A Theoretical Discussion of Electronic Banking in Jordan by Integrating Technology Acceptance Model and Theory of Planned Behavior

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Abstract
Information technology services are the major driver of the changes occurring on the global level. The shift from traditional banking to electronic banking has been considered to be one of such changes, and to be a significant part of the bank’s strategy of formulating a model of information technology adoption that provides customer services. In the context of Jordan, although majority of banks have already adopted the Internet in providing different customer services, the understanding of user’s acceptance of electronic banking services is still scarce. Added to this, previous studies in literature concerning e-banking acceptance have primarily been done in the developed nations. This study primarily aimed to provide a theoretical Discussion of Electronic Banking in Jordan by Integrating TAM Model and TPB Model, and identify the factors affecting the acceptance of E-Banking in Jordan. We developed a theoretical model based on an integration of the Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB) model with perceived trust, self-efficacy and enjoyment. Electronic banking, in this study, was considered as an innovative service to be examined in light of its acceptance among Jordanian banks. The importance of such acceptance lies in the lower costs and more convenience provided to customers.

Key words
Jordanian banks, electronic banking, technology acceptance model, theory of planned behavior, perceived trust, self-efficacy, enjoyment

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1. Introduction

The development of information technology changed the way individuals and businesses carry out different activities in the past twenty years all over the globe (Saibaba and Murthy, 2013). More recently, the Internet has transformed into a tool used to reach consumers throughout the world at the consumers’ convenient timing and location. Internet is a new communication tool that is characterized as a means of exchange (Al-Qeisi, 2009). In fact, the number of global users of the Internet increased from 23.2% (2008) to 38.1% (2013), and indicated a CAGR of 10%, with a global population of internet users numbering 2.7 billion in 2013 alone. It was expected that by 2014, the number of users would increase to 2.9 billion and by 2015, it would increase to 3 billion (Brown, 2015). In the developing nations, the Internet penetration was expected to reach 31%, while in their developed counterparts, it was predicted to reach 77% (Hui, 2013). It is evident that the growth level differs between developed and developing nations. This difference has prompted the investigation of the gap between the two categories of nations in terms of their technology adoption (Alafeef, 2013; ITU, 2011). Added to this, in the context of developing nations, there are several challenges faced in the early stages of launching new technologies and these include limited fixed broadband access (ITU, 2010), trust perceptions (Zhang, et al., 2008), perceived usefulness, perceived ease of use, consumer awareness and perceived risk (Alafeef et al., 2012; Safeena and Date, 2015). In comparison to their developed counterparts, developing nations show low rate of information technology and internet service penetration (Alafeef, 2013).
In the context of businesses, the advent of Internet technology transformed the way products and services are designed, communicated and delivered to consumers. Specifically, the Internet has provided marketers with many opportunities to understand customers and their needs over competing marketer in the market. For instance, the Internet has made it possible for majority of firms to save costs through personalized communication and products/service delivery online. Firms have also been employing hybrid (physical and virtual) channels to interact with different customer segments, and to expand their market around the globe (Saibaba and Murthy, 2013). Users of the Internet have also showed an increase as avenues of task performance have opened up (e.g., communication, shopping, banking etc).

E-banking or Internet banking refers to the service that enables consumers to conduct banking interactions through a computer with an internet connection. Similarly, Internet banking was also defined based on its use by Pikkarainen et al. (2004) as an Internet portal via which customers can conduct their banking activities like bill payment or investment making. It is therefore of no surprise that e-banking has transformed into a global phenomenon, and an invaluable and powerful tool that develops, supports, and promotes innovation and improves competitiveness (Hasan et al., 2010).

From the point of view of banks, internet banking has assists in lowering costs of operations (Polasik and Piotr, 2009). Prior studies revealed that banks employing internet banking solutions were operating at a lower expense ratio of 15-20% compared to non-internet banks where expense ratio is at 50-60% (Booz and Hamilton, 1997). Prior studies also evidenced that Internet banking promotes customer commitment and loyalty, which in effect translates to superior banking profitability (Mohan et al., 2013). In other words, Internet banking technology has become a tool used by banks to retain customers, enhance customer experience, and ultimately, increase market shares. According to Tuchila (2000), the benefits of running e-banking are numerous — some of these benefits for banks, like (improved market appearance, minimized costs of doing business, timely reaction to changes in the market, extensive market penetration and promotion and selling of current products), and some of it for customers, like (minimized costs of opening and using bank services, maximized saving of time and ease in using 24 hours a day, timely transaction completion and improved funds management).

Although Internet banking benefits are evident (Mozie et al., 2012), the banking industry is still slow to accept Internet technology, particularly in developing nations (Al-Hajri, 2005). This is evident by the slow reach of Internet banking among the developing countries compared to their developed counterparts. This slow reach may be attributed to low education level, poor economy and infrastructure, and trust effects (Sankari et al., 2015).

2. Electronic banking in Jordan

The World Economic Outlook (WEO, 2015) described Jordan as a developing Arab nation with a pivotal position in the crossroads of the MENA region, and with a low per capita income, and in effect, high unemployment rate. Along a similar description, the World Bank (2015) categorized Jordan in the category of lower middle-income country (Schiff et al., 2015), with limited resources, among which phosphates, potassium, and limestone, are the three major ones. More recently, Jordan is going through economic reforms that have led to trade liberalization and attraction of investments, enabling it to achieve better economic results.

In Jordan, the number of Internet users increased to 6.3 million the 3rd quarter of 2015, showing an increase from 6.2 million in the previous quarter in the same year. There was also a notable increase in Internet subscriptions that reached 2.038 million at the end of September in comparison to 2.029 million in June (Ghazal, 2016). Moreover, the Jordanian banking sector is characterized by dynamism and liberalization, comprising of 23 banks, among which 8 are foreign banks subsidiaries, and 2 are Islamic banks (CBI, 2008). The government introduced a new banking law in 2000 whose objective is to enhance the efficiency of the industry, protect the interests of the depositors, decrease the money market risks, protects concentrate of lending, and integrates articles regarding electronic commerce and banking and money laundering. It was noted that some banks have begun using current banking practices including automated check clearing and magnetic check processors, unified reporting forms and electronic data transmission networks (Abbad et al., 2013).
The introduction of e-banking services in Jordan can be traced back to 2000, when banks finally acknowledged such services as a tool that enhance their competitive advantage over local and global banks. Specifically, Arab bank in Jordan was the pioneering bank to introduce the service in May 2000. Other banks followed suit and these include the Housing Bank and Jordan Kuwait Bank as well as Cairo Amman Bank and HSBC bank. Following that period, banks management are convinced that Internet would benefit them and their clients by reducing time delay, errors, prices and promoting customer satisfaction (Al-Maaitah et al., 2015).

On the basis of marketing studies, in Jordan, Internet banking applications employed in banks still fall short of satisfying bank customers and as such, it has to be enhanced and developed. More specifically, banks in Jordan provide sufficient opportunities for customers to conduct online banking operations, but customers are still reluctant to accept the technology (Abu-Assi et al., 2014; Rawashdeh, 2015). Exploring the reasons behind this reluctance to accept or the rejection of computer systems, such as the case in Internet banking, forms one of the top challenges in IS research, particularly in Jordan. Added to this, Jordanian banks are attempting to enhance their operations and minimize their costs via E-banking systems (Abu-Assi et al., 2014). It appears that the e-banking services adoption in Jordan is still at a low level (Al-Smadi, 2012). Hence, this calls for additional empirical studies to be carried out to examine e-service adoption in banks to enhance the factors that influence their adoption, in the case of Jordan. Accordingly, in this study, Jordan is the key focus and the study findings are expected to have some implications to the country and to other neighboring countries in the same circumstances.

3. Technology acceptance models

Literature dedicated to technology acceptance is increasingly developing with the evolution of new technologies. In this regard, two main disciplines have had a hand in developing models and theories that are focused on technology acceptance, adoption and use. They are psychology and sociology, where both focus on technology acceptance behavior, while another field namely information systems focus on the characteristics of systems relating to the acceptance of technology. With respect to this research, we use the following theories:

3.1. Technology Acceptance Model (TAM)

In order to comprehend, predict and shed light on the reason behind individuals acceptance/rejection of information systems, literature is rife with studies that have developed and made use of several models. One of the relevant models in this field is technology acceptance model (TAM) that was proposed by Davis et al., (1989). TAM is one of the top widely used and cited models that researchers employ to examine the underlying factors that contribute to the acceptance and adoption of new IS (Alshibly, 2011). TAM primarily aims to provide an explanation of factors that contribute to the acceptance of computer applications. Added to this, the model assists researchers and practitioners alike in determining the reason behind the unacceptability of a specific system (Davis, 1989). According to Davis (1989) found attitudes of the user towards system use and the system’s perceived usefulness effect on the using information system in organization. Moreover, both attitude and perceived usefulness are influenced by the perceived ease of use. TAM posits that the greater the perceived usefulness of the system and the perceived ease of use, the more positive will be the attitude towards it. In this regard, attitude leads to higher intention towards system use, which in turn positively influences the actual system use. According to TAM, with other things remaining constant, perceived usefulness is affected by the perceived ease of use because when technology is easier to use, its usefulness increases.

In the above proposed relationship, perceived usefulness (PU) enhance job performance for individual in organization, while perceived ease of use (PEU) refers to the level to which an individual is convinced that system use will be effort-free. Moreover, attitude (ATT) refers to the favorable/unfavorable assessment of the individual about the specific behavior, and intention (INT) refers to the strength of the inclination of the individual to use effort while carrying out a specific behavior. The model’s external variables are described as a set of variables that are assumed to have an influence on the adoption of IS indirectly via perceived ease of use and perceived usefulness (Davis et al., 1989). In relation to this, in Taylor and Todd’s (1995) study, TAM constructs were measured in the same way in every case and as such,
TAM’s reliability is evidenced as an instrument and empirical tool. Additionally, meta-analysis studies also confirmed TAM’s credibility and rationality that explains up to 40% of the behavioral intention to use (Yousafzai et al., 2007). Moreover, prior studies have used TAM to conduct an evaluation of users’ adoption in different contexts including e-commerce (e.g., Fayad and Paper, 2015), e-learning (e.g., Ratna and Mehra, 2015), internet banking (e.g., Lai and Li, 2005) as well as in e-government (e.g., Sebetci, 2015).

3.2. Theory of Planned Behavior (TPB)

The TPB was originally developed on the basis of the theory of reasoned action (TRA), where the latter is able to explain almost every human behavior throughout different application contexts. TRA posits that an individual’s behavioral intention directs his actual performance of some specific action, where behavior intention is predicted by subjective norm and attitude towards behavior (Liao et al., 2007). In regards to this, Ajzen (1991 cited in Liao et al., 2007) described behavioral intention as a measure of the strength of an individual’s inclination to try while performing specific behaviors. In the initial TRA model, limitations exist when dealing with behavior, in cases where volitional control of people is absent or incomplete. Such limitations were tackled in TPB through the addition of perceived behavior control that has the potential to influence behavioral intention.

The TPB proposes three independent intention determinants namely attitude towards behavior, subjective norm and perceived behavioral control (Ajzen, 1991). According to Icek Ajzen and Fishbein (1975), attitude refers to the level of an individual’s positive/negative evaluation of a specific behavior. In other words, attitudes are formed from the individual’s beliefs concerning the object of the attitude. With regards to subjective norm, it is described as the perceived social pressure to perform/or refrain from performing the behavior (Ajzen, 1991) and it is linked to the normative beliefs concerning other’s expectations of the performance or non-performance of the behavior.

Moreover, perceived behavioral control is described as the perception of individuals concerning the ease/difficulty of performing a certain behavior (Ajzen, 1991), and it is considered to indicate past experiences and predict difficulties and barriers. In TPB, the perceived behavioral control construct is added to address situations where people may have incomplete volitional control over the behavior. The construct is directly linked to the beliefs of the control factors that can either bring about or prevent the behavior’s performance (Ajzen, 2002). In this, the higher the favorableness and favorableness of the attitude, subjective norm and perceived behavioral control are all directly proportional to the individual’s intention to perform the specific behavior (Ajzen, 1991).

4. Factors influencing e-banking

The introduction of new banking technology has led to dynamic market conditions that critically affect the behavior of consumers. As such, it is important for e-banking providers to better understand customers and their attitudes towards technology use as this would enable the providers to influence and determine consumer behavior, which in turn could provide them with the required competitive advantage in the future. The relationship between usage and marketing e-delivery channels among banks coupled with the changing customer segments are creating novel distribution environments (Baraghani, 2007). In this context, discussion has been widely conducted in literature concerning the adoption of e-banking services. Table 1 lists e-banking acceptance studies found in literature.

Table 1. Summary of international studies about internet banking

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<thead>
<tr>
<th>AUTHORS</th>
<th>Models</th>
<th>Factors</th>
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| (M.-C. Lee, 2009)| TAM model and TPB model | • Financial risk  
|                  |                         | • Security risk                  |
| (Mangin et al., 2011) | TAM model            | • Convenience  
|                  |                         | • Price                          |
| (Rusu and Shen, 2012) | TAM model          | • Image                           
<p>|                  |                         | • Security                        |
|                  |                         | • Self-efficacy                   |
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<td>(Yasa et al., 2014)</td>
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<td>(Rouibah et al., 2011)</td>
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<td>(Arunkumar, 2008)</td>
<td>TAM model</td>
<td>• Enjoyment</td>
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<td>(Hou and Gergi, 2015)</td>
<td>TAM model and TPB model</td>
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<td>• Education</td>
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<td>(Wang et al., 2003)</td>
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<td>• Self-efficacy</td>
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<td>(Suh and Han, 2003)</td>
<td>TAM model</td>
<td>• Trust</td>
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<td>(Asosheha et al., 2008)</td>
<td>TAM model and TPB model</td>
<td>• Flexibility</td>
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<td>• Brand Loyalty</td>
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<td>(Khanifar et al., 2008)</td>
<td>TAM model and TPB model</td>
<td>• E-service quality</td>
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<td>(Bisrat, 2015)</td>
<td>TAM model</td>
<td>• Culture</td>
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<td>(Al-Ajam and Nor, 2013)</td>
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<td>• Bank credibility</td>
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<td>TAM model and TPB model</td>
<td>• Attitude</td>
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<td>(Eriksson et al., 2005)</td>
<td>TAM model</td>
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A thorough review of literature shows that majority of studies are limited to examining the influence of perceived usefulness, perceived ease of use from TAM and attitude, subjective norm and perceived behavioral control from TPB, along with perceived trust, self-efficacy and enjoyment from prior studies addressing behavioral intention to use e-banking.

5. Research model

This study primarily aimed to provide a theoretical Discussion of Electronic Banking in Jordan by Integrating TAM Model and TPB Model, and identify the factors affecting the acceptance of e-Banking in Jordan. Therefore our research model proposed for this study is not exactly the same as the TAM model. Besides maintaining three of the TPB variables, three variables were added i.e. perceived trust, self-efficacy and enjoyment (See Figure 1). The following literature review explains each linkages and gaps further.
This study primarily aimed to provide a theoretical Discussion of Electronic Banking in Jordan by Integrating TAM Model and TPB Model, and identify the factors affecting the acceptance of e-Banking in Jordan.

5.1. Attitudes towards Use (ATU)

Attitude is a term that is described as the estimate of human behaviors (Ajzen, 2005) and from this, attitude towards e-banking use, is defined as the user’s feelings towards the adoption of e-banking (Davis, 1993). Prior studies evidenced the relationship between attitude and e-banking adoption (e.g., Al-Somali et al., 2008). More specifically, half of the attitude discrepancy is directed towards the final technology adoption (Curran and Meuter, 2005), and attitude towards use influence e-banking adoption (Lee, 2009). With a positive attitude, there will be increased acceptance, and with a negative one, there will be decreased acceptance.

H1: There is positive relationship between attitudes and the behavioural intention to use electronic banking by Jordanian banks.

5.2. Subjective Norm (SN)

Subjective norms (SNs) refer to the individual’s perception that people who are important to him think that he should perform, or steer clear of performing a certain behavior (Fishbein and Ajzen, 1977). Literature shows that studies are not of a consensus as to the SNs effects. For instance, no significant effect of SN was found on intention to use in Mathieson’s (1991) study, while in Venkatesh and Davis’s (2000) study, they revealed SNs to have a direct effect on intention to use in a voluntary use setting but not in a 3-month post implementation phase. Meanwhile, Taylor and Todd (1995) and Abbad (2013) revealed a significant direct effect of SN on intention towards e-banking use. More importantly, Nasri (2015) also found that subjective norms and perceived usefulness are important factors that affect the adoption of Electronic banking service in Tunisia.

H2: There is positive relationship between Subjective norm and the behavioural intention to use electronic banking by Jordanian banks.

5.3. Perceived Trust (PT)

Perceived trust is a significant factor in the analysis of the customers’ behavior towards adopting e-banking (Tsiakis and Sthephanides, 2005). The perceived trust come into effect when using e-systems (McKnight et al., 2002). Owing to the low switching cost for e-banking users, it is important to promote perceived trust of customers, in order for banks to reduce perceived risks and sustain sectors. While internet banking services have been provided for some time now in the developed nations, developing nations are still slow to adopt it (Berndt et al., 2010; Rehman et al., 2013). Trust, which can emerge from perceived privacy and security, among other factors, is a crucial factor in light of e-channels that may affect
the attitudes of consumers towards their intention to interact through online banking and financial services (Ezzi, 2014).

However, in the current times, researchers have largely ignored the construct of perceived trust (Khurshid et al., 2014; Lin, 2011). Moreover, perceived trust develops positive expectations regarding e-banking adoption among customers (Mayer and Schoormans, 1995) and it encapsulates three factors namely ability, integrity and benevolence (Zahedi and Song, 2008). Here, ability refers to the service provider’s ability to meet consumers’ needs, while integrity refers to the service provider’s fulfillment of the user’s expectations and to retain their positive reputation. Lastly, benevolence refers to the customized service of the service provider in comparison to their self-interest. Prior empirical studies revealed that trust explains a high influence on successful e-banking due to the uncertainties that characterize banking transactions online (El-Qirem, 2013; Zhang and Tang, 2006). Moreover, in other studies (Suh and Han, 2003; Ezzi, 2014), trust was found to have the same impact as perceived usefulness (PU) on attitude – in fact they found it to be the top variable that predicted attitude. The findings reported by Suh and Han (2003) showed that trust could be a very significant determinant of intention to use internet banking in South Korea. Furthermore, trust was also revealed to influence intention (Warkentin et al., 2002), and in Jordan, internet banking was evidenced to be significantly affected by trust (Alwan and Al-Zubi, 2016).

**H3:** There is positive relationship between Perceived trust and the behavioural intention to use electronic banking by Jordanian banks.

### 5.4. Perceived Usefulness (PU)

Perceived usefulness refers to the customer’s level of belief that the e-banking service can enhance work performance (Dillon and Morris, 1996). One’s attitude is formed towards an IS through the PU perception, where a positive attitude directly influences the intention of the individual towards IS use and adoption (Ezzi, 2014).

Added to the above, perceived usefulness determines user’s attitude towards e-banking and ultimately, their adoption (Chau, 2001). The construct is a fundamental variable that develops the customers’ adoption of e-banking (Eriksson et al., 2005) and as such, it is considered to antecedent e-banking system adoption (Wang et al., 2003). Also, the relationship between perceived usefulness (PU) and user’s attitude towards, and intention towards using e-banking was examined by Ezzi (2014). He predicted that people use e-banking owing to its usefulness. In Jordan, perceived usefulness was revealed to have a significant and positive influence on e-banking use (e.g., Khrais, 2012; Malek, 2011).

**H4:** There is positive relationship between Perceived usefulness and the user’s attitude in the acceptance of electronic banking by Jordanian banks.

### 5.5. Perceived Ease of use (PEOU)

Perceived ease of use (PEOU) was defined by Davis (1989) as the perception of users concerning the ease of use of the services (Rehman et al., 2013). More often than not, users are desirous of adopting technologies that are simple to use (Calisir and Gumussoy, 2008). In the case of IS, the system that is perceived to be easier to use compared to other systems is more likely to be accepted owing to its positive effect on attitude and ultimately use intention (Ezzi, 2014).

According to Rigopoulos (2007), PEOU is the perception of using e-banking system without effort, and this has a positive effect on attitude towards e-banking use. Earlier studies also evidenced PEOU’s significant influence on attitude towards e-banking use (Venkatesh, 1999), particularly in Jordan (Khrais, 2012; Malek, 2011). On one hand, Awwad (2009) pointed out that PEOU has indirect effect on behavioral intention to adopt E-Banking in Jordan. On other hand, Ezzi (2014) investigated the PEOU-attitude towards and e-banking use relationship. Other studies found PEOU to antecedent and positively impact PU and attitude towards e-banking use (e.g., Gefen et al., 2003; Khurshid et al., 2014). Considering the above discussion, it is evident that PEOU has a significant effect on attitude towards e-banking.

**H5:** There is positive relationship between Perceived Ease of use and the user’s attitude in the acceptance of electronic banking by Jordanian banks.
5.6. Self-efficacy (SE)

Bandura (1977) brought forward the self-efficacy theory (SET) based on cognitive learning theory, to explain the psychological changes undergone through different treatments. In the model, Bandura differentiated between two major concepts linked to self-expectations and response outcomes expectations. He referred to efficacy expectation as the belief that one can be successful in executive the behavior needed to generate the result. He described outcome expectancy as the estimate of the individual that a specific behavior will end in specific outcomes. Based on the SET point of view, self changes behavior on the basis of the confidence and ability to perform the behavior, after which the behavior will lead to a successful outcome. Studies in literature have extensively considered SE in various contexts; for instance, Igbaria and livari (1995) employed SE to shed light on the adoption of e-learning, Mun and Hwang (2003) used it in the context of web-based internet use, while Hsu and Chiu (2004) made use of SE to provide a description of the e-services acceptance and Hussain et al.,(2013) used it on online banking information system. The wide variety of contexts in literature supported the importance of SE in determining intention towards e-banking use. In the present study, SE is assumed to influence PU and PEOU. The relationship between SE, PU and PEOU has been evidenced in prior studies (e.g., Ali et al., 2015; Hong et al., 2002).

- \( H_9 \): There is positive relationship between Technological self-efficacy and the perceived usefulness in the acceptance of electronic banking by Jordanian banks.

- \( H_{10} \): There is positive relationship between Technological self-efficacy and the perceived ease of use in the acceptance of electronic banking by Jordanian banks.

5.7. Enjoyment (E)

Enjoyment is described as the level to which the computer use is perceived to be an enjoyable activity (Davis et al., 1992). This variable is the antithesis of PU in that the former can be viewed as an extrinsic motivator, while the latter provides an intrinsic motivation towards using IS.

Literature is rife with studies that examined enjoyment in several different contexts including in internet use (e.g., Ali et al., 2015; Moon and Kim, 2001), in e-learning system (Lee, 2006), and in personal computer use (Igbaria et al., 1997). With regards to e-banking environment, Mun and Hwang (2003) and Pikkarainen et al. (2004), Ali et al. (2015), and Abbad et al.(2011) evidenced the relationship between enjoyment, PU and PEOU. In Abbad’s (2013) study, the author integrated enjoyment into the model to explain PU and PEOU, which in turn influence e-banking use intention.

- \( H_9 \): There is positive relationship between Enjoyment and the perceived usefulness in the acceptance of electronic banking by Jordanian banks.

- \( H_{10} \): There is positive relationship between Enjoyment and the perceived ease of use in the acceptance of electronic banking by Jordanian banks.

6. Conclusions

This paper argues that TAM theory and TPB theory could be helped in building a theoretical framework of electronic banking. Despite, there are previous studies have provided a new model that depend on link between TAM model and TPB theory in developing their theoretical framework, there is no attention given in prior literature to adopt it for electronic banking. Thus, this study tries to reduce this gap by developing research hypotheses based on an approach that combines theories employed in the current study. This study primarily aimed to provide a theoretical Discussion of Electronic Banking in Jordan by Integrating TAM Model and TPB Model, and identify the factors affecting the acceptance of e-Banking in Jordan. The proposed model posits that attitude, subjective norm, perceived behavioral control, and perceived trust have a direct impact on the behavioral intention to accept the practices of e-Banking in Jordan. At the same time, this paper suggests a direct impact of the perceived usefulness and perceived ease of use on user’s attitudes as well as a direct impact of self-efficacy and enjoyment on the perceived usefulness and perceived ease of use in the acceptance of electronic Banking in Jordan. The reviewed literature confirmed that TAM and TPB models are suitable in drawing intention toward accept and use particular technology in the developed nations specifically in the Arab world. Some studies employed both models in the business environment of Arab nations but studies on electronic banking acceptance using both models in the case of Jordan are still few and far between.
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