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# Predicting the adoption of mobile financial services: The impacts of perceived mobility and personal habit



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#### ABSTRACT

Mobile financial services (MFS) have become a critical issue in the financial sectors. An expanding application of mobile commerce, MFS play an important role in managing customer relationships. Thus, we proposed a model that incorporates three external variables—perceived enjoyment, perceived mobility, and personal habit—into the technology acceptance model (TAM) to assess the antecedents that influence continued usage intention in MFS. In addition, we examined the moderating effect of gender on customer relationships. Structural equation modeling was used, and 368 MFS users were investigated. The findings revealed that perceived mobility, personal habit, perceived usefulness, and perceived ease of use are the major antecedents that influence continued usage intention in MFS. However, perceived enjoyment is not significantly associated with intention. Moreover, gender moderates the relationships between the variables in the proposed model. Perceived mobility affecting usage intention will be stronger for men than for women, whereas personal habit affecting usage intention will be stronger for women than for men.

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#### 1. Introduction

Mobile commerce has changed our lives. Mobile communication technology has been widely applied to existing services because of the rapid development of apps and smartphones. According to The Statista Portal (2016), the number of smartphone users is forecast to reach 2.08 billion in 2016, and the number of users worldwide is expected to pass the five billion mark by 2019. Moreover, various industries have engaged in the intense development of mobile customer services for smartphones. Mobile financial services (MFS) are a well-known example of this phenomenon. MFS is a service provided by a financial institution (e.g., a bank or securities provider) that enables customers to conduct various financial transactions remotely using a mobile device (e.g., a smartphone or tablet) and mobile software (e.g., apps programs). Thus, mobile banking is typically available 24 h per day, enabling users to access account balances, pay bills, and transfer funds through their mobile devices instead of visiting banks and using computer-based Internet banking. In despite of the widespread

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adoption of mobile devices, the adoption rate of MFS is relatively low (Malaquias & Hwang, 2016; Zhou, Lu, & Wang, 2010). Accordingly, the crucial antecedents that affect MFS adoption by customers must be explored. In addition, from the perspective of relationship management, MFS cannot be ignored because they can facilitate user adoption and retain bank customers (Lu, Tzeng, Cheng, & Hsu, 2014). By incorporating a new system (i.e., mobile banking) into existing systems (e.g., Internet banks, local banks), banks not only can retain existing customers but also have an opportunity to convert potential customers (i.e., smartphone users). Therefore, integrating mobile technology into financial services is an inevitable trend that helps banks both acquire new customers and retain old customers.

The adoption of new technologies has gained considerable attention in the literature, and many studies use the technology acceptance model (TAM) to explore the determinants that influence the use of technology (Davis, 1989; Davis, Bagozzi, & Warshaw, 1989). Indeed, TAM is an information systems theory that models how users come to accept and use a technology. In this model, perceived ease of use and perceived usefulness are two critical predictors that influence the adoption of new technologies. Perceived ease of use refers to the degree to which a person believes that using a particular system will be free from effort,

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whereas perceived usefulness refers to the degree to which a person believes that using a particular system will enhance his or her job performance (Taylor & Todd, 1995). Although the TAM has been widely adopted, researchers have suggested that it will further address the specific impacts of technological and individual factors to reflect the acceptance of new technology (Venkatesh & Brown, 2001). Thus, the extended TAM—e.g., TAM2 (Venkatesh & Davis, 2000), the unified theory of acceptance and use of technology (UTAUT) (Venkatesh, Morris, Davis, & Davis, 2003), and TAM3 (Venkatesh & Bala, 2008)—have been proposed to complement the original TAM by adding external variables (e.g., social influence, job relevance, facilitating conditions, experience, etc.) to the original model. In addition, numerous studies have incorporated behavioral beliefs and individual factors into the TAM to better understand their impact on the adoption of a particular system (e.g., Daud, Kassim, Said, & Noor, 2011; Hanafizadeh, Behboudi, Koshksaray, & Tabar, 2014; Legris, Ingham, & Collerette, 2003). For example, Luarn and Lin (2005) incorporated perceived credibility, perceived self-efficacy, and perceived financial cost into the TAM to examine their impact on the behavioral intention to use mobile banking. Gu, Lee, and Suh (2009) incorporated trust into the TAM to evaluate the factors that influence user intention in mobile banking. Furthermore, Shaikh and Karjaluoto (2015) have reviewed the literature on mobile banking adoption from January 2005 to March 2014, finding that 23 (42%) of 55 studies used the TAM as their theoretical framework. As mentioned above, TAM seems to be a more popular and robust model for examining the intention to adopt a new technology. Thus, this study proposed an extension of the TAM by adding adequate variables to predict the adoption of MFS.

From the motivation perspective, the hedonic value of perceived enjoyment is important to users of mobile services (Lin & Wang, 2006; Van der Heijden, 2004). Indeed, MFS are specific, professional and connected to the financial businesses that manage customers' assets. However, MFS have attributes that are similar to websites with respect to providing online financial services. Van der Heijden (2004) argued that a hedonic system can affect the degree to which the user experiences fun when using the system. Thus, we may assume that perceived enjoyment could be an important predictor influencing the adoption of MFS if users recognize MFS as a hedonic system. Moreover, from the system perspective, perceived mobility is an indispensable factor for mobile service users. Mattat, Rossi, Tunnainen, and Öörni (2009) argued that the mobility function of mobile ticketing allows customers to access information, communication, and services independent of time and place. Therefore, we can assume that perceived mobility is a key antecedent influencing the adoption of MFS. Finally, from the individual perspective, personal habit is a critical factor influencing users to continuously use mobile services. Ye and Potter (2011) noted that personal habit can suppress other beliefs' impact on specific services. In other words, when users have habitualized the use of a particular technology product, they will be less likely to intend to use an alternative. Barnes and Böheinger (2011) found that habit is a strong determinant influencing continued usage intention for Twitter users. Thus, we can assume that personal habit is a critical antecedent influencing the adoption of MFS. For that reason, we added three external variables—perceived enjoyment, perceived mobility, and personal habit—to the original TAM as this study's proposed model.

In addition, previous studies have suggested that men and women differ in new-technology adoption (e.g., Gefen & Straub, 1997). Women are more empathic and likely to be influenced by other people's emotions than are men (Timmers, Fischer, & Manstead, 1998). Because gender has been a significant variable in consumer behavior (Yang & Lee, 2010), gender differences in the use of MFS are expected. Thus, we can assume that relationships

between variables will differ by gender. Although the adoption of a new technology or service has been examined by TAM and its extensions, few studies have sought to understand the determinants that influence continued usage intention and the moderating effect of gender in the context of MFS. Therefore, this study aims both to explore how antecedents influence continued usage intention of MFS and to examine the moderating effect of gender on this relationship. The field has not previously provided a direct investigation of these issues.

To fill the research gap, we investigated the behaviors of MFS users in Taiwan to obtain a better understanding of the antecedents influencing continued usage intention and the moderating role of gender in MFS. Thus, it contributes the following significant results: extending our previous understanding of the TAM in the context of MFS and formulating a research framework to explain how antecedents influence continued usage intention of MFS.

#### 2. Theoretical background

The TAM, which was introduced by Davis (1989), is widely used to examine the acceptance of new technology in the information system. This model was adapted from the theory of reasoned action and identified the causal relationship among perceived ease of use, perceived usefulness, attitudes, and behavioral intentions toward the use of the technology (Fishbein & Ajzen, 1975). The TAM posits that user acceptance can be explained by two beliefs: perceived usefulness and perceived ease of use. This model has been examined in the fields of information systems, marketing, and electronic commerce (Chau & Lai, 2003; Chen, Gillenson, & Sherrell, 2002; Igbaria, Zinatelli, Cragg, & Cavaye, 1997; O'Cass & Fenech, 2003).

Although the TAM provides a quick and inexpensive way to gather information about an individual's perceptions of a system, scholars believe that this model's inclusion of perceived usefulness and perceived ease of use only is insufficient to explain an individual's technology acceptance (Mathieson, 1991). To explain users' acceptance in more detail, the TAM has been extended. Davis (1989) suggested that external variables can enhance the TAM's ability to predict the acceptance of information technology. In other words, the TAM's constructs need to be extended by incorporating additional factors. Moon and Kim (2001) argued that choosing additional factors for the TAM depends on the target technology, the main users and the context. Prior studies regarding motivations, system characteristics, and individual differences as external constructs of TAM has suggested strong relationships between these characteristics and the TAM's theoretical constructs (e.g., Kim, Mirusmonov, & Lee, 2010; Van der Heijden, 2004; Venkatesh & Davis, 1996; Wang, Wang, Lin, & Tang, 2003). Therefore, to understand the antecedents that influence the adoption of MFS, this study incorporated three external variables—namely perceived enjoyment, perceived mobility, and personal habit—into the original TAM model.

Perceived enjoyment is an intrinsic motivation that specifies the extent to which fun can be derived from using a system (Van der Heijden, 2004). According to the motivational theory (Deci & Ryan, 1975), user acceptance is determined by two fundamental types of motivation: extrinsic and intrinsic. An extrinsically motivated user is driven by the expectation of some reward or benefit that is external to the system, whereas an intrinsically motivated user is driven by benefits derived from the interaction with the system per se (Brief & Aldag, 1977). Thus, for utilitarian systems, extrinsic motivation is expected to be the major predictor of intention to use. Similarly, for hedonic systems, intrinsic motivation is expected to be the major predictor of intention to use. Teo and Lim (1997) argued that individuals engage in activities because these activities can lead to enjoyment and pleasure. In this regard,

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