

FACTORS INFLUENCING THE ADOPTION OF MOBILE FINANCIAL SERVICES IN ENHANCING FINANCIAL INCLUSION: USING STRUCTURAL EQUATION MODELING FOR THE DECISION-MAKING APPROACH

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Received: 3 January 2023, Revised and Accepted: 7 February 2023

ABSTRACT

The study aims to examine the relationship between mobile financial services and financial inclusion. Using modification hypotheses related to the technology acceptance model, the theory of Rational Behavior, and the Theory of Planned Behavior were adopted to test hypothesized relationships. The study employed a quantitative approach whereby 220 respondents participated in the survey online, accessing the view on mobile financial services in promoting financial inclusion. Convenience sampling was adopted to select appropriate and needed participants for the study. The study focused on the perception of the mobile users that use mobile banking regarding its usefulness as a banking service. The findings indicate social influence, performance expectancy, risk perception, and trust perception are significantly related to mobile financial services and enhance financial inclusion. The study found that the more mobile banking customers interact with devices, the more mobile financial services grow and accept innovations towards technology and convenient service, and the more likely they are to adopt it. The study contributed significantly to the existing body of knowledge through mobile financial services. The strength of the relationship between mobile financial services and financial inclusion through the independent variables. This provides essential insights and analysis that can influence the outcome of other relationships and the model. A notable limitation is the underestimation of the rural population in this study is significantly important. Future studies should provide larger rural samples of mobile banking users.

Keywords: Mobile financial services, Financial inclusion, Social influence, Trust, Risk, Performance expectancy.

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INTRODUCTION

Mobile financial services are rapidly being considered part of the technological change in the financial business (Liu *et al.*, 2015). The expansion of innovation and technology has greatly benefited the commercial market. In recent years, companies have recalibrated their goals to make information systems technology an integral part of their processes (Gawer, 2021). As such, more and more literature has been diverted to the field (Page and Chahboun, 2019). A survey of several existing studies recommending integrating different theoretical models to understand IT deployments emphasizes the need for a comprehensive contextual analysis (Cramm *et al.*, 2018). From this point of view, an increasing number of researchers are paying attention to mobile financial services, which are considered to be information system developments (Sharma and Sharma, 2019). Mobile Financial Services refer to financial transactions performed remotely using mobile phones (such as smartphones and tablets) and mobile software (such as app programs) through banking services or network provider services (Fenu and Pau, 2015). By investing significant resources in wireless Internet technology, Mobile Financial Services providers allow consumers to access financial services by transferring money and paying bills through mobile phones anytime, anywhere (Leng *et al.*, 2018). Focusing on money financial services, the research includes three main research areas: Mobile technology, mobile banking, mobile money transfer, and mobile payments services (Gichuki and Mulu-Mutuku, 2018). Mobile banking is the latest in a series of new mobile technology marvels (Koenait *et al.*, 2019). Therefore, a large impact on the market is expected (Weber, 2010). Payments today are moving to mobile financial services, specifically mobile devices identified as mobile payments (Liu *et al.*, 2015). Mobile money has emerged as an important innovation in many respects, potentially expanding financial inclusion in developing countries (Donovan, 2012; Batarseh and Kamardeen, 2017).

Consequently, many are poorly served by banks, and some consider long travel distances or lack of funds to meet the minimum deposit recommended to open an account with a bank (Lashitew *et al.*, 2019). People have yet to see much-increased access to financial services (Muhammad *et al.*, 2018). Using more flexible instruments can create incentives to use less cash while, simultaneously, the count ability of economic performance by statistical instruments continues to improve. At the same time, tax discipline will improve, and overall social payment costs will decrease, meaning that the economy as a whole will begin to whiten, leading to increased competitiveness (Muhammad and Mamman, 2017). However, the introduction of Mobile Financial Services has significant advantages over traditional payment methods such as physical bills of exchange, checks, and coins (Muhammad and Melemi, 2019). Adoption rates in many developing countries have yet to be fully exploited. Around 45% of the Nigerian population had a mobile phone subscription in 2022, and mobile internet users doubled compared to 2019 when only 27.27 per cent (Emara and Mohieldin, 2022). Therefore, the motivations behind the success of its development and failure still need to be better understood, along with the causes and motivations behind the adoption of mobile money and the lack of widespread adoption of this technology (Lashitew *et al.*, 2019). These trends reveal a partial knowledge of the motivations and barriers affecting the use of this mobile service (Möhlmann, 2015). Understanding why Money Financial Service is worth choosing can help formulate a strategy and enable companies to effectively communicate its benefits to their customers (Berman, 2021). Mobile financial service providers could become more attractive and competitive if they improve their strategies to meet consumer demand (Agyei-Boapeah *et al.*, 2022). Therefore, it is necessary to understand the diverse needs of mobile financial service users and the relative weight of each factor or criterion that may influence consumer demand. A possible reason for the gap between these may be risk perceptions that limit consumers'

ability to make informed decisions to utilize Money Financial Service technology in Nigeria (Muhammad and Ngah, 2021). Most previous studies test trust as a single component (Afshan and Sharif, 2016) or look at trust components and risk dimensions in isolation (Chung and Kwon, 2009). In other words, how to effectively assess trust and risk concerns simultaneously remains a black box. Referring to research in information technology (Camero and Alba, 2019), multidimensional concepts of trust and perceived risk can play an integral role in individual behaviors related to the acceptance of new Mobile Financial Services and stress that it is of utmost importance that this is investigated, especially in developing countries. In addition, extensive research has been conducted to fully understand the factors influencing Money Financial Services adoption and their importance. However, most previous studies from this perspective have used descriptive statistical analysis as a research method to highlight common factors associated with Money Financial Services adoption (Sablan, 2019). Therefore, using services like Money Financial Services requires careful decisions so that individuals do not regret their decisions (Pazarbasiglu *et al.*, 2020). From there, Multicriteria Decision Making provides an important framework within which businesses can focus on what strategies to implement to meet consumer needs, generate adequate income, and thrive in a competitive environment (Huang and Jahromi, 2021). To advance their current Internet Services, Research and Koppius [46] need to integrate decision modeling techniques into their Internet Services research to generate data estimates and methods to assess the analytical power of the results. Therefore, the application of combined analytical methods highlighted how integrating two or more data analysis techniques, either methodologically or in research, can promote the reliability and validity of results (Wang *et al.*, 2020).

Furthermore, most managers base their strategic decisions on a single goal or dimension, whereas strategic planning is influenced by various factors and viewed from multiple perspectives (Muhammad *et al.*, 2022). This study examines an influential trust and risk awareness of mobile banking and the level of adoption of Money Financial Services in Nigeria. Using data from experts from Mobile Financial Service and Mobile Financial Services experienced users, we propose and validate model MFS acceptance using SEM techniques and selecting the appropriate Mobile Financial Service type for MFS based on expert opinion and prioritizing operational trust risk factors while uncovering ambiguous relationships between factors affecting customers in Mobile Financial Service and SEM based model for criteria decision-making.

LITERATURE REVIEW

The rapid adoption of mobile devices in developing countries and widespread mobile financial services has recently attracted the attention of practitioners and academics (Maurer, 2012). As consumers increasingly spend more time online and become "mobile," the digitization of finance is forcing banks and network service providers to undergo some of the most radical transformations in history. Mobile financial services refer to financial services and transactions conducted through mobile devices (Ouma *et al.*, 2017). Mobile Financial Services represent an innovative and strategically important area for global poverty reduction initiatives and financial inclusion (Kim *et al.*, 2018). It is said to have brought about a positive change in customer perceptions in many countries, and Nigeria is not an exception. Mobile operators realized Mobile Financial Services as an opportunity to generate revenue through adjacent businesses and recoup costs and investments by expanding the use of consumer data (Canha *et al.*, 2019). The Mobile Financial Service goal has many benefits for banks, including reducing the use of cash while making it cheaper for the unbanked and protecting current accounts and commodities. The primary benefits of Mobile Financial Services for commerce are increased point-of-sale output, real-time messaging to users, and reduced cash handling costs. Access to transaction information and ownership of the user interface continues to be recognized as key values of mobile financial services. For customers, Mobile Financial Service enables payments anytime, anywhere, with a reduced risk of theft (Dold and

Lewis 2022; Shankar and Rishi, 2020). These advantages are equally applicable to all Nigerian. Moreover, in developing countries affected by socio-political instability and vulnerability, Mobile Financial Service technology may have varying implications for usage, influencing initial adoption decisions (Singh and Srivastava, 2020). In the Northern part of the country, which suffered from the mess of the insurgency of Boko Haram, indicates sometimes suggested that policies, regulations, and social and environmental activities cannot be supported adoption which hinders innovation adoption in the face of negative socio-political and external influences, such as the physical atmosphere of development and growth (Roztocki *et al.*, 2019). The imperative of Mobile Financial services may offset challenges such as consumers' need for more trust in new wireless technologies and their perceived risks. We emphasize that user trust and risk perception can influence the adoption of Mobile Financial Services (Bylok, 2022; Cordes, 2022).

Theory and past research

Mobile Financial Services has not seen widespread user adoption as a new service. Therefore, scientists have assessed the factors that influence user acceptance. In addition, technology adoption is one of the key focus areas for information systems. Various theoretical perspectives have been developed to study the adoption of Mobile Financial Services more positively. In another direction, there is current literature on consumer behavior related to the acceptance of information technology. Mobile Financial Services develops a theoretical model for technology acceptance theory (Mohammed *et al.*, 2020). Traditional information systems models are often used to apply the Theory of rational Behavior, Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA), Diffusion of Innovation theory, and Theory of Planned Behavior (TPB), etc. describes the acceptance of International Technology by the users of and Unified Theory of Technology Acceptance and Use. Many studies used these traditional frameworks to conduct their studies, and the remaining studies integrated previous models or added new variables to build models and conduct studies (Baptista and Oliveira, 2015). Therefore, a study explored whether the theoretical construction of the model might affect a consumer's acceptance of Mobile Financial Services (Shin, 2009) and whether consumers are ready to adopt mobile payment. In the TPB model, perceptual behavior is added to attitudes toward behavior and subjective norms that influence both the intentions and actual behavior of people's perceived behavior (Maki and Rothman, 2017). The TRA model states that a particular behavior is guided by an individual's intention to perform that behavior and depends on attitudes and subjective norms toward behavior (Sniehotta *et al.*, 2014). The previous studies have elucidated behavioral perceptual control as the extent to which one can control initiating specific behaviors and facing situations (Ajzen and Driver, 1992). Their results revealed internal and external factors of perceived control, such as self-efficacy and situational facilitation, technology, and government provision, but the greatest impact on behavior was somehow the result of innovation. Research is conducted in developing and developed countries using theories for model justification. However, a limited number have been implemented in Nigeria (Chiemeke and Ewwiekpaefe, 2011). These results need to be more comprehensive to provide meaningful insight to predict which multidimensional trust and risk influence customers' use of mobile financial services and multiple implications associated with adoption decisions. It provides a strategic decision analysis framework for understanding the factors (Bercovitz and Feldman, 2006). Moreover, many of these theories and models are used in developed countries, and direct application in developing countries may need to be more robust for the country's country's economic conditions. Given that it belongs to information technology, where some adoption models may exist, it requires another conceptualization to represent the facts in emerging markets better. Concerning these purposes, this study uses elements from the literature on both confidence and risk dimensions. We consider consumer perceptions of Mobile Financial Service (Mobile Payments, Mobile Banking, and Mobile Money Transfer) adoption in Nigeria and propose a conceptual study to rank their perspectives, enhance financial inclusion, and address exclusion in Nigeria (Tran, 2020).

Theoretical framework and hypotheses

Precursors to trust the concept of trust remains a complex, multidimensional, and context-dependent paradigm (Akter *et al.*, 2011). The previous researchers have emphasized multiple aspects of trust, often leading to contradictions among many research findings. Following objections (Singh and Srivastava, 2020), Additional new IT-related research on trust should collectively assess key aspects of trust, including some scholars suggesting the nature of trust, belief in trust, and structural security (Keating and Abbott, 2021). From the perspective of others, interpersonal, dispositional, and institutional trust are also essential components of the trust dimension; others have found the dimensions of trust as trusting behaviour, dispositional trust, and institutional trust (Moin *et al.*, 2015). Trusting tendency refers to the general tendency to trust others. It is based on personality and explains why some of us tend to trust others or to be mistrustful or suspicious (McKnight and Chervany, 2001). It is important in building initial trust and adjusting to lesser importance in the presence of pre-existing trust beliefs (Hurley, 2011). Trust in technology is seen as a precursor to trust. It refers to an individual's willingness to accomplish a particular task through the positive properties of the technology or an individual's technological dependence (Choung *et al.*, 2022), and utility derives from a particular technology (Sestino *et al.*, 2022). From this perspective, technology trust refers to the role of technology in building trust with users (Zhang, 2022). Given the above, Mobile Financial Service adopters believe that the deployed technology is reliable and consistent, the prospects for evaluating aggregated services look more promising and trust increases. At the same time, it is acknowledged that the triple technology aspects affect the Mobile Financial Service environment. This study intends to treat them as a whole rather than in isolation. Therefore, users or prospective users are encouraged to develop a general understanding of how best to use Mobile Financial Services. Previous studies have shown the importance and advantages of technology dependence in the range of motion (Tajudeen *et al.*, 2022). Merchant confidence is the extent to which consumers see and believe they will meet specified transaction requirements under high-risk or ambiguous circumstances (Sharma *et al.*, 2020; Grohmann and Menkhoff, 2020).

In many situations, it can increase consumer confidence in the provider. An online consumer who views a provider as having opportunistic behaviour can cause resistance in that particular consumer. A negative relationship has been shown (Elhajjar and Ouaida, 2022). Trust, especially in mobile phone providers, plays a very important role in the digital environment (Arvidsson and Melander, 2022). Skills can also be viewed as a salesperson's competence, but salesmanship, honesty, and goodwill are key traits of salesperson trust. By tying this logic to the Mobile Financial Service environment, vendors with good reputations/integrity are less likely to engage in malicious behavior or threaten their standing. As a result, the hypothesis below is to examine the causal relationship between trust ancestry and trust from a Mobile Financial Service perspective.

Mobile financial services

Adoption In this section, we examine three Mobile Financial Services adoption predictors: Temperamental trust, trust, and perceived risk. As part of personality traits, trusting tendencies indicate an individual's preference for relying on humanity and taking a trusting perspective on others (Molina and Sundar, 2022). Many researchers hypothesize that willingness to trust positively influences trust in online shopping websites (Jadi *et al.*, 2022). Ku and Mitzen (2022) pointed out that dispositions to trust are important, especially for early trust development, and for trust beliefs that are less important for established trust or existing relationships. Once encountered by someone with little or no experience using the wireless Internet as a platform for financial transactions, one can predict that willingness to trust will influence perceptions of trust on the Internet. People with high levels of trust are more likely to feel relaxed and secure when using the wireless Internet for financial transactions (Mpfu, 2022). Inferring Mobile Financial Services from this clarity, we expect consumers who are more likely to trust her to be more likely to endorse Mobile Financial

Services than consumers who are less likely to trust (Wilson *et al.*, 2021). The next precursor to Mobile Financial Services adoption is risk awareness. Since its application in the consumer behavior literature (Mishra *et al.*, 2021), the concept of perceived risk has been reviewed from various perspectives. Classical decision-making concepts view risk perception as a function of the distribution of possible action outcomes, probabilities, and subjective values (Gordon, 2021). Various researchers have criticized this approach for its rigor in considering perceived risk variables to be similarly vague and obscure (Wolfowicz *et al.*, 2020) but have been lifted to define this concept as an expected utility theory (Ajzen and Driver 1992). Thus, risk explicitly continues the customer's subjective loss expectations in describing perceived risk. Internet banking, primarily mobile banking, and mobile financial services rely on similar risks, just different channels of information media.

Social influence (SI)

Customers are primarily influenced by the opinions of those around them when using new technologies, especially in the age of social media (Werenowska and Rzepka, 2020; Ameen *et al.*, 2020; Grover and Kar, 2020). Positive recommendations about new technologies from family, friends and colleagues can persuade customers to adopt them (Kranthi and Ahmed, 2018). Therefore, in this study, SI is defined as a critical view of others (friends, family members, relatives, colleagues, etc.) who believe they should use the Mobile Financial Service platform. SI, also called subjective norms, is the degree to which an individual believes. Influential people believe in adopting the new system or idea (Slade *et al.* 2015). In addition, various studies suggest that people who use Fintech services such as mobile payments and online banking are positively affected by social impact (Lien *et al.*, 2020; Baabdullah *et al.*, 2019; de Luna *et al.*, 2019; Muflih, 2021). The above research assumed that consumer intentions to use mobile financial services platforms would be influenced by key groups.

H1) SI positively influences the adoption of mobile financial services and the enhance financial inclusion.

Performance expectancy (PE)

PE can be defined as the degree to which an individual believes implementing new technology will improve their job performance (Kranthi and Ahmed, 2018). The study examined PE as the extent to which Mobile Financial Services customers believe adopting mobile banking will improve their performance and productivity. As previously mentioned, the "received" aspect of perceived value represents the value a user gets from MFS platform. PE indicates individual recruitment based on a desire for external incentives (Jacobs *et al.* 2019; Xie *et al.* 2021). The previous studies have shown that the concept of PE positively impacts perceived value, similar to a utility (Xie *et al.* 2021). Therefore, PE similarly affects perceived value as it helps users improve their mobile banking performance (Kliem and Wolter, 2022).

H2 PE positively influences the adoption of mobile financial services and enhance financial inclusion.

Trust perception (TP)

Trust has been a primary focus of adoption studies and is often used in combination with perceived usefulness and perceived ease of use as another critical factor in attracting consumers (Rehman and Shaikh, 2020). Trust features are essential in the FinTech space, as service offerings involve large amounts of data. Trust is considered essential for technology adoption, especially in financial trading systems (Toufaily *et al.*, 2021). Customer trust is highly valued in the highly competitive financial services industry and requires building strong customer relationships (Slade *et al.*, 2015). Trust is a term that refers to a user's general perception of the value of an object generated by its intrinsic properties and thus can be used to induce behavior (Hu and Bentler, 2019; Sharma *et al.*, 2020). Trust in FinTech applications, therefore, implies user trust in the application's power, transparency, and usefulness (Stewart and Jürjens, 2018). In addition, several studies

have demonstrated that user trust plays a vital role in adopting fintech services (Al Nawayseh, 2020; Xie *et al.*, 2021). In other words, the more trust in a service provider, the more likely the user will use the service and the easier is to promote behavior (Mpofu, 2022). From this, it can be concluded that trust perceived of customers as an essential factor in the adoption of mobile financial services in Nigeria (Pugliese and Vesper, 2022).

H3 TP positively influence the adoption of mobile financial service and enhance financial inclusion.

Risk perception

Innovation in the financial services industry always carries a high level of risk (Kim *et al.*, 2008; Hossain *et al.*, 2019; Ryu, 2018). FinTech usage RP is a significant barrier for technology adopters (Ryu, 2018). In FinTech, Risk Perceived is described as user perceptions of uncertainty and the potential adverse effects associated with FinTech adoption (Ryu, 2018). According to Peter and Ryan (1976), Risk Perceived is viewed as an indicator of purchase-related loss and acts as a constraint on purchasing activity. Rodrigues and Proença (2022) emphasized that Risk Perceived represents a potential loss when a person uses e-services to achieve a desired goal (Nguyen, 2019). On the other hand, Kim *et al.* (2008) integrated uncertainty with potential loss and defined Risk Perceived as the notion that online transactions may have adverse effects (Kim *et al.*, 2008). Therefore, in this study, risk perceived is defined as an individual’s perception of the potential for unknown and undesirable consequences of adopting a mobile financial services platform. The perceived risks associated with FinTech services fall into four categories: Operations, Finance, Security, and Privacy (Rouibah *et al.*, 2016; Ryu, 2018; Slade *et al.*, 2015). These risks make customers reluctant to adopt new technologies, such as mobile banking and reduce their willingness to use these applications. Furthermore, as Fintech services are intangible, people cannot use these services due to perceived risks of cyber-attacks and currency loss (Chi *et al.*, 2018; Stewart and Jürjens, 2018). The previous studies have found intention to use FinTech services (Ryu, 2018; Al Nawayseh, 2020; Stewart and Jürjens, 2018; Xie *et al.*, 2021) and acceptance of mobile payments (Thakur and Srivastava, 2014; Slade *et al.*, 2015) adverse risk related. Therefore, the uncertainties and financial risks associated with e-commerce can be the main issues hindering consumers’ perceived value and intent to use the mobile financial services platform for financial inclusion.

H4 Risk perception positively influences the adoption of Mobile financial service and enhance financial inclusion.

Conceptual framework

We propose a research model to assess how SI, PE, TP, and risk perception influence mobile financial services and enhance financial inclusion in Nigeria at a multidimensional level. Fig. 1 summarizes the relationships described in the research hypotheses. The proposed model is used to identify multiple attributes as predictors of Mobile Finance Services and enhancing financial inclusion. Based on the above discussion of the proposed hypotheses, we define the four dependent variables (SI, PE, TP, and risk expectation). The remaining two assumptions variables, Mobile Financial Services and Financial Inclusion are used for consumer intent to adopt mobile financial services.

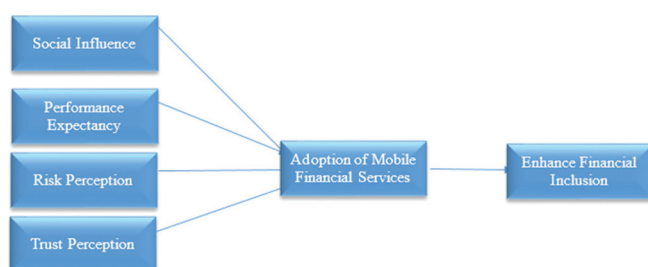


Fig. 1: Study framework

RESEARCH METHODOLOGY

The main objective of this research is to identify the factors influencing the intention of mobile banking users to adopt Mobile Financial Services in Nigeria. Currently is estimated in Nigeria, 180.9 million people are phone users, and almost 45% have a significant increase and registered mobile banking users (Tonuchi, 2020). Consequently, the high adoption rate of mobile banking in Nigeria at the current time is beneficial for financial inclusion. Structural online questions were designed and used to obtain data. The survey respondents were from mobiles financial services platforms (Facebook, Google, Linkin and WhatsApp) in Nigeria. A total of 220 responses were obtained and analyzed. One technique, called the observational approach, collects data about people, events, situations, and behavior. The next, called the communicative approach, considers attitudes, expectations, intentions, and motivations. As a result, this study used data collection on communication approaches. It adopted a survey format, as the study was motivated to test research models and to understand the influencing factors of Mobile Financial Services adoption. Research instruments were then established to develop indicators and criteria. This was primarily approved after the suitability of the components had been checked by selected experts from Mobile Financial Services. The first part was distributed with the sample’s biodata and the second part answered the Mobile Financial Services questions using a 5-point Likert scale ranging from strongly disagree (1) to agree (5) strongly. The second type of questionnaire randomly contacted users and potential users and asked whether they had experience using Mobile Financial Services to determine the recommended level of familiarity. The proposed model and associated measurements were developed using a well-established theory. CBSEM was used in this study because it can estimate the relationship between independent and dependent variables and account for measurement errors simultaneously. Primary data collected in the survey were analyzed using SPSS and AMOS to provide extensive statistical analysis. Therefore, we analyzed the reliability and validity of the constituents to measure the model and further defined the pathway coefficients and their importance by the structural model.

RESULTS, FINDINGS, AND DISCUSSION

After completing the data collection process, the data analysis was reviewed in giving the appropriate demographic status of the study. Thus, 220 participant’s respondents to the questionnaire and were analyzed and demographic profile of the respondents is as follows.

The sample comprised 55% males and 45% females, 45% under 35 years of age, and 34% are 47 of ages above. Regarding the status of the respondents, 65% considered Single (unmarried), whereby 35% are married. On the other hand, the use of mobile banking services was asked for the identification level of the research. It is indicated that 48% of the respondents used their mobile phones, while 52% did not use them for financial services. Furthermore, regarding the mobile banking users engaged how often with mobile banking, the demographic occasionally indicates 50% of the people who often used the services, 25% usually, 23% every day, and never got 7% to have no business with services, as indicated in Table 1.

The Cronbach’s alpha (CA) Average Variance Extracted (AVE) and composite reliability (CR) were used to examine the internal consistency and reliability of the hiring intention model. Hair *et al.* (2010) recognized that CA and CR values above 0.7 are considered acceptable, while Average Variance Extraction threshold of 0.5 above (Kline, 2005). Moreover, the factor loading of each variable should not below 0.5 as indicated by (Byrne, 2013).

The results show that CA values range from 0.713 to 0.798, as shown in Table 2. On the other hand, CR values range from 0.710 to 0.797, well above the standard limit of 0.7 (Hair *et al.* 2010), same with Average Variance Extraction AVE shows positive loadings with above 0.5 and factor loadings of constructs indicate perfect loading with above 0.5 as shown in the items column as shown in Table 2. Therefore, based

on CA and CR findings, it's justified that factors and their associated measurement structures have sufficient and satisfactory validity and internal reliability (Fornell and Larcker 1981).

The model fit was used to estimate the goodness of the measurement model. The Chi-square (χ^2/df) indicates good fitness with 3.871, whereas Comparative Fit Index (CFI) shows the above-estimated threshold of 0.9. The Root Mean Square Error Approximation (RMSEA) shows that 0.049 is recommended to be lower than 0.08 (Kline, 2005). Normed Fit Index (NFI) with a threshold of 0.9, same with Incremental Fit Index of 0.9, and Tucker-Lewis Coefficient of 0.9, all the threshold and cutoff point indicates the acceptability of the model as required and accepted by the theories. Table 4 shows an estimate from the AMOS structural model. According to Gerbing and Anderson (1992), the criteria for an acceptable model are RMSEA less than or equal to ≤ 0.08 ; CFI ≥ 0.90 ; NFI ≥ 0.90 . A probability of 0.9 or greater indicates a good fit (Hu and Bentler, 1999). The GFI and AGFI for this study were 0.9, and the model perfectly fits the goodness-of-fit index used within a sample size of 220.

Table 4 hypotheses testing indicates estimated model fitness, and we evaluated the estimated pathway coefficients of the structural model to test the identified hypotheses (Table 4). As indicated, the correlations between the independent variables were assumed with a significant p-value. The Estimate divided by the Standard Error generates a critical ratio of the hypothesis; therefore, the result emerged in favor of supporting or rejecting the position. In this case, hypothesis H1 found a significant positive relationship between SI and mobile financial

services that show the consumers' willingness to use the service through SIs with a significant level of ($p < 0.003$). This confirms the original TAM relationship between perceived utility and intention to adopt new technology through SI, such will enhance financial inclusion. An H2 with ($p < 0.004$) also indicates a strong positive relationship between PE and mobile financial services. H3 is also checked and considered the positive and significant relationship between Risk perception and Mobile financial services as indicates highest at ($p < 0.000$), indicating a strong relationship between the two factors. Therefore, H3 is supported. The same case with TP and mobile financial services as the relationships proposed in H4 is also supported.

Furthermore, the structural links between mobile financial services and enhancing financial inclusion are strongly positive and found to be significant at the level of 0.000 with the highest critical ratio of 10.084, respectively. Therefore, consumer confidence in mobile money transfer and the ability to try the product significantly impact their willingness to use the service and attract massive financial inclusion in Nigeria, despite the level of trust and risk associated with it being quite noticeable. This finding contrasts with results from the previous studies that mobile financial services significantly enhance financial inclusion in the country.

Several approaches have been proposed to transform correlation coefficients into descriptors such as "weak," "moderate," and "strong" relationships. The coefficient of > 0.9 represents a powerful relationship, while < 0.1 values indicate the weakness of the relationship, and some are considered debatable. However, any correlation coefficient of 0.5 can be interpreted as a "good" or "fair" correlation, depending on the rule of thumb applied. Furthermore, it is pretty inconsistent that a correlation coefficient of 0.3 represents a "weak" association, and 0.40 represents a "moderate" association. Instead of using simplistic rules, I propose to interpret specific coefficients as measures of the strength of relationships in the context of the scientific question being asked. Note that the range of score values should be considered if interpreted as a more extensive range of values tends to show a higher correlation than narrower ranges. The observed correlation may not be a reasonable estimate of the population correlation coefficient, as the sample is necessarily biased by chance.

Moreover, observed coefficients should always be accompanied by confidence intervals that indicate the range of reasonable values for the coefficient in the population from which data were sampled. A correlation coefficient of 0.44 for the relationship between injected crystalloid volume and interstitial fluid leakage volume, so there appears to be a significant association between the two variables. However, the ranging from 0.3 to 1.0 is consistent, with the results being

Table 1: Demographic information

Variable	Classification	Frequency	Percentage
Age	18-35	99	45
	36-46	46	21
	47-above	75	34
Gender	Male	121	55
	Female	99	45
Status	Married	77	35
	Single	123	65
Are you using mobile banking services?	Yes	106	48
	No	114	52
How often do engaged with mobile banking	Occasionally	110	50
	Usually	55	25
	Every day	40	23
	Never	10	7

Table 2: Factor loadings, validity and reliability

Variable	Items	Loadings	Cronbach's alpha	Composite reliable	Average variance extracted
Social influence	SI1	0.725	0.734	0.732	0.730
	SI2	0.835			
	SI3	0.637			
Performance expectancy	PE1	0.631	0.798	0.797	0.800
	PE2	0.924			
	PE3	0.847			
Risk perception	RP1	0.750	0.724	0.725	0.737
	RP2	0.800			
	RP3	0.661			
Trust perception	TP1	0.756	0.713	0.710	0.736
	TP2	0.707			
	TP3	0.747			
Mobile financial services	MFS1	0.662	0.777	0.776	0.733
	MFS2	0.832			
	MFS3	0.707			
Enhance financial inclusion	EF11	0.648	0.732	0.728	0.710
	EF12	0.728			
	EF13	0.756			

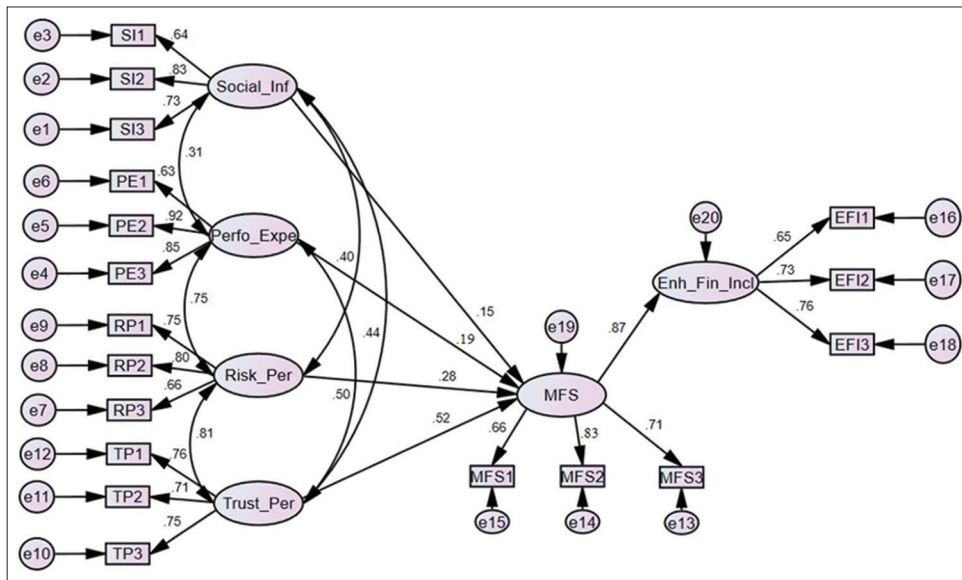


Fig. 2: Model measurement

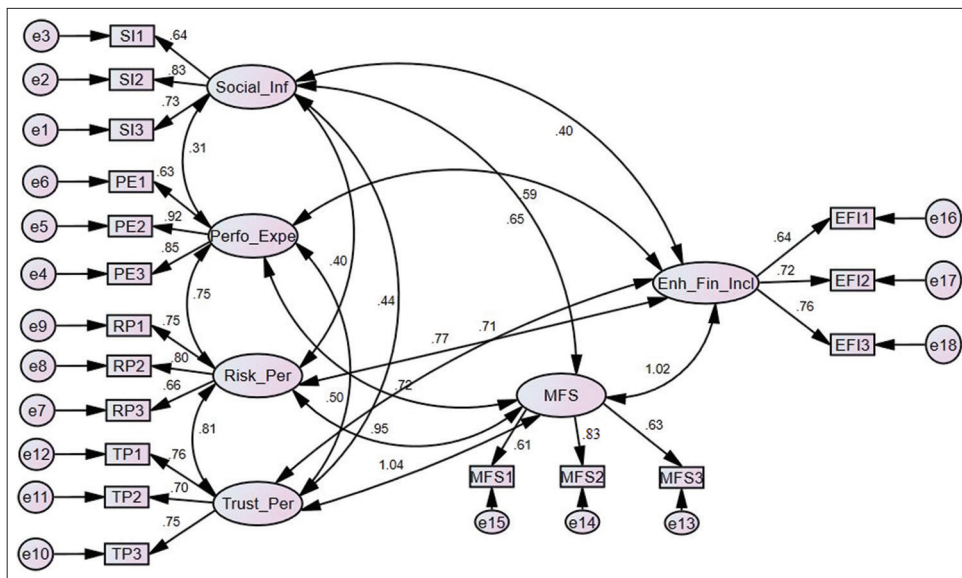


Fig. 3: Measurement of coefficient model

Table 3: Model fit measurement

Measurements	Cut-off	Threshold expected	Theories
X ² /df	3.871	Below <5	Wheaton <i>et al.</i> , 1977
GFI	0.960	Above >0.9	Tabachnick and Fidell, 2007
AGFI	0.906	Above >0.9	Tabachnick and Fidell, 2007
NFI	0.906	Above >0.9	Hu and Bentler, 1999
IFI	0.916	Above >0.9	Miles and Shevlin, 2007
TLI	0.971	Above >0.9	Miles and Shevlin, 2007
CFI	0.984	Above >0.9	Kline, 2005
RMSEA	0.049	Below <0.08	MacCallum <i>et al.</i> , 1996

Table 4: Hypothesis testing

Variables	Estimate	SE	CR	p-value	Decision
SI -> MFS	0.146	0.050	2.930	0.003	Supported
PE -> MFS	0.193	0.071	2.718	0.004	Supported
RP -> MFS	0.315	0.079	3.987	0.000	Supported
TP -> MFS	0.450	0.109	4.111	0.000	Supported
MFS -> Enh-Fin-Inc	0.775	0.077	10.084	0.000	Supported

Table 5: Correlation coefficient

Variables	(1)	(2)	(3)	(4)	(5)	(6)
SI	1					
PE	0.312	1				
RP	0.398	0.751	1			
TP	0.441	0.501	0.809	1		
MFS	0.648	0.716	0.948	1.045	1	
EFI	0.401	0.590	0.767	0.711	1.021	1

negligible 0.3, thus also suggesting an insignificant association. The data are also compatible with reasonably strong relationships of 0.90 between variables. Therefore, the relationship determines whether their results are “statistically significant.” A t-test used the correlation coefficient is zero. Note that the test’s p-value indicates how closely related the two variables are. Most correlation coefficients can be

“statistically significant” for large datasets. The significant correlations should be considered relevant correlations and the fitness model as shown in Fig. 2.

DISCUSSION

It can be seen that all five hypothetical relationships are considered significant at $p < 0.001$ confirmed. H1 (SI and Mobile Financial Services) had the second most robust relationship at a significant level, and the relationship was assessed at a p -value of 0.003 supported. This means that the more customers learn about mobile banking through SI, the more they find it useful. The path coefficient for H2 (PE and Mobile Financial Services), The relationship was also found to be p -value 0.004 was significant, suggesting that the more a customer learns about PE mobile banking, the more familiar it feels. This may have led to customers finding mobile banking easy to convenient after regular use. H3 (Risk Performance and Mobile financial services) was positively correlated with a path coefficient of the p -value. This relationship is significant, supported at a significance level of $p < 0.000$, implying that consumers' attitudes toward mobile financial services are more positive when they consider it worthwhile. Note that this was the strongest of all the relationships proposed. This may indicate that customer perceptions of the usefulness of mobile banking are highly dependent on customer attitudes toward risk performance and mobile financial services. The more customers find mobile banking users, the more willing they are to demonstrate a positive attitude toward it. The remaining hypotheses, H4 and H5, were also supported at a p -value of 0.000, as shown in Table 4. The model fit was used to estimate the goodness of the measurement model as indicated in Table 3. The CA AVE and CR were used to examine the internal consistency and reliability of the hiring intention model. Therefore, the relationship determines whether their results are statistically significant. The significant correlations should be considered relevant correlations as indicated in Table 5 and Fig. 3.

CONCLUSION

The study examined the relationship between mobile financial services banking to enhance financial inclusion using SI performance expectation, risk performance, and trust performance to adopt banking products and services in Nigeria. Using a modified TAM, we measured hypothetical relationships that might measure mobile financial services in Nigeria. A key theme from the survey was mobile financial services and financial inclusion, and all hypotheses were supported as predicted. The study found that the more mobile banking customers interact with devices, the more mobile financial services grow and accept innovations towards technology and convenient service, and the more likely they are to adopt it. It has the strongest correlation at all levels of correlation of the hypotheses. The survey found structural equation modeling appropriate for analyzing customers' perceptions. Therefore, the study found a positive relationship between variables and confirmed mobile financial services and financial inclusion.

MANAGERIAL IMPLICATIONS

The present study provides managerial implications for practitioners. First, modifying the study provides scholars with new insights into the relationships among the variables tested. The conceptual model provided evidence of the vital relationship between mobile financial services and financial inclusion. Thus, banking managers should focus their best efforts on technology specifically mobile financial services, to address financial inclusion in the country. Therefore, it contributes significantly to actual mobile banking usage. Such could be done by implementing large-scale or more compelling advertising to stimulate intent to use mobile banking services.

CONTRIBUTIONS, LIMITATION, AND FUTURE RESEARCH

This study's significance is to adopt a new approach to testing mobile financial services in enhancing financial inclusion through technology adoption models related to mobile banking. This study contributed to new knowledge and understanding through its results, as all proposed

hypotheses were supported. This study contributed significantly to the existing body of knowledge through mobile financial services. The strength of the relationship between mobile financial services and financial inclusion through the independent variables. The study limitations of the study were financial and time constraints that could affect the overall contribution of the study. The number of samples can be extended, contributing significantly to the subsequent studies.

This provides essential insights and analysis that can influence the outcome of other relationships and the model. A notable limitation is the underestimation of the rural population in this study is significantly important. Future studies should provide larger rural samples of mobile banking users. Empirical studies of these relationships may provide valuable insights into mobile banking services in Nigerian context.

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