Examining Consumer Adoption of Mobile Banking in Jordan

Ali Alalwan¹, Yogesh K. Dwivedi² and Michael D. Williams³
School of Management, Haldane Building, Swansea University, SA2 8PP, United Kingdom
E-mail: ¹A.A.A.ALALWAN.570383@swansea.ac.uk; ²ykdwivedi@gmail.com; ³m.d.williams@swansea.ac.uk

Abstract

This study aims to propose and test a model for understanding the Jordanian customers’ intention and adoption toward mobile banking. A conceptual model was developed by integrating the following factors: performance expectancy (PE), hedonic motivation (HM), facilitating conditions (FC), perceived risk (PR) and trust (TR). Required data was collected using a self-administrative questionnaire from 344 (68.8% response rate) Jordanian banking customers. By using AMOS (version 21), structural equation modelling (SEM) was conducted to test and validate the proposed model. Empirical findings indicate that trust is a crucial factor influencing behavioural intention (BI) directly or indirectly by the mediating influence of PE, HM, and PR. PR also was found as a significant negative determinant of BI. Additionally, PE, HM, and FC positively predict BI which, in turn, positively influenced the adoption of mobile banking. Practical and theoretical implications for both Jordanian banks and researchers in the mobile banking context are also discussed in the concluding section.

Keywords: Mobile banking, adoption, SST, Jordan, UTAUT2.
1. Introduction

Mobile technology has been growing phenomenally in Jordan; this is evidenced by the increasing penetration rate of the mobile service which had climbed to 140% by 2012 (The Jordan Times, 2013). One of the breakthroughs related to mobile-based services is mobile banking which represents an innovative channel enabling customers to independently produce financial transactions such as balance inquiry, funds transfer, payment of bills, etc. through mobile devices, smartphones, or Personal Digital Assistants (PDA) (Laukkanen & Cruz, 2009; Luarn & Lin, 2005). In the Jordanian banking sector, a highly competitive market, mobile banking has received particular attention from the Jordanian banks as about 15 banks from 26 had implemented mobile banking services by the end of 2012 (Migdadi, 2012). Jordanian banks launched such services in order to reach a wider geographical area, cutting operations and labour costs, and contributing a service of value and quality; consequently, enhancing customer satisfaction and loyalty (Awwad & Ghadi, 2010; Cruz et al., 2010; Khraim et al., 2011; Mallat et al., 2004).

Despite large amounts of effort and money being invested, the adoption rate of mobile banking in Jordan is still low. Statistics provided by some of the largest banks in Jordan (for example, Arab Bank and HSBC) suggest that only 1.65% of Jordanian bank customers have yet to adopt mobile banking (Awwad & Ghadi, 2010). Therefore, any investment in mobile banking is fruitless until the majority of customers adopt it as an alternative channel for banking communications and transactions (Mallat et al., 2004). Understanding the factors that might be responsible for the sluggish adoption of mobile banking could help the banks to speed up the adoption rate leading to a desired return on their investments. As it is in the early stage of deployment and implementation, mobile banking-related issues are yet to be examined empirically in the Jordanian context (Awwad & Ghadi, 2010; Khraim et al., 2011). For that reason, this study aims to examine factors influencing the adoption of mobile banking from the Jordanian customers’ perspective.

The remaining sections of the paper are structured as follows: the next section provides an overview of the relevant literature; a proposed conceptual model and associated hypotheses follow in Section 3. Section 4 outlines the research method employed in this research. The analyses and findings are then presented in Section 5 followed by a discussion in Section 6. Finally, Section 7 outlines the key conclusions and briefly discusses the main research contributions, research limitations and future research directions.

2. Literature Review

Mobile banking represents the phenomenon of interest related to online banking and the self-service technology stream (Lin, 2011). Indeed, the customer adoption of mobile banking has accounted for a large part in the body of mobile banking literature (Zhou, 2012). Many theories have been utilised by both information systems and marketing researchers for explaining the adoption of mobile banking such as, innovation diffusion theory (Kim et al., 2009), technology acceptance model (TAM) (Koenig-Lewis et al., 2010), theory of planned behaviour (Luarn and Lin, 2005) and UTAUT2 (Luo et al., 2010; Yu, 2012; Zhou et al., 2010). However, in the Jordanian context, a limited number of exploratory studies (for example, Awwad and Ghadi, 2010; Khraim et al., 2011) have been conducted for examining the adoption of mobile banking. Findings from both aforementioned studies suggest that trialability, complexity, compatibility, relative advantages, and risk are the key predictors of Jordanian customers’ intention and
adoption of mobile banking. Although these studies provided an initial understanding of factors for determining adoption of mobile banking in Jordan, there are other relevant factors (as discussed in the next section) which can shed further insights on this issue. Thus, in order to fill this gap, the current study recognizes a need to develop and validate a conceptual model for further understanding on adoption of mobile banking from the perspective of Jordanian banking customers.

3. Conceptual Model and Research Hypotheses

The Unified Theory of Acceptance and Use of Technology (UTAUT2) (for detailed account see Venkatesh et al., 2012) was considered as an appropriate theoretical foundation for developing the conceptual model utilised in this research. Considering the importance of trust (TR) and perceived risk (PR) for explaining consumer behaviour in a variety of contexts as well as the nature of technology (i.e. mobile banking) under investigation, trust and perceived risk were also integrated with the relevant UTAUT2 constructs (i.e. performance expectancy (PE), hedonic motivation (HM), and facilitating conditions (FC)) for developing the conceptual model. The definitions (along with related hypotheses) of these constructs are provided in Table 1 (See Appendix). As seen in Figure 1 (See appendix), the proposed conceptual model postulates that performance expectancy, hedonic motivation, facilitating conditions, trust, and perceived risk will significantly influence consumers’ intention to adopt mobile banking, and facilitating conditions along with behavioural intention will influence adoption of mobile banking. The model also postulates that hedonic motivation, trust and facilitating conditions will significantly influence performance expectancy, and trust will also have a positive impact on hedonic motivation.

4. Research Methodology

A self-administrative questionnaire was employed to collect data using a convenience sample of 500 Jordanian banking customers from two main cities: Amman and Al-Balqa`. The measurement scale comprised of items adapted from prior literature (for example, Featherman & Pavlou, 2003; Gefen et al., 2003; Venkatesh et al., 2012) in the area. The questionnaire consisted of a total of 32 items representing the constructs included in the conceptual model. These items were measured using the 7 point Likert scale ranging from strongly disagree (1) to strongly agree (7). The questionnaire also included six closed ended questions to represent the respondent’s demographic characteristics. Out of 500, three hundred and forty-three (68.8%) completed questionnaires were returned and considered valid for further statistical analyses. The main descriptive statistics suggested that the vast majority of respondents were male (65.6%) with their age ranging mainly from 25 to 40 (66%) and most of them have a bachelor degree or above (80%). About 91% of the respondents also have more than 3 years’ experience with the computer and Internet.

5. Findings

AMOS (version 21) was used for testing the model fit and hypotheses and generating a measurement model and structural model (Anderson & Gerbing, 1988). Frequently suggested fit indices such as normed $\chi^2$ (CMIN/DF) ($\chi^2$/degree of freedom: $\leq$3.000), Goodness of fit (GFI: $\geq$0.900), Adjusted goodness of fit index (AGFI: $\geq$0.80), Normed of fit index (NFI: $\geq$0.900), Comparative of fit index (CFI: $\geq$0.900), and Root Mean Square Error of Approximation (RMSEA: $\leq$0.08) were estimated (Bagozzi & Yi, 1988). Appropriate and acceptable results [CMIN/DF (1.633), GFI (90%), AGFI (87.6%), NFI (93.9%), CFI (97.5%), and RMSEA
(0.043)] for the measurement model were obtained. This suggests that the proposed theoretical model adequately fits the data (Bagozzi & Yi, 1988). A structural model was then generated in order to empirically test the research hypotheses. The fit indices of the structural model were tested and found to be within their acceptable level: such as, CMIN/DF=2.187, GFI= 90.2%, AGFI=87.5%, NFI=92.6%, CFI=95.8%, and RMSEA=0.059. Thus, the structural model again adequately fitted the data (Anderson & Gerbing, 1988; Byrne, 2010). Statistical outcomes highly support the proposed model with approximately 62% and 28% variance in behavioural intention and adoption respectively; they have been accounted for by the model. Path coefficients between trust (γ=0.31, p<0.001), perceived risk (γ=-0.09, p<0.035), performance expectancy (γ=0.29, p<0.001), facilitating conditions (γ=0.29 p<0.001), hedonic motivation (γ=0.21 p<0.001) and behavioural intention are significant (See Table 2, Appendix). Also, trust has a significant and positive path coefficients with performance expectancy (γ=0.27, p<0.001), hedonic motivation (γ=0.60, p<0.001), and perceived risk (γ=0.30 p<0.001). As presented in Table 2 (See Appendix), path coefficients from both hedonic motivation and facilitating conditions to performance expectancy are significant and positive (γ=0.40, p<0.001), (γ=0.13, p<0.028). The path coefficients that ended to adoption are found only significant for the path between behavioural intention to adoption (γ=0.50 p<0.001) while it was non-significant between facilitating conditions and adoption (γ=0.045, p=0.517) (See Table 2, Appendix). Consequently, all research hypotheses H1, H2, H3, H4, H6, H7, H8, H9, H10, H11 and H12 were supported except H5 which was rejected.

6. Discussion

The statistical analysis sufficiently supports the adequacy of the proposed model by approving the crucial role of trust, perceived risk, performance expectancy, hedonic motivation, and facilitating conditions to predict Jordanian customers’ intention and adoption of mobile banking. As for trust, the precise results imply that customers, who enjoy a high degree of confidence in mobile banking, have a higher willingness to adopt mobile banking and, in addition, they perceive that using mobile banking is more useful and enjoyable as well. In the same manner, findings assure that customers with a higher trust perceive using mobile banking less risky. This role of trust has been strengthened by prior studies (Gefen et al., 2003; Kim et al., 2009; Lin, 2011; Zhou, 2012). In the same manner, statistical outcomes show that customers who perceive mobile banking less risky are more likely to adopt mobile banking as confirmed by the number of studies of online banking due to a higher degree of uncertainty and opportunistic behaviours (Curran & Meuter, 2005; Gefen, 2000; Gefen et al., 2003; Kim et al., 2009; Zhou, 2012). As well as the above, empirical findings strongly support the fitness of UTAUT2 constructs (facilitating conditions, performance expectancy, and hedonic motivation) to determine the Jordanian customers’ intention and adoption of mobile banking. Actually, the findings asserted that customers, who find mobile banking useful and beneficial in their daily life, have a further likelihood to accept mobile banking as an alternative channel to human encounter. This could be reasoned to mobility and convenience that exists in mobile banking that allows customers to receive financial services with less time and effort (Laukkanen, 2007; Luaran & Lin, 2005; Luo et al., 2010; Mallat et al., 2004; Pu‘schel et al., 2010). Empirical outcomes also demonstrate a considerable correlation between hedonic motivation and customer penchant to adopt mobile banking. A plausible explanation of this relationship could be due to the fact that mobile banking is considered to be the newest and novel technology in Jordan, which, in turn, could easily stimulate the feelings of cheerfulness, joy, and enjoyment when using this technology. Besides, the findings reported that customers who perceive mobile banking more enjoyable and
interesting have a positive view about the performance expectancy. The important role of hedonic motivation or intrinsic utilities as named by Davis et al. (1992) has been greatly reported over the technology acceptance field particularly for applications related to consumer technology (Brown & Venkatesh, 2005; Dabholkar et al., 2003; Venkatesh et al., 2012). Regardless of the insignificant influence of facilitating conditions on the adoption behaviour, facilitating conditions was found to be considerable predictors for both behavioural intention and performance expectancy. Generally, customers pay particular interest about the compatibility of new technology with other well-known technologies used by them and how much technical and informational resources are available. This role becomes more significant in the case of potential adopters while this role could vanish by increasing experience with the targeted technology as in the case of actual users of mobile banking (Venkatesh et al., 2003; 2012). Additionally, results imply the significant role of facilitating conditions on the performance expectancy which could be reasoned to the considerable role of these resources to facilitate the access to benefits and advantages in using mobile banking.

7. Conclusions

The aim of this study was to examine the main factors predicting the Jordanian customers’ intention and adoption of mobile banking. The proposed conceptual model was built based on the UTAUT2. Therefore, performance expectancy, hedonic motivation, and facilitating conditions are all formulated with trust and perceived risk in one conceptual model to clarify the behavioural intention and adoption of mobile banking by Jordanian banking customers. SEM has been employed to analyse data that was obtained from a convenience sample of 344 Jordanian banking customers (68.8% response rate). Based on measurement indices, the proposed model adequately fits the data. Furthermore, the path coefficient results showed that all predictors of behavioural intention (BI) have been recognised as significant. Trust has a significantly positive influence on both performance expectancy and hedonic motivation. The findings also noted that adoption behaviour was exclusively influenced by behavioural intention. Despite facilitating conditions not having a significant influence on the adoption of mobile banking, facilitating conditions has a strong positive relationship with performance expectancy. Furthermore, there is a significantly positive correlation between hedonic motivation and performance expectancy. This study forms a considerable contribution for both researchers and banking in Jordan along with representing the main research limitations and directions as discussed below.

7.1 Research Contribution

This study was conducted with the intention of providing further understanding regarding the most important and predictive factors influencing customer intention and adoption of mobile banking in Jordan. By integrating the factors from UTAUT2 with trust and perceived risk, the current study proposes a rigorous model which was able to explain adequately the high portion in variance in customer intention and adoption as well as rare mobile banking studies that include hedonic motivation or examine the interactions between hedonic motivation with other constructs such as performance expectancy and trust. Therefore, this study contributes to the mobile banking literature by concentrating on the considerable role of hedonic motivation as one of the most influential factors on customer adoption technology in general or SST as reported by Venkatesh et al. (2012), Brown and & Venkatesh (2005), Dabholkar et al. (2003; 2002). Furthermore, the current study expands the applicability of UTAUT2 by examining the new technology (that is, mobile banking which is considered a novel, modern technology in Jordan as a developing country). Just as important, findings of the current study brings to light the main
aspects that may have to be taken into account by Jordanian banks to successfully and effectively implement mobile banking; for example, customers are more likely to rely on the trust as a mechanism not only to alleviate their concerns about the technology but also to support their intentions to use this technology (Gefen, 2000; 2002; Gefen et al., 2003). Hence, banks should consider the privacy and security aspects in designing mobile banking services in order to guarantee that conducting financial transactions is safe without any financial or performance risk. In addition, banks should educate customers on how to use these channels securely and properly (Kim et al., 2009). Equally, Jordanian banks have to explain in their campaigns the unique features of mobile banking as a more novel and innovative technology which, in turn, could enrich their perceived enjoyment associated with using mobile banking. These campaigns should also highlight the functionality and benefits of using mobile banking to their customers along with providing them with important facilities and knowledge to successfully use mobile banking (Cruz et al., 2010; Laukkanen & Cruz, 2009; Zhou, 2012).

7.2 Limitations and future Research Directions

The current study is restricted by some limitations and can be reported as follows. Firstly, this study just considers mobile banking which negatively reflects on the results’ generalizability. Therefore, future research should consider other online banking channels such as Internet banking and telebanking as well as conducting comparisons between these channels if there are differences regarding factors affecting the intention and adoption from one technology to another. Secondly, there are other factors that have been ignored and therefore should be measured by future researches such as effort expectancy, financial limitations, self-efficacy and social influences. While this study has been conducted in Jordan which, in turn, mitigates the generalizability of the current results, future researches could worthily employ comparative studies by considering technological, cultural, and human differences between developed and developing countries.
References


**Appendix:**

Table 1 Constructs definitions and related hypotheses

<table>
<thead>
<tr>
<th>Construct</th>
<th>Definition</th>
<th>Source</th>
<th>Proposed Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Expectancy (PE)</td>
<td>Performance expectancy is conceptualised as the degree to which an individual believes that applying the mobile banking will help him or her to attain gains in job performance.</td>
<td>Venkatesh et al., 2003; 2012.</td>
<td><strong>H1:</strong> Performance expectancy will significantly influence Jordanian customers’ intention to adopt mobile banking.</td>
</tr>
<tr>
<td>Hedonic Motivation (HM)</td>
<td>Hedonic motivation (HM) is the extent to which using mobile banking stimulates the customer’s feeling of enjoyment, fun, and joy.</td>
<td>Dabholkar and Bagozzi, 2002; Venkatesh et al., 2003; 2012.</td>
<td><strong>H2:</strong> Hedonic motivation will significantly influence Jordanian customers’ intention to adopt mobile banking.</td>
</tr>
<tr>
<td>Facilitating Conditions (FC)</td>
<td>Facilitating conditions pertain to the customer’s perception of how the bank provides the important technical and organisational infrastructures which would enable the customer to easily and successfully access and apply mobile banking without impediments.</td>
<td>Venkatesh et al., 2003; 2012.</td>
<td><strong>H4:</strong> Facilitating conditions will significantly influence Jordanian customers’ intention to adopt mobile banking.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>H5:</strong> Facilitating conditions will significantly influence Jordanian customers’ adoption of mobile banking.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>H6:</strong> Facilitating conditions will significantly influence performance expectancy of using mobile banking.</td>
</tr>
</tbody>
</table>
| Trust (TR) | Customer trust in mobile banking can be operationalised as accumulation of trust beliefs: integrity, benevolence, and ability that relate with the mobile banking. | Gefen, 2000; 2002; Gefen et al., 2003. | H7: Trust in mobile banking will significantly influence Jordanian customers’ intention to adopt mobile banking.  
H8: Trust in mobile banking will significantly influence performance expectancy of using mobile banking.  
H9: Trust in mobile banking will significantly influence hedonic motivation of using mobile banking.  
H10: Trust in mobile banking will negatively influence perceived risk. |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Risk (PR)</td>
<td>Perceived risk is defined as the consumer’s subjective expectation of suffering a loss in pursuit of a desired outcome of using mobile banking.</td>
<td>Featherman and Pavlou, 2003.</td>
<td>H11: Perceived risk will significantly influence Jordanian customers’ intention to adopt mobile banking.</td>
</tr>
<tr>
<td>Behavioural Intention</td>
<td>Behavioural intention is defined as the extent tendency of the customer to adopt mobile banking.</td>
<td>Venkatesh et al., 2003; 2012.</td>
<td>H12: Customer intention to adopt SST will significantly influence customer adoption of mobile banking.</td>
</tr>
</tbody>
</table>
Table 2: Standardised Estimates (Hypothesised Model)

<table>
<thead>
<tr>
<th>Hypothesised path</th>
<th>Standardised estimate</th>
<th>Z-value</th>
<th>P-value</th>
<th>Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1 PE→ BI</td>
<td>.29</td>
<td>5.373</td>
<td>***</td>
<td>Yes</td>
</tr>
<tr>
<td>H2 HM→ BI</td>
<td>.21</td>
<td>3.528</td>
<td>***</td>
<td>Yes</td>
</tr>
<tr>
<td>H3 HM→ PE</td>
<td>.40</td>
<td>5.994</td>
<td>***</td>
<td>Yes</td>
</tr>
<tr>
<td>H4 FC→ BI</td>
<td>.13</td>
<td>4.263</td>
<td>***</td>
<td>Yes</td>
</tr>
<tr>
<td>H5 FC→ Adoption</td>
<td>.045</td>
<td>.649</td>
<td>.517</td>
<td>No</td>
</tr>
<tr>
<td>H6 FC→ PE</td>
<td>.34</td>
<td>2.179</td>
<td>.029</td>
<td>Yes</td>
</tr>
<tr>
<td>H7 TR→ BI</td>
<td>.31</td>
<td>5.343</td>
<td>***</td>
<td>Yes</td>
</tr>
<tr>
<td>H8 TR→ PE</td>
<td>.26</td>
<td>4.059</td>
<td>***</td>
<td>Yes</td>
</tr>
<tr>
<td>H9 TR→ PR</td>
<td>-.30</td>
<td>-4.966</td>
<td>***</td>
<td>Yes</td>
</tr>
<tr>
<td>H10 TR → HM</td>
<td>.68</td>
<td>10.233</td>
<td>***</td>
<td>Yes</td>
</tr>
<tr>
<td>H11 PR→ BI</td>
<td>-.09</td>
<td>-2.111</td>
<td>.035</td>
<td>Yes</td>
</tr>
<tr>
<td>H12 BI→ Adoption</td>
<td>.50</td>
<td>5.081</td>
<td>***</td>
<td>Yes</td>
</tr>
</tbody>
</table>

CMIN/DF=2.187, GFI= 90.2%, AGFI=87.5%, NFI=92.6%, CFI=95.8%, and RMSEA=0.059
Figure 1: Proposed Theoretical Model of the Adoption of Mobile Banking by Jordanian Customers (Venkatesh et al., 2003; Venkatesh et al., 2012; Gefen et al., 2003; Featherman and Pavlou, 2003).