The Impact of Perceived Risks on Users' Behavioural Intention on Using Financial Services Mobile Applications: Extending UTAUT Model

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ABSTRACT

The main objective of this paper is to know about the influence of perceived risk factor for adoption of a mobile application to utilise financial services. An established model unified theory of acceptance and use of technology (UTAUT) has been used for this study to achieve the purpose. This study extending the UTAUT model by including additional construct to the original model, namely perceived risk (PR). An online survey has been carried out to collect data from 473 smartphone users in India. Subsequently, Correlation and Regression analysis are employed to analyse the collected data using SPSS. This study reveals that the Performance Expectancy (PE), Social Influence (SI) and Facilitating Conditions (FC) have a strong positive significant influence on the behavioural intention to adopt mobile apps for financial transactions and Effort Expectancy (EE) and Perceived Risk (PR) having insignificant influence on behavioural intention. The proposed model explained 62.7 per cent of the variance of behavioural intention on adoption of mobile apps for financial services. Also, this study could be helpful to the researchers to extend or modify the proposed model to study behavioural intention of technology adoption in the field where perceived risks are concerned.

1. Introduction

Smartphone usage in India

According to the report given by market research firm Counterpoint during January 2017, Smartphone users in India reached to 300 million at year end of December 2016 with 18 per cent growth in the smartphone market, which denotes India will overtake a position of being second largest smartphone market in the world from the USA. By being third largest smartphone market in the world, Smartphone users in India will grow up to 340 million by 2017 and 369 million by 2018.

The 4G network users in India are estimated to increase at an annual growth rate of 344 per cent. During the period from 2013 to 2018, 4G users having a compound annual growth rate of 103 per cent. However, most of the rural parts of the country were still relying 2G network because of a major part of an investment by network providers focuses on urban areas of the country.

Mobile internet users in India

At end of December 2016, India’s internet users were calculated as 432 million which was estimated grow 450 to 465 million by June 2017. The internet users in an urban area are 263 million which was predicted grow to 275-285 million by end of June 2017 and in a rural area was 157 million which was estimated reach to 170-180 million by end of June 2017. Overall internet penetration rate of 31 per cent was very lower compared to the other developing nations where some of them had almost 90 per cent of internet penetration rate. However, urban area had 51 per cent penetration rate which was almost near saturation level. In a rural area had huge potential for growth in future with 16 per cent of penetration rate.

India had 389 million of internet users who accessed the internet through mobile phones by end of December 2016 as per the report ‘Mobile Internet in India 2016’ published by Internet and Mobile Association of India (IAMAI) along with research firms IMRB and KPMG. The report further stated that the number of India’s mobile internet users will increase to 420 million by June 2017 in which about 250 million users belong to the urban area and about 170 million will come from the rural area of the country. The report also revealed that 77 per cent of urban internet users and 92 per cent of the rural internet had smartphones as their primary device to access the internet as smartphones became cheaper and convenient mode to access the internet. The usage pattern of urban and rural users differed much. The urban users mostly use it for entertainment purposes such as audio and video contents. The report claimed that all the forecasted estimations given in the report do not consider the influence of demonetisation which, eventually, encourage digital payment systems such as internet banking and mobile banking.

2. Review of Literature

Unified Theory of Acceptance and Use of Technology (UTAUT)

The UTAUT model was considered as the most appropriate and relevant model in the prediction of customer intention and adoption of technology. Many researchers employed this model to find adoption level of consumers and their intention in technology-based e-services.

This model was previously by the researchers to predict the intention and adoption level of users on internet
banking (Martin et al., 2014), Mobile banking (Yu, 2012; Oliveira et al., 2014; Yu, 2012) and mobile payments (Pham et al., 2014), Mobile commerce (Min et al., 2008; Chong et al., 2014), e-learning websites (Tan, 2013), Basic mobile services (Carlsson et al., 2006), App based e-services (Lai, 2013) and App based financial services (Amoroso, 2012).

Venkatesh et al. (2003) created a model Unified Theory of Acceptance and Use of Technology to measure intention and actual usage of customers by combining eight existing technology adoption theories and models, namely Theory of Planned Behaviour (TPB), Theory of Reasoned Action (TRA), Innovation Diffusion Theory (IDT), Social Cognitive Theory (SCT), Technology Acceptance Model (TAM), Extended Technology Acceptance Model (TAM2), Combined TAM and TPB (C-TAM-TPB), Model of Personal Computing Utilisation (MPCU) and Motivation Model (MM).

In this study, the perceived risk was employed as one of the constructs of UTAUT model in the prediction of behavioural intention of the user for the adoption of app-based financial services.

3. Hypothesis

Based on the proposed model, the research hypotheses for this paper are given below.

- **Hypothesis 1 (H1):** Performance Expectancy (PE) has a significant impact on Behavioural intention (BI) of users for using financial services mobile apps.

- **Hypothesis 2 (H2):** Effort Expectancy (EE) has a significant impact on Behavioural Intention (BI) of users for using financial services mobile apps.

- **Hypothesis 3 (H3):** Social Influence (SI) has a significant impact on Behavioural Intention (BI) of users for using financial services mobile apps.

- **Hypothesis 4 (H4):** Facilitating Conditions (FC) has a significant impact on Behavioural Intention (BI) of users for using financial services mobile apps.

- **Hypothesis 5 (H5):** Perceived Risk (PR) has a significant impact on Behavioural Intention (BI) of users for using financial services mobile apps.

4. Methodology

An online survey questionnaire was used to collect the data. A total of six constructs in this model was measured by 18 items and five-point Likert scale has been employed to measure the degree of acceptance of the user (1 = Strongly Disagree to 5 = Strongly Agree).

Criteria for selecting the sample was the respondents must be a smartphone user and also used or currently using financial services mobile apps which were either provided by commercial banks or e-wallets. The survey questionnaire link was distributed through e-mail to the respondents. After rejecting the defective ones, 473 properly filled and completed questionnaires were considered at the end.

5. Data analysis

The demographic characteristics of the respondents summarised in Table 2. As shown in Table 2, male respondents are 68.7 per cent and female respondents are 31.3 per cent.

More than 40 per cent of the respondents were students and more than 70 per cent of the respondents were fall in a range between the age group of 18 to 30 years old. Nearly 70 per cent of respondents have at least under graduation degree and more than 70 per cent of the respondents were fall in a range between the age group of 18 to 30 years old. Nearly 70 per cent of respondents have at least under graduation degree and more than 70 per cent of the respondents have a monthly income of the Indian Rupee (₹) 10000 or less.
The reliability analysis (The Cronbach’s alpha) has been carried out to ensure the internal consistency of the data. To know about the direction of the relationship between the independent variables as well as dependent variable (Pearson’s correlation) has been implemented in this study. To predict the strength of association between performance expectancy (PE), effort expectancy (EE), social influence (SI), facilitating conditions (FC) and perceived risk (PR) on behavioural intention (BI) to use mobile apps to perform financial transactions, multiple regression analysis has been performed.

6. Findings

Reliability analysis

<table>
<thead>
<tr>
<th>Constructs</th>
<th>No. of items</th>
<th>Cronbach’s α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Expectancy</td>
<td>3</td>
<td>0.668</td>
</tr>
<tr>
<td>Effort Expectancy</td>
<td>3</td>
<td>0.728</td>
</tr>
<tr>
<td>Social Influence</td>
<td>3</td>
<td>0.701</td>
</tr>
<tr>
<td>Facilitating Conditions</td>
<td>3</td>
<td>0.738</td>
</tr>
<tr>
<td>Perceived Risk</td>
<td>3</td>
<td>0.759</td>
</tr>
<tr>
<td>Behavioural Intention</td>
<td>3</td>
<td>0.773</td>
</tr>
</tbody>
</table>

Table 3 shows the Cronbach’s Alpha value for the items. As a result, Effort expectancy, social influence, facilitating conditions, perceived risk and behavioural intention has more than 0.7 Cronbach’s a value which was considered sufficient (Nunnally, 1978). Performance expectancy has a value of more than 0.6 which was enough to ensure internal consistency of the constructs (Loewenthal, 2001). The result confirms all variables in the study could be proceeded for further analysis.

Correlation analysis

The result of correlation analysis along with mean and standard deviation (S.D.) is shown in Table 4.
Regression analysis

The relationship between the constructs and latent variable Behavioural Intention shown in Table 5 as a result of regression analysis and the value of $R^2$ and Adjusted $R^2$ also shown in Table 5.

<table>
<thead>
<tr>
<th>Model</th>
<th>Beta (β)</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DV :Behavioural Intention (BI) - R$^2$ = .627, Adjusted R$^2$ = .623</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F = 157.061, df = 5/467, p = .000 (p &lt; .001)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV : Performance Expectancy (PE)</td>
<td>.205</td>
<td>5.062</td>
<td>.000*</td>
</tr>
<tr>
<td>Effort Expectancy (EE)</td>
<td>.010</td>
<td>0.244</td>
<td>ns</td>
</tr>
<tr>
<td>Social Influence (SI)</td>
<td>.205</td>
<td>5.281</td>
<td>.000*</td>
</tr>
<tr>
<td>Facilitating Conditions (FC)</td>
<td>.469</td>
<td>12.176</td>
<td>.000*</td>
</tr>
<tr>
<td>Perceived Risk (PR)</td>
<td>.059</td>
<td>1.722</td>
<td>ns</td>
</tr>
</tbody>
</table>

Table 5. Regression analysis

Note: * p < .001, ns - not significant.
DV – Dependent variable, IV – Independent variable.

7. Hypotheses Confirmation

A brief discussion of the accepted hypotheses and the rejected hypotheses are given below.

H1: Performance Expectancy (PE) has a significant impact on Behavioural Intention (BI) of users for using financial services mobile apps.

The result supported H1 ($β = .205, p < .001$) which means that when performances of financial services apps were higher, users tend to have higher intention to use financial services apps. In other words, Users’ intention to use financial services apps tend to change with their perceived benefits satisfaction.

H2: Effort Expectancy (EE) has a significant impact on Behavioural Intention (BI) of users for using financial services mobile apps.

The result shows that effort expectancy ($β = .010, p > 0.05$) does not have a significant influence on behavioural intention. There is no change in users’ intention based on the difficulty to perform financial transactions, which means that it does not improve the intention of the user.

H3: Social Influence (SI) has a significant impact on Behavioural Intention (BI) of users for using financial services mobile apps.

The social influence ($β = .205, p < .001$) has a significant relationship on behavioural intention. The users tend to change their intention to use financial services apps based on the opinion, recommendation or suggestion from their friends, family members or colleagues.

H4: Facilitating Conditions (FC) has a significant impact on Behavioural Intention (BI) of users for using financial services mobile apps.

The result supported H4. The Facilitating Conditions ($β = .469, p < .001$) have strong influence on users’ intention. The change in intention persists when the user access the internet through their smartphone and also possess knowledge on how to use a smartphone as well as e-finance apps. In other words, when users have necessary resources i.e. knowledge and monetary resources to use financial services apps, their intention also change accordingly.

H5: Perceived Risk (PR) has a significant impact on Behavioural Intention (BI) of users for using financial services mobile apps.

Perceived Risk ($β = .059, p > .05$) has insignificant influence on intention. The result implied that there was no improvement in users’ intention even when they considered risk factors involved in using financial services apps. A financial transaction through mobile apps involves risk of losing money due to hacking, transaction failure, unauthorised deduction, etc. It also involves privacy risks such as revealing bank account number, debit/credit card number, etc. The users’ intention did not change due to perceived risk concerns of the user.

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: PE → BI</td>
<td>Accepted</td>
</tr>
<tr>
<td>H2: EE → BI</td>
<td>Rejected</td>
</tr>
<tr>
<td>H3: SI → BI</td>
<td>Accepted</td>
</tr>
<tr>
<td>H4: FC → BI</td>
<td>Accepted</td>
</tr>
<tr>
<td>H5: PR → BI</td>
<td>Rejected</td>
</tr>
</tbody>
</table>

Table 6. Hypotheses Confirmation

8. Discussion

The result shows that proposed model explained about 62.7 percent of variances ($R^2 = .627$) of Behavioural Intention (BI). All the variables have positive correlation at significant level of $p < .01$. However, Perceived Risk (PR) had weak positive correlation (less than 0.5) with other construct of the model except Social Influence (SI) while Facilitating Condition (FC) has strong positive correlation ($r = .731, p < .01$) with Behavioural Intention (BI) followed by Performance Expectancy (PE) ($r = .626, p < .01$) and Social Influence (SI) ($r = .605, p < .01$).

Performance Expectancy (PE), Social Influence (SI) and Facilitating Condition (FC) are significant predictors of Behavioural Intention (BI) to use financial services apps. The users’ intention to use financial services apps tend to increase when the expected performance is satisfied along with the possession of required facilitating resources by the user and it’s
recommended by the people who were considered important to the user.

Effort Expectancy (EE) and Perceived Risk (PR) do not predict the users’ intention. In addition to not giving much importance to difficulty in usage, the financial risk and privacy risk while performing financial transactions through mobile apps, the intention to use does not improve.

9. Conclusion

This study attempted to extend the UTAUT model by including Perceived Risk (PR) into the constructs to predict its impact on Behavioural Intention (BI). However, Perceived Risk (PR) does not have a significant association with Behavioural Intention (BI).

An implementation of app-based financial services was a relatively new concept for Indian scenario. Most of the users do not aware of the app based payment eco-system and the risks involved in it. The users generally concerned about availability and accessibility of financial services through mobile apps. In general accessibility of services depend on the technology infrastructure of the country like network connectivity, internet speed, etc. Therefore, the users do not put much focus on risk factors involved in the mobile app-based payment system.

References