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Investigating the Factors Influencing Consumers' Adoption of Mobile Banking Services in Tshwane

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Abstract
The primary aim of this research study was to examine factors influencing consumers' adoption of mobile banking services in Tshwane, South Africa. Based on convenience and simple random sampling approaches, a structured questionnaire was used to collect primary data from the sample of one hundred and twenty (n = 120) participants who are retail banking customers. Frequencies, descriptive statistics, factor analysis and stepwise linear regression statistical techniques were applied to analyse the survey data using the SPSS 24 software. The overall Cronbach's alpha ($\alpha = 0.762$) and Keiser-Meyer Olkin (KMO = 0.811) values indicate that the instrument's items were internally consistent and statistically valid for factor analysis. The adjusted R-squared estimated from stepwise linear regression model reveals that approximately 97% of variation in mobile banking services adoption by retail banking customers in Tshwane is influenced by perceived self-efficacy, perceived risk, relative advantage and perceived compatibility. Based on the t-statistics, perceived compatibility had the highest statistically significant and positive influence on mobile banking services adoption, followed by perceived self-efficacy and relative advantage. Conversely, perceived risk had a significant and negative influence on mobile banking adoption among retail banking consumers in Tshwane.
Keywords: mobile banking, adoption, perceived, self-efficacy, risk, compatibility, relative advantage

1. INTRODUCTION AND BACKGROUND

1.1. Introduction

In the realm of financial inclusion, the provision and usage of banking services have remained largely driven by rapid transformation due to advanced technological inventions; with mobile banking being noticeably regarded as an effective means of convenience for consumer banking (Nayak, Nath & Goel, 2014). The use of mobile phones has created opportunities for the evolution of mobile banking services which make basic banking services easily accessible with reasonably minimum effort. Although mobile banking has proved to be an effective instrument of retail banking business and consumer banking in terms of time saving, effort and cost reduction, there are numerous factors that exhibit distinct influences on consumers' adoption of mobile banking in different regions. The factors that were investigated in this study are perceived self-efficacy, supposed risk, relative advantage and perceived compatibility.

The banking sector in South Africa has emerged as one of the well-regulated financial sector relative to financial sectors in numerous industrialised countries in the world. According to the World Bank (2013), South Africa's financial sector is fairly inclusive with approximately 54 percent of adults reported to be using formal accounts facilitating both deposit and withdrawal transactions with a bank. The banking sector has become much more concentrated and dominated by the four largest banks; namely ABSA Bank, Standard Bank, First National Bank, and Nedbank. Combined together, the respective four largest banks account for about 84% of the total banking sector assets, with the smaller banks accounting for the remaining 16% (Banking Association South Africa, 2012).

1.2. Background

In South Africa, mobile banking was first introduced in August 2002 with about 31 426 consumers having registered for the service (Dagada, 2013). In 2002, mobile banking primarily provided the service for balance checking. ABSA was the first bank to launch this service; followed by FNB, Standard Bank and Nedbank. Increased consumer interest in mobile banking remains the key drivers for sustained use of mobile banking. Mobile banking in South Africa has three formats; namely Wireless Application Protocol (WAP), Wireless Internet Gateway (WIG), and Unstructured Supplementary Service Data (USSD). Despite many people having mobile phones, the number of consumers with active bank accounts adopting mobile phone banking remain significantly low (Meyer, 2015). Based on the global banking report by KPMG (2015), there are noticeable challenges in South Africa that have limited the adoption and use of mobile banking services.

Prior to exploration of the challenges noted by KPMG (2015), Ramlakan (2012) had indicated that South Africa is however classified among countries that have highest mobile banking user rates in the world. Moreover, the rates are expected to accelerate in light of the 100 percent mobile phone penetration rate in the innovative banking sector that is making remarkable progress towards reaching the large unbanked segment of the country's population. In stressing the point that mobile banking is progressively emerging as the future of retail banking in South Africa, Ramlakan (2012) indicated that the increasing convergence between mobile phones and banking technology for conducting shopping and banking transactions reflect that the days of customers using their

branches for banking are actually numbered.

1.3. Problem Statement

In April 2015, South Africa has been reported to have about 79.8 million mobile phone subscribers; out of which 39.3% (31.4 million) are with Vodacom, 35.1% (28 million) with MTN, 22.7% (18.1 million) with Cell C, and the remaining 2.9% (2.3 million) with Telkom and Virgin Mobile (Bronkhorst, 2015). According to KPMG (2015), mobile banking services in South Africa have remained much lower than anticipated and still underused. The mobile banking market still remaining very small when compared to the entire banking transactions (KPMG, 2015). Given the existence of growth in mobile phone ownership and low uptake in mobile banking services in the country, there was therefore need to investigate factors influencing consumers' adoption of mobile banking at distinct regional levels in the country.

1.4. Research Objectives

- To analyse the effect of perceived self-efficacy on consumers' adoption of mobile banking services in Tshwane
- To establish the impact of risk on consumers' adoption of mobile banking services in Tshwane
- To determine the influence of relative advantage on consumers' adoption of mobile banking services in Tshwane
- To examine the effect of perceived compatibility on consumers' adoption of mobile banking services in Tshwane

1.5. Research Questions

- What is the effect of perceived self-efficacy on consumers' adoption of mobile banking services in Tshwane?
- What is the impact of risk on consumers' adoption of mobile banking services in Tshwane?
- What is the influence of relative advantage on consumers' adoption of mobile banking services in Tshwane?
- What is the effect of perceived compatibility on consumers' adoption of mobile banking services in Tshwane?

1.6. Research Propositions

Given mobile banking overall confidence as the dependent variable (mobile banking adoption proxy) in this study, exploratory variables that influence consumers' mobile banking adoption are perceived self-efficacy, supposed risk, relative advantage and perceived compatibility.

- Perceived self-efficacy has significant positive influence on consumers' adoption of mobile banking services,
- Perceived risk on has substantial negative influence on consumers' adoption of mobile banking services,
- Relative advantage has a considerable positive influence on consumers' adoption of mobile banking services, and
- Perceived compatibility has a significant positive influence on consumers' adoption of mobile banking services.

2. LITERATURE REVIEW

2.1. The South African banking sector

Mobile banking services are largely associated with banking activities in the sense that mobile banking services are a subset of electronic banking. Technically, the mobile banking service requires a customer to hold a deposit account to and from which payments or transfers can be made (Alalwan, Rana, Dwivedi, Lal & Williams, 2015). Following Jeong & Yoon (2013), mobile banking can be considered as an electronic commerce application which for that reason, some literature surveys associated with e-commerce and internet banking remains relevant to provide valuable insights into assessing the magnitudes of acceptance and non-acceptance of mobile banking services adoption in different regions.

South Africa has a developed and well-regulated financial sector that compares favourably with many developed and emerging countries in the global economy. The financial regulation legislation, technology, products and the number of competing firms have changed levels of the competition landscape in the sector. According to the Banking Association of South Africa (2012), the South African banking industry during the calendar year 2012 consisted of 17 registered banks, 2 mutual banks, 12 local branches of foreign banks and 41 foreign banks all with approved local representative offices that were under financial regulation by South African Reserve Bank (SARB). Based on World Bank (2013) report, South Africa's financial sector is fairly inclusive with some 54% of adults reported to using a formal account enabling both deposits and withdrawals at banks, credit

unions, cooperatives, post offices, or microfinance institutions. During 2012, FinScope SA (2013) indicated that the figure of banked adults stood at 75% in as much as it includes individuals who receive government-to-person social welfare payments for children, the disabled and the elderly.

The banking sector in South Africa is much more concentrated and dominated by four largest banks, namely ABSA Bank, Standard Bank, First National Bank (FNB), and Nedbank. The respective four banks account for approximately 84% of banking sector total assets, while smaller banks account for the remaining 16% (Banking Association South Africa, 2012). These large banks are equipped with operations and technology systems, sector compliance structures and procedures. The decision making processes are better aligned to providing services to middle-high income population segments than with lower income markets (World Bank, 2013). Standard Bank, the largest bank in terms of assets, had a market share of 31 percent, followed by ABSA, First National (FirstRand) Bank and Nedbank with about 26 percent, 23 percent and 20 percent; respectively (Banking Association South Africa, 2012).

2.2. Mobile banking in South Africa

Mobile money is a form of transformational mobile banking that utilises the mobile phone to transfer money and make payments to the unbanked and underserved individuals or population segments (GSMA, 2014). At the end of 2013, there were 219 services live in 84 countries with 113 new implementations (GSMA, 2014). Customers were reported to have embraced the mobile technology in their day to day lives given the fact that mobile phones can perform mobile banking transactions.

The newly emerged mobile banking services represent an innovation where both intangible service and an innovative medium of service delivery employing high technology are present. Financial institutions mobile banking platforms rely on one or a combination of strategies which include downloadable mobile-banking applications, mobile browser-based programs and text messaging applications (Odhiambo, 2012). These strategies ensure that mobile banking can be accessible to a customer with even the most basic mobile phone handset. In an effort to avoid loss of control over money supply, South Africa Reserve Bank regulation stipulates that only banks registered under the Banks Act are allowed to engage in the business of banking. This implies that only banks are permitted to take deposits from the general public or issue electronic money (CGAP, 2014). Non-bank entities wishing to offer branchless banking services that entail taking deposits from the public such as mobile banking can do so only in partnership with a registered bank (CGAP, 2013).

In South Africa, in the pre-digital age, visiting a local branch was the only way to access banking services. The introduction of ATMs 1981 was done to ease the customer demand for the task of withdrawing money and became the first implementation of self-service banking made available to the customers (Standard Bank, 2013). Internet banking was launched in South Africa around 1996, thus elevating the concept of self service banking further (Banking Association South Africa, 2014). The launch of internet banking was followed by cellphone banking in early 2000 as introduced by ABSA with just a single limited functionality of balance checking (Banking Association South Africa, 2014). According to the World Wide Worx Mobility (2014), there was a decline of internet banking on personal computers or laptop but an increase in the uptake of the three modes of cellphone banking in use of text messaging applications from 26% to 32%. Internet banking on cellphone showed a trivial increase from 11% to 12%, while downloadable mobile banking applications increased somewhat significantly from 1% to 9% (Bizcommunity, 2014). However, about 94% of South Africans still prefer to access their bank accounts through ATMs while 83% prefer branch visits (Bizcommunity, 2014). From all the banking consumers who use mobile banking in South Africa, FinScope (2013) documented that the transactional behaviour of banking consumers reveals 84 percent for airtime purchase, 54 percent account balance enquiries, 15 percent bill payments, and 12 percent money remittances.

2.3. Technology Acceptance Model (TAM) in Mobile Banking

Empirical research on the reasons and conditions that lead individuals to adopt a new information technology application have dominated the center stage in the realm of banking and financial literacy studies. Numerous competing theories or models of technology diffusion or acceptance have been analysed to understand factors that influence the individuals' behavioural intentions to use technology (Petrova, 2015). As such, the TAM remains one such widely used models in electronic commerce (e-commerce). The model adopted the "theory of reasoned actions" (TRA) causal relationships to explain the influence on an individual's acceptance behaviour of information systems. In light of this background, the purpose of TAM is to explain and predict the acceptance of technology based on two behavioural beliefs, namely "perceived ease of use" and "perceived usefulness" (AlSoufi & Ali, 2014). As emphasised by Nayak, Nath & Goel (2014), Davies (1986) defines "perceived usefulness" as the "degree to which an individual believes that using the particular system would enhance his" while "perceived ease of use" is defined as the "degree to which a person believes that using a particular system would be free of effort".

Based on the TAM, perceived usefulness is regarded to be influenced by ease of use because the easier the system to use the more useful it can be. In results from many empirical test of TAM, perceived usefulness has

consistently been found to be a strong determinant of intentions to adopt (Samudra & Phadtare, 2012). Alpesh (2013) accentuates that customers can be willing to use mobile banking service when they perceive it to be useful. Perceived ease of use in the context of mobile banking services centres on the navigational structure of the website (Nayak, Nath & Goel, 2014). Accordingly, factors contributing to the acceptance of new information of technology innovations are likely to vary dependent upon the type of technology, target users and context. It is therefore reasonable to expect situational variables to influence perceived usefulness and perceived ease of use by customers (Yu, 2012). According to Alalwan, Rana, Dwivedi, Lal & Williams (2015), when deploying a technology perceived as risky by targeted customer, there is serious need to place emphasis on the ease of use of the product or service.

Perceived usefulness and ease of use may not however fully explain the customers' behaviour in an emerging environment such as mobile banking services. In this study, perceived risk and trust are introduced as additional beliefs that may have an impact on the acceptance of mobile banking. Due to mobile banking service's intangibility and dependency on mobile service network connectivity, the service distribution chain seems to be plagued with uncertainty. Hence, the service is perceived as highly risky as compared to other traditional modes of banking (Kazemi, Nilipour, Kabiry & Hoseini (2013). Adoption of mobile banking is more complex than one-time online purchases since there is an initiation of a long-term relationship between the customer and mobile banking service provider (Yu, 2012).

3.1 RESEARCH DESIGN AND METHODOLOGY

3.1. Introduction

In conducting the analysis, the research methodology applied comprised the suitable research design, target population and sample, research, validity of the research instrument, scale reliability and statistical data analysis techniques.

3.2 Research design

Given that the survey data to be collected was numerical in measurement (Kabir, 2013), the research design for this study was a quantitative approach. From the 514 195 total population estimate delimited to Region 3 of Tshwane reported from the 2011 Census (Statistics South Africa, 2011), a target adult population of 64 418 was used and a sample of 120 participants was selected. Data was collected using a structured questionnaire. In conducting the exploratory measurement of the factors relating to perceptions and positions of retail bank consumers around adoption of mobile banking, a combination of descriptive, exploratory and inferential statistical techniques was applied to analyse the data to be collected from participants using structured questionnaires.

3.3. Target population and sampling strategy

The target population for this research study comprised of retail banking customers in Tshwane, Gauteng province. In light of the absence of a readily available sampling frame, non-probability sampling method in form of convenience sampling was applied in this study. The selection and application of this approach was based on the rationale that the population size of target participants is unknown and characterised by speed, easiness and cost-effectiveness. A sample of one hundred and twenty (n=120) respondents was be selected for data collection.

3.4. Research instrument

Primary data collection was undertaken through both physical and electronic distribution of self-administered structured questionnaire to research participants. The research questionnaires were distributed using e-mails and hand delivery in order to effectively manage the cost of data collection. Moreover, a self-administered structured questionnaire was used in light of the rationale that it is less intrusive than face to face interviews; and ensure that participants provide responses to all questions at the time most convenient to them. The questionnaire was constructed based on a 5-point Likert scale upon which the levels agreement or disagreement were determined as follows: 1=Strongly Disagree; 2=Disagree; 3=Neither Agree nor Disagree; 4=Agree; and 5=Strongly Agree.

3.5. Statistical data analysis

Data analysis refers to the process of converting data into information (Saunders et al., 2003). The primary focus of data analysis in both qualitative and quantitative studies is to obtain relevant answers to specific questions and draw conclusions. Data analysis was conducted by applying appropriate statistical techniques using Statistical Package for Social Sciences (SPSS) program version 24 for windows. For inferential purposes, stepwise regression was conducted in the analysis to derive conclusions on the propositions.

The validity of the research instrument refers to the extent to which the research instrument measures what it is actually intended to measure (Zohrabi, 2013). In other words, validity measures the research instrument's fitness for purpose. The statistical validity of the measurement instrument was examined through factor analysis; a process by which total correlation analysis of items is evaluated (Beavers et al, 2013). Prior to conducting factor analysis,

the Keiser Meyer Olkin - Measure of Sampling Adequacy (KMO-MAS) analysis was undertaken to determine suitability of the size of sampling for factor analysis. The KMO value was used to indicate whether the data was suitable for factor analysis. The KMO value was computed in statistical program based on the function specified below:

$$KMO = \left(\sum\sum r_{ij}^2\right) / \left(\sum\sum r_{ij}^2 + \left(\sum\sum a_{ij}^2\right)\right); \text{where} a_{ij} = \left(r_{ij} \bullet 1,2,3,...,k\right) \quad \text{---------- (1)}$$

Where $a_{ij} \approx 0.0$, then the variables are measuring a common factor and the KMO value ≈ 1.0. Conversely, where $a_{ij} \approx 0.0$, then the variables are not measuring a common factor and the KMO value ≈ 0.0. Proceeding further, the Bartlett's test of sphericity was conducted to determine whether factor analysis could sufficiently be performed on the surveyed data. Computation of the KMO was based on the function of exploratory factor analysis; which is a multivariate statistical method that examines the dimensionality of a set of variables; for which latent variables are unobserved constructs referred to as factors. Operationally, the technique explored the dimensionality of a measurement instrument by finding the smallest number of interpretable factors that explain the correlations among a set of variables.

$$\begin{bmatrix} X_1 \\ \dots \\ X_n \end{bmatrix}_{nx1} = \begin{bmatrix} \lambda_{11} & \dots & \lambda_{1m} \\ \dots & \dots & \dots \\ \lambda_{n1} & \dots & \lambda_{nm} \end{bmatrix}_{nxm} \begin{bmatrix} F_1 \\ \dots \\ F_m \end{bmatrix}_{mx1} + \begin{bmatrix} e_1 \\ \dots \\ e_n \end{bmatrix}_{nx1} \quad \text{---------- (2)}$$

The matrix of the factor analysis model above indicates that given n variables $X_1, \ldots, X_n$ measured on a sample of m subjects was specified based on the assumptions of a constant variance which on average equals zero ($Var(e_j) = \sigma_j^2$; $E(e_j) = 0$), no association between the factor and measurement error ($Cov(F, e_j) = 0$), no association between error ($Cov(e_j, e_k) = 0$),

and independence of observed variables such that $Cov(X_j, X_k \mid F) = 0$.

In order to assess the degree to which chosen items measured a single one-dimensional latent construct, internal consistency or scale reliability of the research instrument's items was examined using the Cronbach's alpha criterion. The Cronbach's alpha value was computed to examine the homogeneity of internal consistency of the underlying items.

4. RESULTS AND ANALYSIS

4.1. Statistical validity

In conducting the analysis, the sampling adequacy of survey items of the research instrument was measured based on Keiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (MSA) criterion. Disaggregated statistical validity results on factors influencing consumers' mobile banking adoption by surveyed retail banking consumers in Tshwane are presented in Table 4.1.

Dimension	No. of Items	KMO- MSA value
Perceived self- efficacy	2	0.500
Perceived risk	10	0.872
Relative advantage	3	0.588
Perceived compatibility	3	0.550
Overall	18	0.811
Approx. Chi-square; Barlett's Test of Sphericity Sig (df)	795.47; p < 0.05 (153)	

Table 4.1: Statistical Validity of Disaggregated Dimensions and Overall KMO-MSA criterion

The Keiser-Meyer-Olkin (KMO) approach was applied to determine suitability of sampling adequacy. Given the statistically acceptable minimum KMO-MSA value of 0.600, the computed overall KMO-MSA value (= 0.811) for the eighteen questionnaire items on consumers' adoption of mobile banking services confirms adequacy of the sample of items explored under all the given dimensions. Conversely, the KMO-MSA values below the score 0.600 for the questionnaire items under the dimensions "perceived self-efficacy" (= 0.500), "relative advantage" (= 0.588) and "perceived compatibility" (= 0.550) indicate that the items sampled under the respective dimension were marginally inadequate for the study. Statistically, the results suggest that increases in the number of questionnaire items under each respective dimension could improve the validity of the research instrument; as well as appropriately satisfying the criteria for performing factor analysis.

4.2. Scale reliability

The internal consistency of the research instrument's items was examined based on the Cronbach's alpha criterion (Peters, 2014). Technically, the scale reliability test was undertaken to statistically determine the degree to which the chosen set of survey items measured a single one-dimensional latent construct. In other words, Cronbach's alpha coefficient was statistically measured to assess the extent to which if the same questions were to be asked to same respondents several times under similar conditions, identical responses could be obtained (Peters, 2014).. The disaggregated and the overall scale reliability results on the four dimensions of the research instrument; namely perceived self-efficacy, perceived risk, relative advantage and perceived compatibility are presented in Table 4.2.

Dimension	No. of Items	α value
Perceived self- efficacy	2	0.566
Perceived risk	10	0.872
Relative advantage	3	0.336
Perceived compatibility	3	0.535
Overall scale reliability	18	0.662

Table 4.2: Scale Reliability of Items

The Cronbach's alpha coefficient value ($\alpha = 0.662$) for the finally selected eighteen items was nearly close to the minimum acceptable ($\alpha = 0.7$) scale reliability score. The result reveal that the items used measured a single unidimensional latent construct.

4.3. Respondents' demographic profiles

This section presents results on frequencies on demographic profiles of respondents from whom survey data was collected to determine factors influencing consumers' adoption of mobile banking. From the total one hundred and twenty (n = 120) questionnaires distributed to retail banking customers or participants in Tshwane, 105 questionnaires were duly completed; yielding nearly 88% effective response rate.

	Proportion (%)	Frequency (count)
Gender		
Male	27.6	29
Female	72.4	76
Race		
Black African	79.0	83
Coloured	12.4	13
Indian	1.0	1
White	7.6	8
Age group (in years		
Below 20	1.0	1
20-29	41.0	43
30-39	37.1	39
40-49	12.4	13
50-59	5.7	6
Over 59	2.9	3
Highest education attained		
Primary school	1.0	1
Secondary school	54.3	57
Bachelor's degree	22.9	24
Postgraduate degree	21.9	23
Employment status		
Student	1.0	1
Employed full-time	30.5	32
Employed part-time	65.7	69
Unemployed	2.9	3
Primary bank with active account		
Absa	12.4	13
Capitec	28.6	30
Investec	2.9	3
FNB	18.1	19
Nedbank	20.0	21
Standard Bank	18.1	19
Number of years of mobile banking use		
Never used mobile banking	18.1	19
=< 1 year	13.3	14
1-<3 years	31.4	33
3-<5 years	24.8	26
5-<7 years	5.7	6
>=7 years	6.7	7
Frequency of mobile banking use		
Never	17.1	18
At least once a week	13.3	14
At least once a month	19.0	20
At least once in the past 90 days	21.0	22
At least once in over 90 days	29.5	31

Table 4.3: Respondents' demographic profiles

The frequency statistics on respondents' demographic profiles reveal that 72% (n = 76) majority of respondents were females while the remaining 28% (n = 29) were males. With regards to race, the majority 79%

(n = 83) of the respondents were Black African while the least 1% (n = 1) was an Indian. The dominating age group was 20-29 years which accounted for 41% (n = 43) of the total valid responses, followed by the age group 30-39 years which comprised of 37% (n = 39) of the total respondents surveyed. With regards to educational qualifications attained, 54% (n = 57) of the respondents reported that they had secondary education, followed by 23% (n = 24) who had bachelor's degree and 22% (n = 23) who had postgraduate degrees at the time the survey was conducted. The survey results further reveal that about 66% (n = 69) of the respondents self-reported that they were employed on part-time basis while about 31% (n = 32) were employed on a full-time basis. The relative majority of approximately 29% (n = 30) of the respondents reported that they had active bank accounts with Capitec Bank, followed by Nedbank with 20% (n = 21). Standard Bank and FNB each had 18% (n = 19) of the respondents who indicated they have active bank accounts with the respective banks. From the total 105 participants with valid responses, 31% (n = 33) reported that they have been using mobile banking for one to less than three years, while 25% (n = 26) have been using mobile banking services for three to less than five years. With regards to frequency of using mobile banking, about 30% (n = 31) of the respondents reported that they use mobile banking at least once in over 90 days, 21% (n = 22) respondents use mobile banking at least once in the past 90 days and 19% (n = 20) at least once a month.

4.4. Stepwise linear regression analysis

Given that the estimated coefficients of some factors can be statistically insignificant when using multiple regression model, the standard errors of the respective factors can be greater than half the beta values of the respective coefficients (S.E > β/2). To address that condition, stepwise linear regression was applied as the appropriate analytical technique. The technique was applied without the constant and interaction effects to explore constructs that yield the best fit model for mobile banking adoption.

Model	R	R Square[b]	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.978[a]	.956	.956	.818	
2	.982[c]	.964	.964	.743	
3	.983[d]	.966	.965	.727	
4	.984[e]	.968	.967	.705	1.824

Table 4.4: Model Summary[f, g]

a. Predictors: Perceived compatibility
b. For regression through the origin (the no-intercept model), R Square measures the proportion of the variability in the dependent variable about the origin explained by regression. This CANNOT be compared to R Square for models which include an intercept.
c. Predictors: Perceived compatibility, Perceived self-efficacy
d. Predictors: Perceived compatibility, Perceived self-efficacy , Perceived risk
e. Predictors: Perceived compatibility, Perceived self-efficacy , Perceived risk, Relative advantage
f. Dependent Variable: Mobile banking adoption acceptability
g. Linear Regression through the Origin

Results estimated from the stepwise linear regression analysis (Table 4.4) indicate that four models were run; with model 4 being the best fit for explaining factors influencing mobile banking adoption among retail banking customers in Tshwane. Based on the computed adjusted R-square of model 4, approximately 97% of variation in mobile banking services adoption by retail banking customers in Tshwane is influenced by perceived self-efficacy, perceived risk, relative advantage and perceived compatibility. The Durbin Watson statistic (DW statistic = 1.824) indicates absence of autocorrelation in the residuals. According to Akter (2014), the Durbin Watson statistic tests for autocorrelation in the residuals from a statistical regression analysis, for which a value of 2 means reflects absence of autocorrelation in the sample.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	Perceived compatibility	1.031	.022	.978	47.670	.000	.989	1.074
2	Perceived compatibility	.577	.096	.547	5.982	.000	.386	.768
	Perceived self-efficacy	.405	.084	.440	4.811	.000	.238	.572
3	Perceived compatibility	.604	.095	.572	6.342	.000	.415	.792
	Perceived self-efficacy	.490	.090	.532	5.430	.000	.311	.669
	Perceived risk	-.177	.076	-.124	-2.317	.023	-.328	-.025
4	Perceived compatibility	.481	.103	.456	4.687	.000	.277	.685
	Perceived self-efficacy	.370	.098	.402	3.781	.000	.176	.564
	Perceived risk	-.270	.081	-.190	-3.313	.001	-.431	-.108
	Relative advantage	.312	.114	.311	2.731	.007	.085	.539

Table 4.5: Coefficients[a, b]

a. Dependent Variable: Mobile banking adoption acceptability
b. Linear Regression through the Origin

From the final model of the stepwise multiple regression procedure; all the four factors remained statistically significant towards influencing mobile banking services adoption in Tshwane. Based on the t-statistics, perceived

compatibility has the highest statistically significant (t statistic = 4.687) and positive influence on mobile banking services adoption; followed by perceived self-efficacy (t statistic = 3.781), perceived risk (t statistic = -3.313) and lastly relative advantage (t statistic = 2.731). From the computed results, a 1% improvement in respondents' perceived compatibility leads to approximately 0.46% improvement in mobile banking services adoption; while a 1% improvement in customers' perceived self-efficacy leads to nearly 0.40% improvement in mobile banking services adoption. However, an increase in perceived leads to a decline mobile banking services adoption by approximately 0.19% while a 1% improvement in perceived relative advantage leads to nearly 0.31% improvement in adoption of mobile banking services among retail banking customers in Tshwane.

4.5. Conclusion

Factor analysis and scale reliability tests were first performed to determine the statistical validity and internal consistency of the research instrument's survey items prior to computation of descriptive statistics and stepwise linear regression analysis. Based on the Keiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (MSA), all items were retained in the analysis. Furthermore, the same items were retained in the factor analysis performed via the Varimax rotation with Keiser Normalization. The descriptive statistics of retained items and stepwise linear regression analysis were conducted.

5. CONCLUSION AND RECOMMENDATIONS

In order to promote adoption and use of mobile banking services, it is recommended that retail banks should implement mechanisms that enable the recall of funds in situations where funds get erroneously transferred. This will help reduce the magnitude of perceived risk banking customers would have and it has to be done in a manner that does not compromise the integrity of mobile banking as a payment channel. To enhance an improvement in adoption and usage of mobile banking services, retails banks continuously improve mobile banking services by matching user interfaces, paying consistent attention to and addressing the risks that could affect the day-to-day transactions performed through mobile devices, motivating retail banking customers to adopt new banking technology and demonstrate the benefits associated with it.

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