

**FACTORS INFLUENCING INDIVIDUALS IN CONTINUANCE
USAGE INTENTION TOWARDS MOBILE BANKING IN
THAILAND**



**A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR
THE DEGREE OF MASTER OF MANAGEMENT
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Thesis
entitled
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was submitted to the College of Management, Mahidol University
for the degree of Master of Management (Marketing and Management)

on
January 20, 2016



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PROF. RANDALL SHANNON, Ph.D.**ABSTRACT**

Mobile banking has been continuously increasing worldwide. A number of studies have been examined on the mobile banking adoption intention. However, there are only a few studies explored on factors influencing continuance intention towards mobile banking in Thailand. In addition, the adoption rate of mobile banking in Thailand is still underused than expected. Hence, users' continuance usage is a critical for long-term improvement of mobile banking. The purpose of this paper is to identify the factors influencing individuals to continue using mobile banking in Thailand and generate a meaningful understanding of the formation of users' continuance intention towards mobile banking. In this paper, there are several factors affecting on consumer's continuance usage in mobile banking. A quantitative research is conducted with mobile banking users in Thailand area as respondent. The questionnaire is distributed through online survey included questions measuring the variables from the extended European Customer Satisfaction Index (ECSI) model. The Partial Least Squares Path Modelling will be used to analyze data from survey to test hypotheses and determine the relationships among constructs. The result of this study would be contributed an understanding of the formation of users' continuance intention towards mobile banking in Thailand.

**KEY WORDS: MOBILE BANKING / CONTINUANCE USAGE / ECSI /
CUSTOMER SATISFACTION / THAILAND**

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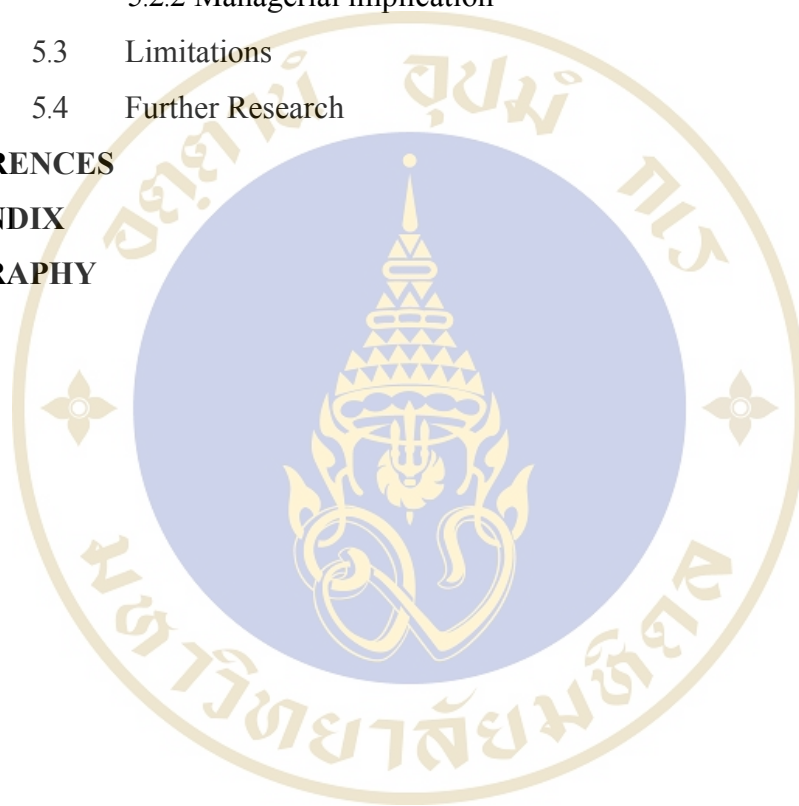
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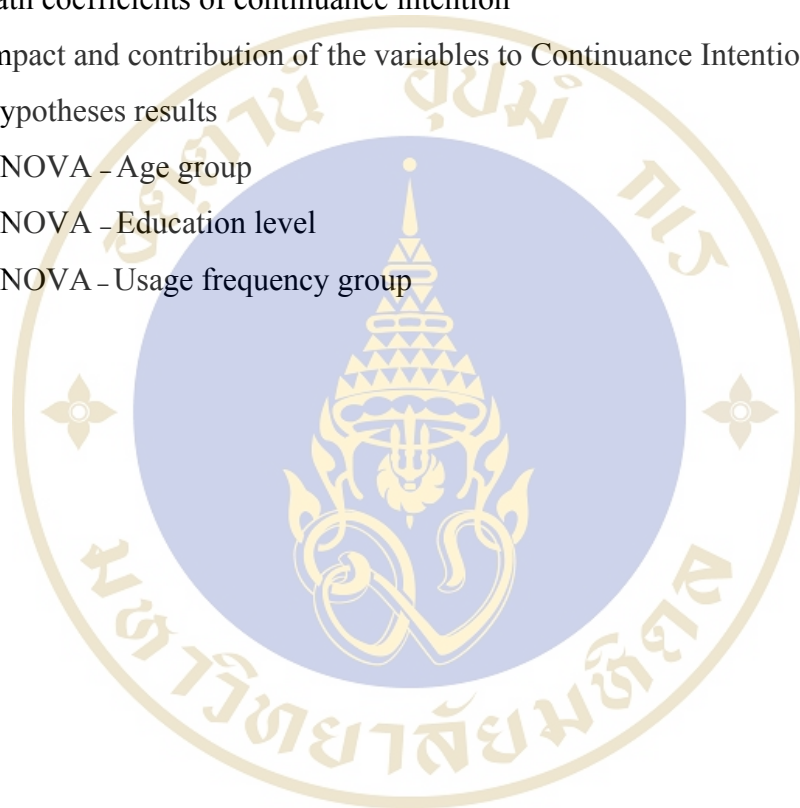


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CHAPTER I

INTRODUCTION

1.1 Background of the study

Mobile banking is an adoption of users to do payment transaction including account inquiry, transference and bill payment via mobile terminals such as cell phones (Dahlberg *et al.*, 2008). Mobile Banking is in a form of electronic banking, which describes all financial transactions through mobile communication technology (Weber and Darbellay, 2010; Wessels and Drennan, 2010; Chen, 2008; Mallat *et al.*, 2004). Moreover, mobile banking helps to eliminate the traditional payment limitation. The core benefits of mobile banking are omnipresence and immediacy. It provides the opportunity to conduct payment at anytime from anywhere (Zhou, 2012).

As a result of increasing market competition and developed innovation have significantly improved the services landscape, the broad explanation of mobile communication technologies represented by 3G networks, mobile banking has gained rapid growth worldwide. Therefore, service providers response the changing customer trend from traditional encounters to the technology-based to increase efficiency and save operation costs (Laukkanen and Lauronen, 2005; Leung and Matanda, 2013). The introduction of mobile banking technologies has granted banking organization to have opportunities in new markets (Gummerus and Pihlstrom, 2011). Moreover, the mass distribution of mobile devices in combination with changing consumer behavior also impact on every business with mobile devices. Thus, mobility significantly changed the design and delivery of tomorrow's financial services (Kearney, 2012). Researches mentioned that consumer preference for mobile banking double increase from 2008 to 2012 (Spertus, 2012), with Asia predicted to have the largest number of mobile banking users by 2017 (Shen, 2012). Juniper Research claimed that the mobile banking users would be over 590 million in 2013. At the end of 2017, the mobile phone users will more than 1 billion. They will use their phones for mobile banking as well (Morris, 2013).

Mobile banking can help banks to retain existing bank user and a source of competitive advantage. It is due to the fact that banks have to encountering challenges in high customer acquisition and service costs under competitive environment. However, mobile banking users retaining and motivation them to adopt new ones may spend an effort (Devaraj *et al.*, 2002). Hence, banks have invested great effort and resources on releasing mobile banking services in order to users' continuance usage and achieve success. As a consequence, it is important to understand what factors contribute to continue usage of mobile banking.

1.1.1 Mobile banking in Thailand

Customer behavior keeps changing from time to time. Internet evolution impacts the way people communication and interaction. The demand of "always-on" Internet connectivity moves the Internet banking to mobile banking. Therefore, financial service providers decide to apply alternative channels in order to increase customer convenience, reduce cost and maintain profitability.

Phone banking and automated teller machines (ATM) are globally used by financial institutions over the world and became sophisticated financial alternative for banking (White, 1998). Mobile Banking provides a new access method to financial services and new interaction of customers and financial service providers via mobile devices. Banking industry implements mobile banking on smartphones in order to principally change the business model (Steria Mummert, 2012) and mobile banking partially replace the traditional banking (Kearney, 2012).

Estimates of the number of mobile banking users confirm this prognosis: there are approximately six million people performing financial transactions through mobile banking in Western Europe (Riivari, 2005) and something like 700,000 mobile banking users in Latin America, a number which should reach 4 million in 2012 (Pu̇chel, 2008). In addition, mobile phones are increasing at an annual rate of 14 percent, and now total 3.8 billion around the world (Yankee Group, 2008). Consequently, the interest of financial institutions to offer applications and services via the mobile channel is increasing at the same speed as cell phone penetration.

In Thailand, the top four banks ranked by assets, Bangkok Bank, Krung Thai Bank, Kasikorn Bank, and Siam Commercial Bank, have implemented mobile

banking services. The adoption of mobile banking by users is 4.5 percent of the population. This is much less than the adoption of mobile instant messaging with 40.08 percent, mobile games with 46 percent and mobile search with 11.44 percent (Bhatiasevi, 2015).

Table 1.1 Number of mobile banking users in Thailand

Mobile Banking	Sep-14	Dec-14	Mar-15	Jun-15	Sep-15
The number of customers mobile banking user	5,651,799	6,229,960	7,252,719	7,882,195	8,434,872
Volume of transactions (Thousand Transactions)	10,570	12,619	17,114	19,228	23,106
Value of transactions (Billions of Baht)	129	156	186	203	230

Source: Bank of Thailand

Last Update: 14 Dec 2015

Retrieved date: 6 Jan 2016

The table 1.1 showed a trend of agreements that customers have applied mobile banking, volume of transactions (Thousand Transactions) and value of transactions (Billions of Baht) from September 2014 to September 2015. Over one year, there was a considerable increase in a numbers of users who have adapted mobile banking application by approximately 2.8 million. Furthermore, the volume of transaction also noticeably rose from 10,570,000 to 23,106,000. Last but not least, there was a growth in value of transaction by almost two times, from 129 billions to 230 billions. Therefore, it is obviously seen that the outcome is likely to turn out in a positive direction as the numbers of all factors gradually rose month by month over the studied period.

1.2 Research problem

Thailand is one of the new comers for mobile banking. It could be seen that banks in Thailand start implementing mobile banking. Furthermore, changing

consumers' life style among new generation of people increase the mobile banking adoption. However, the adoption rate of mobile banking in Thailand is still underused than expected. (Sripalawat *et al.*, 2010). Although there are a large number of subscribers registered for mobile banking, the continuance of usage trial and post-registration remains to be a challenge. Therefore, it is important for banks to consider the factors affecting continuance of usage of mobile banking services as a major issue in order to improve the number of transactions, trust and satisfaction, as well as customer loyalty (Thakur, 2014). Users' continuance usage is a critical for long-term improvement of mobile banking. Thakur (2014) found that the mobile banking service providers would suffer from the diminishing number of usage and lead to discontinuance if users' interest over the initial adoption declines after experience mobile banking.

Consequently, continuance intention has become an essential topic of study in the mobile banking research area. However, there are the abundant researches on initial adoption, the continuance intention of mobile banking has seldom been examined. Then, an investigation of the factors affecting users' continuance intention should be studied to fulfill this gap. It is interesting to examine users' continuance intention towards mobile banking and identify factors that would affect them.

1.3 Research objectives

A number of studies have been examined on the mobile banking adoption intention. (Kim and Prabhakar, 2000; Sripalawat *et al.*, 2010; Bhatiasevi, 2015). However, there are a few studies investigated on users' continuance intention towards mobile banking. Moreover, there are only a few studies explored on factor influencing individuals to adopt mobile banking in Thailand.

The purpose of this paper is to identify the factors influencing individuals to continue using mobile banking in Thailand. Especially, the aim of this research is to generate an insight understanding of the formation of users' continuance intention towards mobile banking in Thailand by using extend the European Customer Satisfaction Index (ECSI) model, including image, expectations, perceived quality,

perceived value, communication, trust, perceived risk, complaints, satisfaction and continuance intention.

The variables examined might influence consumers' motivation toward continuance usage intention towards mobile banking. Hence, banks implementing mobile banking need to pay attention on the values that consumers feel towards continuance usage intention towards mobile banking in order to make decisions relating to advertising campaign, communications and the improvement in order to increase mobile banking user retention in Thailand.



CHAPTER II

LITERATURE REVIEW

2.1 Introduction

This purpose of this chapter is to provide a theoretical background and knowledge of previous research studies relating mobile bank banking. There were several researches have been conducted in the mobile banking adoption intention. (Kim *et al.*, 2007; Sripalawat *et al.*, 2010; Bhatiasevi, 2015; Baptista, 2015).

However, most of those studies have been confined to Western countries and the developed Asian countries such as China (Ball *et al.*, 2004; Chen, 2012), Thus, there were only few of researches on continuance usage intention towards mobile banking in Thailand. Hence, studying in factors toward mobile banking would provide a better understanding among Thai consumers.

2.2 ECSI Model

The European Customer Satisfaction Index model (ECSI) is originated from successful applications of the Swedish and American national customer satisfaction. It is used to study measurement of customer satisfaction and its antecedents and related constructs, and at present includes the constructs of customer satisfaction, perceived value, perceived quality, expectations, image, loyalty, and complaints. It has been validated in such service industries as telecommunications, postal services and banks. (Chitty *et al.*, 2007).

2.3 Continuance Intention

Loyalty can be defined as a customer's intention for repurchasing from the same organization (Edvardsson *et al.*, 2000). That is a result of value received from one seller is more than other alternatives (Hallowell, 1996). The repurchasing of

products or services from the same business likely a circumstances by the judgment of individual can be counted as “Continuance intention or repurchase intention” (Hellier *et al.*, 2003). Customer loyalty also contributes more the future purchase intention and increases their market share (Flavian *et al.*, 2006). Loyal customers repeatedly purchase products or services from a supplier or increase their share of purchases from a supplier. They might recommend or promote bank providers with positive word of mouth (Lam and Burton, 2006). Loyalty also can be defined as a feeling of commitment on the part of the customer to a product, brand, marketer or services: continuance using with same provider, tend to support new products with the bank and recommend the bank’s services (Ehigie, 2006). Moreover, companies have an advantage to produce the benefits from their market share by extension more business from their current customers. Company can reduce cost and increase profit from customer loyalty. It is because company need to spend five times more than the cost of retaining an existing customer to acquire a new customer (Yap *et al.*, 2012). Customer loyalty has two dimensions. There are attitudinal dimension and behavioral dimension. Attitudinal dimension is a customer repurchasing and recommendation (Dick and Basu, 1994). Behavior dimension is a customer intention for repurchase and prefer brand or service over competitors. In addition, loyalty has been considered to be a key factor of company success and sustainability over time (Keating *et al.*, 2003). Several authors have proposed that loyalty also has a higher intensity in positive word-of-mouth (Hallowell, 1996), lower price sensibility (Lynch and Ariely, 2000) and more stable and bigger incomes (Knox and Denison, 2000). Customers desire to continue relationship, even if competitors have a lower price. Customers are willing to recommend to a friend, and intentions to continue patronizing (Ball *et al.*, 2006)

As a consequence, loyalty was a key factor in order to achieve company success and sustainability over time (Flavian *et al.*, 2006; Keating *et al.*, 2003). There are some researches exploring on continuance intention in information system (Bhattacharjee 2001a, b; Lin *et al.*, 2005; Yuan *et al.*, 2014) and marketing area (Liou *et al.*, 2015; Ball *et al.*, 2004). The online consumers motivation and retention are the cores of e-commerce achievement. (Ahmad *et al.*, 2010).

2.4 Image

Corporate image is the overall impression formed in the consumer's mind about a firm. Image is utilization of an innovation is perceived to enhance one's image or status in one's social system, it influences on the adoption of innovations. Previous researches stated that the better one's attitudes towards mobile banking will be when the more one perceive mobile banking as being compatible with one's own image (Moore and Benbasat, 1991). It can be measured in six items; overall opinion, reliability of what the firm says and does, reputation, social contribution for society, concern with customers, innovative and forward-looking and being professional based on the items developed by Andreassen and Lindestad (1997), Bayol *et al.* (2000) and Ball *et al.* (2003). There are disagreement from Keaveney and Hunt (1992), the image of a retail institution is formed by the lines of category-based processing theory, For example, customers will create a picture or situation on their mind as to whether the bank perform any difference categories of banks experienced in the past. Customer evaluation of attributes will be judged according to the bank image by the category-based processing paradigm. Reputation has an impact on how customers perceived firm's products in comparing to the competitors (Fombrun and Shanlet, 1990). Then, it affects customer purchasing behavior. The companies' reputation can change over the companies' life span. Herbig *et al.*, (1994) mentioned that building a good relationship is more difficult than losing it. The negative actions have a strongly impact on brand image than positive ones. Kristensen *et al.*, (2000) mentioned that image has a significant impact on customer satisfaction and loyalty in a number of ECSI studies. Keller (1993) also found that customers' belief affects on a brand image. Authors such as Andreassen and Lindestad (1997), Andreassen and Lindestad (1998), O'Loughlin and Coenders (2002), Kristensen *et al.* (1999) and Martensen *et al.*, (2000) also support that corporate image positively affect on customer satisfaction and maintaining a loyal relationship with customers in B2C. Kassim and Souiden (2007) found that the image of the service provider contributes consumer satisfaction and retention. On the contrary, Hamidzadeh *et al.*, (2011) found that image does not have an impact on customer satisfaction in conventional banks. Grönroos (2000) supported that brand image diminishes a value-added antecedent of satisfaction and loyalty. From this argument, the relationship of customer satisfaction, image has not been

clearly examined in associated research. The relationship between image and loyalty has discussed and debated. Sirgy and Samli (1989) reported a direct positive relationship between image and loyalty.

Therefore, we propose that:

H₁: Brand image is positively related to users' continuance intention of mobile banking.

H₂: Brand image is positively related to users' satisfaction with mobile banking.

2.5 Expectations

The customers can have an “expectations” prior consumption experience or non-experiential information from other sources such as advertising, promotion, pricing and word-of-mouth, the relationships between firms and their customers have an impact on overall customer satisfaction. When performance is better than expected, it can be called as a positive disconfirmation. Delivery service with the efficiency in order to meet or exceed customers' expectation contributes the higher customer satisfaction. Moreover, relationship between service providers and the customers can be extended by it (Harrison, 2003; Yap *et al.*, 2012). When performance is worse than expected, it is a negative disconfirmation. Satisfaction outcomes will be affected by a positive disconfirmation and confirmation, while negative disconfirmation contributes to dissatisfaction outcomes (Fornell *et al.*, 1996; Johnson *et al.*, 2001). Expectation is an antecedent of disconfirmation and associate on satisfaction and repurchases intention for the professional services Patterson *et al.*, (1997). The pre-purchase expectations have a little indirect negative impact on satisfaction. In addition, the results of study by Lee *et al.* (2006) indicated that, customer expectation should be included in the customer satisfaction causal model in order to develop the customer satisfaction model.

H₃: Expectation is positively related to users' satisfaction with mobile banking.

2.6 Perceived quality

Perceived quality is the evaluation the consumption experience on the received customization and reliability from product or service. The level that product or service fulfills customer's requirements is customization and the level of firm's providing a product or service with, standard and free from deficiencies is reliability. Parasuraman *et al.*, (1988) found that the differentiation of products and brands can be built by mean of distinctive product quality to overcome competitors. The perceived quality will be obtained from product's beneficial influence on marketing performance (Parasuraman *et al.*, 1996). The perceived quality has a significant impact on customer satisfaction (Parasuraman *et al.*, 1996; Kim *et al.*, 2008). In addition, perceived quality is expected to have a positive effect on customer satisfaction (Fornell *et al.*, 1996).

H₄: Perceived quality is positively related to users' satisfaction with mobile banking.

2.7 Perceived value

Perceived value of a service is the benefits from service that customers believe that they receive relative to the costs associated with its consumption, reference to definition by McDougall and Levesque (2000). Perceived value is positive when the benefits are greater than the cost association including mobile Internet cost, device cost, and transaction fees. With the contention of Heskett *et al.* (1997) that value is not necessarily equated with low prices because services with a perceived high value may in practice carry high or low prices. Similar to Rust and Oliver (1994) who argued that a service may be of excellent quality but still be rated as poor value by customers if the price is too high. Therefore, from the suggestion of Zeithaml and Bitner (2000), mentioned that the overall evaluation of a service's utility is leaning on customers' perceptions of what is received concerning what cost, and this definition was adopted until the present study.

H₅: Perceived value is positively related to users' satisfaction with mobile banking.

2.8 Communication

Morgan and Hunt (1994), proposed that communication was an antecedent of trust, along with shared values and lack of opportunistic behavior. By communication, we refer to written communications as well as in-person communication. In these communications, “good” had been defined as helpful, positive, timely, useful, easy, and pleasant. So, in term of being a good service provider, they should provide information in such a way that the customer personally benefits with a minimum of effort necessary to decode the communication and determine its utility. Such communication is often personalized or delivered in a person-to-person format.

Even though the inclusion of a communication construct is new in the context of the ECSI model, there are some authors who had provided evidence that can indirectly support this assumption. Particularly, the evidence that support the important role of personal relationship, personalization and customization in obtaining loyalty can be found from Lemon *et al.* (2001), Jones *et al.* (2000), Parasuraman *et al.* (1991) and Allen and Wilburn (2002).

Bruhn and Grund (2000) who explicitly considered the construct “customer dialogue”, but not strictly equivalent to communication. Dialogue is two-way, which is a useful way to conceptualize communication. But the definition of communication deals with communication from the service provider to the consumers is not vice versa. Nevertheless, there are also some two-way aspects of communication in complaint handling, but our construct of communication is essentially one way.

H₆: Communication is positively related to users’ continuance intention of mobile banking.

H₇: Communication is positively related to users’ satisfaction with mobile banking.

2.9 Trust

Trust in service providers has an important role in continuance usage. It is an antecedent in models concerning to relationships that include loyalty or satisfaction as dependent variables (Schaupp and Be’langer, 2005; Verhagen *et al.*, 2006).

Mukherjee and Nath (2003) found trust is an antecedent of commitment in online banking as well. Moreover, Morgan and Hunt (1994) supported trust is a key to successful relationship marketing. Definition of trust identified by Deutsch (1960) as an individual's confidence in the intentions and capabilities of a relationship partner and the belief that a relationship partner would behave as one hoped. There are performance or credibility trust and benevolence trust. Credibility trust is providing the services as commitment from service provider and benevolence trust is belief that service providers will take the advantage from the relationship Ganesan (1994). Aydin and Ozer (2005) mentioned that building trust is not only perceive good outcomes but also believe that good results will continue. By being loyal to a brand or a service provider is known and can be trusted are commonly used, especially in online contexts, where the interaction between buyers and sellers is low (Chen and He, 2003; Huang *et al.*, 2004). Ranaweera and Prau (2003) claimed that trust has more impact on loyalty than satisfaction. It confirmed that trust positively influence on continuance intention. Hsu (2007) supported that trust has a positive impact on continuance intention. Moreover it can attract new customers and retain existing customers. This can also be extended to mobile banking service. On the other side, lack of trust can influence the way in which consumers see banks and financial institutions and in particular consumers' attitudes to new forms of service delivery via the internet (Zhao *et al.*, 2010).

H₈: Trust is positively related to users' continuance intention of mobile banking.

2.10 Perceived risk

Perceived risk is commonly definition of as felt uncertainty regarding possible negative consequences of using product or service (Featherman and Pavlou, 2003). The perception of risk and uncertainty is in higher level for mobile banking since mobile banking relate to both lean information and mobile (Newell and Newell-Lemon, 2001; Kim *et al.*, 2007; Toh *et al.*, 2009). The theory of perceived risk has been used to study consumer behavior and decision-making since the 1960s (Taylor, 1974). The definition of perceived risk has changed as people have engaged online transactions. In the past, perceived risk was mainly related to fraud or product quality,

but presently perceived risk is linked to financial, psychological, physical, or social risks in online transactions (Forsythe and Shi, 2003; Im *et al.*, 2008). Consumers' perception of risk will be affected on an insufficient or unreliable security technologies. It causes a lower level of satisfaction in e-commerce context (Hsu and Chiu, 2004; Tan *et al.*, 2010). The previous technology adoption studies found that the perception on risk is meaningful in adopting a new technology or services (Laforet and Li, 2005; Yang, 2009). An adoption of technology from service providers will be highest if the related risk it is low. Perceived risk has a result on usage or purchase intention. Lin (2008) found that customers tend to reduce their usage or purchase intention only if they perceive unsafe on their credit card or sensitive information. In addition, Wu and Wang (2005) support that risk has a statistically significant effect on intention to use mobile commerce in Taiwan.

There are different types of risks were explored in the previous research about mobile banking and other banking technologies. Firstly, privacy and security were concerned regarding mobile banking among some consumers (Luarn and Lin, 2005). A PIN codes has been used to increase the security. For instance, Banks fearing hackers may require a PIN code to access to their bank account. Personal details and financial information became the main concern for mobile banking (Brown *et al.*, 2003), especially among mature consumers (Laukkanen *et al.*, 2007). Some studies claimed that perceived risk is an important factor of users' adoption in mobile banking (Brown *et al.*, 2003; Luarn and Lin, 2005). On other hand, Chen (2012) argued that perceived risk has no significant effect on the relationship quality of mobile banking. Based on the related research above, we may propose hypotheses as follows:

H₉: Perceived risk is negatively related to users' continuance intention of mobile banking.

H₁₀: Perceived risk is negatively related to users' satisfaction with mobile banking.

2.11 Complaints Handling

Complaints are the results from the negative experiences from products and services (Chea and Luo, 2008; Cho *et al.*, 2002a; Jasper and Waldhart, 2013).

Problems related to customer service, confusing business rules, unsatisfactory delivery issues, product failure, problems with after-sales service, or payment/billing issues are normal complaints for online business (Cho *et al.*, 2002b). The manner in which the company handles complaints and the customer's perceptions of the quality of complaint handling is a complaint handling (O'Loughlin and Coenders, 2002).

Improper and slow handling of complaints could be viewed by customers as opportunistic behavior (Morgan and Hunt, 1994), or as incompetence, thereby having a negative effect on credibility and therefore on trust (Ganesan, 1994). The majority of customers who are dissatisfied often exist the relationship without complaining. Hence, there is causality from satisfaction to complaint behavior. (Chakraborty *et al.*, 2007). In addition, the negative experience and complaint handling of company tend to impact on future online purchase intentions (Chang *et al.*, 2012; Rao *et al.*, 2011; Reibstein, 2002). When the problem are solved and completes welcome response the dissatisfied customers can become satisfied. Levesque and McDougall (1996) mentioned that customer complaint handling have an impact on customer retention.

H₁₁: Proper complaint handling has a positive impact on users' continuance intention of mobile banking.

2.12 Satisfaction

Satisfaction has been studied in the marketing literature (Ahmad *et al.*, 2010; Bowen, 2001). Customers have more demand and awareness. Then, the understanding of factors influencing on greater customer satisfaction assumes a dominant position. Fornell *et al.*, (1996) reported that a company's performance can improve customer satisfaction. There are two different ways of customer satisfaction: transaction-specific satisfaction and overall satisfaction. Overall satisfaction, which refers to the customer's overall satisfaction based on experiences with the particular bank is focused on most of studies. Customers tend to less use additional services, and switch to other brands in the future, when customers dissatisfy products or services. According to Hansemark and Albinsson (2004), an overall customer attitude towards a service provider or an emotional reaction to the difference between what customer's

anticipate and what products or services response customers, regarding the fulfillment of some need, goal or desire is a satisfaction. Satisfaction can be defined as a post-choice evaluative judgment concerning a specific purpose decision and is mostly used as part of the confirmation/ disconfirmation paradigm. For the services, satisfaction is defined as an affective customer condition, which results from a global evaluation in all the aspects that contribute the relationship between customer and service provider (Severt, 2002). Customer satisfaction has been also explained as an overall evaluation of a firm's post-purchase performance or utilization of a service (Fornell, 1992). Customer satisfaction is generally viewed based on evaluations and expressed some time during the purchase-consumption process. Kotler (2000) considered customer satisfaction results from customer's comparison of expectations prior to a purchase with performance perceptions. Parasuraman *et al.* (1988) mentioned that a comparison process between perceived performance and standards would be affect on satisfaction. Satisfaction can be divided into two concepts. Firstly, affective predisposition sustained by economic conditions, such as the volume of sales or profit margins obtained. Secondly, it is a psychological factor, such as a partner fulfilling promises or the ease of relationships with the aforementioned partner (Thakur, 2014). Loyalty and satisfaction are considered in several conceptual. There are a relationship between loyalty and satisfaction (Oliver, 1999).

H₁₂: Satisfaction is positively related to users' continuance intention of mobile banking.

CHAPTER III

RESEARCH METHODOLOGY

This chapter describes the research methodology of this study, focusing on the factors influencing individuals in continuance usage intention towards mobile banking in Thailand. Customer satisfaction, perceived value, perceived quality, expectations, image, loyalty, complaints, trust, communication and perceived risk are considered as constructs. This main aim of this chapter is to show the methods and techniques applied collect and analyze data in order to test the hypotheses.

3.1 Sample Selection

3.1.1 Sample Characteristics

Males and Females aged more than 18 years old living or working in Thailand, who experience in mobile banking. This thesis focuses on those who live in Thailand.

3.1.2 Sample Size

The expected sample was more than 170 respondents as minimum of five respondents per item on each construct for factor analysis purpose required for the expected sample, which was 34 items times 5 respondents = 170 (Streiner,1955). Moreover, the requirement for multiple regressions should include at least 30 respondents from each construct to meet the criteria of minimum sample size (Roscoe, 1975) Therefore, the sample size in this analysis was more than 30 respondents x 10 constructs = 300.

3.1.3 Sampling method

A Snowball sampling is selected as method in order to distribute a questionnaire to sample using network. Since snowball sampling is a convenience and

powerful method for studying communication patterns, decision making of knowledge within a group. Moreover, it contributes widely spread to a large group of respondents by introducing to friends or family in their society. Hence, snowball sampling would be an appropriated for this study in sample selection.

3.2 Measurement of variables

A quantitative approach was conducted for the analysis of the relationship between the potential variables and the continuance usage intention towards mobile banking in Thailand. The questionnaires were distributed through online survey which including questions measuring the variables (image, expectations, perceived quality, perceived value, communication, trust, perceived risk, complaints, satisfaction and continuance intention).

The questionnaire was translated into Thai language and distributed online to the target population in Thailand.

The questionnaire include 3 parts: (See appendix questionnaire)

Part I: Mobile Banking Behavior

Part II: Potential variables on mobile banking (image, expectations, perceived quality, perceived value, communication, trust, perceived risk, complaints, satisfaction and continuance intention).

Part III: Demographics profile (gender, age, education and income)

Part I of questionnaire: Mobile Banking Behavior

This part asked for the mobile banking experience of the respondents. The examples of the Part I questionnaire showed as below:

Table 3.1 Illustrated Part I of questionnaire

Part I of questionnaire: Mobile Banking Behavior	
1) Do you know mobile banking?	<input type="checkbox"/> Yes <input type="checkbox"/> No
2) Do you use mobile banking?	<input type="checkbox"/> Yes <input type="checkbox"/> No
3) How often do you use your M-banking?	<input type="checkbox"/> Less than once a month <input type="checkbox"/> 1 - 3 times a month <input type="checkbox"/> 3 - 4 times a month <input type="checkbox"/> More than 4 times a month

Part II of questionnaire: Potential variables on mobile banking

This part identified the potential variables including 10 constructs; image, expectations, perceived quality, perceived value, communication, trust, perceived risk, complaints, satisfaction and continuance intention. Most questions for constructs were drawn from previous studies to meet mobile banking. The questions were measured by using a 5-point Likert scale ranging from strongly disagree to strongly agree; strongly disagree, disagree, neutral, agree and strongly agree, which were different scores as follow:

Strongly disagree	= 1 point
Disagree	= 2 points
Neutral	= 3 points
Agree	= 4 points

Strongly agree = 5 points

The scale items for brand image were developed from a study of Chitty et al. (2004). Expectations and Satisfaction were measured and adopted from the scale developed from Bhattacharjee (2001). The scale for perceived quality was adopted from a study by Parasuraman et al. (1988). The perceived value was measured from study of Baptista, (2015). The scale items relating communication and trust were derived from Ball *et al.* (2003). Perceived risk was measured and retrieved from the scale of Kang *et al.* (2012) and Chen (2012). A study of Askariazad and Babakhani (2015) was used to measure the complains handling. The scale of continuance intention was retrieved from Bhattacharjee (2001) and Kursunluoglu (2014).

Table 3.2 Components of Brand Image

Variable	Components	References
Brand Image	The reputation of bank is important to me.	Chitty <i>et al.</i> (2004)
	This bank makes a good impression on its customer.	Chitty <i>et al.</i> (2004)
	This bank has a good reputation amongst customer.	Chitty <i>et al.</i> (2004)
	I feel this bank suits my needs.	Chitty <i>et al.</i> (2004)

Table 3.3 Components of Expectations

Variable	Components	References
Expectations	My experience with using M-banking was better than what I expected.	Bhattacharjee (2001)
	The functions provided by M-banking were more than I expected.	Bhattacharjee (2001)

Table 3.4 Components of Perceived Quality

Variable	Components	References
Perceived Quality	M-banking is well organized.	Parasuraman <i>et al.</i> (1988)
	Pages at the m-banking do not freeze after I enter my order information.	Parasuraman <i>et al.</i> (1988)
	M-banking is truthful about its offerings.	Parasuraman <i>et al.</i> (1988)
	M-banking makes an accuracy in delivery of services.	Parasuraman <i>et al.</i> (1988)
	M-banking does not share my personal information with other sites.	Parasuraman <i>et al.</i> (1988)

Table 3.5 Components of Perceived Value

Variable	Components	References
Perceived Value	Mobile banking services are reasonably priced comparing with other banking channels.	Baptista, (2015)
	Mobile banking services are a good value for the money.	Baptista, (2015)

Table 3.6 Components of Communication

Variable	Components	References
Communication	I have an easy and satisfactory relationship with my bank.	Ball <i>et al.</i> (2003)

Table 3.6 Components of Communication (Cont.)

Variable	Components	References
Communication	The bank keeps me constantly informed of new products and services that could be in my interest.	Ball <i>et al.</i> (2003)
	Personal service and advice of my bank.	Ball <i>et al.</i> (2003)
	Clearness and transparency of information provided by the bank.	Ball <i>et al.</i> (2003)

Table 3.7 Components of Trust

Variable	Components	References
Trust	Overall, I have complete trust in my bank.	Ball <i>et al.</i> (2003)
	When the bank suggests M-banking, I use it because it is best form situation.	Ball <i>et al.</i> (2003)
	The bank treats me in an honest way in every transaction.	Ball <i>et al.</i> (2003)

Table 3.8 Components of Perceived Risk

Variable	Components	References
Perceived Risk	I am confidently aware of the risks associated with M-banking ^a	Kang <i>et al.</i> (2012) ^a

Table 3.8 Components of Perceived Risk (Cont.)

Variable	Components	References
Perceived Risk	I think M-banking is risky and dangerous to use ^b	Chen (2012) ^b
	There is a considerable risk involved in participating in m-banking rather than other modes of banking services (e.g. traditional banking, online banking) ^a	(Kang <i>et al.</i> (2012) ^a ;
	On the whole, considering all sorts of factors combined, it is very risky if I sign up for and use m-banking ^b	Chen (2012) ^b

Table 3.9 Components of Complaint Handling

Variable	Components	References
Complaint Handling	I got a well complaint handled from my most recent complaint.	Askariazad and Babakhani (2015)
	I got a good quality of the compensation offered by the company.	Askariazad and Babakhani (2015)
	M-banking service providers treat me politely and with respect when I complained.	Askariazad and Babakhani (2015)

Table 3.10 Components of Satisfaction

Variable	Components	References
Satisfaction	I feel satisfied with using M-banking.	Bhattacharjee (2001)
	I feel contained with using M-banking.	Bhattacharjee (2001)
	I feel pleased with using M-banking.	Bhattacharjee (2001)

Table 3.11 Components of Continuance Intention

Variable	Components	References
Continuance Intention	I intend to continue using mobile banking rather discontinue its use.	Bhattacharjee (2001); Kursunluoglu (2014)
	My intentions are to continue using M-banking than use any alternative mean.	Bhattacharjee (2001); Kursunluoglu (2014)
	I will recommend M-banking to friends, neighbors, and relatives.	Bhattacharjee (2001); Kursunluoglu (2014)

Part III of the questionnaire: Demographics profile

This part showed the demographics profile of the respondents, including gender, age, personal monthly income level and educational level.

Table 3.12 Illustration of part III of questionnaire

Part III of the questionnaire: Demographics profile

1) Please select your gender

Male Female

2) Please select your age range

20 or younger 21-30 years old

31-40 years old 41-50 years old

50 years old above

3) Please select your education level.

Less than high school High school graduate

Bachelor's degree Master's degree

Ph.D.

4) Please select your total monthly income range

20,000 Baht or less

20,001 - 40,000 Baht

40,001 - 60,000 Baht

60,001 - 80,000 Baht

more than 80,000 Baht

3.3 Data Collection

3.3.1 Pilot Study

The questionnaire was designed in English for the pre-test on 30 respondents to test the questionnaire, as the minimum number of respondents should be at least 25 samples for running the pre-test or pilot survey (Vanichbuncha, 2001).

3.3.2 Questionnaire Distribution

The final questionnaire was distributed via online to the target respondents after it was translated from English to Thai language for providing a better understanding on each question.

3.4 Data analysis

The Partial Least Squares Path Modeling will be used to analyze data from survey to test hypotheses and determine the consistency, reliability and construct validity, as well as the relationships among constructs. The Partial Least Squares Path Modeling is a statistical approach for modeling complex multivariable relationships (structural equation models) among observed and latent variables. It is globally used in information science research. This approach allows researchers to estimate measurement model parameters and structural path coefficient (Bock *et al.*, 2005).

Summary

In this chapter, the questionnaire and research methodology were used to measure the hypotheses. The questionnaire survey was designed and distributed online by using the snowball sampling method to collect data from males and females aged more than 18 years old living or working in Thailand, who experience in mobile banking. This thesis focuses on those who live in Thailand. The total sample size was data analysis and results will be demonstrated in the next chapter.

CHAPTER IV

RESEARCH RESULTS

The chapter shows the results of the data analysis based on 403 respondents. 556 questionnaires were distributed in the main survey and 403 valid samples were collected after eliminating 153 invalid samples. The first part explains the results of the demographics of the sample. After that, the result of the Partial Least Squares Path Modeling and factor analysis of the constructs are tested including reliability analysis, convergent validity analysis and discriminant validity analysis. The hypotheses are then tested.

4.1 Demographic Results

The total sample was 403 respondents. The frequencies of the descriptive statistics were used to analyze the demographic profile including gender, age, educational level and personal monthly total income.

Table 4.1 Demographic profile of the sample

Demographic		Number of respondents	Percentage (%)
Gender	Male	131	32.5
	Female	272	67.5
Age	Less than 20 years	18	4.5
	21- 30 years	262	65
	31- 40 years	75	18.6
	41-50 years	23	5.7
	More than 50 years	25	6.2

Table 4.1 Demographic profile of the sample (Cont.)

Demographic		Number of respondents	Percentage (%)
Education	Less than high school	4	1
	High school graduate	16	4
	Bachelor's degree	249	61.8
	Master's degree	131	32.5
	Ph.D.	3	0.7
Income	Less than 20,000 Baht	78	19.4
	20,001 – 40,000 Baht	194	48.1
	40,001 – 60,000 Baht	62	15.4
	60,001 – 80,000 Baht	24	6
	More than 80,000 Baht	45	11.2

Of the 403 respondents, a total of 272 (67.5 percent) were female while 131 (32.5 percent) were male. The age group of 21-30 (65 percent) was the biggest portion of the sample followed by age 31-40 (18.6 percent), followed by age more than 50 years, 41-50 years and less than 20 years with 6.2 percent, 5.7 percent and 4.5 percent respectively. For education level, most of the respondents were Bachelor's degree about 61.8 percent. 32.5 percent of total respondents have a Master's degree. The respondents who graduated high school were 4 percent. Only 1 percent had education less than high school. The education level of remaining respondents was a PhD degree with 0.7 percent. Majority of the total respondents have a monthly income between 20,001 – 40,000 Baht, which were 48.1 percent, 19.4 were less than 20,000 Baht, 15.4 percent were 40,001 – 60,000 Baht, 11.2 percent were more than 80,000 and 6 percent were 60,001 – 80,000 Baht.

Since the majority of age group for the respondents were 21-30, which was 65 percent. After comparing the age range of current mobile banking consumer population in Thailand (www.technasia.com) found that the most interest in the potential of mobile banking is populations between 16 to 30 years old.

4.2 Mobile banking usage behavior

The majority of respondent uses mobile banking more than 4 times a month, which is 36 percent of total respondents. A percentage of 30 of respondents use mobile banking 1-2 times a month. Respondents who use mobile banking 3-4 times a month and less than once a month follow with 19.1 percent and 14.6 percent respectively.

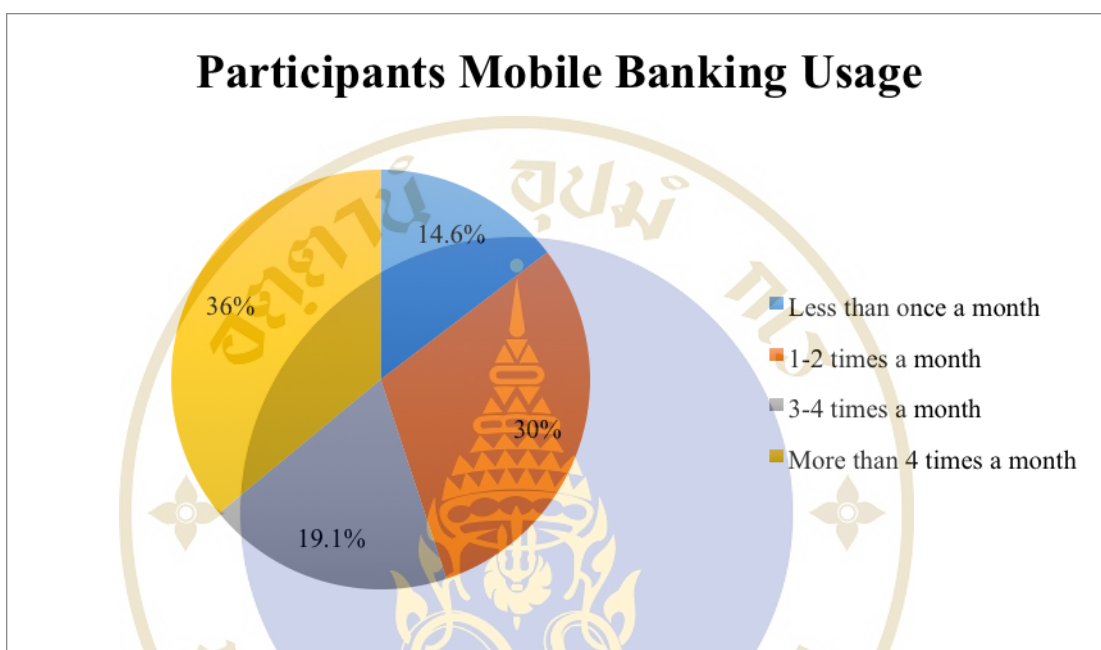


Figure 1: Participants Mobile Banking Usage

4.3 Reliability Analysis

Reliability is the essential elements of test quality. Reliability means that a scale should consistently reflect the measured construct (Field, 2005). Reliability analysis would be conducted for each variable in order to ensure that each factor has a consistency. Cronbach's alpha is widely used to measure as the estimate of the reliability of a psychometric test for a sample of examinees. The acceptable reliability for instruments does not less than 0.6 (Nunnally, 1978). The questionnaire includes ten dimensions: image (4 items), expectations (3 items), perceived quality (5 items), perceived value (2 items), communication (4 items), trust (3 items), perceived risk (3 items), complaints (3 items), satisfaction (3 items), and continuance intention

(3 items). The rules of thumb for explaining internal consistency (George and Mallery, 2003) using Cronbach's alpha are presented in table 4.2.

Table 4.2 Cronbach's alpha (α) and internal consistency

Cronbach's alpha (α)	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.8 \leq \alpha < 0.9$	Good
$0.7 \leq \alpha < 0.8$	Acceptable
$0.6 \leq \alpha < 0.7$	Questionable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.5$	Unacceptable

Table 4.3 Reliability analysis

Latent variable	Item	Cronbach's alpha
Image	4	0.852
Expectations	3	0.799
Perceived Quality	5	0.825
Perceived Value	2	0.863
Perceived Risk	4	0.841
Communication	4	0.787
Trust	3	0.781
Complaint	3	0.880
Satisfaction	3	0.905
Continuance Usage	3	0.886

As the result on table 4.3, all Cronbach's Alpha values for each construct have a range from 0.781 to 0.905, which are in acceptable range, refer table 4.2. This means that the consistency of the scale content is high and the questionnaire has a high reliability (Nunnally, 1978). Satisfaction (0.905) has an excellent level of internal consistency, while Image, Perceived Quality, Perceived Value, Perceived Risk, Complaint and Continuance Usage have a high level of internal consistency, which are

0.852, 0.825, 0.863, 0.841, 0.880 and 0.886 respectively. Expectations (0.799), Communication (0.787) and Trust (0.781) are in the acceptable level of internal consistency.

4.4 Validity Analysis

To test the construct validity of the questionnaire, factor analysis is performed on each construct. Hair et al. (1998) suggest that when factor loading is higher, convergent validity is more significant. The value of factor loading is generally higher than 0.5, the result of factor analysis and shows that the values of factor loading are all higher than 0.5 for each item. The results indicate that each construct has a high valid. The result of validity analysis are shown in Table 4.4

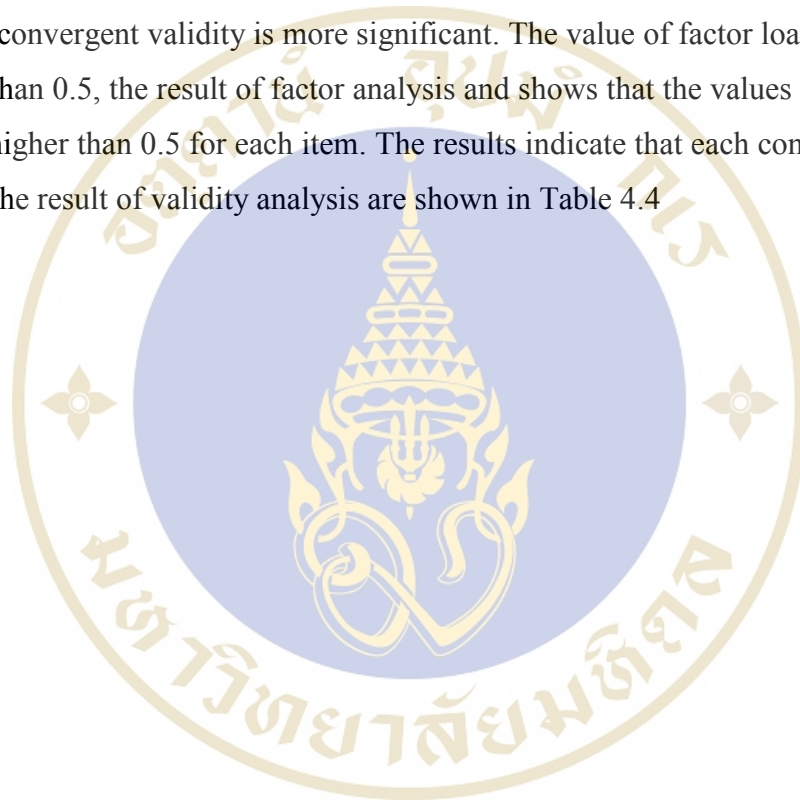


Table 4.4: Validity Analysis table

Latent variable	Manifest variables	Loadings	Standardized loadings (Bootstrap)	Standard error	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
Image	IMAG1	0.764	0.756	0.043	17.946	0.643	0.817
	IMAG2	0.848	0.848	0.025	33.250	0.781	0.891
	IMAG3	0.869	0.866	0.019	44.889	0.815	0.900
	IMAG4	0.844	0.843	0.023	35.991	0.785	0.894
Expectations	EXPE1	0.860	0.857	0.019	45.859	0.811	0.888
	EXPE2	0.886	0.886	0.013	67.112	0.855	0.913
	EXPE3	0.786	0.790	0.026	29.678	0.737	0.842
Perceived Quality	PERQ1	0.768	0.764	0.026	29.929	0.715	0.814
	PERQ2	0.710	0.711	0.034	20.692	0.645	0.785
	PERQ3	0.839	0.837	0.016	51.833	0.799	0.865
	PERQ4	0.828	0.826	0.020	40.923	0.779	0.860
	PERQ5	0.683	0.682	0.037	18.209	0.597	0.760
Perceived Value	PERV1	0.936	0.936	0.010	94.011	0.910	0.957
	PERV2	0.940	0.940	0.009	100.303	0.919	0.959
Perceived Risk	PERCR1	0.948	0.867	0.114	8.336	0.596	0.991
	PERCR2	0.763	0.787	0.076	10.060	0.532	0.886
	PERCR3	0.688	0.744	0.109	6.289	0.430	0.925
	PERCR4	0.600	0.666	0.144	4.162	0.259	0.880
Communication	COMM1	0.720	0.722	0.034	20.888	0.646	0.800
	COMM2	0.734	0.724	0.047	15.775	0.600	0.814
	COMM3	0.831	0.832	0.025	32.965	0.755	0.871
	COMM4	0.826	0.828	0.023	36.149	0.773	0.875
Trust	TRUS1	0.822	0.826	0.025	32.311	0.764	0.875
	TRUS2	0.861	0.862	0.016	54.638	0.821	0.891
	TRUS3	0.812	0.811	0.031	26.119	0.718	0.854
Complaint	COMH1	0.902	0.901	0.019	47.119	0.853	0.930
	COMH2	0.859	0.856	0.031	28.161	0.787	0.905
	COMH3	0.931	0.930	0.010	94.619	0.900	0.945
Satisfaction	SATI1	0.906	0.907	0.012	74.510	0.880	0.937
	SATI2	0.911	0.910	0.014	66.842	0.877	0.936
	SATI3	0.932	0.932	0.009	106.395	0.908	0.950
Continuance Usage	CONI1	0.909	0.907	0.010	86.725	0.882	0.929
	CONI2	0.906	0.907	0.014	64.452	0.870	0.932
	CONI3	0.890	0.889	0.014	62.727	0.849	0.919

4.5 Discriminant Validity

The aim of discriminant validity assessment is to ensure that a reflective construct has the strongest relationships with its own indicators (Hair *et al.*, 2014). As shown in Table 4.5, own loadings between manifest variables and their own latent variable have a highest value in comparison with than any other construct. Then, the criterion for sufficient discriminant validity is satisfied in this study.

Table 4.5 Discriminant Validity table

	IMAG	EXPE	PERQ	PERV	PERCR	COMM	TRUS	COMH	SATI	CONI
IMAG1	0.764	0.248	0.344	0.281	0.328	0.250	0.266	0.110	0.281	0.172
IMAG2	0.848	0.272	0.313	0.292	0.261	0.364	0.282	0.220	0.282	0.253
IMAG3	0.869	0.283	0.340	0.262	0.284	0.311	0.280	0.140	0.298	0.229
IMAG4	0.844	0.307	0.326	0.305	0.237	0.338	0.321	0.176	0.362	0.288
EXPE1	0.341	0.860	0.535	0.454	0.236	0.426	0.428	0.289	0.484	0.496
EXPE2	0.237	0.886	0.566	0.404	0.261	0.422	0.431	0.274	0.529	0.417
EXPE3	0.279	0.786	0.506	0.367	0.254	0.387	0.364	0.354	0.441	0.393
PERQ1	0.394	0.605	0.768	0.464	0.263	0.458	0.445	0.297	0.472	0.444
PERQ2	0.205	0.528	0.710	0.333	0.241	0.383	0.374	0.228	0.340	0.331
PERQ3	0.345	0.474	0.839	0.451	0.244	0.480	0.509	0.296	0.482	0.399
PERQ4	0.308	0.483	0.828	0.417	0.338	0.439	0.544	0.189	0.495	0.400
PERQ5	0.233	0.340	0.683	0.279	0.229	0.437	0.435	0.255	0.349	0.309
PERV1	0.318	0.457	0.469	0.936	0.264	0.427	0.516	0.309	0.533	0.539
PERV2	0.326	0.449	0.496	0.940	0.319	0.477	0.599	0.309	0.553	0.572
PERCR1	0.324	0.308	0.356	0.339	0.948	0.245	0.344	0.173	0.315	0.207
PERCR2	0.210	0.145	0.205	0.166	0.763	0.108	0.138	0.089	0.135	0.010
PERCR3	0.222	0.190	0.196	0.140	0.688	0.160	0.122	0.141	0.175	-0.019
PERCR4	0.169	0.119	0.143	0.076	0.600	0.128	0.043	0.059	0.071	-0.061
COMM1	0.382	0.436	0.479	0.424	0.273	0.720	0.485	0.377	0.414	0.329
COMM2	0.319	0.276	0.335	0.281	0.161	0.734	0.375	0.367	0.302	0.235
COMM3	0.254	0.378	0.415	0.350	0.173	0.831	0.458	0.472	0.369	0.305
COMM4	0.254	0.401	0.513	0.416	0.136	0.826	0.616	0.452	0.487	0.415
TRUS1	0.317	0.389	0.527	0.449	0.306	0.560	0.822	0.348	0.539	0.439
TRUS2	0.292	0.418	0.461	0.575	0.212	0.463	0.861	0.347	0.589	0.575

Table 4.5 Discriminant Validity table (Cont.)

	IMAG	EXPE	PERQ	PERV	PERCR	COMM	TRUS	COMH	SATI	CONI
TRUS3	0.258	0.401	0.546	0.437	0.259	0.603	0.812	0.331	0.516	0.405
COMH1	0.193	0.319	0.327	0.315	0.223	0.459	0.379	0.902	0.335	0.282
COMH2	0.137	0.313	0.235	0.272	0.113	0.467	0.324	0.859	0.274	0.271
COMH3	0.194	0.333	0.312	0.299	0.131	0.522	0.396	0.931	0.364	0.313
SATI1	0.381	0.571	0.546	0.513	0.274	0.511	0.605	0.386	0.906	0.633
SATI2	0.291	0.499	0.514	0.525	0.242	0.440	0.586	0.298	0.911	0.695
SATI3	0.345	0.509	0.496	0.556	0.294	0.469	0.629	0.316	0.932	0.710
CONI1	0.280	0.477	0.452	0.571	0.178	0.374	0.555	0.316	0.705	0.909
CONI2	0.204	0.462	0.435	0.497	0.108	0.328	0.474	0.255	0.619	0.906
CONI3	0.289	0.453	0.451	0.528	0.108	0.440	0.532	0.295	0.672	0.890

4.6 Partial Least Squares Path Modeling

Partial Least Squares Path Modeling path modeling is a statistical approach for estimating complex cause-effect-relationship models among observed and latent variables. (Henseler and Chin, 2010). It is used in information science research. The factors including image, expectations, perceived quality, perceived value, communication, trust, perceived risk, complaints, satisfaction and continuance intention were examined by PLS structural model in order to test hypotheses.

PLS uses a combination of R^2 values, path coefficients, t-values and significance level for assessing model fit. R^2 value refers to the percentage with which the variation in the dependent variable is explained by independent variables; it is used as an indicator of the overall predictive power of the model. (Falk and Miller, 1992). The path coefficients indicate the strengths of the relationships between constructs. The current work accepts t-values greater than or equal to 1.96 with a significance level of 0.05.

R^2 values of the dependent variables represent the predictiveness of the theoretical model and standardized path coefficients indicate the strength of the relationship between the independent and dependent variables (Chin, 1998).

4.6.1 Hypotheses Summary

H₁: Brand image is positively related to users' continuance intention of mobile banking.

H₂: Brand image is positively related to users' satisfaction with mobile banking.

H₃: Expectation is positively related to users' satisfaction with mobile banking.

H₄: Perceived quality is positively related to users' satisfaction with mobile banking.

H₅: Perceived value is positively related to users' satisfaction with mobile banking.

H₆: Communication is positively related to users' continuance intention of mobile banking.

H₇: Communication is positively related to users' satisfaction with mobile banking.

H₈: Trust is positively related to users' continuance intention of mobile banking.

H₉: Perceived risk is negatively related to users' continuance intention of mobile banking.

H₁₀: Perceived risk is negatively related to users' satisfaction with mobile banking.

H₁₁: Proper complaint handling has a positive impact on users' continuance intention of mobile banking.

H₁₂: Satisfaction is positively related to users' continuance intention of mobile banking.

Falk and Miller (1992) mentioned that the a dependent variable should have R² value at least 10 percent in order to make a relevant interpretation, the theoretical model demonstrated substantive explanatory power.

The R² value of 0.499 indicates that the theoretical model explained a substantial amount of variance in satisfaction. In addition, the model accounts for 57 percent of the variances towards continuance usage intention in mobile banking.

According to path effect in table 4.8 and 4.10, the result show that image ($b=0.072$, $p<0.1$) was significant on the continuance intention, while the relationship between image and satisfaction was statistically insignificant, thereby H_1 was rejected and H_2 was supported. Customer satisfaction was greatly increased by expectation ($b = 0.236$, $p<0.01$), supporting H_3 . In addition, perceived quality ($b=0.148$, $p<0.01$) was the significant factor for satisfaction, validating H_4 . Perceived value was the most influential predictor of customer satisfaction ($b= 0.281$, $p<0.01$), thus validating H_5 . Communication was not positively related to users' continuance intention of mobile banking but communication ($b=0.119$, $p<0.05$) positively influences on satisfaction, rejecting H_6 and supporting H_7 . H_8 was also accepted, trust ($b=0.181$, $p<0.01$) was a positive impact on users' continuance intention of mobile banking. The effect of perceived risk ($b=-0.14$, $p<0.01$) was negative significant related to users' continuance intention of mobile banking but not satisfaction, thereby supporting H_9 but rejecting H_{10} . The proper complaint handling was insignificant on users' continuance intention of mobile banking, refusing H_{11} . Satisfaction ($b=0.648$, $p<0.01$) was strong significant predictor of continuance intention, supporting H_{12} .

Table 4.6 R^2 of Satisfaction

R^2	F	R2 (Bootstrap)	Standard error
0.499	56.156	0.515	0.048

Table 4.7 Path coefficients of satisfaction

Latent variable	Path Coefficient	t	Significant	Result
Image	0.072	1.764	0.079*	Support
Expectations	0.236	4.873	0.000***	Support
Perceived Quality	0.148	2.842	0.005***	Support
Perceived Value	0.281	6.281	0.000***	Support
Perceived Risk	0.026	0.648	0.518	Not Support
Communication	0.119	2.345	0.020**	Support

Note: * $p<0.1$, ** $p<0.05$, *** $p<0.01$

Table 4.8: Impact and contribution of the variables to satisfaction

	Perceived Value	Expectations	Perceived Quality	Communication	Image	Complaint	Perceived Risk
Correlation	0.580	0.575	0.566	0.518	0.371	0.365	0.295
Path coefficient	0.281	0.236	0.148	0.119	0.072	0.057	0.026
Correlation* path coefficient	0.163	0.136	0.084	0.061	0.027	0.021	0.008

R²: Continuance Intention

Table 4.9: R² Continuance Intention

R ²	F	R2 (Bootstrap)	Standard error	Critical ratio (CR)
0.572	106.089	0.584	0.038	14.947

Table 4.10: Path coefficients of continuance intention

Latent variable	Value	t	Significant	Result
Image	0.023	0.623	0.533	Not Support
Perceived Risk	-0.104	-2.924	0.004***	Support
Communication	-0.010	-0.236	0.814	Not Support
Trust	0.181	3.646	0.000***	Support
Complaint	0.057	1.320	0.188	Not Support
Satisfaction	0.648	14.319	0.000***	Support

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 4.11: Impact and contribution of the variables to Continuance Intention

	Satisfaction	Trust	Communication	Image	Perceived Risk
Correlation	0.741	0.580	0.425	0.289	0.147
Path coefficient	0.648	0.181	-0.010	0.023	-0.104
Correlation*path coefficient	0.480	0.105	-0.004	0.007	-0.015



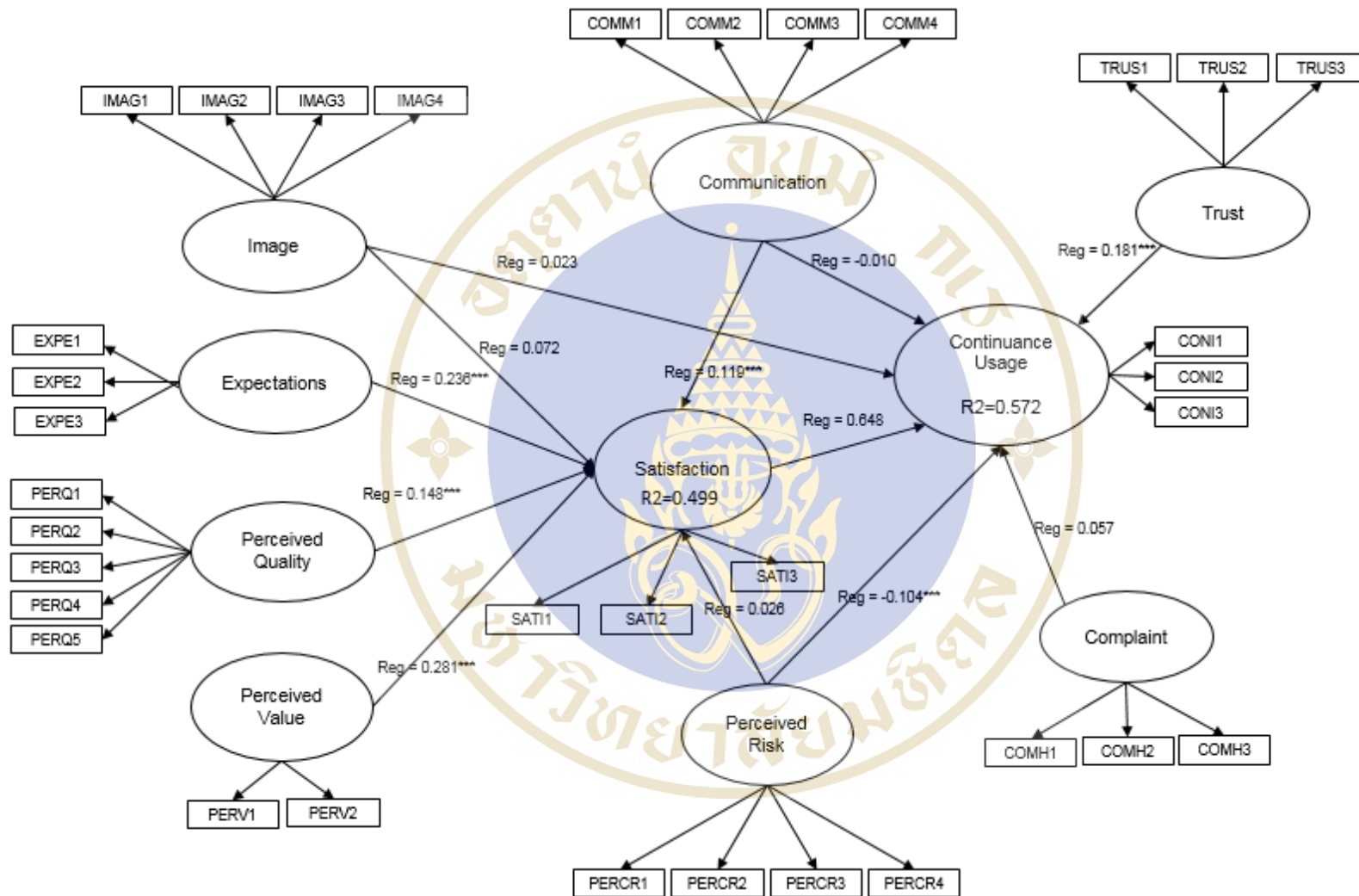


Figure 4.2: The continuance usage intention model

Table 4.12 Hypotheses results

Hypotheses	Results
H ₁ : Brand image is positively related to users' continuance intention of mobile banking. (Image → Continuance Intention)	Not Support
H ₂ : Brand image is positively related to users' satisfaction with mobile banking. (Image → Satisfaction)	Support
H ₃ : Expectation is positively related to users' satisfaction with mobile banking. (Expectations → Satisfaction)	Support
H ₄ : Perceived quality is positively related to users' satisfaction with mobile banking. (Perceived quality → Satisfaction)	Support
H ₅ : Perceived value is positively related to users' satisfaction with mobile banking. (Perceived value → Satisfaction)	Support
H ₆ : Communication is positively related to users' continuance intention of mobile banking. (Communication → Continuance Intention)	Not Support
H ₇ : Communication is positively related to users' satisfaction with mobile banking. (Communication → Satisfaction)	Support

Table 4.12 Hypotheses results (cont.)

Hypotheses	Results
H ₈ : Trust is positively related to users' continuance intention of mobile banking. (Trust → Continuance Intention)	Support
H ₉ : Perceived risk is negatively related to users' continuance intention of mobile banking. (Perceived risk → Continuance Intention (-))	Support
H ₁₀ : Perceived risk is negatively related to users' satisfaction with mobile banking. (Perceived risk → Satisfaction (-))	Not Support
H ₁₁ : Proper complaint handling has a positive impact on users' continuance intention of mobile banking. (Complaint handling → Continuance Intention)	Not Support
H ₁₂ : Satisfaction is positively related to users' continuance intention of mobile banking. (Satisfaction → Continuance Intention)	Support

4.7 ANOVA Analysis

This study analyzes how the demographic variables affect the continuance usage intention towards mobile banking in Thailand. The result shows that age, education, income, and are variables with more than two groups. Thus, One-way ANOVA is applied to access the statistical differences between the mean score of two or more groups since the only one independent variable is concerned.

Continuance usage intention towards mobile banking

4.7.1 ANOVA – Age group

Table 4.13 demonstrated that there was significant difference for each age for continuance intention towards mobile banking, respondents who aged between 41 to 50 strongly intent to continue using mobile banking rather than discontinue. They also prefer continuously using mobile banking than use any alternative means. Moreover, they would recommend their friends, neighbors and relatives to use mobile banking with mean 4.087, 4.043 and 4.043 respectively. Respondents aged less than 20 have a lowest intention to continue use mobile banking with mean 3 for followed item “I intend to continue using mobile banking rather discontinue its use”, “My intentions are to continue using M-banking than use any alternative mean” and “I will recommend M- banking to friends, neighbors, and relatives”.

Table 4.13 ANOVA – Age group

Age	<20 n=18 Mean	21-30 n=262 Mean	31-40 n=75 Mean	41-50 n=23 Mean	>50 n=25 Mean	F
I intend to continue using mobile banking rather discontinue its use	3	3.912	3.973	4.087	3.52	7.607***
My intentions are to continue using M-banking than use any alternative mean	3	3.752	3.653	4.043	3.2	7.014***
I will recommend M- banking to friends, neighbors, and relatives	3	3.725	3.667	4.043	3.28	6.509***

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

4.7.2 ANOVA – Education level

Table 4.14 showed that respondents who graduated Ph D. intent to continue use mobile banking rather discontinue its use with 4.333, whereas respondents having an education level below high school have a lowest intention to continue use mobile banking among other education levels with 3.25. There is no difference among 5 different levels of education to intent to continuously use mobile banking over other alternative mean. Moreover, respondents in all education levels have a similarity in recommend mobile baking service to their friends, neighbors and relatives.

Table 4.14 ANOVA – Education level

Education	Less than high school n=4 Mean	High school graduate n=16 Mean	Bachelor's degree n=249 Mean	Master's degree n=131 Mean	Ph D. n=3 Mean	F
I intend to continue using mobile banking rather discontinue its use	3.25	3.313	3.908	3.87	4.333	2.867*
My intentions are to continue using M-banking than use any alternative mean	3.25	3.188	3.703	3.702	4.333	2.203
I will recommend M-banking to friends, neighbors, and relatives	3.25	3.25	3.707	3.664	4	1.639

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

4.7.3 ANOVA – Usage frequency group

As table 4.15, there were the significant in difference between each usage frequency group which are “I intend to continue using mobile banking rather discontinue its use”, “My intentions are to continue using M-banking than use any alternative mean” and “I will recommend M- banking to friends, neighbors, and relatives”. The respondent who use mobile banking more that 4 times a month would like to continue using mobile banking rather stop using it with mean 4.117. They intend to use mobile banking than any alternative means and also would recommend mobile banking to their friends, while respondents who use mobile banking less than 1 time per month have a lowest intention to continue use mobile banking.

Table 4.15 ANOVA – Usage frequency group

Usage frequency group	<1 a	1-2 times	3-4 times	>4 times	F
	month n=59 Mean	a month n=122 Mean	a month n=77 Mean	a month n=145 Mean	
I intend to continue using mobile banking rather discontinue its use	3.085	3.877	3.987	4.117	27.775***
My intentions are to continue using M-banking than use any alternative mean	2.831	3.615	3.857	3.993	35.842***
I will recommend M-banking to friends, neighbors, and relatives	3.102	3.607	3.792	3.897	16.226***

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

4.8 Discussion

The purpose of this research is to study the factors influencing individuals to continue using mobile banking in Thailand and generate a meaningful understanding of the formation of users' continuance intention towards mobile banking. From the data analysis the eight hypotheses were supported, while four hypotheses were rejected. The findings of this research have both similarities and differences from the previous empirical researches.

The result showed that the bank's brand image has no effect on Thai consumers' continuance usage intention towards mobile banking in Thailand, which is rejecting the H₁. In contrast, brand image affects on Thais' customer satisfaction. Banks having the good brand image contributes consumer satisfaction. They would be satisfied when they use mobile banking, which is supporting H₂. This means that Thai consumers more satisfy to use mobile banking from bank having good image but the image of banks could not help them to retain existing mobile banking users. The finding for H₁ and H₂ agreed to the study of Ball *et al.*, 2004 and Kim *et al.*, 2007 in which image has an indirect effect on continuance intention through satisfaction. On other hand, many researched argued that image has a significant impact on customer satisfaction and loyalty in a number of ECSI studies and also maintain a loyal relationship with customers in B2C (Kristensen *et al.* 2000). Many authors found that corporate image has a direct positive relationship between image and loyalty (Andreassen and Lindestad (1997); Andreassen and Lindestad (1998); O'Loughlin and Coenders (2002); Kristensen *et al.* (1999); Martensen *et al.* (2000))

The expectation has a significant impact on customer satisfaction. It means that Thai consumers who set expectation on their mind by using their previous experience or word of mouth from their friends will compare the mobile banking service performance to their expectation. Thai consumers would satisfy the mobile banking if the services meet their expectation, which is accepting H₃. The finding related to the result of Patterson *et al.*, 1997, Ball *et al.*, 2004 and Yuan *et al.*, 2014, which found that an expectation is an antecedent of disconfirmation and associate on satisfaction and repurchases intention for the professional services.

The result illustrated that the perceived quality lead to customer satisfaction, supporting H₄. It can indicate that offering the good performances with

accuracy, unfreezing system contributes leads to customer satisfaction. The result was similar to previous studies which found the perceived quality has a direct positive impact on customer satisfaction for mobile banking usage as Ball *et al*, 2004, Fornell *et al.*, 1996; Kim *et al.*, 2008; Parasuraman *et al.*, 1996)

This study supported that perceived value contributed the customer satisfaction, supporting H₅. After Thai consumers use the mobile banking service, they would evaluate the benefits receiving from the service relative to the costs associated with its consumption. If service received was worth with the money paid, Thai consumers would satisfy on the service. It might because mobile banking providers in Thailand encourage their customers to use mobile banking services by offering the free mobile banking service application and providing special offers. Users only pay for the Internet connection to use the service. It is consistent with the previous study from Ball *et al*, 2004.

Communication directly affects on customer satisfaction. Communication produces customer satisfaction, accepting H₇. On the other hand, communication has no impact on continuance usage intention towards mobile banking for Thai consumers, rejecting H₆. Keeping communicate with consumers cannot make Thai consumers continue using mobile banking. This result disagree with the previous study Ball *et al*, 2004, which mentioned communication has both direct and indirect effect on continuance intention in Portugal. The evidences that also argue this result by important role of personal relationship, personalization and customization in obtaining loyalty can be found from Lemon *et al.* (2001), Jones *et al.* (2000), Parasuraman *et al.* (1991) and Allen and Wilburn (2002).

For trust, the finding supported that trust have a significant impact on continuance intention, supporting H₈. This shows that Thai consumers continue using mobile banking service since they trust on the service providers. Ball *et al*, 2004 found that trust has only little direct impact on continuance intention. The many researches found that trust in service providers has an important role in continuance usage. This result contradicts with Thakur (2014) study, that trust has not been found as antecedents of mobile banking continuance intention.

It is surprising that perceived risk has no a negative impact on customer satisfaction (H₁₀) but it has a strong negative effect on continuance intention (H₉).

Thais' satisfaction would not be reduced by perceived risk, whereas Thai users would stop using mobile banking if they feel unsafe and perceive risk. This result can be supported from Lin (2008) that customers tend to reduce their usage or purchase intention only if they perceive unsafe on their credit card or sensitive information. It is inconsistent with the previous study in which perceived risk has a negative effect on both satisfaction and continuance intention (Wu and Wang 2005; Tan *et al.*, 2010; Yuan *et al.*, 2014).

The proper complaint handlings do not produce the continuance intention towards mobile banking for Thai consumers, contradicting H₁₁. The result that supports this result is that Thai consumers might be easy to forgive on mistakes. The result is different from Reibstein, 2002, Ball *et al.*, 2004, Rao *et al.*, 2011 and Chang *et al.*, 2012 that proper complaint handlings have a direct effect on continuance intention. The previous research found that the complaint handling tends to affect on the future project of company. Consumers might discontinue using the products and services from their brand from improper complaint handling.

Satisfaction is a dominant in continuance intention. Satisfaction has a significant impact on continuance intention, validating H₁₂. Once users satisfy the mobile banking service, they would like to continue use mobile banking and introduce mobile banking to their friends. This finding is consistent with the previous studies that claimed satisfaction has a link to continuance intention toward mobile banking (Bhattacharjee, 2001a, 2001b; Chen *et al.*, 2012; Lam *et al.*, 2004). It addresses that improving customer satisfaction in mobile banking would increase a continuance usage intention and also retain users. Furthermore, previous literatures (Anderson and Sullivan, 1993; Hallowell, 1996; Yoon and Kim, 2000) found that customer continuance intention towards the m-banking services is closely associated to the levels of satisfaction.

4.9 Summary

All hypotheses were explored by using PLS path analysis model. The relationships among continuance usage intention and demographic data were analyzed by SPSS. The findings of this research were also discussed with the results from previous studies.



CHAPTER V

CONCLUSIONS

This chapter showed that conclusion of study, implication in term of theoretical and managerial. This chapter also consists of the limitation and future research.

5.1 Conclusions

The study had determined factors influencing in continuance usage intention towards mobile banking in Thailand. An investigation of the factors affecting users' continuance intention has been studied to fulfill the gap since the continuance intention of mobile banking has seldom been examined. It is interesting to examine users' continuance intention towards mobile banking and identify factors that would affect them. The factors affecting continuance usage intention towards mobile banking in Thailand are satisfaction, trust and perceived risk. While image, expectations, perceived quality, perceived value and communication indirectly influence on continuance intention in using mobile banking for Thai consumers through satisfaction. Thai consumers are likely to continue use mobile banking because of satisfaction as a dominant factor. It means that Thai consumer would keep using mobile banking services if they feel satisfy. Mobile banking service providers could build satisfaction on mobile banking by providing good quality service, value, benefit communication, maintaining good brand image and responding customers' requirement to meet their expectations. Surprisingly, when Thai consumers perceive risk, it would not negatively impact on their satisfaction but they tend to discontinued using mobile banking. It is because that Thai consumers concern about the uncertainty and unsafe related to mobile banking. Moreover, they are afraid about the negative consequence on it. Then, mobile banking service providers should pay much attention on the security to make Thai consumer confident about mobile banking service.

Interestingly, communicating messages to consumers from mobile banking service providers could make Thai consumer satisfy their service but it cannot encourage them to continue using mobile banking.

5.2 Implications

5.2.1 Theoretical Implication

This research contributes the advance theory for the better understanding the factors influencing Thai consumers to have customer satisfaction and continuance usage intention on mobile banking service. The conceptualization of a continuance usage intention towards mobile banking in Thailand was extended from Ball et al. (2004) and Yuan et al. (2014). The results from previous studies have differences from this study. Most of previous literatures on adoption and continuance usage intention towards mobile banking focus on technology model; such as Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT), whereas this research emphasizes on marketing model by using the extended European Customer Satisfaction Index (ECSI) model in order to generate a meaningful understanding in the formation of users' continuance intention towards mobile banking in Thailand.

5.2.2 Managerial Implication

The key managerial implication of this study is how mobile banking providers can retain their mobile banking users and keep them use it. Users' continuance usage is a critical for long-term improvement of mobile banking and remaining the trail user to continue use mobile banking. Retaining mobile banking users become a challenge for mobile banking. Therefore, this study help banks to know and understand the factors affecting continuance of usage of mobile banking services as a major issue in order to improve the number of transactions, satisfaction, as well as customer loyalty. Furthermore, The mobile banking service providers could avoid suffering from the diminishing number of usage and lead to discontinuance if users' interest over the initial adoption declines after experience mobile banking. This study indicated that banks should focus on customer satisfaction, trust and perceived

risk. Therefore, it is important for bank managers to generate customer satisfaction by image, expectations, perceived quality, perceived value and communication. Bank manager should build customer trust on the bank as well. This might relate to the good relationship between users and banks. It is possible that trust make Thai consumers are confident in the services. Thus, they are willing to use mobile banking as the financial means. If consumers have no trust in mobile banking service, they will prefer going to the branch for their financial transaction instead of continue using mobile banking service. In addition, the perceived risk becomes critical issue concerning on online service especially financial service. It plays the significant role on the continuance intention in Thai consumers. Although the result of research implied that perceived risk does not generate the negative impact on customer satisfaction, Thai customers will discontinue using mobile banking after perceiving risk. The reason to support it might because they are afraid of the negative consequence from using mobile banking. Mobile banking service providers then should organize the good security processes and policies to reducing the perceived risk from customers' mind. Even the image, expectations, perceived quality, perceived value and communication will not have a direct impact on continuance intention, they indirectly influence on continuance intention through satisfaction. It means that bank should not ignore on those factors. This implication would help the mobile banking providers to reduce the challenge and generating a better decision on the future marketing campaign to encourage and motivate mobile banking users keep using the services.

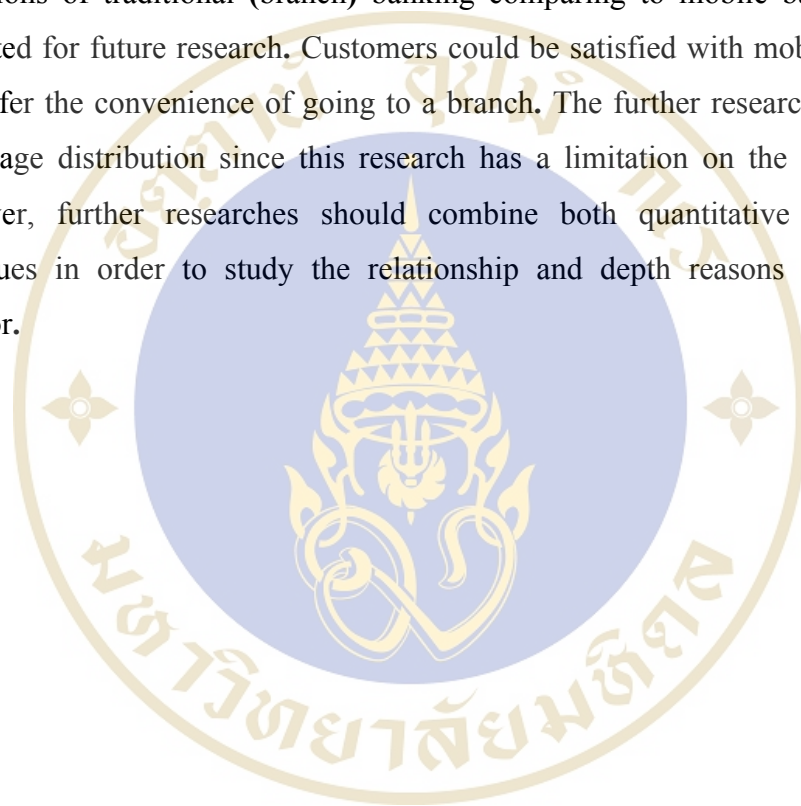
5.3 Limitations

This research was conducted by quantitative method. Thus, the depth reason of customers' continuance usage intention will not be studied. In addition, the research investigates the mobile banking on overall brands; it has not focus on the specific brand. The respondents might think about different brands when they did the survey. The respondents who did survey were not from all provinces of Thailand. Then, the result might not represent all Thai populations' factors influencing in continuance intention for continue using mobile banking. Lastly, the limitation is the age group of respondents. Since the heavy users of mobile banking is gen Y, the

majority of respondents were young. Therefore, the finding could not reflect all age group for Thai consumers.

5.4 Further Research

The future research also could study the impact of direct consumer behaviors, price sensitivity, and brand as well as product preferences, on continuance usage intention towards mobile banking in Thailand. Studying about customers' perceptions of traditional (branch) banking comparing to mobile banking could be conducted for future research. Customers could be satisfied with mobile banking, but just prefer the convenience of going to a branch. The further research might concern on the age distribution since this research has a limitation on the age distribution. Moreover, further researches should combine both quantitative and qualitative techniques in order to study the relationship and depth reasons supporting their behavior.



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APPENDIX

QUESTIONNAIRE IN ENGLISH



No. _____



Questionnaire of factors influencing individuals continuance usage intention towards mobile banking in Thailand

This questionnaire is conducted by a thesis student from College of Management Mahidol University in order to identify factors influencing individuals continuance usage intention towards mobile banking in Thailand. Filled-in information will be kept confidential and also will be used for this thesis only. Please kindly answer all the questions; it will take you only 5-7 minutes. Thank you for your collaboration.

Part I : General Information about M-banking

Instruction: Please mark a ✓ next to your choice and fill in the gap

1) Do you know mobile banking?

Yes

No

2) Do you use mobile banking?

Yes

No

3) How often do you use your M-banking?

Less than once a month

1 - 2 times a month

3 - 4 times a month

More than 4 times a month

Part II : Evaluation of Related Questions on M-banking

Instruction: Please indicate to what extent you agree or disagree with each of the following statements.

Description	Low				High
	1	2	3	4	5
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Brand Image (adapted from Chitty <i>et al.</i> (2004))					
The reputation of bank is important to me.					
This bank makes a good impression on its customer.					
This bank has a good reputation amongst customer					
I feel this bank suits my needs.					
Expectations (Bhattacharjee (2001))					
My experience with using M-banking was better than what I expected.					
The functions provided by M-banking were more than I expected.					
Overall, most of my expectations from using M-banking were meted.					
Perceived Quality (Parasuraman <i>et al.</i> (1988))					
M-banking is well organized.					
Pages at the m-banking do not freeze after I enter my order information.					
M-banking is truthful about it offerings.					
M-banking make a accuracy in delivery of services.					
M-banking does not share my personal information with other sites.					

Perceived value(Baptista, (2015))					
Mobile banking services are reasonably priced comparing with other banking channels.					
Mobile banking services are a good value for the money.					
Communication(Ball et al. (2003))					
I have an easy and satisfactory relationship with my bank.					
The bank keeps me constantly informed of new products and services that could be in my interest.					
Personal service and advice of my bank.					
Clearness and transparency of information provided by the bank.					
Trust (Ball et al. (2003))					
Overall, I have complete trust in my bank.					
When the bank suggests M-banking, I use it because it is best form situation.					
The bank treats me in an honest way in every transaction					
Perceived Risk (Kang <i>et al.</i> (2012) ^a ;Chen (2012) ^b)					
I am confidently aware of the risks associated with M-banking ^a					
I think M-banking is risky and dangerous to use ^b					
There is a considerable risk involved in participating in m-banking rather than other modes of banking services (e.g. traditional banking, online banking) ^a					
On the whole, considering all sorts of factors combined, it is very risky if I sign up for and use m-banking ^b					

Complaint Handling (Askariazad and Babakhani (2015)).					
I got a well complaint handled from my most recent complaint.					
I got a good quality of the compensation offered by the company.					
M-banking service providers treat me politely and with respect when I complained.					
Satisfaction (Bhattacharjee (2001))					
I feel satisfied with using M-banking.					
I feel contained with using M-banking.					
I feel pleased with using M-banking.					
Continuance intention (adapt from Bhattacharjee (2001); Kursunluoglu (2014))					
I intend to continue using mobile banking rather discontinue its use.					
My intentions are to continue using M-banking than use any alternative mean.					
I will recommend M- banking to friends, neighbors, and relatives.					

Part III: Biographical Data

Instruction: Please mark a ✓ next to your choice and fill in the gap

1) Please select your gender

Male

Female

2) Please select your age range

20 or younger

21-30 years old

31-40 years old

41-50 years old

50 years old above

3) Please select your education level.

Less than high school High school graduate

Bachelor's degree Master's degree

Ph.D.

4) Please select your total monthly income range

20,000 Baht or less

20,001 – 40,000 Baht

40,001 – 60,000 Baht

60,001 – 80,000 Baht

more than 80,000 Baht

