Proposed Research Model Mobile Commerce

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Abstract:
This study proposed research model investigates how a specific domain consideration of future consequences i.e., consideration of future consequences-Immediate (CFC-Immediate) and consideration of future consequences-Future (CFC-Future) asymmetrically associate and interact with perceived risk and perceived security as trade-off constructs in predicting continuance intention to use mobile commerce.

Keywords: Mobile commerce, proposed research model.

1. Introduction
The trend of mobile-based e-commerce (Mobile Commerce or M-Commerce), also known as mobile commerce, will be more popular in Vietnam in 2020 due to the impact of Covid 19. There are two reasons: one is that the mobile business platform proves their usefulness as the number of users increases. Businesses are turning in this direction to convert, build new, or optimize their commercial websites to fit mobile devices. Second, young people today have a habit of connecting to the Internet, using phones and tablets to view goods, buy goods and rarely go to retail stores ... so investing in mobile sales channels will be more effective.

The 2018 E-commerce Index Report, conducted by the Vietnam E-Commerce Association (VECOM), shows that among businesses that have a mobile version website (mobile web) or a sales app (mobile apps), 42% of businesses have allowed buyers to complete the entire shopping process on mobile devices, 29% have implemented promotions for mobile customers, and 47% of businesses receive orders through mobile sales applications. These figures (of 2017), according to VECOM, are "almost unchanged from 2016". Based on the 2017 survey results, the trend of mobile commerce seems to be leveling off with the proportion of websites that are compatible with mobile devices not increasing, accounting for 17% of businesses surveyed, down 2% compared to in 2016 and down 9% compared to 2015, according to the report above.

According to data from Nielsen Vietnam’s retail measurement department at Mobile Ecommerce Day 2018, 91% of the population in the six largest cities in Vietnam used smartphones in 2016 and the level of consumers' Dependence on smart devices for shopping is on the rise.

According to the statistics of Sapo Web’s website of more than 33,000 customer websites in 2018, more than 60% of website visits were from mobile devices, an increase of 5% compared to 2017. In Lazada, the number of people shopping via mobile applications of Lazada by the end of 2018 has increased 60% compared to the beginning of the year and the number of orders from mobile applications accounted for 70% of total orders of Lazada. In addition, according to market research companies, about 70% of consumers' online time is on mobile devices and one is online via phone purchases. At the same time, consumers still maintain the habit of watching products on mobile phones, ordering goods on computers because the payment process is clearer (maybe because of the bigger screen). Therefore, if the mobile payment platform does better in the future, the number of customers who switch to mobile shopping is likely to increase rapidly compared to today.

Therefore, we conduct this study to build a research model to evaluate the factors affecting consumers' intention to continue using mobile commerce in Vietnam.

2. Literature review
2.1. Regulatory focus theory
Higgins (1997) and Higgins et al. (2001) develop regulatory focus theory which states that consumers can adopt either promotion-focused self-regulation or prevention-focused self-regulation to achieve goals. A promotion orientation “facilitates achieving ideal goals (hopes and aspirations) by focusing on an individual’s
efforts on eagerly achieving positive outcomes” (Joireman et al., 2012, p. 1274). As a result, promotion orientation is typically concerned with the absence or presence of positive outcomes and with advancement and accomplishment (van Noort, Kerkhof and Fennis, 2008). On the other hand, the second “facilitates one achieving ought goals (duties and responsibilities) by focusing an individual’s efforts on vigilantly avoiding negative outcomes” (Joireman et al., 2012, p. 1274). Thus, prevention orientation is typically concerned with the absence or presence of negative outcomes and with safety and responsibility (Joireman et al., 2012, van Noort et al., 2008). Regulatory focus theory argues that regulation orientations affect consumer behavior, including cognitive, motivational, and behavioral components.

Based on the work of previous studies (e.g., Higgins, 1997), this study summarizes the main content of regulatory focus theory as in Table 3-1. Firstly, individuals with promotion focus are more related to ideals (hopes and aspirations) while individuals with prevention focus are more related to oughts (duties and responsibilities). Secondly, individuals with promotion focus are more concerned about accomplishment and thus, they care more about gains (presence of positive outcomes) as a success (or pleasure) and non-gains (absence of positive outcomes) as a failure (pain). On the other hand, individuals with prevention focus are more concerned about negative outcomes and therefore, they care more about non-losses (absence of negative outcomes) as a success (or pleasure) and losses (presence of negative outcomes) as a failure (pain). Finally, the promotion focus guides individuals to ensure against errors of omission by eagerly achieving ideal goals while prevention focus guides individuals to ensure errors of commission by vigilantly achieving ought goals.

Table 1: The summary of regulatory focus theory

<table>
<thead>
<tr>
<th>Regulatory focus theory</th>
<th>Promotion focus</th>
<th>Prevention focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sell-regulation occurs in relation to</td>
<td>Ideals (e.g. hopes, aspirations)</td>
<td>Oughts (e.g. duties, responsibilities)</td>
</tr>
<tr>
<td>Overarching goal</td>
<td>Accomplishment</td>
<td>Safety</td>
</tr>
<tr>
<td>Be sensitive toward</td>
<td>Positive outcomes</td>
<td>Negative outcomes</td>
</tr>
<tr>
<td>Success (pleasure)</td>
<td>Gains (i.e. presence of positive outcomes)</td>
<td>Non-losses (i.e., absence of negative outcomes)</td>
</tr>
<tr>
<td>Failure (pain)</td>
<td>Non-gains (i.e. absence of positive outcomes)</td>
<td>Losses (i.e., presence of negative outcomes)</td>
</tr>
<tr>
<td>Strategies:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insure:</td>
<td>Hits</td>
<td>Correct rejections</td>
</tr>
<tr>
<td>Insure against:</td>
<td>Errors of omission</td>
<td>Errors of commission</td>
</tr>
<tr>
<td>Pursuit characterized by</td>
<td>Eagerness</td>
<td>Vigilance</td>
</tr>
</tbody>
</table>

(Source: Higgins, 1997, p. 1285)

Since previous studies have demonstrated that consumers’ regulatory focus is related with an online shopping environment and consideration of future consequences (Joireman et al., 2012, van Noort, Kerkhof and Fennis, 2007), we adopt regulatory focus theory as the main theory to explain the relationships between consideration of future consequences, perception of risk vs security and continuance intention to use mobile commerce. More specifically, based on regulatory focus theory (Higgins, 1997), perceived risk can be seen as to be closely associated with prevention focus and perceived security is connected to promotion focus (Flavián and Guinalíu, 2006, Hartono et al., 2014, Ovčjak et al., 2015, Sanakulov and Karjaluoto, 2015, Schierz et al., 2010, Shin, 2009, Zhang et al., 2012). Furthermore, since individuals with CFC-Immediate tend to focus more on losses, negative results, pessimistic thoughts, and prevention orientation, while those with CFC-Future tend to focus on gains, positive consequences, optimistic thoughts, and promotion orientation as guides for their current actions (Joireman et al., 2012). Also, previous studies have emphasized that consumers with CFC-Immediate and CFC-Future may think about both the prevention and promotion foci (Joireman et al., 2008, Joireman et al., 2012). As such, CFC-Immediate and CFC-Future may have direct and asymmetric effects on perceived risk and perceived security. Therefore, this study hypothesizes that CFC-Immediate and CFC-Future can asymmetrically influence perceived risk and perceived security.

2.2. Regulatory fit theory

The regulatory fit theory posits that a match between an individual’s aims and interests (i.e., regulation orientation to a goal) and the strategic manner in which the decision is made (i.e., the means used to approach that goal) produces a state of regulatory fit. In particular, promotion-focused consumers experience fit when
they adopt eagerness strategies such as focusing on means of advancement to seek their goals, whereas prevention-focused consumers experience fit when they adopt vigilance strategies such as focusing on means of being careful to achieve their goals (Avnet and Higgins, 2006, Higgins, Idson, Freitas, Spiegel and Molden, 2003). According to this theory, fit status creates a feeling of rightness about the goal pursuit and increases task engagement such as the value of a decision, a chosen object, persuasion as well as make consumers become more engaged and motivated in their goal pursuit (Aaker and Lee, 2006, Avnet and Higgins, 2006) and create more extreme reactions toward the products and services such as mobile commerce (Avnet and Higgins, 2006, Lee, Keller and Sternthal, 2010).

Based on this theory, we argue that individuals with a high level of CFC–Immediate will have a feeling of “fit” when thinking about risk and individuals with a high level of CFC – Future will have a feeling of “fit” when thinking about security. On the other hand, individuals with a high level of CFC – Immediate will have a feeling of “mismatch” when thinking about security and individuals with a high level of CFC – Future will have a feeling of “mismatch” when thinking about risk.

![Figure 1: Regulatory fit between individual focus and risk vs security perception](Source: author’s proposal)

Based on the regulatory fit theory, it is expected that CFC-Immediate makes consumers become more and less sensitive to risk and security respectively. Also, it is expected that CFC-Future makes consumers less and more sensitive to risk and security, respectively. This implies CFC-Immediate and CFC-Future may interact with perceived risk and security to influence behavioral consequences (c.f. Kees et al., 2010, Strathman et al., 1994). More specifically, this study proposes that CFC-Immediate positively and negatively moderates the relationship between perceived risk and continuance intention to use mobile commerce and the relationship between perceived security and continuance intention to use mobile commerce, respectively. This study also proposes that CFC-Future positively and negatively moderates the relationship between perceived security and continuance intention to use mobile commerce and perceived risk and continuance intention to use mobile commerce, respectively.

### 3. Research hypotheses and research model

#### 3.1. Consideration of future consequences-Immediate versus consideration of future consequences-Future

Consideration of future consequences-Immediate and consideration of future consequences-Future as a trade-off between negative and positive outcomes or between prevention and promotion foci have proven as significant individual differences in explaining consumer different motivations and behaviors (Joireman et al., 2008, Joireman et al., 2012, Olsen and Tuu, 2017). Therefore, this study extends to include both CFC-Immediate and CFC-Future and expects to generate significant explorations for consumer continuance intention to use mobile commerce.

Because mobile commerce is a dual-purposed system (Wu and Lu, 2013), consumer continuance intention to use mobile commerce contains cognitive evaluations of immediate vs. future results (van Noort et al., 2007, van Noort et al., 2008). Therefore, it could be predicted by both CFC-Immediate and CFC-Future (c.f. Hofmann, Friese and Strack, 2009, Joireman et al., 2008, Joireman et al., 2012). Because CFC-Future is more related to consumers’ productivity or well-being (utilitarian purposes; Babin, Darden and Griffin, 1994, Olsen and Tuu, 2017, Wu and Lu, 2013), CFC-Future may push up continuance intention to use mobile commerce to gain future results. In contrast, CFI-I is more connected to enjoyment, fun or relaxing (hedonic purposes; Babin et al., 1994).
et al., 1994, Olsen and Tuu, 2017, Wu and Lu, 2013), CFC-Immediate may drive continuance intention to use mobile commerce (Ovčjak et al., 2015, Sanakulov and Karjaluoto, 2015, Zhang et al., 2012) to obtain immediate consequences.

Because individuals could have different time perspectives, focusing on negative or positive consequences, or both (Boniwell, Osin, Alex Linley and Ivanchenko, 2010, Joireman et al., 2012, Khoi et al., 2018, Stolarski, Vowinckel, Jankowski and Zajenkowski, 2016), this study expects that CFC-Immediate and CFC-Future may have simultaneous effects on continuance intention to use mobile commerce. This means that although CFC-Future and CFC-Immediate are opposite sub-constructs of time perspectives, their impacts on continuance intention to use mobile commerce are not necessary to be contradicted, but are in different mechanisms to gain benefits (e.g., convenience food consumption; Olsen and Tuu, 2017). Previous studies also postulate that a decision to use online context such as mobile commerce also includes cognitive evaluations of prevention vs promotion foci results (van Noort et al., 2007, van Noort et al., 2008). Based on the above discussions, the first hypothesis is proposed to answer the first research question as follows:

H1: CFC-Immediate (a) and CFC-Future (b) have a positive impact on continuance intention to use mobile commerce.

3.2. Perceived risk vs security and continuance intention to adopt mobile commerce

Perceived risk is a combination of uncertainty plus seriousness of outcome involved (Luo et al., 2010). Another scholar considers perceived risk as ‘a consumer’s belief about the potential uncertain and negative outcomes from the transaction’ (Kim et al., 2008). In an online context, Featherman and Pavlou (2003) defined perceived risk as the feelings of uncertainty or anxiety about the behavior, especially when the possible negative outcomes of that behavior could be serious or important. Thus, perceived risk is defined as potential negative outcomes or losses of a decision to use mobile commerce. In contrast, perceived security is considered as the perception of Internet shoppers of Internet merchants' ability to fulfill security requirements (Cheung and Lee, 2006). Kim et al. (2010b) defined perceived security as the customer's subjective evaluation of the system's security. More recently, Hartono et al. (2014, p. 12) advanced a definition that reflects the essential aspects of previous definitions as “the degree to which the online buyer believes that conducting an online transaction on the seller's website is safe in a manner consistent with the buyer's confident expectations”. Therefore, perceived security is defined as positive results of the safety process and store transaction information in relation to using mobile commerce. As such, perceived risk and perceived security are contradicted cognitive evaluations that influence consumer behavior in an online context.

Although there is a debate about how perceived risk is structured, most previous studies suggest that perceived risk should be conceptualized and operationalized as a reflective second-order construct (Lee, 2009, Luo et al., 2010). Accordingly, perceived risk can be structured with six dimensions including financial risk (i.e., not make the best possible monetary gain), performance risk (i.e., not as expected and fail to deliver desired benefits), social risk (i.e., potential loss of status), psychological risk (i.e., negative influences on a consumer’s peace of mind or self-perception), time risk (i.e., a waste time and efforts) and privacy risk (i.e., potential loss of control over personal information). Perceived risks in mobile commerce context among consumers is important for being inherent due to the spatial and temporal separation of buyers from sellers, and also widely-discussed issues such as malware, mobile networks and mobile devices constraint, and/or privacy concerns (Chiu, Wang, Fang and Huang, 2014, Featherman and Pavlou, 2003, Park and Tussyadiah, 2016). Previous literature review and meta-analysis studies have confirmed that perceived risk plays a role as a barrier of continuance intention to use mobile commerce (Ovčjak et al., 2015, Sanakulov and Karjaluoto, 2015, Zhang et al., 2012).

Perceived security has emerged as an important construct in mobile commerce setting since it is considered as an important determinant of consumer behaviors and strongly affects the success of the mobile commerce based business model (Chang and Chen, 2009, Cheng et al., 2006, Lian and Lin, 2008). On the contrary to perceived risk, the operationalization of perceived security is controversial. While the literature widely accepts the conceptualization of perceived security as a multi-dimensional construct, most empirical studies largely operationalize it as one global dimension or are dominated by only one aspect (Hartono et al.,
This restrains scholars from recognizing the significance of security perspectives and limits important details. More importantly, the quality of measurement is an important issue due to its implications for construct misspecification, construct identification, and construct validation (Hair, Hult, Ringle and Sarstedt, 2016). More specifically, a reflective construct includes indicators or items that are influenced by this latent construct, and that changes in the latent construct are reflected by changes in the indicators or items. As such, indicators or items of a latent construct are expected to be highly correlated. Thus, an indicator or item can be replaced by other items and the elimination of an indicator should not affect or modify the conceptual meaning of the latent construct (Jarvis, MacKenzie and Podsakoff, 2003). On the contrary, in a formative structure, the latent construct is influenced by indicators or items which are not expected to strongly correlated to each other. As indicators cause the latent construct, and these indicators are independent of the others, the removal of an item will change the conceptual meaning of the latent construct (Bollen and Lennox, 1991). This study adapts and extends to define perceived security as a reflective - formative second-order construct structured by four dimensions including confidentiality (i.e., belief that transactional information will not be exposed to unrelated party), integrity (i.e., belief that transactional information will not be altered by unrelated party), availability (i.e., belief about ability and willingness to make information available of sellers to authorized subjects when required) and non-repudiation (i.e., belief that a transaction that has been performed cannot be denied by sellers) (Hartono et al., 2014). This is because the reflective – formative structure of perceived security is consistent with the four criteria suggested by Jarvis et al. (2003). First, the perception of security is characterized rather than is reflected by (1) belief that transactional information will not be disclosed (perceived confidentiality) or (2) modified (perceived integrity), (3) belief that information will be available when authorized customers require (perceived availability), and (4) belief that online seller will be unable to deny the completed transaction (perceived non-repudiation). Next, a change in perceived confidentiality, or perceived integrity, or perceived availability, or perceived non-repudiation will lead to a change in perception of security, but not vice versa. This is because, for example, a failure of a mobile commerce system (a failure in availability) can lead a decrease of security perception. However, a reduction of perceived security does not mean a corresponding decrease in perceived availability of mobile commerce system. Furthermore, the definition of these constructs (Hartono et al., 2014, Tsiakis and Sthephanides, 2005) implies that each construct is conceptual distinct. Finally, among theses dimensions, a change in one dimension does not lead to changes in remaining dimensions. For example, a decrease in perceived availability (e.g., mobile commerce is disrupted) does not necessarily lead to a decrease in perceived confidentiality.

Because the formation of consumer motivations (e.g., continuance intention to use mobile commerce) in one or another time may contain a trade-off between avoiding negative outcomes (prevention focus) versus gaining positive results (promotion focus) (Ashraf et al., 2016, Kalinic and Marinkovic, 2015), the exploration of how a trade-off between perceived risk versus perceived security affects continuance intention to use mobile commerce could provide important understanding about how to manage perceived risk and perceived security to retain consumers. An extensive literature review also suggests that perceived risk (Featherman and Pavlou, 2003, Lee, 2009, Luo et al., 2010) and perceived security (Flavián and Guinalíu, 2006, Hartono et al., 2014, Schierz et al., 2010), have opposite impacts on behavioral intention to use mobile commerce, including continuance intention (Chiu et al., 2014, Vatanasombut et al., 2008, Zhou, 2013a). This is because the perceived risk is related to losses, such as losing control over confidential information or time losses or incurring other types of losses (Luo et al., 2010). As such, consumers with a perception of risk are more likely to be hesitant to continue using mobile commerce. On the contrary, perceived security is related to gain fulfillment such as privacy protection or financial information encryption (Hartono et al., 2014). Thus, consumers with a perception of security are more likely to continue using mobile commerce to harvest more benefits. Thus, the next hypothesis is proposed to answer the second research question is as follows:

H2: (a) Perceived risk has a negative effect, while (b) perceived security has a positive influence on continuance intention to use mobile commerce.

3.3. The relationships between time perspective and perceived risk versus perceived security
The associations between CFC-Immediate versus CFC-Future and perceived risk versus perceived security can be argued from the perspectives of the regulatory fit theory (Higgins, 1997). According to this theory, promotion is associated with ideal self, more focused on gains, while prevention with ought-self is more concerned with avoiding losses and punishment. Rasmussen, Wrosch, Scheier and Carver (2006) find that promotion-focused people (optimists) are confident about the future and use more problem-focused coping strategies, while prevention-focused people (pessimists) are doubtful about the future and use cognitive avoidance more often. Furthermore, optimists are believed to be less prone to risk and have a higher acceptable level of risk than pessimists (Menon, Raghubir and Agrawal, 2006). While perceived risk is considered as a prevention focus (i.e., focusing an individual’s efforts on vigilantly avoiding negative outcomes) (Ovčjak et al., 2015, Sanakulov and Karjaluoto, 2015, Zhang et al., 2012), perceived security can be seen as a promotion focus (i.e., focusing an individual’s efforts on eagerly achieving positive outcomes) (Flavíán and Guinalíu, 2006, Hartono et al., 2014, Schierz et al., 2010, Shin, 2009). Joireman et al. (2012) clarified that promotion-oriented consumers are likely driven by the consideration of future consequences of their actions, while prevention-oriented consumers are likely affected by the consideration of immediate consequences of their actions. Therefore, consumers with CFC-Future is expected to put a higher importance on perceived security than perceived risk. For example, seeing and pursuing positive outcomes in the use of mobile commerce typically requires innovativeness, optimism, openness to experience, hopes and aspirations which is more appealing for consumers who put a high score on future consequences of using mobile commerce (Fessel, 2010, Joireman et al., 2012, Trope and Liberman, 2003). Consumers who aims at achieving positive goals of using mobile commerce (e.g., security) also tend to focus on potential successes and find it easier to envision a better possible future (Gilovich, Kerr and Medvec, 1993, Pennington and Roese, 2003, Snyder, Rand and Ritschel, 2006). In contrast, consumers with CFC-Immediate is expected to put a higher importance on perceived risk than perceived security since they are typically late adoption, pessimism, conservative, considering ought goals such duties and responsibilities. For instance, avoiding negative outcomes in the use of mobile commerce involves striving toward concrete the immediate goals (e.g., avoiding losses), which is more dominant with consumers who put a high score on immediate consequences of using mobile commerce (Fessel, 2010, Trope and Liberman, 2003). Consumers who focus on negative outcomes also constantly monitor of threats to their results, which in turn make them become more concerned with possible failures comparing to possible successes (Gilovich et al., 1993) and are more likely to act to maintain status quo (Hazlett, Molden and Sackett, 2011). Although the asymmetric relationships between CFC and perceived risk versus perceived security have not been investigated yet generally or specifically in mobile commerce context, the findings from previous studies suggest those different associations may exist (Joireman et al., 2008, Joireman et al., 2012, Olsen and Tuu, 2017, Ouellette, Hessling, Gibbons, Reis-Bergan and Gerrard, 2005). Based on those above discussions, the following hypotheses are proposed to answer the third research questions are as follow:

H3: (a) CFC-Immediate has a positive effect on both perceived risk and (b) perceived security.
H4: (a) CFC-Future has a positive effect on both perceived risk and (b) perceived security.
H5: (a) CFC-Immediate predicts perceived risk better than CFC-Future does, while (b) CFC-Future predicts perceived security better than CFC-Immediate does.

3.4. The moderating effects of CFCs

Moving beyond direct effects, this study adapts “interactionist” perspectives of CFC and individual focuses (e.g., the perceived risk versus perceived security) (Joireman et al., 2012, Kees et al., 2010) to explain continuance intention to use mobile commerce. In other words, we postulate that the effects of consumers’ perceived risk versus perceived security may be contingent on their tendency to ruminate more about CFC-Immediate versus CFC-Future. This study follows six steps proposed by Andersson, Cuervo-Cazurra and Nielsen (2014) to justify the moderating effects of CFCs on the relationships between perceived risk, security and continuance intention to use mobile commerce.

Firstly, the moderating effects are based on the regulatory fit theory which is conceptualized as the increased motivational intensity coming from a match between consumer pursued goal (e.g., promotion focus versus prevention focus) and her/his time orientations (e.g., CFC-Immediate versus CFC-Future) (Aaker and
Lee, 2006, Higgins, 1997, Higgins et al., 2001). A regulatory fit results in the experience of “feeling right,” which could favor current cognitive evaluations toward persuasive appeals and compliance with advocated behaviors (Kees et al., 2010). It means that when consumers engage in pursuing a goal that sustains their current regulatory orientation, a regulatory fit occurs, which in turn, increases consumers’ engagement in the current behavior. By contrast, if consumer goal pursuit is less compatible with her/his current focus, she/he is less likely to engage in the questioned behavior (Aaker and Lee, 2006, Higgins, 1997, Higgins et al., 2001). Secondly, as argued in the hypothesis development of H2a and H2b, perceived risk and security are expected to have direct effects on continuance intention. Thirdly, in a mobile commerce context, consumers who concern more about negative consequences such as risks would better fit with an immediate orientation while consumers who put more focus on positive consequences such as securities would better fit with a future orientation (Joireman et al., 2012). Similarly, consumers who concern more about negative consequences such as risks would less fit with a future orientation while consumers who put more focus on positive consequences such as securities would better fit with an immediate orientation. As a result, the relationships between perceived risk perceived security and continuance intention to use mobile commerce can be contingent on CFCs. Thus, this study expects CFC-Immediate and CFC-Future are the moderators of these relationships. Fourthly, as argued in the hypothesis development of H1a and H1b, CFC-Immediate and CFC-Future represent different mechanisms to gain benefits (hedonic vs utilitarian benefits). As a result, it is clear that these mechanisms of these direct effects differ from the interaction effects. Fifthly, CFC-Immediate is expected to sustain the prevention focus of consumers, and encourage them to elaborate perceived risk more deeply, and finally buffers the effect of perceived risk on behavioral outcomes such as continuance intention to use mobile commerce. In other words, consumers with CFC-Immediate are more sensitive to perceived risk, and thus, enhance the importance of their perceived risk in forming their continuance intention to use mobile commerce. On the other hand, CFC-Immediate is less consistent with perceived security and thus weakens the role of perceived security in forming the continuance intention. Consequently, perceived security would have a weaker impact on the continuance intention among consumers with CFC-Immediate. Similarly, consumers who are more concerned about positive consequences such as gaining security better fit with a future orientation (Joireman et al., 2012). Accordingly, CFC-Future should better fit with perceived security and less compatible with perceived risk. Thus, consumers with CFC-Future place more importance on and are more sensitive to perceived security, and thus enhance the effect of perceived security on the continuance intention. Meanwhile, CFC-Future is less congruent with perceived risk, and thus, decrease the role of perceived risk in forming their continuance intention. As such, CFC-Immediate may act as a positive (negative) moderator on the relationship between perceived risk (security) and continuance intention to use mobile commerce while CFC-Future may act as a positive (negative) moderator on the relationship between perceived security (risk) and continuance intention to use mobile commerce. Sixthly, previous studies (Joireman et al., 2008, Joireman et al., 2012) has considered CFCs as traits rather than states. Because personality traits are relatively stable and enduring in which one individual differs from other, they influence patterns of behavior, thoughts, and emotions (Bilsky and Schwartz, 1994, Parks-Leduc et al., 2015). Thus, it can be argued that CFCs are antecedents of perceived risk and security (see also hypothesis development of H3 and H4) and temporally precede the relationship between perceived risk, security and continuance intention to use mobile commerce. This implies that there cannot be a reverse everse interaction in which the perceived risk and security are moderating the relationship between the CFCs and continuance intention to use mobile commerce. Based on these arguments, the last two hypotheses are suggested to answer the fourth research question:

H6: CFC-Immediate strengthens the perceived risk – continuance intention relationship (a), and weakens the perceived security – continuance intention relationship (b).

H7: CFC-Future strengthens the perceived security – continuance intention relationship (a), and weakens the perceived risk – continuance intention relationship (b).

3.5. Proposed research model and hypotheses

The summary of the proposed research hypotheses is as follows:
Table 2: Summarization of proposed hypotheses

<table>
<thead>
<tr>
<th>No.</th>
<th>H</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H1a</td>
<td>CFC-Immediate have a positive impact on continuance intention</td>
</tr>
<tr>
<td>2</td>
<td>H1b</td>
<td>CFC-Future (b) have a positive impact on continuance intention</td>
</tr>
<tr>
<td>3</td>
<td>H2a</td>
<td>Perceived risk has a negative effect on continuance intention</td>
</tr>
<tr>
<td>4</td>
<td>H2b</td>
<td>Perceived security has a positive influence on continuance intention</td>
</tr>
<tr>
<td>5</td>
<td>H3a</td>
<td>CFC-Immediate has a positive effect on perceived risk</td>
</tr>
<tr>
<td>6</td>
<td>H3b</td>
<td>CFC-Immediate has a positive effect on perceived security</td>
</tr>
<tr>
<td>7</td>
<td>H4a</td>
<td>CFC-Future has a positive effect on perceived security</td>
</tr>
<tr>
<td>8</td>
<td>H4b</td>
<td>CFC-Future has a positive effect on perceived risk</td>
</tr>
<tr>
<td>9</td>
<td>H5a</td>
<td>CFC-Immediate predicts perceived risk better than CFC-Future does</td>
</tr>
<tr>
<td>10</td>
<td>H5b</td>
<td>CFC-Future predicts perceived security better than CFC-Immediate does</td>
</tr>
<tr>
<td>11</td>
<td>H6a</td>
<td>CFC-Immediate strengthens the perceived risk – continuance intention</td>
</tr>
<tr>
<td>12</td>
<td>H6b</td>
<td>CFC-Immediate weakens the perceived security – continuance intention</td>
</tr>
<tr>
<td>13</td>
<td>H7a</td>
<td>CFC-Future strengthens the perceived security – continuance intention</td>
</tr>
<tr>
<td>14</td>
<td>H7b</td>
<td>CFC-Future weakens the perceived risk – continuance intention</td>
</tr>
</tbody>
</table>

(Source: author’s summarization)

Based on the above hypotheses, the proposed research model is as follows:

**Figure 2: Proposed research model**

(Source: authors’ proposal)

Notes: Perceived risk is a reflective – reflective second-order construct with six first-order constructs, including financial risk (FR), performance risk (PER), privacy risk (PR), psychological risk (PSR), social risk (SR), time risk (TR). Perceived security is a reflective – formative second-order construct with four first-order constructs, including perceived confidentiality (PC), perceived availability (PA), perceived non-repudiation (PNR).

4. Conclusion
This study proposed research model explored the relative role of CFC-Immediate and CFC-Future in explaining continuance intention to use mobile commerce under the trade-off role of perceived risk and perceived security. Accordingly, CFC-Immediate versus CFC-Future and perceived risk versus perceived security were hypothesized to simultaneously affect continuance intention to use mobile commerce. This study further explored the interactions between those constructs as well as the asymmetric effects of CFC-Immediate versus CFC-Future on perceived risk versus perceived security.

References


