

## AN INTEGRATION OF TAM WITH PR THEORY IN EXAMINING CONSUMER PERCEPTION ON MOBILE BANKING APPS

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### ABSTRACT

*Mobile banking Application mean the use of a smartphone or other cellular device to accomplish online banking tasks such as monitoring account balances, Demat account, fund transfer funds between accounts, payment of bill and locating an ATM. Mobile banking App's being introduced prior to one decade has not reflected positive results at a higher chunk. The study examines the factors for lesser split in mobile banking App's adoption and the constructs used are from Technology acceptance model and Perceived risk theory. The research findings state that the perceived ease of use, perceived usefulness and perceived benefit positively influences the adoption of mobile banking App's and only perceived operational risk and perceived privacy risk positively influences the mobile banking adoption App's. The outcome of the analysis conveys that beyond perceived ease of use, perceived usefulness, perceived benefit and perceived risk's, there are other extraneous elements which also influence the adoption of mobile banking App's.*

**Keywords:** *Perceived risk, perceived benefit, perceived ease of use, perceived usefulness, mobile banking App's, attitude to use.*

### INTRODUCTION

Banking in the past two decades have underwent a massive transition due to introduction of technology in providing banking and financial services which too have led to widespread of bank branches both in volume and values. Usage of technology in banking have also resulted in the global as well as country economic growth as this banking medium have rallied out the difficulties in fund transactions. Conservative banking system simply with deposits and loans has been ruled out in the modern set up of banking with more other banking services. The chronological order of modern banking is ATM's, SMS banking, Net banking, Mobile banking, Mobile banking apps and Virtual banking. Consumers in all Industries are highly prone to technology whereas the percentage is less in case of banking wherein it takes a high duration for them

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to adopt. Hence various researches were conducted to ascertain the reasons for hesitation in adoption of technological banking which cause delay and less percentage in consumer spread.

Few of the research studies with different models and theories on technological banking are as follows:

TAM model has been used for more than three decades in assessing the consumer perception towards adoption of technology and technological banking. Apart from TAM Model the researchers from polynomial fields for the last three decades proposed various models to understand the user behaviour and the factors that influence the individual adoption intention to accept technology. These models were derived from diverse theories such as theory of reasoned action (TRA), (Fishbein and Ajzen, 1975), theory of interpersonal behaviour (TIB), (Triandis, 1979), Theory of Planned behaviour (TPB), (Ajzen, 1991), and Innovation Diffusion Theory (IDT), (Moore and Benbasat, 1991). The above theories have been already applied in adoption intention of e-banking, e-commerce and e-financial services, (Ya-Yueh Shih and Chi-Yuan Chen, 2013; Jin Baek Kim, 2012; Gounaris, S. and Koritos, C. 2008; Lee, M. 2009; McKechnie *et al.*, 2006) and also in various technology related researches like digital piracy (cheolho Yoon, 2011; Godwin Udo *et al.*, 2016).

The recent technological development and contribution of financial services from banking industry is the mobile banking App's. Though lot of provisions and new services are consecutively served through App's the usage by the consumer's is very nominal irrespective of age, gender, education, profession, etc., Consumer's today irrespective of income standards possess Android mobile's and are active with social networks, online games, online purchases, online chats etc., but when it comes for mobile banking App's there is a high level of hesitation in adopting it and even if adopted, continuous usage is still a debate. Hence the study was conducted with Chennai city, the metro known for high technological adoption to discuss on the factors that disturbs the adoption of mobile banking App's.

## LITERATURE REVIEW

### TAM in E-Banking, E-Commerce and E-Financial Services

Luarn and Lin (2005) analysed and researched "the pertinency of the technology acceptance model (TAM) in a context of mobile banking by including one trust-based construct (i.e. perceived credibility) and two resource-based constructs (i.e. perceived self-efficacy and perceived financial cost ) to the TAM, and validated that their extended TAM had a higher competence to predict and reveal behavioural intention to utilise an information system".

Technology Acceptance Model for Mobile Services (Kaasinen, 2005) "matured in line with TAM suggests that perceived ease of use, perceived value and trust influence the intention to utilise a mobile service. To transit from intention to use to real usage, the user has to concede the service into use. This transition is

injured by the perceived ease of adoption. Perceived value, perceived ease of use, trust and perceived ease of adoption are essential to be studied in order to reckon user acceptance of mobile services”.

Luarn and Lin in 2005 combined one trust-based construct with two resource-based constructs and “applied the extended technology acceptance model (TAM) to analyse human behavioural intention to make use of mobile banking. They collected 180 respondents in Taiwan and found that perceived self-efficacy, financial cost, credibility, ease of use and usefulness had positive effects on the behavioural intention to use mobile banking”. Likewise, due to the providence and prognostic power of TAM, Amin *et al.* [2008] “used an extended TAM containing five constructs - perceived usefulness, perceived ease-of-use, perceived credibility, the amount of information, and normative pressure - to examine the adoption of mobile banking. They collected 158 valid questionnaires in Malaysia and proved that perceived ease-of-use notably influenced perceived usefulness and credibility, and human intentions to adopt mobile banking was well affected by perceived usefulness, perceived ease-of-use, perceived credibility, the amount of information, and normative pressure”.

Dasgupta *et al.* [2011] “first linked the exploratory factor analysis to pinpoint seven antecedents to behavioural intention in the adoption of mobile banking. For the purpose he collected 325 valid responses from MBA students in India. Thereafter, they used the regression technique to scrutinize the effects of these antecedents on behavioural intention. Their tested results supported six of seven antecedents, except for risk. The six antecedents were perceived image, perceived usefulness, perceived ease-of-use, perceived value, self-efficacy, perceived credibility, and tradition, which incomparably influenced the behavioural intention to use mobile banking”.

### **PR theory in E-Banking, E-Commerce and E-Financial Services**

Cruz *et al.* (2010) measured “the perceived obstacles to the adoption of mobile banking services and exposed that that the majority of respondents do not use any kind of mobile banking service and the reasons behind not using mobile banking were perception of cost, risk, low perceived relative advantage and complexity”.

H. Kalaiarasi and V. Srividhya (2013) concluded “that relative advantage and perceived risk have insignificant influence on adoption of online banking adoption among students. It suggested that the interactiveness of the website , hedonic features of the website that attracts users to spend long hours exploring the various features available , the features of trialability also influence online banking adoption”.

Titus Chukwuemezie Okeke (2013) directed “that the banks should recognize their e-services based on high and low involvement and take the required steps to solve issues on low involvement; so as to level up these services to the scale of ATM that now amounts for 90% of electronic payments in the country. Banks to enhance their competitive advantage have to build their information technology,

and also the network technology in order to increase the involvement of the e-customers with the new circumstances”.

Perceived risk (PR) is defined as “risk faced by consumers when they make transactions online which include the certain types of financial, social, psychological, physical, or time risks”. Many researches (e.g., Liu & Chen, 2009; Mal-lat & Rossi, 2009; Wu & Wang, 2005) specified the negative role of perceived risk on adoption of mobile to do trade and business. Wu and Wang (2005) listed “many possible risks that users may be anxious about, such as fraud, product quality, unjustifiable delay in product delivery, and other, more illegal activities”. Risk is defined as a possible loss when doing business and financial transactions through internet such as financial, performance, security and privacy risks( Lee MC, 2008).

### **RESEARCH METHODOLOGY**

This research is an empirical study which has undergone both qualitative and quantitative analysis. The model used is a combination of technology acceptance model and perceived risk theory. The TAM is to find the perception level of consumers on perceived ease of use, perceived usefulness and perceived benefit. Perceived Risk theory is to ascertain the hindrances on Mobile banking App’s adoption. Perceived Risk includes performance risk, time risk, security risk, financial risk, social risk , operational risk and privacy risk. The oral observation from discussing with bank managers and consumers is that banking transactions on techno platforms is felt or assumed to be risky and hence the perceived risk theory is combined with TAM to confirm on the relationship of risk with mobile banking App’s usage. The questionnaire is a close ended questionnaire with five point Likert scaling with one open end question seeking for individual views on App’s. The population is the banking consumer’s from Chennai city and the sample size is 300 derived from stratified sampling method. A total of 281 responses were received out of questionnaire circulated to 300 respondents and PLS-SEM was used to analyse the collected datum.

### **Research Questions**

- 1) How much do consumers have understood or perceived the ease of use, usefulness and benefit of mobile banking app’s?
- 2) Do consumers perceive the risk in mobile banking app’s, If yes then what is the level of perception?
- 3) Which risk is prioritised more by the consumers in using mobile banking app’s?

### **Research Objectives**

- To examine the effect of perceived ease of use, perceived usefulness and perceived benefit in adoption of mobile banking App’s.
- To analyse the result on perceiving the risk by consumers on adoption of mobile banking App’s.

### Research Hypothesis

- H1: Perceived usefulness have favourable influence on the attitude towards mobile banking App's.
- H2: Perceived ease of use have favourable influence on the perceived usefulness of mobile banking App's.
- H3: Perceived ease of use have favourable influence on the attitude towards mobile banking App's.
- H4: Perceived usefulness have favourable influence on the behavioural intention to mobile banking App's.
- H5: Attitude to use have favourable influence on the behavioural intention to mobile banking App's.
- H6a: Perceived social risk favourably affects the behavioural intention to adopt mobile banking App's.
- H6b: Perceived performance risk favourably affects the behavioural intention to mobile banking App's.
- H6c: Perceived financial risk favourably affects the behavioural intention to adopt mobile banking App's.
- H6d: Perceived time risk favourably affects the behavioural intention to adopt mobile banking App's.
- H6e: Perceived security risk favourably affects the behavioural intention to adopt mobile banking App's.
- H6f: Perceived privacy risk favourably affects the behavioural intention to adopt mobile banking App's.
- H7: Perceived benefit have a favourable influence on the behavioural intention to adopt mobile banking App's.

### DATA ANALYSIS

As the traditional reliability measures has few flaws, we use composite reliability in the study to measure the overall reliability of the items. Composite reliability is a measure of scale reliability, Composite reliability assesses the internal consistency of a measure, 2 means square. (Fornell & Larcker, 1981).

**Table 1**

	<i>Composite Reliability</i>
AttUseMB	0.9
Intusmb	0.877
PEaseofuse	0.86
PTimRsk	0.402
Pbenefit	0.876
Pfinrsk	0.705
PopRsk	0.823
PperfRsk	0.801
PprivRsk	0.797
PsecRsk	0.824
Psocrisk	0.807
Puse	0.858

The above table depicts that all the constructs have composite reliability more than 0.7 expect perceived time risk that is 0.402. Hence the internal consistency of the items within the constructs is appreciable which confirms the inclusion of the constructs in the study.

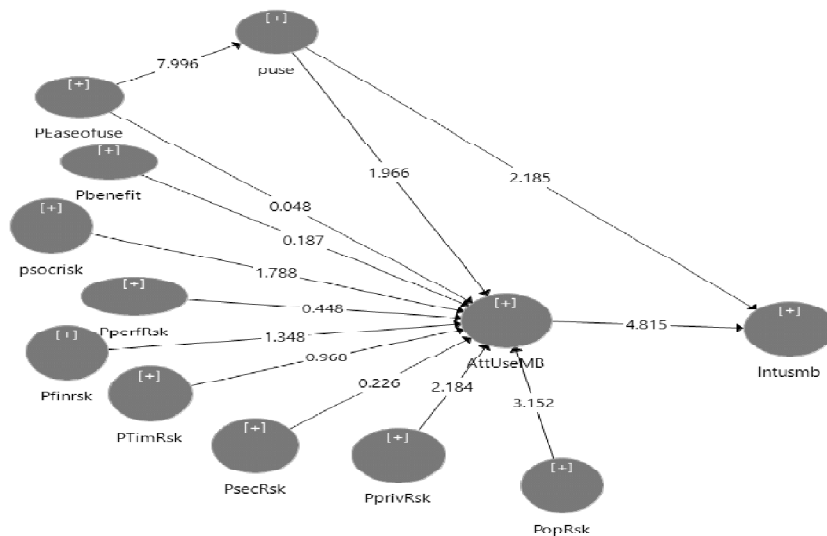
The convergent validity of the measurement model can be assessed by the Average Variance Extracted (AVE). In classical test theory, average variance extracted (AVE) is a measure of the amount of variance that is captured by a construct in relation to the amount of variance due to measurement error. The AVE is found using PLS-SEM and given in the below table.

**Table 2**

	<i>Average Variance Extracted (AVE)</i>
AttUseMB	0.693
Intusmb	0.646
PEaseofuse	0.553
PTimRsk	0.252
Pbenefit	0.395
Pfinrsk	0.348
PopRsk	<u>0.317</u>
PperfRsk	0.381
PprivRsk	0.584
PsecRsk	0.375
Psocrisk	0.472
Puse	0.552

Though most of the constructs AVE less than 0.5 which is a standard value, all the constructs are considered in the study as Composite Reliability is above

**Figure 1**



standards. Fornell & Larker in his study on 1981 have confirmed that even if AVE is below standards, the constructs can be included in the study if the composite reliability is above standards. Hence all the constructs are used in the model to discuss on the relationship of the constructs. For Perceived time risk though both AVE and CR are below standards, We have not removed the construct as it's presence in the model will succour in comparing constructs.

The above model was constructed using PLS-SEM and the values in the figure depicts T Values. To Confirm the relationship between constructs or to accept the hypothesis, the T Value should be more than 2. Here the hypothesis between attitude and intention, attitude and perceived operational risk, attitude and perceived privacy risk, perceived ease of use and perceived usefulness, perceived usefulness and intention to use are accepted being T Value more than two. All other hypothesis are rejected being T Value less than 2.

## **DISCUSSION AND SUGGESTIONS**

It is found from the PLS-SEM model that the consumers have perceived the ease of use, usefulness and benefit as the hypothesis is proved but in perceiving risk, the consumers are concerned only with operational risk and privacy risk as the hypothesis is proved. All other risk are not considered by consumers as relevant being the hypotheses rejected. Many of the previous studies have concluded with all risk considered relevant by banking consumers. But in this study the results are beyond history for which the reason may be consumers have already come across various other technological banking services like ATM's, net banking, mobile banking etc., Also other reason for the result may be mobile banking App's have been introduced many years earlier. Usually in the introductory stage of any technological banking services, all the risks are perceived by the banking consumers. Finally the reason may be the respondents belong to Chennai city where adoption of technology is mandatory. In spite of existing technological banking services, techno savvy consumers and a matured technological product, the mobile banking App's have not achieved hundred percentage reach.

Few of the suggestions from the study to increase reach are as follows:

- Bank's frequently have to organise awareness and training camps for consumers to update them on mobile banking App's ..
- Feedback should be collected from consumers periodically to overcome the flaws which would eradicate the objection of consumers to use mobile banking App's continuously.
- Automatic systems should be included in the mobile banking App's which automatically will avoid privacy risk and operational risk.

## **MANAGERIAL IMPLICATIONS AND FUTURE RESEARCH**

The study helps the bank Manager's to improve the usage of Mobile banking App's by consumer's and to help them continue with the same. Also the model

will direct the bank manager's in digging out the cause for the risk existence and also the reasons for the perception of risk by consumers which will help for the future better performance by banks, consumers and technology. The same model can be applied with different respondent base, different geographical locations and all the new banking technology. Similar study could be done with other models like Theory of planned behaviour, Innovation Diffusion theory, Theory of Interpersonal behaviour, Theory of reasoned action, UTAUT etc.,

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