

## Review

# The relationships between electronic banking adoption and its antecedents: A meta-analytic study of the role of national culture



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## ARTICLE INFO

## Keywords:

Electronic banking  
National culture  
Adoption  
Meta-analysis

## ABSTRACT

Prior studies fail to provide a clear understanding of the role that national culture plays in electronic banking acceptance. Therefore, we conduct a meta-analysis involving 62 samples from 27 countries or regions to explore how national cultural dimensions moderate the relationships between consumer behavioral intentions to use electronic banking and the constructs of performance expectancy, effort expectancy, social influence, perceived risk, and trust. The results showed that each of Hofstede's national cultural dimensions has a moderating effect on some of the relationships. In particular, when considering using electronic banking, people pay more attention to social influence and trust in high power distance countries; focus more on performance expectancy, effort expectancy, and perceived risk in countries with high individualism; and care more about performance expectancy and trust in high uncertainty avoidance countries. We also discuss how to improve the strategies for boosting user adoption by incorporating cultural differences.

## 1. Introduction

Electronic banking reduces financial operating costs and offers consumers more convenience and easier accessibility (Hoehle, Scornavacca, & Huff, 2012; Montazemi & Qahri-Saremi, 2015). Despite these benefits, its rate of adoption varies considerably between countries (Takeddine & Sun, 2015). The varying rates of acceptance may be due to the diverse cultural values found in different countries (Warkentin, Charles-Pauvers, & Chau, 2015; Yuen, Yeow, & Lim, 2015; Zhao, Shen, & Collier, 2014). If this conjecture is true, cross-cultural differences may constitute a major impediment to banks seeking to expand their international markets (Khan, Hameed, & Khan, 2017). Recent studies have suggested the necessity of incorporating cultural dimensions to the technology adoption model (Chen, Hsieh, Van de Vliert, & Huang, 2015; Nistor, Lerche, Weinberger, Ceobanu, & Heymann, 2014; Zhang, Zhu, & Liu, 2012). Doing so would not only assist in investigating how national culture influences consumer behavior toward electronic banking adoption but also enable banks to provide efficient global services (Mortimer, Neale, Hasan, & Dunphy, 2015).

National culture plays a key role in technology adoption (Ashraf, Thongpapanl, & Auh, 2014; Lee, Trimi, & Kim, 2013), but only a few studies have explored the direct or moderating effects of culture on the

constructs of electronic banking acceptance. Most of them included no more than three countries in their samples (e.g., Im, Hong, & Kang, 2011; Mortimer et al., 2015) and did not consider the specific effects of different cultural dimensions. Therefore, the results of previous studies have limited generalizability (Takeddine & Sun, 2015; Yuen et al., 2015). This limitation in the literature suggests that if banks want to improve the diffusion rate of electronic banking across countries, more research is warranted on the impact of national culture on electronic banking acceptance.

To address the limitations of the current literature, we conduct a meta-analysis of the relationships between consumer behavioral intentions to use electronic banking and its antecedents, and more importantly, test the moderating effects of national cultural dimensions on such relationships. By doing so, this study contributes to the literature in two ways. First, we extend the UTAUT model by providing a comprehensive theoretical explanation for the role of cultural values in determining consumer behavioral intentions toward using electronic banking. Prior studies simply used the monolithic concept of national culture to explain the differing results in electronic banking adoption across countries without explaining why. Our study outlines how each cultural dimension can moderate the relationships within the electronic banking acceptance model. Second, this is the first meta-analysis, to the best of our knowledge, which examines the moderating effects of

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national culture on the relationships between electronic banking adoption and its antecedents by using secondary data. Based on the data collected from 62 samples across 27 different countries or regions, the findings of our study add important and unique empirical evidence to the current literature.

## 2. Theoretical background

Several theoretical models have been used to explain technology adoption. These models include the Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM), the Theory of Planned Behavior (TPB), Innovation Diffusion Theory (IDT), Social Cognitive Theory (SCT), and the Unified Theory of Acceptance and Use of Technology Model (UTAUT).

Among these models, TAM has been one of the most widely used models (Dauda & Lee, 2015; Shaikh & Karjaluoto, 2015). However, it only incorporates two factors of technology adoption, namely perceived usefulness (PU) and perceived ease of use (PEOU), and not including any other external factors, which limits its ability to explain consumer behavior (Venkatesh, Morris, Davis, & Davis, 2003).

To address the limitations, Venkatesh et al. (2003) integrated eight prominent theories into one model – the Unified Theory of Acceptance and Use of Technology Model (UTAUT). The UTAUT model includes four key constructs: performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC). The UTAUT model successfully explains 70% of the variance in behavioral intentions and is considered as the most comprehensive research model for predicting consumer behavior regarding information system acceptance such as electronic banking (Alalwan, Dwivedi, & Rana, 2017; Martins, Oliveira, & Popovič, 2014).

Following Martins et al.'s (2014) suggestion, we use the UTAUT model as our overarching theoretical framework. Given that facilitating conditions (one of the four key constructs in the model) can predict only actual use of technology (Venkatesh et al., 2003), in our model we utilize the other three constructs – performance expectancy, effort expectancy, and social influence predictors. Moreover, we incorporate perceived risk and trust, two important antecedents of electronic banking adoption in the literature (Hoehle et al., 2012; Shaikh & Karjaluoto, 2015), into the UTAUT model in our study.

National culture was introduced to the literature to explain the variance of internet banking adoption across countries (see the recent internet banking diffusion percentage in Fig. 1). Building on UTAUT model, Yuen et al. (2015) examined the cross-cultural differences of Internet banking adoption in the United States and Malaysia, and found that global consumers have different internet banking adoption

patterns. They further suggested that the UTAUT model should incorporate cultural dimensions.

Previous studies argued that culture played a key role in electronic banking adoption or resistance (Baptista & Oliveira, 2015; Elbadrawy & Aziz, 2011). However, the relevant literature is scarce (as shown in Table 1) and fails to provide clear hypotheses about how each of culture dimensions impacts the key constructs in electronic banking adoption.

## 3. Research model and hypotheses

In this study, we incorporate Hofstede's cultural dimensions (i.e., individualism/collectivism, power distance, uncertainty avoidance, masculinity/femininity, and long-term orientation) into the extended UTAUT model, as shown in Fig. 2.

### 3.1. Power distance

Power distance (PDI) refers to the degree to which people in a society accept inequities in power distribution (Hofstede, 2011). In high power distance cultures, individuals often show respect for authority, which may affect their decision-making (Hofstede, 2011). Specifically, people from such cultures prefer to be told what to do, and rely more on opinions from reference groups (Daniels & Greguras, 2014). As such, people in these cultures are more likely to care about salient others' comments before adopting new technologies (Lai, Wang, Li, & Hu, 2016; Lu, Yu, Liu, & Wei, 2017; Tarhini, Hone, Liu, & Tarhini, 2017). Therefore, it can be inferred that where there is high power distance, social influence has a stronger impact on consumer behavioral intentions to use electronic banking. Additionally, the incidence of opportunism is relatively high in such countries, implying that trust has a critical role in consumers' decision-making, as it can reduce the possible opportunistic behavior of providers, especially in electronic markets (Hallikainen & Laukkanen, 2018). Regarding electronic banking, consumers do financial transactions in a virtual environment, leading to the importance of individuals' trust in bank managers to protect their personal property and privacy (Alalwan et al., 2017; Hanafizadeh, Behboudi, Koshksaray, & Tabar, 2014). Capece et al. (2013) reported in high power distance cultures, trust is a more important determinant of consumer behavioral intentions to use e-commerce, as people are less open to adopting innovation. Accordingly, we expect that the effect of trust on electronic banking adoption would become stronger in these cultures. Thus, we propose that:

**H1a.** The SI-BI relationship is stronger in cultures higher in power distance.

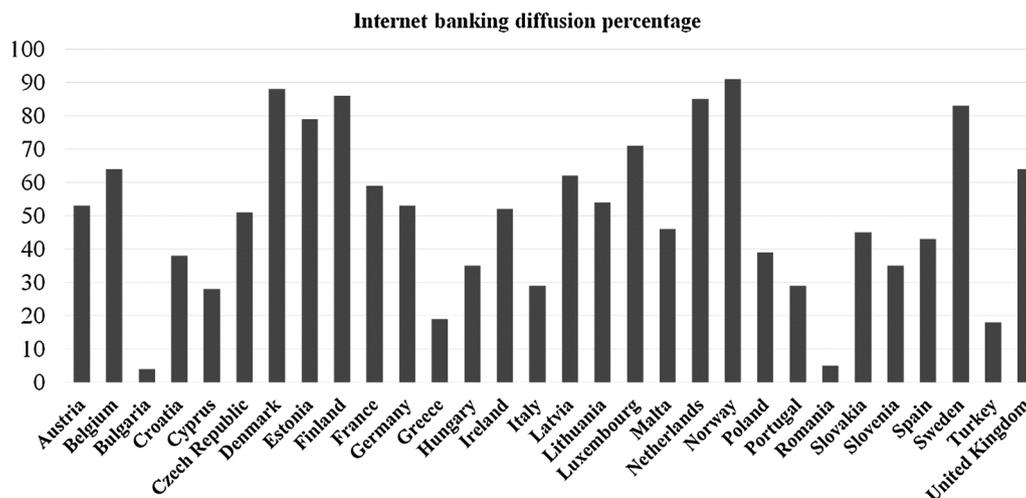


Fig. 1. Internet banking diffusion percentage in 2016. Source: Eurostat, 2017.

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