable using CIB on our own, and this is important to my company.	☐	☐	☐	☐	☐	☐	☐	☐
B49. We are confident that we can solve CIB's operating problems on our own.	☐	☐	☐	☐	☐	☐	☐	☐
B50. Being able to solve CIB's operating problems is important to my company.	☐	☐	☐	☐	☐	☐	☐	☐
B51. My company can (should be able to) get CIB specialised instructions all the time (e.g. CIB pamphlet or guide).	☐	☐	☐	☐	☐	☐	☐	☐
B52. Being able to get CIB specialised instructions all the time is important to my company.	☐	☐	☐	☐	☐	☐	☐	☐
B53. My company can (should be able to) connect quickly to the CIB website.	☐	☐	☐	☐	☐	☐	☐	☐
B54. Connecting quickly to the CIB website is important to my company.	☐	☐	☐	☐	☐	☐	☐	☐
B55. Using CIB fits my company's work style.	☐	☐	☐	☐	☐	☐	☐	☐
B56. CIB, which fits my company's work style, is important to my company.	☐	☐	☐	☐	☐	☐	☐	☐
B57. Using CIB is suitable for my company's accounting system.	☐	☐	☐	☐	☐	☐	☐	☐
B58. We feel comfortable using CIB, which is suitable for my company's accounting system and this is important to my company.	☐	☐	☐	☐	☐	☐	☐	☐

> Section C: Please answer the questions listed below regarding your company's situation.

C1. Which of the following forms of organisation best describes your company?

☐ Corporation limited by shares   ☐ Limited corporation

☐ Unlimited corporation

☐ Unlimited corporation with limited liability shareholders

☐ Partnership   ☐ Sole proprietorship

☐ Foreign company

☐ Representative office of a foreign company

☐ Branch office of a foreign company

☐ Other _____   ☐ don't know

C2. How long has your company been established?

☐ Less than 2 years   ☐ 2 to less than 4 years

☐ 4 to less than 6 years   ☐ 6 to less than 8 years

☐ 8 to less than 10 years   ☐ 10 to less than 12 years

☐ 12 years or more   ☐ Don't know

C3. Where are your company headquarters located?

☐ Northern Taiwan   ☐ Central Taiwan   ☐ Southern Taiwan

☐ Eastern Taiwan and off-island   ☐ Don't know

C4. How many people are employed full-time in your company? (unit: number of people)

☐ 1~49 ☐ 50~99 ☐ 100~149 ☐ 150~199 ☐ 200 or more

☐ Don't know

C5. Which of the following sectors best describes the main business activity of your company?

☐ Agriculture   ☐ Manufacturing   ☐ Service

☐ Other _____   ☐ Don't know

C6. Which of the following categories best describes the main business activity of your company?

☐ Agriculture, forestry, fishing, animal husbandry

☐ Mining and quarrying

☐ Manufacturing

☐ Electricity and gas

☐ Water and pollution protection

☐ Construction

☐ Wholesale and retail

☐ Transportation and warehousing

☐ Accommodation and catering

☐ Information and communications

☐ Finance and insurance

☐ Real estate and rental

☐ Professional, scientific, and technical services

☐ Supporting services

☐ Educational services

☐ Medical, healthcare, and social services

☐ Art and leisure services

☐ Other service industries

☐ Don't know

C7. What was the turnover of your company in the last financial year? (unit: NT$10,000)

☐ Less than 2,000   ☐ 2,000 to less than 4,000

☐ 4,000 to less than 6,000   ☐ 6,000 to less than 8,000

☐ 8,000 to less than 10,000   ☐ 10,000 or more

☐ Don't know

C8. What is the capitalisation of your company? (unit: NT$10,000)

☐ Less than 2,000   ☐ 2,000 to less than 4,000

☐ 4,000 to less than 6,000   ☐ 6,000 to less than 8,000

☐ 8,000 to less than 10,000   ☐ 10,000 or more

☐ Don't know

Section D: Basic information

D1. What is your current profession?

☐ Employer/business owner

☐ Chief accountant

☐ General accountant

☐ Others, please specify (department: _____ position:_____)

D2. How long have you worked for your current company?

☐ Less than 1 year   ☐ 1 to less than 5 years

☐ 5 to less than 10 years   ☐ 10 to less than 15 years

☐ 15 to less than 20 years   ☐ 20 to less than 25 years

☐ 25 years or more

D3. What is your highest level of education achieved?

☐ Elementary school   ☐ Junior high school

☐ Senior high school   ☐ College or Bachelor

☐ Master   ☐ Doctorate Degree

D4. What is your gender?   ☐ Male   ☐ Female

D5. What is your age?

☐ Less than 20 years old   ☐ 20 to less than 30 years old

☐ 30 to less than 40 years old ☐ 40 to less than 50 years old

☐ 50 to less than 60 years old ☐ 60 years old or more

D6. What is your monthly income? (unit: NT)

☐ Less than $20,000   ☐ $20,000 to $39,999

☐ $40,000 to $59,999   ☐ $60,000 to $79,999

☐ $80,000 to $99,999   ☐ $100,000 or more.

I will show appreciation of your kind cooperation with the delivery of the incentive gift, if you can provide me with your business card or following information. If you do not wish to answer, please skip following items.

Company name: _____

Government Uniform Invoice Number (GUI No.): _____

Your name: _____

Email: _____

Company address: _____

Company telephone: (   )_____ ex.: _____

Mobile: _____

Thank you for your time and cooperation!

Please make sure that all the questions are answered. Please return your questionnaire to the following address in the enclosed prepaid self-addressed envelope.

Wen-Hui Chen,

Lecturer

Department of Finance

Jinwen University of Science and Technology

99, An-Chung Rd Hsin-Tien, Taipei, Taiwan, ROC.

Appendix 5.9: Chinese version of main questionnaire

企業採用網路銀行的意願調查

各位業界先進您好：

　　網路銀行的快速發展已經深深的影響了全球的企業活動。目前本人正在進行企業界採用網路銀行的意願調查，在此懇請 您參與本計畫，敬請以 貴公司的角度協助本問卷的填答。**本問卷請由「 貴公司的企業主／老闆、會計部人員、或財務部人員」填答。**

　　本研究問卷是為了瞭解影響企業在採用／使用網路銀行時的主要影響因素。據此，加以評估網路銀行使用者和潛在使用者對於網路銀行的服務認知。此研究結果將有助於金融業服務的參考。

　　此份研究問卷會以機密方式處理，所有的個人資料絕不會以個別數據呈現，且分析結果將以綜合的數字呈現，敬請安心作答。填答後煩請您再次檢查，是否每題均已作答，最後請將此問卷放入回郵信封中，**於98年3月6日前寄回。為答謝您的參與，您將會收到兩張「金湧泉SPA溫泉會館」貴賓卷**（**www.jyq.com.tw**）。如您對本研究有興趣，歡迎隨時與本人聯絡，非常感謝您的協助！

　　敬祝　生意興隆　財源廣進

　　　　　　　　　　陳文慧　敬上
　　　　　　　　　　景文科技大學　財務金融系　講師
　　　　　　　　　　英國華威大學　商學院　博士候選人
　　　　　　　　　　辦公室：（02）82122000 分機6265
　　　　　　　　　　手機：091 668 2020
　　　　　　　　　　Email：whchen@just.edu.tw
　　　　　　　　　　Email： phd04wc@mail.wbs.ac.uk

第一部分：以下題目請您依實際情況或貴公司的立場回答，並請在下列問題的 ☐ 中，勾選最合適的答案，假如某些問題 您並不清楚，敬請在 ☐ 我不清楚的選項打勾。

註：「企業用網路銀行」，簡稱為「企網銀」。

A1.貴公司在多少家實體銀行開立帳戶？

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7或以上 ☐ 我不清楚

A2.平均而言， 貴公司在過去一個月內因業務需要，親自前往 貴公司所往來的主要銀行之頻率為何？

☐從不前往／幾乎不前往 ☐一個月少於1次 ☐ 一個月1-5次
☐一個月6-10次 ☐一個月11-15次 ☐ 一個月16-20次
☐一個月21次或以上 ☐我不清楚

A3.您認為下列「企業用網路銀行」（簡稱「企網銀」）的服務項目對貴公司而言，其「有用性」的程度為何？

	非常 沒有用		普通		非常 有用			我不 清楚
	1	2	3	4	5	6	7	
存匯查詢（如存款餘額、往來明細查詢）	☐	☐	☐	☐	☐	☐	☐	☐
放款查詢（如放款餘額、往來明細查詢）	☐	☐	☐	☐	☐	☐	☐	☐
外匯查詢（如外匯餘額查詢、開狀明細查詢）	☐	☐	☐	☐	☐	☐	☐	☐
台幣轉帳	☐	☐	☐	☐	☐	☐	☐	☐
外匯轉帳	☐	☐	☐	☐	☐	☐	☐	☐
付款交易（如轉繳水電費、稅款）	☐	☐	☐	☐	☐	☐	☐	☐
買賣基金（如基金的申購、轉換、贖回等）	☐	☐	☐	☐	☐	☐	☐	☐
票券理財（如票券庫存餘額查詢）	☐	☐	☐	☐	☐	☐	☐	☐
理財資訊（如黃金買賣、牌價查詢）	☐	☐	☐	☐	☐	☐	☐	☐
利率／匯率查詢	☐	☐	☐	☐	☐	☐	☐	☐

A4.當（假如）貴公司決定採用「企網銀」，下列人員意見的重要程度為何？

	非常不重要		普通			非常重要		我不清楚
	1	2	3	4	5	6	7	
老闆／企業主的意見	☐	☐	☐	☐	☐	☐	☐	☐
主辦財務或主辦會計的意見	☐	☐	☐	☐	☐	☐	☐	☐
一般財務人員或會計人員的意見	☐	☐	☐	☐	☐	☐	☐	☐

A5.銀行行員的推銷，影響 貴公司決定採用「企網銀」的程度為何？

非常不重要　☐1　☐2　☐3　☐4　☐5　☐6　☐7　非常重要
☐ 我不清楚

A6.當（如）銀行業向貴公司推銷「企網銀」時，您個人為其第一線接觸對象的可能性為何？

非常不可能　☐1　☐2　☐3　☐4　☐5　☐6　☐7　非常可能

A7.您個人影響　貴公司在採用「企網銀」的可能性為何？

非常不可能　☐1　☐2　☐3　☐4　☐5　☐6　☐7　非常可能

A8.當（如）　貴公司採用「企網銀」時，您個人決定的可能性為何？

非常不可能　☐1　☐2　☐3　☐4　☐5　☐6　☐7　非常可能

A9.貴公司是否有「企網銀」的帳戶？

☐ 有
☐ 沒有。如果沒有，請跳至A17繼續回答。
☐ 我不清楚。請跳至A17繼續回答。

A10. 貴公司 *經常使用* 的「企網銀」有幾家？

☐0　☐1　☐2　☐3　☐4　☐5　☐6 或以上　☐我不清楚

A11.　　貴公司使用「企網銀」的頻率為何？

☐ 從不使用／幾乎不使用　　　☐ 平均六天1次或更久才1次
☐ 平均五天1次　　　　　　　☐ 平均四天1次
☐ 平均三天1次　　　　　　　☐ 平均二天1次
☐ 平均一天1次或更多次　　　☐ 我不清楚

A12. 貴公司已經使用「企網銀」多久了？

☐ 滿10年或以上　　　☐ 滿8年至未滿10年

☐ 滿6年至未滿8年　　☐ 滿4年至未滿6年

☐ 滿2年至未滿4年　　☐ 未滿2年

☐ 從來不用／幾乎不用　☐ 我不清楚

A13. 貴公司會在未來**12**個月繼續使用「企網銀」嗎？

非常不可能 ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐ 7非常可能

☐ 我不清楚

A14. 貴公司會在未來**12**個月增加使用「企網銀」嗎？

非常不可能 ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐ 7非常可能

☐ 我不清楚

A15. 您個人目前有使用　貴公司的「企網銀」嗎？

☐ 有　　　　　　☐ 沒有

A16. 您有興趣使用「企網銀」嗎？

非常不感興趣 ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐ 7 非常感興趣

A17. 貴公司將會在未來**12**個月使用「企網銀」的可能性為何？

非常不可能　　☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐ 7 非常有可能

☐ 我不清楚

A18. 貴公司是否有計畫在未來**12**個月內使用「企網銀」？

完全沒計畫☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7有十分明確的計畫

☐ 我不清楚

A19. 假如貴公司使用「企網銀」，您會想要使用它嗎？

非常不可能 ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7非常可能

A20. 您會向 貴公司推薦使用「企網銀」嗎？

非常不可能 ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 非常可能

A21. 如 貴公司採用「企網銀」時，您個人使用的可能性為何？

非常不可能 ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7非常可能

第二部份：**請　您以　貴公司的立場**，針對下列問題的陳述，回答
　　　　同意或不同意的程度。如果某些問題
　　　　您並不清楚，敬請勾選「我不清楚」。

註1：企業用網路銀行，簡稱「企網銀」。

	非常不同意 1	2	普通 3	4	5	非常同意 6	7	我不清楚
B1. 本公司使用「企業用網路銀行」（簡稱「企網銀」）（應該）是明智的想法。	☐	☐	☐	☐	☐	☐	☐	☐
B2. 本公司使用「企網銀」（應該）是有價值的。	☐	☐	☐	☐	☐	☐	☐	☐
B3. 「企網銀」對本公司（應該）是有幫助的。	☐	☐	☐	☐	☐	☐	☐	☐
B4. 大多數對本公司很重要的人，都認為本公司應該使用「企網銀」。	☐	☐	☐	☐	☐	☐	☐	☐
B5. 大多數對本公司的決策具有影響力的人，都認為本公司應該使用「企網銀」。	☐	☐	☐	☐	☐	☐	☐	☐
B6. 本公司有資源設備可使用「企網銀」。	☐	☐	☐	☐	☐	☐	☐	☐
B7. 我們有使用「企網銀」的操作知識。	☐	☐	☐	☐	☐	☐	☐	☐
B8. 我們有使用「企網銀」的能力。	☐	☐	☐	☐	☐	☐	☐	☐
B9. 相對於實體銀行，使用「企網銀」（應該）更省時。	☐	☐	☐	☐	☐	☐	☐	☐
B10.省時的「企網銀」，對本公司而言是重要的。	☐	☐	☐	☐	☐	☐	☐	☐
B11.相對於實體銀行，使用「企網銀」(應該)更好用。	☐	☐	☐	☐	☐	☐	☐	☐
B12. 好用的「企網銀」，對本公司而言(應該)是重要的。	☐	☐	☐	☐	☐	☐	☐	☐
B13. 學習「企網銀」（應該）是容易的。	☐	☐	☐	☐	☐	☐	☐	☐
B14.容易學習的「企網銀」，對本公司是重要的。	☐	☐	☐	☐	☐	☐	☐	☐

	非常不同意 1	2	普通 3	4	5	非常同意 6	7	我不清楚
B15. 操作「企網銀」（應該）是容易的。	☐	☐	☐	☐	☐	☐	☐	☐
B16. 容易操作的「企網銀」，對本公司是重要的。	☐	☐	☐	☐	☐	☐	☐	☐
B17. 使用「企網銀」（應該）可以輕易滿足本公司的需要。	☐	☐	☐	☐	☐	☐	☐	☐
B18. 能輕易滿足本公司需要的「企網銀」，對本公司是重要的。	☐	☐	☐	☐	☐	☐	☐	☐
B19. 使用「企網銀」（應該）會使帳務工作更便利。	☐	☐	☐	☐	☐	☐	☐	☐
B20. 我們喜歡依照本公司需求而設計的「企網銀」。	☐	☐	☐	☐	☐	☐	☐	☐
B21. 「企網銀」（將）可以使得帳務工作更有效率。	☐	☐	☐	☐	☐	☐	☐	☐
B22. 使用「企網銀」可（將）使使用者更自由，因為它不受固定營業場所的限制。	☐	☐	☐	☐	☐	☐	☐	☐
B23. 我們有信心「企網銀」會依照指示工作。	☐	☐	☐	☐	☐	☐	☐	☐
B24. 本公司似乎比其他同業學習更多的「企網銀」新知。	☐	☐	☐	☐	☐	☐	☐	☐
B25. 當（假如）本公司採用「企網銀」時，本公司（應該）是同業中最先採用者之一。	☐	☐	☐	☐	☐	☐	☐	☐
B26. 當（假如）本公司採用「企網銀」時，我們通常能想到使用「企網銀」最好的方法。	☐	☐	☐	☐	☐	☐	☐	☐
B27. 本公司（應該）能跟上「企網銀」的最新發展。	☐	☐	☐	☐	☐	☐	☐	☐
B28. 當（假如）使用「企網銀」產生問題時，我們會解決它所帶來的問題。	☐	☐	☐	☐	☐	☐	☐	☐

	非常不同意 1	2	3	普通 4	5	非常同意 6	7	我不清楚
B29.當（假如）本公司使用「企網銀」時，本公司（應該）比其他同業遇到較少的問題。	☐	☐	☐	☐	☐	☐	☐	☐
B30. 「企網銀」（應該）不是設計給一般人所使用的。	☐	☐	☐	☐	☐	☐	☐	☐
B31.使用「企網銀」取代實體銀行的工作要很小心，因為網路可能會故障或斷線。	☐	☐	☐	☐	☐	☐	☐	☐
B32. 使用「企網銀」之後，才能查覺到電腦在安全上有未知的風險。	☐	☐	☐	☐	☐	☐	☐	☐
B33.我們對在網路上進行銀行交易，是沒有信心的。	☐	☐	☐	☐	☐	☐	☐	☐
B34. 我們都認為在進行線上銀行交易後，應該再以書面形式作確認。	☐	☐	☐	☐	☐	☐	☐	☐
B35.我們都需要小心檢查線上交易（如透過「企網銀」自動代繳費用）是否出錯。	☐	☐	☐	☐	☐	☐	☐	☐
B36. 使用「企網銀」的人，偶而也是需要與銀行行員互動。	☐	☐	☐	☐	☐	☐	☐	☐
B37.當我們打電話到銀行時，比較喜歡銀行人員的服務而非電腦語音服務。	☐	☐	☐	☐	☐	☐	☐	☐
B38. 當使用網路傳送資訊時，我們會擔心資訊是否被正確傳輸。	☐	☐	☐	☐	☐	☐	☐	☐
B39.大多數的顧客／下游廠商認為本公司應該使用「企網銀」。	☐	☐	☐	☐	☐	☐	☐	☐
B40. 一般而言，本公司會去做顧客／下游廠商認為本公司該做的事情。	☐	☐	☐	☐	☐	☐	☐	☐
B41. 大多數的供應商／上游廠商認為本公司應該使用「企網銀」。	☐	☐	☐	☐	☐	☐	☐	☐
B42. 一般而言，本公司會去做供應商／上游廠商認為本公司該做的事情。	☐	☐	☐	☐	☐	☐	☐	☐

	非常不同意		普通			非常同意		我不清楚
	1	2	3	4	5	6	7	
B43. 大多數的同業認為本公司應該使用「企網銀」。	☐	☐	☐	☐	☐	☐	☐	☐
B44. 一般而言，本公司會去做同業認為本公司該做的事情。	☐	☐	☐	☐	☐	☐	☐	☐
B45. 如果本公司願意，本公司（應該）可以獨立操作「企網銀」。	☐	☐	☐	☐	☐	☐	☐	☐
B46. 能夠獨立操作「企網銀」對於本公司而言是重要的。	☐	☐	☐	☐	☐	☐	☐	☐
B47. 本公司對於獨自使用「企網銀」能夠感到自在。	☐	☐	☐	☐	☐	☐	☐	☐
B48. 能夠自在的獨自使用「企網銀」，對本公司而言是重要的。	☐	☐	☐	☐	☐	☐	☐	☐
B49. 我們有信心，能獨立解決「企網銀」所產生的操作問題。	☐	☐	☐	☐	☐	☐	☐	☐
B50. 能夠獨立解決「企網銀」所產生的操作問題對於本公司而言是重要的。	☐	☐	☐	☐	☐	☐	☐	☐
B51. 本公司（應該）可以隨時取得關於「企網銀」的專業指導（如專人指導或使用者手冊）。	☐	☐	☐	☐	☐	☐	☐	☐
B52. 能隨時取得關於「企網銀」的專業指導對於本公司而言是重要的。	☐	☐	☐	☐	☐	☐	☐	☐
B53. 本公司（應該）可以快速的連上「企網銀」的網站。	☐	☐	☐	☐	☐	☐	☐	☐
B54. 能快速的連上「企網銀」的網站對於本公司而言是重要的。	☐	☐	☐	☐	☐	☐	☐	☐
B55. 使用「企網銀」，（應該）能夠符合本公司的工作型態。	☐	☐	☐	☐	☐	☐	☐	☐
B56. 符合本公司工作型態的「企網銀」，對本公司而言是重要的。	☐	☐	☐	☐	☐	☐	☐	☐
B57. 使用「企網銀」，（應該）能夠配合本公司的會計／財務系統。	☐	☐	☐	☐	☐	☐	☐	☐
B58. 配合本公司會計／財務系統的「企網銀」，對本公司而言是重要的。	☐	☐	☐	☐	☐	☐	☐	☐

第三部份：為了解　貴公司的概況，敬請回答下列問題。

C1. 貴公司屬於下列那一種組織型態？

☐ 股份有限公司　　　　☐ 有限公司

☐ 無限公司　　　　　　☐ 兩合公司

☐ 合夥　　　　　　　　☐ 獨資

☐ 外國公司　　　　　　☐ 外國公司在台辦事處

☐ 外國公司在台分公司　☐ 其他 ＿＿＿＿＿＿＿＿＿＿＿

☐ 我不清楚

C2. 貴公司已經成立多久了？

☐ 未滿2年　　　　　　☐ 滿2年至未滿4年

☐ 滿4年至未滿6年　　☐ 滿6年至未滿8年

☐ 滿8年至未滿10年　　☐ 滿10年至未滿12年

☐ 滿12年或以上　　　☐ 我不清楚

C3. 貴公司的營業總部位於何處？

☐台灣北部　　　　　　☐台灣中部

☐台灣南部　　　　　　☐台灣東部及外島

☐我不清楚

C4. 貴公司全職員工人數有多少？（單位：人）

☐ 1~49　　　　☐ 50~99　　　　☐ 100~149

☐ 150~199　　☐ 200 以上.　　☐ 我不清楚

C5. 貴公司主要營業活動所屬的產業類別為何？

☐農業　　　　☐工業　　　　　☐服務業

☐其他 ＿＿＿＿＿＿＿＿＿＿＿＿＿＿　☐ 我不清楚

C6.　貴公司的主要營業活動是屬於下列那一種分類？

　　□ 農林漁牧業　　　　　　　□ 礦業及土石採取業

　　□ 製造業　　　　　　　　　□ 電力及燃氣供應業

　　□ 用水供應及污染整治業　　□ 營造業

　　□ 批發及零售業　　　　　　□ 運輸及倉儲業

　　□ 住宿及餐飲業　　　　　　□ 資訊及通訊傳播業

　　□ 金融及保險業　　　　　　□ 不動產業

　　□ 專業、科學及技術服務業　□ 支援服務業

　　□ 教育服務業　　　　　　　□ 醫療保健及社會福利服務業

　　□ 藝術娛樂及休閒服務業　　□ 其他服務業

　　□ 我不清楚

C7.　貴公司最近一個會計年度的營業額有多少？（單位：新台幣萬元）

　　□未滿2,000萬元　　　　　　□滿2,000萬元至未滿4,000萬元

　　□滿4,000萬元至未滿6,000萬元　□滿6,000萬元至未滿8,000萬元

　　□滿8,000萬元至未滿1億元　　□滿1億元或以上

　　□我不清楚

C8.　貴公司目前的資本額有多少？（單位：新台幣萬元）

　　□未滿2,000萬元　　　　　　□滿2,000萬元至未滿4,000萬元

　　□滿4,000萬元至未滿6,000萬元　□滿6,000萬元至未滿8,000萬元

　　□滿8,000萬元至未滿1億元　　□滿1億元或以上

　　□我不清楚

第四部份：基本資料

D.1. 您目前的職位為何？

☐ 老闆／企業主　　☐ 主辦會計／財務　　☐一般會計／財務人員

☐ 其他，服務的部門：＿＿＿＿＿＿　職位：＿＿＿＿＿＿＿

D.2. 您在目前的公司已經服務多久了？

☐ 未滿1年　　　　　　　☐ 滿1年至未滿5年

☐ 滿5年至未滿10年　　　☐ 滿10年至未滿15年

☐ 滿15年至未滿20年　　☐ 滿20年至未滿25年

☐ 滿25年或以上

D.3. 您最高的學歷？

☐國小　☐國中　☐高中　☐專科或大學　☐碩士　☐博士

D.4. 您的性別？ ☐ 男　　　　☐ 女

D.5. 您的年齡？

☐ 未滿20歲　　　　　　☐ 滿20歲至未滿30歲

☐ 滿30歲至未滿40歲　　☐ 滿40歲至未滿50歲

☐ 滿50歲至未滿60歲　　☐ 滿60歲或以上

D.6. 您每月的平均收入有多少？（單位：新台幣）

☐ 未滿2萬元　　　　　　☐ 滿2萬元至未滿4萬元

☐ 滿4萬元至未滿6萬元　☐ 滿6萬元至未滿8萬元

☐ 滿8萬元至未滿10萬元　☐ 滿10萬元或以上

Appendix 6.1: Descriptive statistics – adopters

Constructs and question items	Sample size	Missing and don't know	
		N	%
INT 1 – Ad (A13)	257	0	0
INT 2 – Ad (A14)	257	0	0
INT 3 – Ad (A16)	257	0	0
ATT 1 (B1)	256	1	0
ATT 2 (B2)	256	1	0
ATT 3 (B3)	256	1	0
SN 1 (B4)	245	12	5
SN 2 (B5)	249	8	3
PBC 1 (B6)	255	2	1
PBC 2 (B7)	256	1	0
PBC 3 (B8)	257	0	0
OPT 1 (B19)	257	0	0
OPT 2 (B20)	253	4	2
OPT 3 (B21)	257	0	0
OPT 4 (B22)	257	0	0
OPT 5 (B23)	256	1	0
INN 1 (B24)	251	6	2
INN 2 (B25)	243	14	6
INN 3 (B26)	255	2	1
INN 4 (B27)	257	0	0
INN 5 (B28)	255	2	1
INN 6 (B29)	243	14	6
DIS 1 (B30)	250	7	3
DIS 2 (B31)	256	1	0
DIS 3 (B32)	251	6	2
INS 1 (B33)	256	1	0
INS 2 (B34)	257	0	0
INS 3 (B35)	257	0	0
INS 4 (B36)	257	0	0
INS 5 (B37)	257	0	0
INS 6 (B38)	257	0	0

Appendix 6.1: Descriptive statistics - adopters

Constructs and question items	Sample size	Missing and don't know	
		N	%
USE 11 (B9)	257	0	0
USE 12 (B10)	257	0	0
USE 21 (B11)	256	1	0
USE 22 (B12)	257	0	0
EOU 11 (B13)	256	1	0
EOU 12 (B14)	257	0	0
EOU 21 (B15)	256	1	0
EOU 22 (B16)	256	1	0
EOU 31 (B17)	256	1	0
EOU 32 (B18)	257	0	0
Cmpty 11 (B55)	257	0	0
Cmpty 12 (B56)	256	1	0
Cmpty 21 (B57)	253	4	2
Cmpty 22 (B58)	254	3	1
NI 11 (B39)	252	5	2
NI 12 (B40)	255	2	1
NI 21 (B41)	251	6	2
NI 22 (B42)	257	0	0
NI 31 (B43)	252	5	2
NI 32 (B44)	254	3	1
EFF 11 (B45)	256	1	0
EFF 12 (B46)	256	1	0
EFF 21 (B47)	256	1	0
EFF 22 (B48)	257	0	0
EFF 31 (B49)	254	3	1
EFF 32 (B50)	256	1	0
FAC 11 (B51)	257	0	0
FAC 12 (B52)	256	1	0
FAC 21 (B53)	257	0	0
FAC 22 (B54)	256	1	0

Appendix 6.2: Descriptive statistics – non-adopters

Constructs and question items	Sample size	Missing and don't know N	%
INT 1 – NA (A17)	174	0	0
INT 2 – NA (A18)	174	0	0
INT 3 – NA (A19)	174	0	0
INT 4 – NA (A20)	174	0	0
ATT 1 (B1)	172	2	1
ATT 2 (B2)	172	2	1
ATT 3 (B3)	172	2	1
SN 1 (B4)	166	8	5
SN 2 (B5)	167	7	4
PBC 1 (B6)	170	4	2
PBC 2 (B7)	163	11	7
PBC 3 (B8)	167	7	4
OPT 1 (B19)	173	1	1
OPT 2 (B20)	172	2	1
OPT 3 (B21)	171	3	2
OPT 4 (B22)	173	1	1
OPT 5 (B23)	170	4	2
INN 1 (B24)	171	3	2
INN 2 (B25)	167	7	4
INN 3 (B26)	173	1	1
INN 4 (B27)	171	3	2
INN 5 (B28)	171	3	2
INN 6 (B29)	165	9	5
DIS 1 (B30)	168	6	4
DIS 2 (B31)	174	0	0
DIS 3 (B32)	169	5	3
INS 1 (B33)	173	1	1
INS 2 (B34)	172	2	1
INS 3 (B35)	172	2	1
INS 4 (B36)	173	1	1
INS 5 (B37)	174	0	0
INS 6 (B38)	170	4	2

Appendix 6.2: Descriptive statistics - non-adopters

Constructs and question items	Sample size	Missing and don't know N	%
USE 11 (B9)	170	4	2
USE 12 (B10)	171	3	2
USE 21 (B11)	173	1	1
USE 22 (B12)	171	3	2
EOU 11 (B13)	169	5	3
EOU 12 (B14)	171	3	2
EOU 21 (B15)	170	4	2
EOU 22 (B16)	173	1	1
EOU 31 (B17)	170	4	2
EOU 32 (B18)	171	3	2
Cmpty 11 (B55)	172	2	1
Cmpty 12 (B56)	172	2	1
Cmpty 21 (B57)	169	5	3
Cmpty 22 (B58)	170	4	2
NI 11 (B39)	165	9	5
NI 12 (B40)	171	3	2
NI 21 (B41)	168	6	4
NI 22 (B42)	174	0	0
NI 31 (B43)	165	9	5
NI 32 (B44)	166	8	5
EFF 11 (B45)	170	4	2
EFF 12 (B46)	174	0	0
EFF 21 (B47)	174	0	0
EFF 22 (B48)	172	2	1
EFF 31 (B49)	170	4	2
EFF 32 (B50)	174	0	0
FAC 11 (B51)	169	5	3
FAC 12 (B52)	172	2	1
FAC 21 (B53)	172	2	1
FAC 22 (B54)	173	1	1

Appendix 6.3: Results of homoscedasticity test – adopters

Question items	Employee no. (C4)		Capital amount (C8)		Profession (D1)	
	Levene statistic	Sig.	Levene statistic	Sig.	Levene statistic	Sig.
INT1 – Ad (A13)	.50	.73	.95	.45	3.74	.01
INT2 – Ad (A14)	1.55	.19	.54	.74	1.44	.23
INT3 – Ad (A16)	1.56	.18	1.88	.10	2.90	.04
ATT 1 (B1)	.49	.75	.66	.66	1.01	.39
ATT 2 (B2)	1.14	.34	.48	.79	.19	.90
ATT 3 (B3)	.55	.70	1.48	.20	1.12	.34
SN 1 (B4)	1.93	.11	.88	.49	1.41	.24
SN 2 (B5)	.56	.69	.78	.57	.30	.82
PBC 1 (B6)	1.28	.28	.74	.60	.84	.47
PBC 2 (B7)	1.51	.20	1.33	.25	2.26	.08
PBC 3 (B8)	.85	.49	1.74	.13	.40	.75
OPT 1 (B19)	.25	.91	1.87	.10	.32	.81
OPT 2 (B20)	.96	.43	.89	.49	1.59	.19
OPT 3 (B21)	.16	.96	1.17	.33	.56	.64
OPT 4 (B22)	.86	.49	.81	.55	.43	.73
OPT 5 (B23)	1.62	.17	1.32	.26	3.79	.01
INN 1 (B24)	1.40	.24	1.82	.11	1.33	.27
INN 2 (B25)	1.11	.35	.63	.67	.21	.89
INN 3 (B26)	1.92	.11	1.16	.33	.79	.50
INN 4 (B27)	2.91	.02	.86	.51	.41	.75
INN 5 (B28)	.51	.73	.89	.49	.23	.87
INN 6 (B29)	.69	.60	1.21	.31	.78	.50
DIS 1 (B30)	.44	.78	1.09	.37	2.07	.10
DIS 2 (B31)	.86	.49	.38	.86	2.95	.03
DIS 3 (B32)	.77	.54	1.11	.35	3.61	.01
INS 1 (B33)	2.42	.05	1.46	.20	1.06	.37
INS 2 (B34)	2.46	.05	2.39	.04	1.50	.21
INS 3 (B35)	1.51	.20	1.02	.41	1.55	.20
INS 4 (B36)	.18	.95	2.32	.04	.88	.45
INS 5 (B37)	.61	.66	1.03	.40	.25	.86
INS 6 (B38)	1.10	.36	2.96	.01	1.75	.16

Appendix 6.3: Results of homoscedasticity test - adopters

Question items	Employee no. (C4)		Capital amount (C8)		Profession (D1)	
	Levene statistic	Sig.	Levene statistic	Sig.	Levene statistic	Sig.
USE 11 (B9)	1.52	.20	1.99	.08	2.95	.03
USE 12 (B10)	1.06	.38	.96	.44	.57	.63
USE 21 (B11)	.29	.89	.81	.55	.14	.94
USE 22 (B12)	.45	.77	.85	.52	.36	.79
EOU 11 (B13)	1.68	.15	1.46	.20	1.26	.29
EOU 12 (B14)	.44	.78	1.96	.09	.84	.47
EOU 21 (B15)	1.98	.10	.88	.49	.05	.99
EOU 22 (B16)	1.12	.35	1.61	.16	2.30	.08
EOU 31 (B17)	1.39	.24	1.33	.25	.74	.53
EOU 32 (B18)	.75	.56	.75	.59	.70	.55
Cmpty 11 (B55)	1.34	.26	1.81	.11	.94	.42
Cmpty 12 (B56)	.79	.53	.96	.44	.81	.49
Cmpty 21 (B57)	1.89	.11	.96	.44	.20	.89
Cmpty 22 (B58)	1.38	.24	.64	.67	.68	.56
NS 11 (B39)	2.14	.08	.34	.89	1.51	.21
NS 12 (B40)	1.29	.28	1.22	.30	.43	.73
NS 21 (B41)	1.15	.34	.62	.69	1.18	.32
NS 22 (B42)	.17	.96	.43	.83	1.49	.22
NS 31 (B43)	.81	.52	.77	.57	2.89	.04
NS 32 (B44)	.38	.82	.33	.89	3.75	.01
EFF 11 (B45)	.40	.81	.49	.78	3.87	.01
EFF 12 (B46)	.69	.60	1.13	.35	1.19	.31
EFF 21 (B47)	1.76	.14	.57	.72	.55	.65
EFF 22 (B48)	1.25	.29	1.03	.40	.71	.55
EFF 31 (B49)	.45	.77	.67	.65	1.21	.31
EFF 32 (B50)	.58	.68	1.23	.30	2.38	.07
FAC 11 (B51)	1.57	.18	1.67	.14	3.06	.03
FAC 12 (B52)	1.76	.14	1.41	.22	1.82	.14
FAC 21 (B53)	2.41	.05	2.12	.06	4.89	.00
FAC 22 (B54)	.51	.73	1.07	.38	2.07	.10

Appendix 6.4: Results of homoscedasticity test – non-adopters

Question items	Employee no. (C4)		Capital amount (C8)		Profession (D1)	
	Levene statistic	Sig.	Levene statistic	Sig.	Levene statistic	Sig.
INT1 – NA (A17)	.25	.91	.98	.43	.48	.70
INT2 – NA (A18)	.57	.69	1.18	.32	1.09	.35
INT3 – NA (A19)	.32	.87	.20	.96	.69	.56
INT4 – NA (A20)	.79	.53	.17	.97	1.27	.29
ATT 1 (B1)	2.64	.04	.92	.47	.05	.99
ATT 2 (B2)	2.69	.03	.79	.56	.12	.95
ATT 3 (B3)	1.45	.22	1.02	.41	1.00	.40
SN 1 (B4)	1.06	.38	3.11	.01	1.02	.38
SN 2 (B5)	.92	.45	1.32	.26	.15	.93
PBC 1 (B6)	2.81	.03	.58	.72	1.54	.21
PBC 2 (B7)	.42	.79	1.08	.38	.99	.40
PBC 3 (B8)	.70	.59	.28	.92	.76	.52
OPT 1 (B19)	1.09	.36	.93	.47	1.15	.33
OPT 2 (B20)	1.22	.30	1.22	.31	.66	.58
OPT 3 (B21)	.54	.71	2.93	.02	.79	.50
OPT 4 (B22)	1.72	.15	1.10	.36	.27	.85
OPT 5 (B23)	1.71	.15	3.25	.01	.90	.44
INN 1 (B24)	.11	.98	.94	.46	1.60	.19
INN 2 (B25)	1.08	.37	.56	.73	1.74	.16
INN 3 (B26)	1.44	.22	.56	.73	.75	.52
INN 4 (B27)	.59	.67	.73	.60	.66	.58
INN 5 (B28)	1.46	.22	.72	.61	.90	.44
INN 6 (B29)	1.15	.34	.56	.73	.51	.68
DIS 1 (B30)	3.68	.01	1.24	.30	1.28	.28
DIS 2 (B31)	1.09	.36	1.40	.23	.57	.64
DIS 3 (B32)	1.99	.10	.35	.88	.76	.52
INS 1 (B33)	1.35	.25	.73	.60	.68	.57
INS 2 (B34)	2.23	.07	1.62	.16	1.57	.20
INS 3 (B35)	1.69	.15	.71	.62	3.00	.03
INS 4 (B36)	1.48	.21	2.29	.05	1.24	.30
INS 5 (B37)	.14	.97	1.85	.11	2.62	.05
INS 6 (B38)	.70	.59	.33	.89	.63	.60

Appendix 6.4: Results of homoscedasticity test - non-adopters

Question items	Employee no. (C4)		Capital amount (C8)		Profession (D1)	
	Levene statistic	Sig.	Levene statistic	Sig.	Levene statistic	Sig.
USE 11 (B9)	1.15	.33	.61	.69	2.18	.09
USE 12 (B10)	1.32	.26	2.35	.04	.77	.51
USE 21 (B11)	1.32	.27	1.18	.32	.44	.73
USE 22 (B12)	1.78	.14	2.39	.04	.26	.85
EOU 11 (B13)	1.38	.24	2.56	.03	.22	.89
EOU 12 (B14)	4.45	.00	3.10	.01	1.08	.36
EOU 21 (B15)	3.56	.01	2.05	.08	.78	.50
EOU 22 (B16)	2.54	.04	2.19	.06	.74	.53
EOU 31 (B17)	1.44	.22	2.11	.07	2.27	.08
EOU 32 (B18)	1.48	.21	1.76	.12	1.95	.12
Cmpty 11 (B55)	.86	.49	.82	.54	2.38	.07
Cmpty 12 (B56)	1.28	.28	.68	.64	.54	.66
Cmpty 21 (B57)	1.87	.12	.71	.62	1.04	.38
Cmpty 22 (B58)	2.79	.03	.89	.49	2.24	.09
NS 11 (B39)	.44	.78	.46	.81	.52	.67
NS 12 (B40)	.93	.45	2.19	.06	.21	.89
NS 21 (B41)	.69	.60	.70	.62	.54	.65
NS 22 (B42)	.89	.47	1.61	.16	.21	.89
NS 31 (B43)	.67	.62	.69	.64	.69	.56
NS 32 (B44)	.37	.83	1.51	.19	1.19	.32
EFF 11 (B45)	1.41	.23	.93	.46	.95	.42
EFF 12 (B46)	3.47	.01	.56	.73	.17	.92
EFF 21 (B47)	3.06	.02	.71	.62	1.23	.30
EFF 22 (B48)	.54	.70	.57	.72	.51	.67
EFF 31 (B49)	1.23	.30	1.44	.21	2.82	.04
EFF 32 (B50)	3.30	.01	1.31	.27	1.11	.35
FAC 11 (B51)	1.46	.22	.44	.82	.29	.83
FAC 12 (B52)	1.37	.25	.33	.89	.73	.54
FAC 21 (B53)	2.28	.06	.70	.62	1.57	.20
FAC 22 (B54)	2.51	.04	.32	.90	.57	.63

Appendix 6.5: EFA and reliability for intention – adopters

<div align="right">

N = 257

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	Question items	Factor loading	Corrected item-total correlation	Cronbach's alpha if item deleted
			Reliability	
INT 1 - Ad	A13. Will your company continue to use CIB during the next 12 months?	.752	.382	.504
INT 2 - Ad	A14. Will your company increase its usage of CIB during the next 12 months?	.653	.350	.603
INT 3 - Ad	A16. Are you interested inusing CIB?	.834	.485	.295
Eigenvalue		1.688		
% variance		56.264		
Cumulative % variance		56.264		
Each construct Cronbach's alpha		.606		
Total Cronbach's alpha		.606		

Extraction method: Principal component analysis.

1 component extracted.

Appendix 6.6: EFA and reliability for intention – non-adopters

N = 174

Question items	Factor loading	Reliability Corrected item-total correlation	Reliability Cronbach's alpha if item deleted
INT 1 - NA	A17. Will your company adopt CIB in the next 12 months?	.788	.774	.815
INT 2 - NA	A18. Does your company have a plan to adopt CIB in the next 12 months?	.749	.749	.831
INT 3 - NA	A19. Do you intend to use CIB if your company adopts it?	.609	.609	.875
INT 4 - NA	A2. Will you recommend your company to use CIB?	.762	.762	.813
Eigenvalue	2.907		
% variance	72.684		
Cumulative % variance	72.684		
Each construct Cronbach's alpha	.874		
Total Cronbach's alpha	.874		

Extraction method: Principal component analysis.

1 component extracted.

Appendix 6.7: EFA and reliability for antecedents of intention – adopters

Question items	Factor loading			Reliability	
	ATT	PBC	SN	Corrected item-total correlation	Cronbach's alpha i item deleted
ATT 3 B3. CIB is (should be) helpful for my company.	.826			.825	.934
ATT 1 B1. My company's adoption of CIB is (should be) a wise idea.	.813			.925	.855
ATT 2 B2. My company's adoption of CIB is (should be) valuable.	.751			.848	.919
PBC 2 B7. We (I and/or my colleagues) have the knowledge to use CIB.		.897		.860	.a
PBC 3 B8. We have the ability to use CIB.		.844		.860	.a
SN 2 B5. The people who influence my company's decisions think that my company should use CIB.			.818	.693	.a
SN 1 B4. Most people who are important to my company think that my company should use CIB.			.800	.693	.a
Eigenvalue	2.386	1.971	1.867		
% variance	34.092	28.157	26.677		
Cumulative % variance	34.092	62.249	88.926		
Each construct Cronbach's alpha	.935	.818	.925		
Total Cronbach's alpha		.934			

Extraction method: Principal component analysis.
Rotation method: Varimax with Kaiser normalisation.
Rotation converged in 6 iterations.
Factor loadings less than .40 have not been printed and variables have been sorted by loading on each factor.

Appendix 6.8: EFA and reliability for antecedents of intention – non-adopters

N = 174

	Question items	Factor loading			Reliability	
		ATT	PBC	SN	Corrected item-total correlation	Cronbach's alpha if item deleted
ATT 1	B1. My company's adoption of CIB is (should be) a wise idea.	.863			.801	.824
ATT 2	B2. My company's adoption of CIB is (should be) valuable.	.855			.815	.812
ATT 3	B3. CIB is (should be) helpful for my company.	.786			.734	.887
PBC 2	B7. We (I and/or my colleagues) have the knowledge to use CIB.		.904		.721	.698
PBC 3	B8. We have the ability to use CIB.		.871		.732	.690
PBC 1	B6. My company has the resources to use CIB.		.699		.571	.857
SN 2	B5. The people who influence my company's decisions think that my company should use CIB.			.893	.764	.[a]
SN 1	B4. Most people who are important to my company think that my company should use CIB.			.830	.764	.[a]
Eigenvalue		2.444	2.265	1.774		
% variance		3.550	28.315	22.173		
Cumulative % variance		3.550	58.865	81.038		
Each construct Cronbach's alpha		.890	.822	.866		
Total Cronbach's alpha			.878			

Extraction method: Principal component analysis.

Rotation method: Varimax with Kaiser normalisation.

Rotation converged in 6 iterations.

Factor loadings less than .40 have not been printed and variables have been sorted by loading on each factor.

Appendix 6.9: EFA and reliability for antecedents of attitude – adopters

N = 257

	Question items	Factor loading			Reliability	
		Usability and relevance	Opera-tional concerns	Inno-vative-ness	Corrected item-total correlation	Cronbach's alpha if item deleted
OPT 1	B19. Using CIB makes (should make) banking tasks more convenient.	.846			.791	.864
OPT 3	B21. CIB makes (or will make) accounting tasks more efficient.	.829			.738	.864
EOU 1 (B13*B14)	B13. Learning how to bank online is (should be) easy. B14. CIB, which is easy to learn, is important to my company.	.821			.820	.816
EOU 3 (B17*B18)	B17. Using CIB can (should be able to) easily satisfy my company's needs. B18. CIB can easily satisfy my company's needs and this is important to my company.	.807			.808	.818
USE 2 (B11*B12)	B11. Relative to traditional banking, using CIB has (should have) advantages. B12. Using CIB has advantages and these additional advantages are important to my company.	.802			.803	.819
EOU 2 (B15*B16)	B15. Operation of CIB is (should be) easy. B16. CIB, which is easy to operate, is important to my company.	.802			.791	.820
USE 1 (B09*B10)	B9. Relative to traditional banking, using CIB saves (should save) time. B10. Using CIB saves time, and this is important to my company.	.747			.738	.828
OPT 4	B22. CIB gives its user mobility, because it is not limited to a fixed office.	.725			.655	.865
OPT 2	B20.We like CIB, which is designed according to business needs.	.670			.655	.865

| | Question items | Factor loading | | | Reliability | |
		Usability and relevance	Opera- tional concerns	Inno- vative- ness	Corrected item-total correlation	Cronbach's alpha if item deleted
INS 6	B38. If we deliver information over the Internet, we can never be sure it really gets to the right place.		.841		.700	.744
INS 3	B35. We need to check carefully whether online transactions have made any mistakes, e.g. automated payments by CIB.		.773		.654	.754
INS 2	B34. Any banking transaction we do electronically should be confirmed later with hard copy documentation.		.716		.507	.798
DIS 2	B31. One should be cautious in replacing traditional banking tasks with CIB in case it might break down or become disconnected.		.694		.613	.761
INS 5	B37. When we call a bank, we prefer to talk to a person rather than a voice response system.		.693		.549	.775
DIS 3	B32. Computers have safety risks that are not discovered until people have used them.		.492		.432	.801

| Question items | | Factor loading | | | Reliability | |
		Usability and relevance	Opera-tional concerns	Inno-vative-ness	Corrected item-total correlation	Cronbach's alpha if item deleted
INN 5	B28. We can solve (should be able to solve) the challenge when (if) there are problems related to CIB.			.807	.710	.738
INN 6	B29. My company has (will probably have) fewer problems than other companies in using CIB.			.807	.752	.696
INN 2	B25. My company was (will be) among the first in my industry to acquire CIB when it was (is) adopted.			.744	.600	.847
Eigenvalue		6.050	3.243	2.389		
% variance		33.612	18.016	13.270		
Cumulative % variance		33.612	51.627	64.897		
Each construct Cronbach's alpha		.940	.817	.829		
Total Cronbach's alpha			.915			

Extraction method: Principal component analysis.
Rotation method: Varimax with Kaiser normalisation.
Rotation converged in 4 iterations.
Factor loadings less than .40 have not been printed and variables have been sorted by loading on each factor.

Appendix 6.10: EFA and reliability for antecedents of attitude – non-adopters

N = 174

		Factor loading			Reliability	
	Question items	Usability& relevance	Operational concerns	Innova-tiveness	Corrected item-total correlation	Cronbach's alpha if item deleted
USE 2 (B11*B12)	B11. Relative to traditional banking, using CIB has (should have) advantages. B12. Using CIB has advantages and these additional advantages are important to my company.	.844			.800	.823
EOU 3 (B17*B18)	B17. Using CIB can (should be able to) easily satisfy my company's needs. B18. CIB can easily satisfy my company's needs and this is important to my company.	.808			.812	.821
USE 1 (B09*B10)	B9. Relative to traditional banking, using CIB saves (should save) time. B10. Using CIB saves time and this is important to my company.	.805			.778	.826
OPT 1	B19. Using CIB makes (should make) banking tasks more convenient.	.783			.760	.866
OPT 2	B20. We like CIB, which is designed according to business needs.	.766			.735	.865
EOU 1 (B13*B14)	B13. Learning how to bank online is (should be) easy. B14. CIB, which is easy to learn, is important to my company.	.761			.769	.826
EOU 2 (B15*B16)	B15. Operation of CIB is (should be) easy. B16. CIB, which is easy to operate, is important to my company.	.753			.806	.822
OPT 3	B21. CIB makes (or will make) accounting tasks more efficient.	.730			.690	.867
OPT 4	B22. CIB gives its user mobility, because it is not limited to a fixed office.	.713			.651	.868

| | | Factor loading | | | Reliability | |
	Question items	Usability& relevance	Operational concerns	Innova-tiveness	Corrected item-total correlation	Cronbach's alpha if item deleted
INS 3	B35. We need to check carefully whether online transactions have made any mistakes, e.g. automated payments by CIB.		.799		.769	.846
INS 4	B36. Those using CIB still need to interact occasionally with staff members of the bank.		.792		.776	.845
INS 2	B34. Any banking transaction we do electronically should be confirmed later with hard copy documentation.		.771		.664	.857
INS 5	B37. When we call a bank, we prefer to talk to a person rather than a voice response system.		.762		.701	.854
INS 6	B38. If we deliver information over the Internet, we can never be sure it really gets to the right place.		.755		.681	.856
DIS 2	B31. One should be cautious in replacing traditional banking tasks with CIB in case it breaks down or becomes disconnected.		.687		.640	.859
INS 1	B33. We do not feel confident to do company transactions on line.		.606		.434	.882
DIS 3	B32. Computers have safety risks that are not discovered until people have used them.		.531		.495	.877

		Factor loading			Reliability	
	Question items	Usability& relevance	Operational concerns	Innova-tiveness	Corrected item-total correlation	Cronbach's alpha if item deleted
INN 5	B28. We can solve (should be able to solve) the challenge when (if) there are problems related to CIB.			.813	.713	.877
INN 4	B27. My company keeps (should be able to keep) up with the latest CIB developments.			.807	.809	.862
INN 3	B26. We usually (will probably) figure out the best way to use CIB without help from others.			.804	.749	.872
INN 6	B29. My company has (will probably have) fewer problems than other companies in using CIB.			.780	.700	.880
INN 1	B24. It seems that my company is learning more about the latest information on CIB than other companies (our business partners and competitors).			.714	.654	.888
INN 2	B25.My company was (will be) among the first in my industry to acquire CIB when it was (is) adopted.			.710	.694	.880
Eigenvalue		6.143	4.480	4.118		
% variance		26.707	19.480	17.903		
Cumulative % variance		26.707	46.187	64.091		
Each construct Cronbach's alpha		.941	.881	.896		
Total Cronbach's alpha			.930			

Extraction method: Principal component analysis.
Rotation method: Varimax with Kaiser normalisation.
Rotation converged in 6 iterations.
Factor loadings less than .40 have not been printed and variables have been sorted by loading on each factor.

Appendix 6.11: EFA and reliability for antecedent of subjective norm – adopters

<div align="right">N = 257</div>

Question items		Compo-nent	Reliability	
			Corrected item-total correlation	Cronba-ch's alpha if item deleted
NI 2 (B41*B42)	B41. Most of my company's suppliers think that my company should use CIB.	.956	.895	.838
	B42. Generally speaking, my company wants to do what my company's suppliers think my company should do.			
NI 3 (B43*B44)	B43. Most of my company's peers think that my company should use CIB.	.928	.836	.887
	B44. Generally speaking, my company wants to do what my company's peers think my company should do.			
NI 1 (B39*B40)	B39. Most of my company's customers think that my company should use CIB.	.901	.787	.925
	B4. Generally speaking, my company wants to do what my company's customers think my company should do.			
Eigenvalue		2.588		
% variance		86.27		
Cumulative % variance		86.27		
Each construct Cronbach's alpha		.920		
Total Cronbach's alpha		.920		

Extraction method: Principal component analysis.

1 component extracted.

Appendix 6.12: EFA and reliability for antecedent of subjective norm – non-adopters

Question items		Compo-nent	Reliability	
			Corrected item-total correlation	Cronbach's alpha if item deleted
NI 2 (B41*B42)	B41. Most of my company's suppliers think that my company should use CIB. B42. Generally speaking, my company wants to do what my company's suppliers think my company should do.	.927	.824	.781
NI 3 (B43*B44)	B43. Most of my company's peers think that my company should use CIB. B44. Generally speaking, my company wants to do what my company's peers think my company should do.	.886	.745	.854
NI 1 (B39*B40)	B39. Most of my company's customers think that my company should use CIB. B4. Generally speaking, my company wants to do what my company's customers think my company should do.	.885	.745	.856

Eigenvalue	2.428
% variance	80.94
Cumulative % variance	80.94
Each construct Cronbach's alpha	.881
Total Cronbach's alpha	.881

Extraction method: Principal component analysis.

a. 1 component extracted.

Appendix 6.13: EFA and reliability for antecedents of perceived behavioural control – adopters

Abbreviate.	Question items	Factor loading		Reliability	
		Facilitating condition	Self-efficacy	Corrected item-total correlation	Cronbach's alpha if item deleted
FAC 1 (B51*B52)	B51. My company can (should able to) get CIB specialised instructions all the time (e.g. CIB pamphlet or guide). B52. Being able to get CIB specialised instructions all the time is important to my company.	.867		.721	.a
FAC 2 (B53*B54)	B53. My company can (should be able to) connect to the CIB website quickly. B54. Connecting quickly to the CIB website is important to my company.	.859		.721	.a
EFF 3 (B49*B50)	B49. We are confident that we can solve CIB's operating problems on our own. B50. Being able to solve CIB's operating problems is important to my company.		.910	.850	.780
EFF 1 (B45*B46)	B45. My company can easily operate CIB on its own. B46. Being able to operate CIB is important to my company.		.709	.826	.805
EFF 2 (B47*B48)	B47. We feel comfortable using CIB. B48. We feel comfortable using CIB on our own and this is important to my company.		.691	.679	.930
Eigenvalue		2.242	1.987		
% variance		44.837	39.735		
Cumulative % variance		44.837	84.572		
Each construct Cronbach's alpha		.889	.838		
Total Cronbach's alpha		.907			

Extraction method: Principal component analysis.

Rotation method: Varimax with Kaiser Normalisation.

Rotation converged in 3 iterations.

Factor loadings less than .40 have not been printed and variables have been sorted by loading on each factor.

Appendix 6.14: EFA and reliability for antecedents of perceived behavioural control – non-adopters

N = 174

Question items	Factor loading		Reliability	
	Self-efficacy	Facilitating condition	Corrected item-total correlation	Cronbach's alpha if item deleted
EFF 3 (B49*B50) B49. We are confident that we can solve CIB's operating problems on our own. B50. Being able to solve CIB's operating problems is important to my company.	.875		.719	.866
EFF 2 (B47*B48) B47. We feel comfortable using CIB. B48. We feel comfortable using CIB on our own and this is important to my company.	.779		.781	.810
EFF 1 (B45*B46) B45. My company can easily operate CIB on its own. B46. Being able to operate CIB is important to my company.	.761		.795	.797
FAC 1 (B51*B52) B51. My company can (should able to) get CIB specialised instructions all the time (e.g. CIB pamphlet or guide). B52. Being able to get CIB specialised instructions all the time is important to my company.		.893	.767	.a
FAC 2 (B53*B54) B53. My company can (should be able to) connect to the CIB website quickly. B54. Connecting quickly to the CIB website is important to my company.		.818	.767	.a
Eigenvalue	2.245	1.978		
% variance	44.901	39.557		
Cumulative % variance	44.901	84.458		
Each construct Cronbach's alpha	.868	.877		
Total Cronbach's alpha	.914			

Extraction method: Principal component analysis.
Rotation method: Varimax with Kaiser normalisation.
Factor loadings less than .40 have not been printed and variables have been sorted by loading on each factor.

Appendix 7.1: Common method bias – adopters

Total variance explained   **N=257**

| Com-ponent | Initial eigenvalues | | | Extraction sums of squared loadings | | |
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	15.747	43.740	43.740	15.747	43.740	43.740
2	3.023	8.398	52.139			
3	2.454	6.816	58.954			
4	1.462	4.060	63.014			
5	1.177	3.270	66.284			
6	.980	2.722	69.006			
7	.900	2.499	71.505			
8	.841	2.337	73.842			
9	.776	2.157	75.999			
10	.768	2.134	78.132			
11	.715	1.986	80.118			
12	.621	1.725	81.843			
13	.561	1.559	83.402			
14	.537	1.493	84.894			
15	.476	1.322	86.216			
16	.446	1.239	87.455			
17	.438	1.217	88.672			
18	.405	1.124	89.796			

Com-ponent	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
19	.363	1.009	90.806			
20	.337	.936	91.741			
21	.325	.903	92.645			
22	.288	.799	93.444			
23	.266	.740	94.183			
24	.256	.711	94.895			
25	.239	.663	95.558			
26	.231	.643	96.201			
27	.223	.619	96.820			
28	.186	.518	97.338			
29	.175	.485	97.823			
30	.156	.434	98.258			
31	.137	.381	98.639			
32	.127	.354	98.993			
33	.106	.293	99.286			
34	.105	.291	99.577			
35	.079	.220	99.797			
36	.073	.203	100.000			

Extraction method: Principal component analysis.

Appendix 7.2: Common method bias – non-adopters

Total variance explained   **N=174**

Com-ponent	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of Variance	Cumulative %
1	16.684	38.799	38.799	16.684	38.799	38.799
2	3.999	9.301	48.100			
3	2.602	6.051	54.151			
4	2.043	4.750	58.901			
5	1.775	4.128	63.029			
6	1.397	3.248	66.277			
7	1.362	3.166	69.444			
8	.989	2.301	71.744			
9	.909	2.113	73.858			
10	.860	2.001	75.859			
11	.839	1.951	77.810			
12	.780	1.814	79.624			
13	.720	1.674	81.298			
14	.600	1.395	82.693			
15	.559	1.299	83.992			
16	.518	1.204	85.196			
17	.489	1.136	86.333			
18	.454	1.057	87.390			
19	.431	1.002	88.392			
20	.409	.951	89.342			
21	.365	.850	90.192			
22	.351	.816	91.008			
23	.329	.764	91.772			

Total variance explained N=174

Com-ponent	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of Variance	Cumulative %
24	.310	.720	92.492			
25	.301	.699	93.192			
26	.275	.640	93.832			
27	.269	.625	94.457			
28	.255	.593	95.050			
29	.222	.516	95.566			
30	.210	.488	96.054			
31	.186	.432	96.486			
32	.167	.388	96.874			
33	.159	.369	97.243			
34	.158	.368	97.611			
35	.150	.350	97.960			
36	.141	.327	98.288			
37	.137	.318	98.606			
38	.129	.300	98.906			
39	.113	.263	99.170			
40	.110	.256	99.425			
41	.096	.223	99.648			
42	.081	.187	99.836			
43	.071	.164	100.000			

Extraction Method: Principal component analysis.