PREDICTING CONSUMER INTENTION TO USE MOBILE BANKING SERVICES IN NORTH MACEDONIA

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ABSTRACT

Smartphones and mobile technologies are becoming increasingly available and affordable in the Republic of North Macedonia. Followed by this trend, many banks are providing banking services to customers via smartphones. They are increasingly investing in mobile channels by providing new mobile banking services. Therefore, the goal of this research is to examine predictors of consumer intention to use mobile banking services in North Macedonia. In order to get insights regarding the user adoption of m-banking services in the country, a survey was conducted among more than 150 mobile users. The research model proposed in this study examines the influence of several basic constructs that explain technology acceptance and innovation diffusion (performance expectancy, effort expectancy, social influence and facilitating conditions). In addition, its originality and practical implications is reflected in determining the significance of additional constructs that are specific for the m-banking domain, such as perceived risk and bank's reputation. The results of the empirical study indicate that three of the four basic constructs of the UTAUT model (performance expectancy, effort expectancy, and facilitating conditions) determine intention to use mobile banking, while social influence does not significantly influence mobile banking adoption in the sample. Regarding the two new constructs in the model, risk and bank's reputation, they are both confirmed as important antecedents of consumer intention to use m-banking in our sample. By highlighting the usefulness of integrating constructs from different theories of technology acceptance, this research is a holistic approach representing a solid base for future studies on the adoption of new technologies in the country. From practitioner's viewpoint, this research offers valuable insights for developing m-banking solutions.

KEY WORDS: mobile banking, technology adoption, Republic of North Macedonia

1. INTRODUCTION

Smartphones have become an inevitable device and an integral part of everybody's lives. Followed by the mobile technology development and high rate of mobile internet usage worldwide, mobile banking has become prominent technological innovation in the banking sector giving a competitive edge over traditional banking. The extensive use of mobile devices, along with the digital transformation, has brought to customers an added value regarding mobile banking (m-banking) services, showing to be beneficial for banks, as well (Laukkanen et al., 2007).

Mobile phone banking or m-banking is an emerging facet of electronic banking that, unlike traditional phone banking services which offer very limited functions, is a rich platform for automated banking and other financial services (Wessels & Drennan, 2010). Although researchers use various terms to refer to mobile banking (like m-banking, branchless banking, m-payments, m-transfers, m-finance, or pocket banking (Shaikh & Karjaluoto, 2015), in general it can be defined as a channel whereby the customer interacts with a bank via a mobile device, such as a mobile phone, smartphone or personal digital assistant (PDA) (Barnes & Corbitt, 2003). M-banking refers to provision of banking and financial services with the help of mobile telecommunication devices such as a smartphone or tablet (Chandran, 2014), like viewing account balances, making transfers between accounts, or paying bills (Laukkanen & Cruz, 2010). The scope of offered services may differ, but generally includes facilities to conduct bank transactions, to administer accounts and to access customized information. M-banking can take place through short message service (SMS), mobile web or application.

Consumer use of mobile banking applications is accelerating at a rapid pace worldwide. For example, in the US, nearly one-third of people (31%) use mobile banking more than any other app on their smartphone in 2018. In the UK, mobile banking is already the most popular way to bank. As of March 2018, the UK headquartered Barclays mobile banking app had the highest traffic of banking apps in Europe with 7 million unique visitors. The Russian bank Sberbank reportedly had over 30 million individuals using their mobile app. In Germany, approximately 33 million individuals use online banking, with a digital population of around 60 percent using online banking services (www.statista.com). In the Netherlands, mobile payments and mobile banking have also grown extremely popular. (Mobile banking and mobile payments in Europe, Report, 2019). In spite that, the adoption of mobile banking has been slower for the developing countries compared to developed ones (Abdinoor & Mbamba, 2017; Pavithran et al., 2014).

Smartphones and mobile technologies are becoming increasingly available and affordable in North Macedonia. The penetration rate of smartphones is increasing globally and smartphones are the most used devices for access to the Internet in the country (81% of Internet users in 2018, and mostly among persons aged 15-24 (91.8%) (State Statistical Office, 2019). The continuous expansion of technological innovations especially in the banking sector is changing the way banks operate resulting in the introduction of mobile banking in the country. Banks are increasingly investing in mobile channels by providing new mobile banking services. However, in the country not many studies investigate factors that determine the adoption of mobile banking which may help banks to design more suitable and affordable mobile services for customers. Though many individuals worldwide opt for mobile banking as a mean for their daily banking transactions, the adoption of mobile banking has been at its early stage of adoption in the country. Therefore, this study is the first attempt to fill this gap by predicting factors that affect consumer intention to use mobile banking services in the country, as developing country.

2. LITERATURE REVIEW AND HYPOTHESES

The exponential growth and fast diffusion of information and communication technologies is considered strategically important in a business context (Hilmer, 2009). Today there are various models and theories among practitioners and academics widely used in order to predict the use and spread of technology. The field of theories and models that investigates successful technology diffusion is broad and can be categorised in various ways. According to Hilmer (2009), common technology adoption theories, can be grouped as: Diffusion Theories, User Acceptance Theories, Decision Making Theory (including Problem Solving Theories), Personality Theories and Organisation Structure Theories (Hillmer, 2009). Some of the models are widely used among practitioners, such as 'the diffusion of innovation' DOI, 'the technology lifecycle theory' and 'the rational choice theory'. Others are more commonly used in the academic world, such as 'the Theory of Reasoned Action' TRA, 'the Theory of Planned Behaviour' TPB, 'the Technology Acceptance Models' TAM, and the unified model UTAUT (Hillmer, 2009).

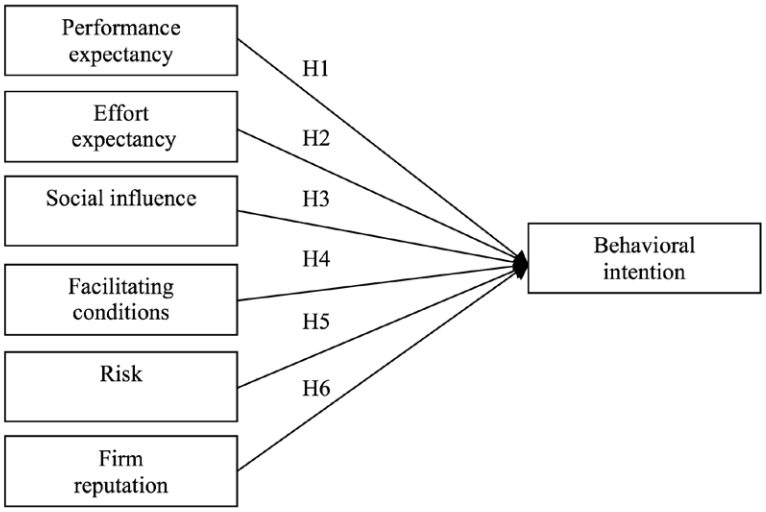
Theories of adoption of new technologies are explanations of the factors influencing the decision making over adoption and usage of new technologies by the users. Adoption is an individual process detailing the series of stages one undergoes from first hearing about a product to finally adopting it. Adoption in the context of mobile banking means acceptance and being able to accept a new technology as it is introduced; acceptance of the service means a customer willing to use the service. For example, Mallat et al. (2004, 2007) explains that if a customer chooses to adopt mobile banking, they will be able to obtain and interact with mobile services anytime and anywhere which in turn initiate great value for them.

The research model in this survey is based on Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al, 2003). UTAUT defines four key factors (i.e., performance expectancy, effort expectancy, social influence, and facilitating conditions) and moderators (i.e., age, gender, experience, and voluntariness) related to predicting behavioural intention to use a technology. Venkatesh, Thong & Xu (2012) proposed and tested UTAUT2, which incorporates new constructs (i.e., hedonic motivation, price value, and habit). In the latest paper – Venkatesh at al. (2016) gave an overall evaluation of the use, developments, research directions, limitations, gaps and opportunities and directions for further research. Consumers as a user type served as the context for the extensions in UTAUT2 (Venkatesh et al., 2012) and, in particular, for the new endogenous mechanism underlying the relationship between price value (not relevant in organizational context) and behavioural intention. Facilitating conditions and habit influence both behavioural intention and technology use. Venkatesh at al. (2016) suggested that the main effects in UTAUT2 should serve as the baseline model of future research for parsimony and refining current context effects and/or identifying new context effects along the following four dimensions: environment, location, organization, and event. In another work, Martins, Oliveira & Popovic (2014) developed a conceptual model that combines the UTAUT with the perceived risk as added construct to explain behavioural intention and internet banking use behaviour. Moreover, adding a construct (perceived information security) to the UTAUT and altering the original model, Alshare & Mousa (2014) extended the applicability of the model to different contexts such as consumers, a developing country, and a new technology (mobile payment device).

Lallmahomed et al. (2013) added new main effect in the classical UTAUT while investigating consumer behaviour online. Namely they proved that hedonic performance expectancy has a positive effect on behavioural intention. Saeed (2013) analysed UTAUT determinants in mobile banking. Based on this perspective, perceived financial control is proposed as the main value driver and its relationship with use intentions and channel preference along with ease of navigation and facilitating conditions is examined in the context of mobile banking. Concerning recent developments in research of mobile banking using UTAUT2 we can conclude that they are strictly focused on various aspects such as type of product or service, demographics, geographical area, and are using specific additions (extension) appropriate for the field of research. Having in mind the usability and popularity of UTAUT2 there is no doubt that further extension will be proposed to study technology acceptance on individual level such as mobile banking in our case.

The research model in this survey is based on UTAUT (Venaktesh et al., 2003). This model provides a framework for explaining and predicting technology use. UTAUT is a generic model that can facilitate the explanation of the factors that influence technology acceptance, or in our case mobile banking behavior. However, there are many extensions to the basic model and we are using some additional constructs that are proven to be essential for explaining mobile banking adoption. Original constructs that we examined are: performance expectancy - the degree to which an individual believes that using a particular technology would improve his/her performance; effort expectancy- the degree of simplicity associated with the use of a particular system; social influence - the degree to which an individual perceives that others believe he or she should use a particular technology; facilitating conditions - the degree to which an individual believes that resources exist to support the use of a particular technology; and, attitude toward using technology - the degree to which an individual believes he or she should use it. As extensions of the original model, we added two more constructs: perceived risk and firm reputation that are proven to be determinants on mobile banking adoption. Based on the discussion above, the proposed research model is presented in Figure 1 and the following research hypothesis are set.

Figure 1. The research model



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Performance expectancy (PE) is the degree to which an individual believes that using mobile banking will increase his/her job performance (Venkatesh et al., 2012). PE indicates that users perceive use of mobile applications as beneficial to their performance and it is recognized as a key factor for a user to accept the m-banking technology. PE actually measures the degree to which a person believes that using mobile banking services will help them in performing banking transactions (Tarhini et al., 2016). Oliveira et al. (2014) and Sarfaraz (2017) have come to the conclusion that performance expectancy has a total effect on behavioral intentions towards mobile banking. Many authors that adopt UTAUT to analyze m-banking adoption (Baptista & Oliveira 2015; Basri, 2018; Savić & Pešterac, 2019) have empirically shown that mobile banking users believe that performance expectancy is one of the most important antecedents of behavioral intention.

Effort expectancy (EE). Venkatesh et al. (2003) define effort expectancy as the degree of ease associated with the use of the system. The easier the mobile banking is to use, the greater the likelihood that clients will use it to conduct their banking transactions. In the m-banking adoption, the positive impact of effort expectancy on the behavioral intention is recognized as important determinant of behavoural intention (Bankole et al., 2011; Bhatiasevi, 2016; Albashrawi et al., 2017). Ease of use is significantly related with behavioral intention because mobile banking is new to the customers. Hence, banks should strive to ensure that transactions could be conducted via mobile phones with ease meaning less effort.

Facilitating condition (FC) is the infrastructure supporting the use of technology (Venkatesh et al., 2012) meaning that better facilitating conditions will result in greater mobile banking usage. Facilitating conditions are defined as the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system (Venkatesh et al., 2003). Since the use of mobile banking services requires the availability of appropriate resources, knowledge, and technology infrastructure, it is logical to assume that of these conditions a considerable extent depends the behavioural intention of an individual to use mobile banking. This assumption was empirically proven by many (Zhou et al., 2010, Witeepanich et al., 2013, Afshan & Sharif 2016).

Social influence (SI) refers to the degree to which an individual perceives that important others believe he or she should use the new system (Venkatesh et al., 2003), and is particularly important in the early stages of new technology development when most users do not have experience or information about technology, and therefore rely on public opinion (Marinkovic & Kalinic, 2017). In fact, it concerns the influence of people from the immediate surroundings of the individual (family, friends, and superiors) on his or her perceptions and behavior related to a certain activity. Many studies have confirmed that social influence is directly related to the intention of an individual to use mobile banking services (Bhatiasevi, 2015; Tan & Leby Lau, 2016). Moreover, in some research this factor has been singled out as the most significant when it comes to the intention of using mobile banking (Venkatesh & Zhang, 2010; Yu, 2012). Gu et al. (2009) found that social influence has no significant effect on behavioral intention pertaining to mobile application usage. They reported that among university students, who are members of generation Y, social influence does not significantly influence mobile banking adoption (Govender & Sihlali, 2014).

Perceived risk is the "uncertainty about the outcome of the use of the innovation" (Gerrard & Cunningham, 2003). In fact, perception of risk among individuals has been proved in technology adoption literature as an important element in acquiring new technology or services (Laforet & Li, 2003). Many authors have studied the impact of risk on the adoption of mobile banking building upon the premise that m-banking is perceived to be riskier than traditional banking (Cunningham et al., 2005). Luo et al. (2010) analyzed the impact of both trust and risk in m - banking adoption.

A firm's reputation reflects the customers' perception of its capability to the deliver the service effectively, the credibility of the organization, and the reliability in its business engagement (Yasin & Bozbay, 2011). It plays an important role in the formation of confidence and the intention to use the offered services (Kim et al., 2009). It increases customer's recognition of a newly introduced service and helps maintain confidence in future transactions (Kim et al., 2009). Thus, firm reputation is a significant factor in user's initial trust. It is recognized that strongly influences the intention to use m-banking services (Oliveira et al., 2014).

3. METHODOLOGY AND RESULTS

The purpose of this research is to identify the relationships between important factors and acceptance of mobile banking in the Republic of North Macedonia. It has been recognized in general that youth are very representative sample of today's online population. Population of interest are different groups who are adopting and using mobile banking: young people (mostly students) aged 18-24, young employed people aged 25-35 and more mature employed professionals over 35 years of age. The data were collected at the university campus and from the different sectors of the business community. The survey was conducted during April and May 2019 among more than 150 mobile users. The sample is comprised of 139 survey responses and their demographic structure is presented in Table 1.

Table 1. Demographics of the respondents

Demographics	Categories	Percentage (%)
Gender	Male	44.60
	Female	55.40
Age	18-24	38.13
	25-35	19.42
	Above 35	42.45

Education	High school degree	5.76
	Student	35.25
	University graduate	58.99
Employment status	Unemployed	36.69
	Employed	63.31
Usage frequency of mobile banking	Every day	17.27
	At least once a week	40.29
	At least once a month	18.71
	Very little(at least once at six months)	23.74
Usual access point for mobile banking	Via smartphone (mobile web)	30.94
	Via smartphone with mobile application	66.19
	Via Tablet	2.88

Source: Created by authors

The dataset was examined for missing data and presence of outliers. The presence of outliers was not detected, and the few missing data were replaced with common procedure. The dataset was acceptable for further analysis, where the first step was the reliability of the scale of the variables. Reliability just means that a scale should consistently reflect the construct it is measuring (Field, 2005). Questionnaire was constructed to develop eight variables. To confirm their reliability, Cronbach's was calculated by the following formula:

$$\alpha = \frac{k \times \bar{c}}{\bar{v} + (k \times 1)\bar{c}}$$

where k is the number of scale items, $\bar{c}$ is the average of all covariances between items and $\bar{v}$ is the average variance of each item. The results of the reliability analysis and the defined variables are presented in Table 2.

Table 2. Defined variables and Scale Reliabilities

Variable	Cronbach's α	Number of items included
Behavioral intention	0.792	4
Performance expectancy	0.869	4
Effort expectancy	0.776	4
Social influence	0.854	5
Facilitating conditions	0.794	4
Risk	0.901	4
Firm Reputation	0.871	3

Source: Created by authors

From the presented results in Table 2 seven variables can be identified, with the number of items they include. The dependent variable is Behavioural intention, and other six variables are factors or independent variables that have potential influence of mobile banking adoption. All of the variables can be included in further analysis, since their reliability coefficients are greater than 0.7 which is acceptable value for reliable scale (Hair et al., 2005). Additionally, reliability coefficients where one of the items is excluded from the construct are also checked. In all seven variables they have reliability coefficient near the overall Cronbach's of the variable, which contributes to their reliability and proves that we are not to expect any one item to affect the overall reliability.

In order to estimate the influence of the seven factors on the behavioral intention to adopt mobile banking, single regression model is used for each factor. The results are presented in Table 3.

Table 3. Single regression models for analysed variables

Variable	Coef.	Std. Error	t-stat.	Sign.	R^2	Adj. R^2	Durbin-Watson	F-stat.	Sign. F-stat.
Performance expectancy	0.648	0.078	8.306	0.000	0.335	0.330	2.085	68.99	0.000
Effort expectancy	0.437	0.093	4.695	0.000	0.139	0.132	2.043	22.04	0.000
Social influence	0.077	0.006	1.164	0.246	0.010	0.003	1.872	1.35	0.246
Facilitating conditions	0.424	0.086	4.925	0.000	0.150	0.144	2.116	24.25	0.000
Risk	0.321	0.070	4.593	0.000	0.133	0.127	2.061	21.09	0.000
Firm reputation	0.337	0.080	4.221	0.000	0.115	0.109	2.189	17.81	0.000

Source: Created by authors

From the descriptive statistics (presented in Table 4), we can conclude that all means are around 4 on the five point Likert scale which means that these factors are perceived as important. Social influence has the lowest mean which is result of the perception that this construct is not relevant. Results from the single regression models indicate that individually all independent variables have influence on the behavioral intention to adopt mobile banking, except one: Social influence. All coefficients are statistically significant and have positive sign. Coefficients of determination have relatively low values, since it is expected in model with only one explanatory variable. Durbin-Watson statistic is near two in all models with statistically significant coefficient indicating no autocorrelation of the residuals. Also the F-statistic is statistically significant at 0.01 level, representing good fit of each individual regression model.

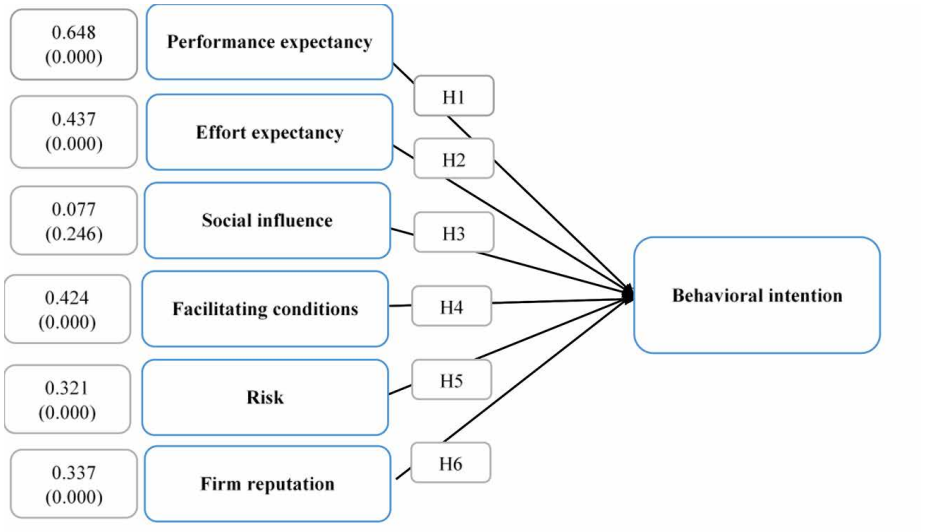
Table 4. Descriptive statistics

	Performance expectancy	Effort expectancy	Social influence	Facilitation conditions	Risk	Firm reputation	Behavioural intention
Mean	4.36	4.27	2.71	4.21	3.73	4.08	4.05
Std.dev	0.71	0.68	1.02	0.73	0.90	0.80	0.79

Source: Created by authors

The overall research model is represented in Figure 2. Boxes on the left side of the model include single regression coefficients and their significance (in brackets).

Figure 2. Research model with estimated regression coefficients



Source: Created by authors

The results of the empirical study are supporting the proposed model and some specific relationships are unveiled. UTAUT basic constructs, performance expectancy, effort expectancy and facilitating conditions prove to be significant in behavioural intention to use m-banking in our sample. Still, in our research, social influence does not significantly influence mobile banking adoption. This is so due to the age characteristic of the respondents, which are mainly young people, students and young employees. Regarding the two new constructs in the model, risk and firm reputation, they are both confirmed as important antecedents of consumer intention to use m-banking in our sample. This research is a holistic approach representing a solid base for future studies on the adoption of new technologies in the country. From practitioner's viewpoint, this research offers valuable insights for developing m-banking solutions.

4. CONCLUSION

M-banking is inevitable in conducting banking services not only in developed countries, but is gaining popularity in developing countries as well. The convenience and quickness of completing financial transactions via mobile devices is attracting consumers' attention, and the pressure of digital transformation will only increase demand for mobile banking services. Mobile banking has become prominent technological innovation in the banking sector worldwide giving a competitive edge over traditional banking.

The goal of this research is to identify the key determinates of consumer intention to use mobile banking services, by extending the basic UTAUT model with specific constructs which are hypothesised to influence intention to use mobile banking. Research hypotheses were tested using a single regression analysis. The results of the empirical study are supporting the proposed research model and some specific relationships are unveiled. UTAUT basic constructs, performance expectancy, effort expectancy and facilitating conditions prove to be significant in behavioural intention to use m-banking in our sample. However, in our research, social influence does not significantly influence mobile banking adoption. This is mainly due to the age of the respondents, which are mainly younger people, students and young employees that are very self-confident in using mobile technologies. Regarding the two new constructs in the model, risk and firm reputation, they are both confirmed as important antecedents of consumer intention to use m-banking in our sample. Perceived risk is particularly relevant determinant for the Republic of North Macedonia having in mind the size of the market, underdeveloped delivery channels, and inability to use online payment and customs barriers. Research limitations of this study mainly relate to a small sample of respondents and neglecting the moderator's effects when it comes to the demographic characteristics of the respondents. Moderating effects of demographic factors can be investigated in future research and may contribute in deeper understanding of consumers' attitudinal intention to adopt mobile banking in the country. The essence and nature of consumers' behaviour is dynamic and complex, and therefore further research can be focused on longitudinal studies to compare changes in consumers' behaviours and explain different predictors. From practitioner's viewpoint, this research offers valuable insights for developing m-banking solutions.

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PREDVIĐANJE PRIHVAĆANJA USLUGA MOBILNOG BANKARSTVA U SJEVERNOJ MAKEDONIJI KOD POTROŠAČA

SAŽETAK

Pametni telefoni i mobilne tehnologije postaju sve dostupniji i pristupačniji u Republici Sjevernoj Makedoniji. Prateći ovaj trend, brojne banke klijentima pružaju bankarske usluge putem pametnih telefona. Sve više ulažu u mobilne kanale pružajući nove usluge mobilnog bankarstva. Stoga je cilj ovog istraživanja ispitati prediktore namjere potrošača da koriste usluge mobilnog bankarstva u sjevernoj Makedoniji. Kako bi se stekao uvid u prihvaćanje usluga m-bankarstva u zemlji, provedeno je istraživanje među više od 150 korisnika mobilnih uređaja. Model istraživanja predložen u ovoj studiji ispituje utjecaj nekoliko osnovnih konstrukata koji objašnjavaju prihvaćanje tehnologije i difuziju inovacija (očekivane performanse, očekivani napori, društveni utjecaj i olakšavajući uvjeti). Osim toga, njegova originalnost i praktičnost se ogledaju u određivanju značaja dodatnih konstrukata koji su specifični za m-bankarstvo, poput percipiranog rizika i reputacije banke. Rezultati empirijskog istraživanja pokazuju da tri od četiri osnovna konstrukta UTAUT modela (očekivane performanse, očekivani napori i olakšavajući uvjeti) određuju namjeru uporabe mobilnog bankarstva, dok društveni utjecaj nema značajan utjecaj na prihvaćanje mobilnog bankarstva. Što se tiče dva nova konstrukta u modelu, rizika i ugleda banke, oba su potvrđena kao važni prethodnici namjere potrošača da koriste m-bankarstvo. Ističući korisnost integriranja konstrukata iz različitih teorija prihvaćanja tehnologije, ovo istraživanje u svom holističkom pristupu predstavlja solidnu osnovu za buduće studije o usvajanju novih tehnologija u zemlji. Sa stajališta praktičara, ovo istraživanje nudi vrijedne uvide za razvoj mobilnog bankarstva.

KLJUČNE RIJEČI: mobilno bankarstvo, usvajanje tehnologije, Republika Sjeverna Makedonija