

Research article

DO CUSTOMERS REALLY MATTER IN OPEN BANKING MODEL? USER BEHAVIOR AND ADOPTION DETERMINANTS

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Although closed banking business model is an age-long practice, open banking has emerged as a novel financial business model to facilitate improved value delivery to customers in today's society, but it is not yet a common practice in most emerging economies. This paper analyzes the acceptance of open banking from the African perspective. In this study, we modified the concept of privacy paradox in developing a procedure to understand acceptance of open banking to suit local appeal. Data was collected in Nigeria, the biggest emerging market in sub-Saharan Africa. The period spanned from February to March 2025. Although the sample size is 116, the population was unknown as at the time of the study. Structural equation modeling was used to test the hypothesized relationships, and the results offer supports to accessibility, trust and security being instrumental in open banking acceptance. The result provides insights that highlight alternatives for regulators and policy drives in sub-Saharan Africa while also opening up conversation on open banking in emerging economies and among economies in sub-Saharan African region. Thus, the study recommends shift from traditional models by factoring the critical factors in open banking while also recommending further studies that consider control variables such as gender and age to further understand different industry perspectives.

Abstract

Keywords: Banking; Consumer behavior; Open banking; Emerging market; sub-Saharan Africa

1. Introduction/Background

The increasing acceptance of digitalization across national, regional and global economy is driving innovativeness to an unprecedented level. As a result, products and services that only existed in theory have become tangible and accessible to consumers. For instance, future businesses and financial transactions are gaining physical tangible expressions (Kaariainen, 2016) with evidence in physical data and money savings (Ioana-Luciana & Dumitru, 2023). Emerging possibilities like open banking further illustrate this trend. Digitalization has accelerated investments in electronic payments systems (McKinsey & Company, 2022) while shaping the work environment, marketplace, products and services, and business landscape (Ioana-Luciana & Dumitru 2023). In the financial sector, the traditional banking models and platforms are rapidly replaced by the digital platforms

(Nwoke, 2024) designed to meet evolving consumer trends. These changes come with diverse consequences including increased competition with impact on innovativeness, operational efficiency, and driving organizational performance to a new level. No doubt, digital transformation has impacted on banks operations and enables her to adopt innovative business models that meet two critical aspect of banking operations – improve customer experience and respond to increasing changes in consumer taste and preference (World Retail Banking Report, 2022).

Open banking business model is one of the significant areas where digitalization is driving improved customer experience and bank service offering. Open banking permit access to customer data, which helps in designing more personalized and valuable service options that meets local and global needs of consumers (Babina et al., 2022). One of the advantages of this

model is that it takes control from the business and gives to the consumer over the financial information and expand it options (choices). It however empowers customers to authorize their banks to share their data with service provider. The implication is that customer data have become valuable competitive and strategic assets for financial institutions (Odorović, 2023) and offer competitive advantage in customer service delivery (Babina *et al.*, 2022). As a result, Fintech companies are leveraging on this data and the existing banking infrastructure to develop and deliver personalized services to consumers (Enriques & Ringe, 2020). The Fintechs are incrementally pushing innovative financial solutions beyond traditional markets leveraging on cutting-edge technology that are customer-centric (Odorović, 2023).

Without doubt, customer data is significant in designing financial services. Traditional banking models hold it sacredly. Drasch *et al.*, (2018) provided insights that explain that negative impact of protective stance on customer data such as inability to develop innovative products and lack of competitiveness in the market. The weakness of traditional banking models such as the unsustainable high cost of business (Deloitte, 2014) and inability to align seamlessly to the changing market needs are avenues exploited by Fintechs leading to emergence of open banking (Anagnostopoulos, 2018). Today, emerging realities show that open banking is perceived as a key driver for sustainable business model (Navaretti *et al.*, 2018) with potentials to improved financial organisations’ understanding and knowledge of consumer dynamics and customer behavior and drive for innovation (PwC, 2019) and supports financial inclusion (Giya *et al.*, 2021). However, it is resisted by the traditional banks who seek protection from the emerging competition. Vives (2019) study provided evidence that non-protection of the traditional banks in the competitive processes improve market efficiency and facilitating societal progress. Debates about this have exacerbated and focused on policies that regulate data flow and its implications on finance and macro-economy (Carrière-Swallow & Haksar, 2021). From the foregoing, open banking opens potential opportunity to enhance customer loyalty and growth in local economy. As such financial institution can leverage on these opportunities to meet and exceed consumer expectations (World Banking Retail Report, 2022).

2. Literature Review

Open banking model has transitioned financial market from existing close financial business model to transparent and consumer-driven one. As a consequence, customer concept in marketing practice is further highlighted and championed as a necessity for business success.

One of the key drivers of this change is the changing tastes of customers in this era especially the Gen Z and Millennials. Evidence shows that more youths embrace technology more than older adults. More Millennials are aligning to convenience

and electronic solutions (Gallup Incorporated, 2016) even as evidenced in their adoption of shopping-commerce (Oloveze *et al.*, 2022) and digital payment solutions (Liebana-Cabanillas *et al.*, 2018). This not surprising given that Gen Zs possess more spending power (Miller & Lu, 2018), and prefer cashless economy and contactless solutions (Zandamela, 2021). This makes millennials strategic and important demography in financial innovation as illustrated in Table 1 (See McKinsey Insights, 2019).

Table 1: Generations

	Baby boomer (1940-1959)	Gen X (1960-1979)	Gen Y (1980-1994)	Gen Z (1995-2010)
Context	. Post war . Dictatorship and repression	. Political transition . Capitalism/ meritocracy dominate	. Globalization . Economic stability . Emergence of internet	. Mobility and multiple realities . social networks . Digital natives
Behaviour	. Idealism . Revolutionary - Collectivist	. Materialistic . Competitive . Individualistic	. Globalist . Questioning . Oriented to self	. Undefined ID . “Communaholic” . “Dialoguer” . Realistic
Consumption	. Ideology . Vinyl and motives	. Status . Brands & cars . Luxury articles	. Experience . Festivals and travel . Flagships	. Uniqueness . Unlimited . Ethical

Source: Adapted from McKinsey Insights (2019)

While there are obvious benefits of open banking model, it also introduces diverse risks including misuse of personal information. Today, customer data are not only digitally stored but also conveyed in the online environment (Choi *et al.*, 2018). With several evidence of data breaches and obvious security vulnerabilities concerns about its breaches in privacy and economic losses have become central issues in digital financial services (Li *et al.*, 2020). Extant literature indicates growing public concern about personal data (Paspatis *et al.*, 2023) particularly in e-commerce context (Jensen *et al.*, 2005). Researchers have considered factors such as privacy attitude and intentions (Dienlin & Trepte, 2014), malicious behavior and privacy awareness (Buccafurri *et al.*, 2015). In spite of protocols by Institutions, this issue has persisted and assume an alarming dimension. There are concerns about Fintechs contributing to the breach of customers’ privacy (Ochojila, 2022) with sanctions from financial regulators. For example, Choi *et al.*, (2018) reported that over 4149 global data breaches globally which affected more than 4.2 billion records.

In sub-Saharan Africa such as Nigerian context, data security and protection ranked among the major concern of consumers (Nigerian Communication Commission, 2021) with reports showing about 64% increase in data breaches (Oloruntade, 2023) and 91% success rate in 2020 (Guardian, 2023). Despite the massive data leaks and privacy violations (Isaak & Hanna, 2018), individual data security concerns are often less addressed in the literature (Li *et al.*, 2018). Users tend to make subjective evaluations of online privacy risks, shaped by corporate responsibility in safeguarding customer data (Ateke & Ogbuji,

2017). The assessments are function of trust (Avshalom & Yaron, 2017) financial benefits, privacy concerns (Lankton *et al.*, 2017), privacy awareness (Wisniewski *et al.*, 2017), time (Zhang *et al.*, 2020) and security (Oloveze *et al.*, 2023).

As open banking gain momentum, institutions are increasingly exploring ways to address some of the above concerns while maintaining user trust. Ross *et al.*, (2019) consider customer expectations, customer interactions, insight into customer behavior, new sources of information, connectivity and enhanced technology as critical elements that influence shift to open banking. Big leaders that have adopted this include Swedbank in Sweden and Capital One in the United States, DBS in Singapore. These global leaders serve as big influence in emerging economies. Following the link between information privacy threats and behavior, studies have evaluated privacy behavior or concerns by considering it as predictor of IT adoption (Oloveze *et al.*, 2023). However, Choi *et al.*, (2018) consider privacy concern not sufficient to account for privacy behavior. Consequently, authors such as Rudolph *et al.*, (2018) have used intention model to explain privacy behavior by combining privacy demands, motivation and barriers.

The implication of these research perspectives is fundamental for sub-Saharan Africa and emerging economies. The region is globally recognized for having young population compared to other continents, with opportunities for innovative digital trends (BPC & Fincog, 2022). Studies highlight the resilience of sub-Saharan economies when challenged with adverse external developments (Mlachila *et al.*, 2013). Evidence also shows that emerging economies such as India, Singapore, Nigeria and South Africa aligning to open banking that suit their local needs and developmental goals. For instance, India's model of open banking focuses on consumer data, access to financial products, interoperability, and small businesses' participation in payments (Carrière-Swallow & Vikram, 2021) while others such as Mexico and Indonesia have provision for financial inclusion in their open banking system (Plaitakis & Staschen, 2020). In Africa such as in South Africa, customer data protection, customer consent and regulations are fundamental in open banking (Goga, 2020) while Nigerian context of open banking reveal multi-dimensional perspective of privacy concerns in evaluating open banking (Oloveze *et al.*, 2023).

These developments underscore the need to need to understand the evolving preferences of consumers in relation to open banking innovation and future digital products. This study explores the factors that influence privacy decisions and behavior among users. Such insights are significant in designing policies that reflects the realities of sub-Saharan Africa and other emerging economies. An understanding of the dynamics of consumer attitude towards data privacy can also inform the design of targeted programmes and systems to provide, protect and promote responsible digital behavior.

These efforts can support in a higher-level effort to enhance financial inclusion and trust in the digital financial services.

In discussing the underpinning theory and hypotheses development, researchers have used different behavioral models to explain user privacy behavior. Models such as theory of reasoned action – TRA (Schmidt *et al.*, 2022), cognitive theory (Paspatis & Tsohou, 2023), unified theory of acceptance and use of technology - UTAUT (Reith *et al.*, 2020), APCO model (Ozdemir *et al.*, 2017), and privacy paradox (Barth & de Jong, 2017) have been used to evaluate user privacy behavior with further evidence revealing incongruence on a particular model that addresses user privacy behavior. Specifically, models such as APCO model focus on privacy concerns which cover attitudes and perceptions; TRA reveals the role of attitude and subjective norms on behavioral intention leading to actual behavior while UTAUT consider performance and effort expectancy, social influence and facilitative conditions to be critical in behavioral intention and actual behavior. The idea of privacy paradox theory is on the dichotomy between privacy attitude and behavior. For example, extant literature reveals privacy concern of people on the usage of personal information (Kokolakis, 2017) despite values they place on the benefits of engaging in online transactions (Carrascal *et al.*, 2013). The implication of privacy paradox in this study is on privacy regulations and interventions. Consumers tend to align to innovations with benefits (accessibility, convenience and value) but also anxious about exposing themselves particularly their private information. This is the focal point of privacy paradox hence the foundational theory of the study.

2.1 Access

Access to products is a vital condition for customer evaluation of products. It consists of opportunities as well as hindrances customers encounter (Miller 2018) and strongly indicates decision of customers in the process of acquiring and using a product (Pot *et al.*, 2021). It is multidimensional (Oloveze *et al.*, 2024) thereby extending to access to financial information (Liebana-Cabanillas *et al.*, 2013), access to e-banking products (Suleiman & Usman, 2016), and access to web (Bengtsson & Pamp, 2021). It is critical in rate of adopting financial products (Martey & Gligah, 2016) as it underscores customers' perception of the privacy of financial information (Suleiman & Usman, 2016). Studies reveal its effect on the unbanked population (Zandamela 2021) given that it emphasizes the right of the user to private information in addition to the attendant barriers to the information (Andrade *et al.*, 2018). The attribute of accessibility has opened up discussion on open banking with it being a critical dimension in financial inclusion and impacting improved value provision and delivery. Extant literature reveals its link with trust (Liebana-Cabanillas *et al.* 2013) and security (Oloveze *et al.*, 2024) and as well proven to impact adoption of novel financial technologies (Poon, 2008). Therefore, we propose the hypotheses:

- H1: Access to open banking is related to user trust
- H2: Access to open banking is related to user perception of security
- H3: Access to open banking is related to user acceptance

2.2 Trust

Trust is an essential factor in an application that not only bypasses other factors but also influences privacy behavior (Li *et al.*, 2017). It underscores the importance of fulfilling promises (Ranaweera *et al.*, 2005) and connects with the cognitive and behavioral perspectives of individuals (Kalinic *et al.*, 2021). In privacy concerns, its role is seen in the absence of established legal structures (Xu *et al.*, 2010) but it can minimize privacy concerns (Nikkhah & Sabherwal, 2017) especially in the presence of transparency on handling of personal data to which Ioannou and Tussyadiah (2021) consider effective in modifying behavior. In other instances, empowering customers from the perspective of controlling personal information is perceived to impact privacy behavior (Wilson *et al.*, 2015). The important of trust in privacy behavior is proven in other settings such as cloud service (Ermakova *et al.*, 2014), government protection of people’s welfare (Ioannou & Tussyadiah, 2021) and information communication and technology (Paspatis *et al.*, 2023). Extant literature confirms its effect on cardless cash transactions (Oloveze *et al.*, 2022a), customer behavior (Liebana-Cabanillas *et al.* 2013) and in online transactions (Oloveze *et al.*, 2022b). Therefore, we propose the hypothesis:

- H4: Trust perception is associated with user acceptance of open banking

2.3 Risk

Risk is linked with uncertainties and losses such as financial, data and economic risk (Oloveze *et al.*, 2023) and highlights the issues of privacy and individual concerns with security (Ali *et al.*, 2022). It impacts privacy behavior in online personal information disclosure (Lu *et al.*, 2020). When individuals perceive higher risk, it limits the chance to share information (Mosafer *et al.*, 2021) thus impacting privacy behavior although more among the young and modified more when individuals are mature (Chou *et al.*, 2019). Extant literature reveals improvements in disclosure of privacy information when the benefits are greater than risk (Mosafer *et al.*, 2021) and this is proven in individuals’ choice of mobile payment solutions when they factor risks in ICT usage (Reith *et al.*, 2019) although other studies indicates its non-significance on intention to adopt e-payment solution (Oloveze *et al.*, 2023b) and attitude towards using novel payment solutions (Oloveze *et al.*, 2023c). However, other studies show its significant negative link to consumer behaviour (Kalinic *et al.*, 2019) and trust (Munoz-Leiva *et al.*, 2017). Therefore, we hypothesize:

- H5: User perception of risk is related to trust
- H6: User perception of risk is associated with user acceptance of open banking

2.4 Security

Consumers’ perception of security relates with their concern on protection of financial information (Ramos-de-Luna *et al.*, 2019) given the possible financial harm that arises from loss of financial data (Liébana-Cabanillas *et al.*, 2018). Consumers’ perception of security highlights their apprehension in risky behavior, safety measures and privacy behavior (Oloveze *et al.*, 2022a). They tend to assess internal and external consequences associated with the benefit and risk of action such as in biometric payment authentication (Oloveze *et al.*, 2023d) given that consumers’ privacy security concern tends to impact privacy behavioral intention (Ramos-de-Luna *et al.*, 2017). Essentially, security concerns are highlighted among consumers that feel unfamiliar with novel innovations (Kim *et al.*, 2010) especially where there are incidences of a paradigm shift in operation such as from closed business banking model to open business banking model. However, consumers’ perception of security has been proven as strong predictor of innovations such as m-wallet (Ramos-de-Luna *et al.*, 2017) and biometric authenticated payments (Oloveze *et al.*, 2023d). Therefore, we hypothesize:

- H7: User perception of security is associated with acceptance of open banking

3. Methodology

3.1 Study design

The users significantly constitute the academic staff of tertiary institutions in Nigeria while selection was based on the ground of education, exposure to financial knowledge, ownership and operation of bank accounts while putting the early stage of open banking in Nigeria in context. The implication is that acceptance by the educated public would potentially put the acceptance in context, shape the constraints and provide insight on the future of open banking towards its full-scale adoption in Nigeria. Thus, our study is a cross-sectional survey with data that was collected within two months to understand the factors that promote acceptance level and potential success rate of open banking in sub-Saharan Africa. Online generated data was used to assess the conceptual model in Figure 1.

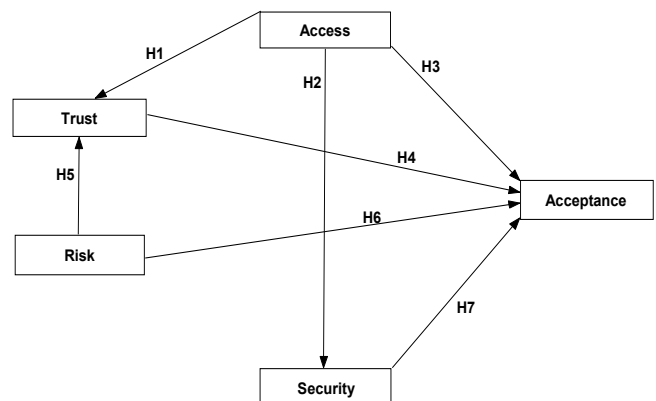


Figure 1: Conceptual model

3.2 Measurement development: Reliability and validity

Our measurement instrument was developed by adapting instrument from related studies. The questionnaire instrument was measured on 5-point Likert scale that ranged from strongly agree to strongly disagree. The items were adapted from extant literatures: risk and trust (Kalinic *et al.*, 2019), security (Liebana-Cabanillas *et al.*, 2018), and access (Liebana-Cabanillas *et al.*, 2013). Preliminary reliability and validity checks were carried out through face reliability and content validity via three experts in the academia and two practitioners in the banking sector. Further, we piloted the initial questionnaire on 15 academic staff from two Federal Universities in January 2025 with the analysis of the pilot study verifying the instrument’s reliability and validity.

3.3 Data collection

With G*power analysis we were able to arrive at a minimum sample size of 98 as indicated on Table 2. Survey was conducted in late February to early March, 2025 using convenience and purposive sampling technique. This helped to assess academic staff within reach and also focus on staff that operates functional savings and/or current account. The underlying factor is the probability of a better perception of privacy among this class of bank customers as reports such as Ansar *et al.*, (2023) indicate the importance of financial literacy and education on the success of innovations. The research instrument was designed on Google form and included demographic features that include gender, family status and prior experience with banking innovations. We distributed the link to the questionnaire using social media platforms of the academic staff in the tertiary institutions such as Whatsapp and email list. The questionnaire included invitation and consent to participate and illustrated the purpose and intention of the study. Screening item “having savings and current account” and “academic staff” was used with yes and no option. No response takes the consented participant to the end of the survey while the yes response takes the consented participant through the questions on the instrument.

Table 2: Sample size justification using G*Power Analysis

F tests – Linear multiple regression: Fixed model, R ² deviation from zero		
Analysis: A priori: Compute required sample size		
Input:	Effect size f ²	= 0.20
	α err prob	= 0.05
	Power (1-β err prob)	= 0.95
	Number of predictors	= 4
Output:	Noncentrality parameter λ	= 19.6000000
	Critical F	= 2.4695953
	Numerator df	= 4
	Denominator df	= 93
	Total sample size	= 98
	Actual power	= 0.9505825

3.4 Statistical Analysis

Descriptive statistics, confirmatory factor analysis and structural equation modeling were used in participant descriptions, and investigating the reactions of the participants to open banking. Confirmatory factor analysis was conducted using IBM SPSS v23. AMOS v23 was used to examine the structural paths.

4. Results and Discussion

First, 131 questionnaires were generated but 116 valid questionnaires were used although the minimum sample requirement is 98. The justification is because of the condition for use of SEM. According to Boomsma (1985) a minimum sample of 100 is required. 15 questionnaires were discarded for inappropriateness after data filtering process. As illustrated on Table 3, the demographics showed 51.7% were men and 48.3% were women; 49.1% were married and 37.1% were single. 55.2% were below 35 years and 44.8% were above 35 years; 69.8% had prior experience with e-banking innovations and 30.2% were novice.

Respondent profile

Table 3: sample characteristics

Sn	Demographics	Frequency	Percent (%)
1	Gender Men	60	51.7
	Women	56	48.3
2	Family status Married	57	49.1
	Single	43	37.1
	Others	16	13.8
3	Age < 35 years	64	55.2
	> 35 years	52	44.8
4	Prior Experience Expert	81	69.8
	Novice	35	30.2

4.1 Statistical data analysis

The analysis was approached in three steps. First, we investigated the sampling adequacy and common method bias (CMB) using KMO (Kaiser-Meyer-Olkin) and Bartlett's Test of Sphericity (BTS), and Herman’s one-factor approach respectively. With KMO values of .864 and BTS values of 8215.686 at p=0.000 the sampling adequacy was justified. 0.6 KMO value is the minimum threshold recommended in literature (Crick & Crick 2019). CMB was not an issue. After adjusting all items to one factor, it accounted for 39.342. This is within 50% minimum reference in literature (Podsakoff *et al.*, 2003) while 0.4 is suggested in literature as minimum for retention of factors (Sharma, 1996). In the second step, reliability and validity checks were executed through Cronbach alpha, construct reliability, convergent validity and discriminant validity. The internal consistency of the items was confirmed as the values of each of the variables were above the recommended thresholds of 0.6 for Cronabch Alpha (Crick, 2023) and 0.7 for construct reliability (Hair *et al.*, 2010) as revealed on Table 4. Convergent validity was assessed through construct reliability with 0.6 suggested by Bagozzi and Yi (1988) and average variance

extracted (AVE) of 0.5 recommended by Fornell and Larcker (1981). The minimum thresholds were satisfied for all the variables as revealed on Table 4. On discriminant validity the correlations between scales were below 0.8 and the root of AVE for each of corresponding correlations was significantly greater thereby confirming discriminant validity on Table 5. In the third step, the structural model fit was examined. The R² for security (.185), trust (.708) and acceptance of open banking (.443) is confirmed as Falk and Miller (1992) proves 0.1 or more to be a suitable range. The value of the effect size (f²) were high for all the statistical significance results as Chin (1998) reports a threshold of medium path weight of >0.2 and large path weight of >0.35. The χ^2/df is 2.08 and it is below the recommended threshold of 3 (Carmines & Mclver, 1981). The model data has a reasonable fit (GFI=.79; IFI=.91; TLI=.89; CFI=.91; NFI=.84).

Table 4: Measurement model evaluation

Variables	Std coeff.	Cronbach's alpha	Construct reliability	Average variance extracted
Access				
Access1	.64	.881	.882	.66
Access2	.77			
Access3	.93			
Access4	.87			
Trust				
Trust1	.81	.936	.939	.79
Trust2	.94			
Trust3	.93			
Trust4	.88			
Risk				
Risk1	.73	.876	.871	.63
Risk2	.87			
Risk3	.86			
Risk4	.70			
Security				
Security1	.48	.818	.786	.49
Security2	.81			
Security3	.63			
Security4	.82			
Acceptance				
Accept1	.91	.942	.939	.79
Accept2	.94			
Accept3	.90			
Accept4	.81			

Table 5: Inter-correlation matrix and discriminant validity

	1	2	3	4	5	Mean	Std. Dev.
1.Access	.802					3.5560	1.07850
2.Trust	.748	.781				3.3254	1.17213
3.Risk	.191	.100	.846			3.4978	1.16161
4.Security	.393	.487	.138	.731		3.2177	1.05288
5.Accept.	.266	.529	-.072	.500	.878	2.6552	1.32864

Note: Root of AVE in bold in the main diagonal

4.2 Testing the hypotheses

The SEM was evaluated using the statistical significance as indicated on Table 6 and Figure 2. (Also see Figure 3 – AMOS model). Of the 7 hypothesized relationships, 5 were significant after assessing the p-values of each of the relationships. Thus, the proposed hypotheses from risk do not significantly influence trust and acceptance of open banking and was consequently rejected. H1-H3 were from access and the result shows significant relationship between access and trust; access and security; and access and acceptance were significant thereby supporting H1 ($\beta=1.228$; $p<0.001$); H2 ($\beta=0.588$; $p<0.001$) and H3 ($\beta= -0.625$; $p<0.05$) respectively. Relationship between trust and acceptance was significant thereby supporting H4 ($\beta=0.710$; $p<0.001$). Also, the relationship between security and acceptance was significant thereby supporting H7 ($\beta=0.608$; $p<0.001$). The path with most intense effect is access to trust; followed by trust and acceptance; access and acceptance; security and acceptance; and lastly access and security.

Table 6: Result of hypothesized relationships

Hypotheses	Est.	C.R	Std est.	Sig.	Support
H1: Access → Trust	1.228	6.878	.844	**	Yes
H2: Access → Security	.588	3.726	.430	**	Yes
H3: Access → Acceptance	-.625	-2.005	-.376	*	Yes
H4: Trust → Acceptance	.710	3.580	.623	**	Yes
H5: Risk → Trust	-.013	-.173	-.011	n.s.	No
H6: Risk → Acceptance	-.129	-1.115	-.096	n.s.	No
H7: Security → Acceptance	.608	4.568	.501	**	Yes

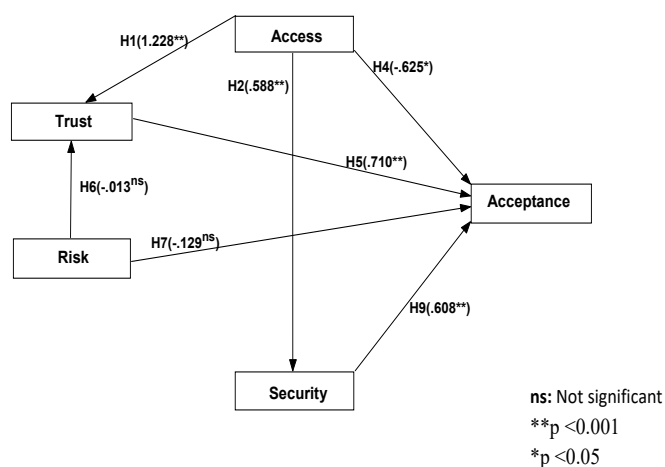


Figure 2: Result of conceptual model

5. Conclusion

The focus of this study is to evaluate user-privacy behavior to open banking by analyzing the behavioral factors of bank customers that can facilitate acceptance of open banking and providing further insight to the emerging discourse on open banking in sub-Saharan Africa and emerging economies. The objective was approached from privacy paradox theory that considers users’ dichotomy between benefits and risks of privacy behavior with emphasis placed on access (benefit) and risks (risk, security and trust) associated with user privacy behavior to open banking. Online survey was extensively used in assessing the proposed hypotheses through SEM and statistical significance. The model was validated using the various recommended approaches while out of the 7 proposed hypotheses, 5 were significant following the assumptions and recommendations. Consequently, important conversation was opened while making theoretical and practical solutions to open banking acceptance. First, trust is the strongest factor in accepting open banking. The impact of trust has been proven on user behavior in extant studies (Molinillo *et al.*, 2020; Oloveze *et al.*, 2022a). User privacy behavior to open banking is dependent on the level of user trust to the management of their financial information. Trust improves acceptance when consumers perceive transparency in the process and provision of better regulatory measures that protects them against loss of financial data. In other words, increase in trust behavior positively influences acceptance of open banking while those with strong trust behavior in the process will accept the business model faster than others. Trust is proven to bypass other factors sometimes (Li *et al.*, 2017) and also proven to be able to influence user privacy behavior to open banking.

The effect of access is confirmed and indicated as a vital requirement in user privacy behavior to open banking. Access to financial products and information is a contemporary norm in the financial sector as several financial institutions are using different electronic channels to offer value to customers. The option of integrating open banking business model facilitates

the process particularly where trust in the process is strong, promises are fulfilled and already existing systems are not compromised. For instance, the link between access to information and financial products and trust have been proven in literature (Liebana-Cabanillas *et al.*, 2013) with the present study not only supporting earlier findings but also proving the importance of access in behavioral models, user privacy behavior and its essence in the success of open banking in sub-Saharan Africa. Sub-Saharan Africa is cumbered with financial exclusion in the past with Nigeria and four other sub-Saharan African countries that includes Egypt accounting about 54% unbanked population at global level (Eshun & Kocenda, 2025) although financial inclusion improved recently with the key driver being the adoption of mobile money account (World Bank Group, 2024). The indicator of access to financial products confirms the important role of trust in improving financial inclusion given the fundamental effect of user privacy behavior. It also highlights the importance of access and security in open banking as confirmed in extant literature. In open banking, security perspective in access to financial products and data privacy highlights the theoretical connection between security threats and access to privacy information and products. The implication is that user privacy behavior is positively impacted with improved security measures and systems as customers access financial products and grant consent to the use of their private data. Despite the improving financial inclusion in the region, the result of access and acceptance of open banking is negatively related thereby calling for concern on positive impact of access to financial products and information in open banking. Although, trust and security are indicated in the study to be positively related to access but in terms of acceptance the negative connection is highlighting more of the barriers in open banking. Access to financial products positively impacts the unbanked population (Zandamela 2021) but in open banking, user privacy behavior reveals hindrances that affect decision making such as granting consent in open banking. Although extant literature reveals positive link between access and novel technological systems (Poon, 2008), the present study reveals a negative connection on account of novelty, challenges of financial inclusion in the region, financial literacy and possible distrust and security concern as highlighted to be essential in access to data privacy in this study.

The role of security is paramount in electronic transactions (Liébana-Cabanillas *et al.*, 2017). Present result confirms the effect of security on acceptance of open banking thereby supporting findings in extant literature (e.g Ramos-de-Luna *et al.*, 2017). Customer security perception increases when customers are unfamiliar with operation of a novel system. Although not the most critical in acceptance of open banking as similar to Ramos-de-Luna *et al.*, (2017) in mobile technology acceptance yet it buttresses the internal and external

consequences that consumers tend to attach to benefits and risk of their user privacy behavior. This is because novel system that carries potential chance of loss of money or data to fraudulent activities can impact user privacy behavior. Consumers and businesses pay more attention to novel payment systems such that security perception becomes a priority. Essentially, users tend to not only evaluate the immediate benefit of using a novel technology but consequences associated with its acceptance. In essence, customers' perception of security tends to highlight their apprehension in risky behavior, and preference for safety measures (Oloveze *et al.*, 2022a) but majorly emphasize the increase acceptance of open banking when it is secure.

The role of risk in open banking was found to be negatively related but have non-significant effect on trust and acceptance of open banking. This is in line with extant literature that shows non-significant effect (Liébana-Cabanillas *et al.*, 2018) although some studies confirm a significant effect (Kalinic *et al.*, 2019).

5.1 Practical implication

Given the strong effect of trust on acceptance, the implication is that measures that improves the user trust in the system is encouraged and this can be approached from tightening and improving operational system and fulfillment of promises that encourages user privacy behavior which will eventually lead to acceptance. The transparency in usage of private data and resort to consent of the customer is paramount. It puts the customer in charge and encourages further engagement where there is no harm from prior experience to consenting to the private data sharing among financial institutions. Further, the consequence of trust calls for financial institutions to fulfill promises in data protection and offer of superior value. This can enhance customer behavior and motivate them to engage more in the open banking business model. This is proven in other contexts where trust in vendor and platform are essential in consumer behavior (See Lu *et al.*, 2016) including online activities such as brand community engagement (Martinez-Lopez *et al.*, 2017).

The importance of accessibility in open banking is paramount in sub-Saharan Africa considering the challenges of the African economies in grappling with financial inclusion. Open banking acceptance is fundamental and can be instrumental in identifying customer profiles and designing of customized products for specific consumers. Access to financial data promotes identification of cheaper routes to meeting the needs of customers and delivery of superior value. Although, the notion of trust and security is essential in access to open banking, user privacy behavior highlights trust and security as a necessary requirement particularly on strategic regulatory measures and effective compliance. Identifying customer behavioral patterns from customer data can be decisive in competitiveness, commercial activities and structure of

financial operations.

In summary, user privacy behavior is essential in understanding customer motivations to accept open banking and the factors that improve the chances of accepting the novel open banking business model. This is essential for financial institutions, regulatory bodies and policymaking units of companies and government agencies. Designing effective policies and working regulations can be enhanced from the perspectives of user privacy behavior of consumers. Also, the chances of improving robustness of the financial industry through competition among the financial units, designing of superior customer value and meeting the needs of the companies are enhanced given that improved customer satisfaction with financial products impacts profits, customer retention and loyalty.

5.2 Limitation of study and insight on future studies

The main limitation is the sample that was drawn from Nigerian bank customers with the aim of accepting open banking in the sub-Saharan African region. Other emerging nations and countries in sub-Saharan Africa with different culture and religious contexts may adopt the variables in assessing open banking. In this case, a comparative survey in the sub-Saharan African region may be informative on different perspectives to open banking. With respect to the cross-sectional survey approach in which structured questionnaire was used, future studies may adopt a longitudinal approach to assess any possible changes that may occur in user-privacy behavior over time. Lastly, future studies may need to adopt control variable such as experience level with e-payment and education to have further knowledge on user privacy behavior in open banking.

Data availability statement(upon request)

Declaration of interests statement

The authors declare no conflict of interest.

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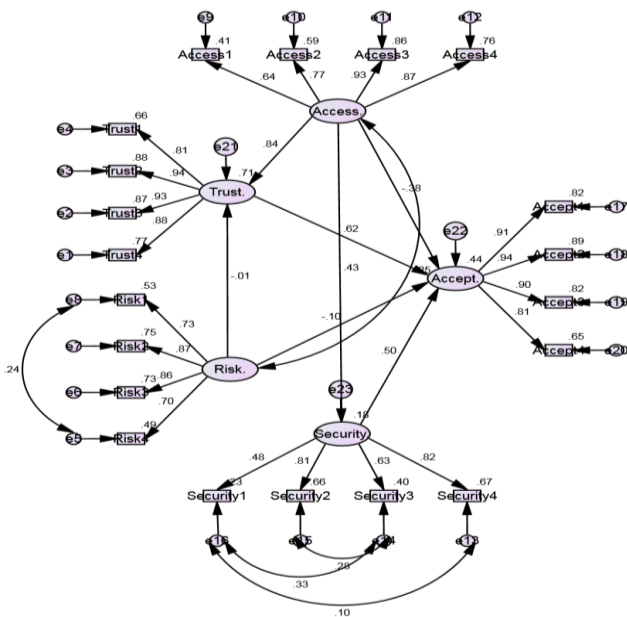
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Appendix : AMOS model



Appendix 2 Questionnaire

Section A

Gender

Family status

Age

Prior experience

Section B

Construct items and sources adapted

Access

Liébana-Cabanillas et al., (2013)

With open banking system there is better accessibility to personal financial information needs.
I think open banking system offers me ease of using financial products.
It gives me the convenience of making easy choice on financial options.
In general, open banking system gives me access to financial services.

Trust

Liébana-Cabanillas et al., (2013)

I think open banking system will stay committed to its promises.
I think open banking system will act responsibly.
I think there will be honesty with open banking system.
I think open banking system will gain my trust.

Risk

Munoz-Leiva et al., (2017)

Due to involvement of non-bank institutions, consenting to open banking puts my finances at risk.
I am afraid that the benefits may not outweigh the risks associated with consenting to open banking.
I am hesitant to consent to open banking system due to potential data security threats.

Security

Ramos-de-Luna et al., (2017)

I think that consenting to open banking system is risky.

The security against unauthorised party intervention in the usage process is high with open banking system.

I think open banking system has adequate safety measures for me to consent to it.

With open banking, there is high security against abuse of usage of personal data and financial information.

I think banks' precautions on open banking system reduces threat to my privacy.

I would like open banking system to be safe for my financial needs.

Acceptance

Ramos-de-Luna et al., (2017)

I support banks' sharing of my privacy data with other financial institutions.

I am willing to accept the chance of sharing of my personal and financial privacy data.

I will approve the permission for my personal and financial privacy information to be shared among financial institutions.

I will accept the offer of banks to share personal and financial privacy data among other financial institutions.