

Understanding Customers' Constraints Towards E-Banking Engagement: Evidence from Retail Banks in Ghana

Ing. Abdul Bashiru Jibril, Ph.D.

Doctoral Thesis Summary

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**Understanding Customers' Constraints Towards E-Banking
Engagement: Evidence from Retail Banks in Ghana**

**Zákaznická omezení při zapojení do elektronického bankovníctví:
zkušenosti retailových bank v Ghaně**

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ABSTRACT

Financial technology has come to stay. Owing to that, the emergence of electronic business is one of the most profound changes that has revolutionized the process of buying, selling, and exchange of products and services over the Internet. Given this, research on electronic banking (e-banking) has attracted several distinguished stakeholders including bankers, customers, regulators among others. The subtle issue has been triggered mainly by factors such as high efficiency, improved service delivery, low transaction cost, less time consumed among others. Though, extant literature has dwelled much on online banking transactions, particularly, concerning adoption/acceptance. Notwithstanding, these studies are mostly focused on the motivating factors that propel customers' intention to make use of the service. Similarly, in Sub-Sahara Africa, the literature on this theme regarding the motivating factors (stimuli) of Fintech adoption continues to receive scholars' attention, however, the reverse (constraints) towards the adoption barely exists in the literature. Against this background, the dissertation sought to fill in the gap by exploring some socio-economic and perceived online risk factors regarding customers' constraints towards e-banking engagement amongst retail banking enterprises in Ghana. Using a PLS-SEM with 672 valid responses (of bank customers) from a structured questionnaire, the results revealed that infrastructural support system (INFTRAST), price of digital devices (PDD), perceived knowledge gap/digital gap (PKG/DG) are significant socio-economic factors that inhibit the tendency to engage in e-banking transaction. While avoidance motivation (AVDMOT), security and privacy concern (SEPCON), Fear of financial loss (FOFL), and fear of reputation damage (FORD) were significant 'perceived online risk' factors associated with intention to embark on e-banking transaction in Ghana. The research further obtained qualitative data of 20 respondents through an interview guide (unstructured instrument) and found that poor Internet connection, low level of ICT skills, Internet fraud (cyber-crime) were major determining factors constraining the engagement of e-banking activities in Ghana. The thesis, therefore, suggests that banks and Fintech players should adopt strategic mechanism that could profitably influence customers to use their electronic financial services while limiting the potential rise of the abovementioned constraints/risks. Additionally, the paper suggest that banks and other stakeholders could collaborate to ensure sustainable infrastructural development to achieve the objective/purpose of e-banking transactions in the financial industry. Limitations and future research directions are discussed.

ABSTRAKT

Finanční technologie zůstávají zachovány. S ohledem k okolnostem vypuknutí pandemie Covid-19 je vznik elektronického obchodu jednou z nejhlubších změn, která způsobila revoluci v procesu nákupu, prodeje a výměny produktů a služeb přes internet. Důsledkem toho, přilákal výzkum elektronického bankovníctví (e-bankovníctví) významné stakeholdry, mezi nimi bankéře, zákazníky i jiné regulátory. Objevily se subtilní otázky způsobené hlavně faktory, jako vysoká účinnost, lepší poskytování služeb, nízké transakční náklady a mezi jinými i menší spotřeby času. Nicméně, existující literatura se převážně zabývala transakcemi online bankovníctví, zejména pokud jde o adopci a akceptaci. Bez ohledu na to, se tyto studie většinou zaměřují na motivační faktory, které podporují záměr zákazníků službu využívat. Obdobně, v subsaharské Africe se literatura tohoto tématu, týkající se motivačních faktorů (stimulů) Fintech adopce, dostává do pozornosti vědců, avšak v literatuře sotva existuje reverzně (omezení) k adopci. Na tomto pozadí se disertační práce snažila vyplnit chybějící mezeru zkoumáním některých sociálně-ekonomických a vnímaných online rizikových faktorů, týkajících se omezení zákazníků v zapojení do elektronického bankovníctví mezi retailovými bankovními podniky v Ghaně. Pomocí PLS-SEM s 672 platnými odpověďmi (bankovních zákazníků) ze strukturovaného dotazníku výsledky odhalily, že systém podpory infrastruktury (INFTRAST), cena digitálních zařízení (PDD), vnímaná znalostní mezera / digitální mezera (PKG / DG) jsou významnými socioekonomickými faktory, které brání tendenci zapojovat se do transakcí elektronického bankovníctví. Motivace pro vyhýbání se (AVDMOT), obavy o bezpečnost a soukromí (SEPCON), strach z finanční ztráty (FOFL) a strach z poškození reputace (FORD) byly významnými faktory „vnímaného online rizika“ spojenými se záměrem zahájit transakci elektronického bankovníctví v Ghana. Výzkumem byla získána kvalitativní data od 20 respondentů, a to metodou rozhovoru (nestrukturovaný nástroj) a bylo odhaleno, že špatné připojení k internetu, nízká úroveň dovedností v oblasti ICT, internetové podvody (počítačová kriminalita) byly hlavními určujícími faktory omezujícími zapojení e-bankovních aktivit. v Ghaně. Proto je v těchto tezích navrženo, aby banky a aktéři Fintech přijali strategický mechanismus, který by mohl se ziskem ovlivnit zákazníky tak, aby mohli využívat jejich elektronické finanční služby, a zároveň zamezit potenciální nárůst výše uvedených omezení / rizik. Dále je v tezích navrženo, že banky a další zúčastněné strany by mohly spolupracovat na zajištění udržitelného rozvoje infrastruktury za účelem dosažení cíle / záměru transakcí elektronického bankovníctví ve finančním odvětví. Jsou diskutována omezení a směry budoucího výzkumu.

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1 INTRODUCTION

1.1 Research background

The emergence of electronic business/transaction is one of the most profound changes that has revolutionized the process of buying, selling, and exchanging products and services over the Internet (Dauda & Lee, 2015; Kaur & Arora, 2020; Yasin, Liébana-Cabanillas, Porcu, & Kayed, 2020). This is famously called e-commerce (electronic commerce). In light of this, online banking transactions have grown at an exponential rate due to the high intensity of competition among banks and non-banking institutions (Jibril, Kwarteng, Chovancová, & Bode, n.d.; Oertzen & Odekerken-Schröder, 2019; Rodríguez-Castelán, Ochoa, Lach, & Masaki, 2021; Tyagi, 2019). This phenomenon in today's technological era has attracted a growing interest by scholars and industry players in relation to the effectiveness and efficiency characterized by service delivery in both production and service-based organizations (Botchway, Jibril, Oplatková, & Chovancová, 2020; Ernst & Young, 2011).

Owing to the emergence of the COVID-19 pandemic, social distancing practices and staying at home has changed the interface of business transactions – ranging from service delivery to consumption. In order words, the COVID-19 pandemic has disrupted in-person banking operations and increased the physical threat for both retail bankers and customers (F. Khan, Chowdhury, Haque, Akter, & Ahsan, 2021; Yamin & Alyoubi, 2020). That is to say, the global market (finance industry) according to Shahabi, Azar, Razi, & Shams, (2020) have intensified electronic banking (e-banking) with the purpose to continue routine transactions such as deposits, payments, purchasing groceries, and shopping of brands among others.

Interestingly, studies related to FinTech showed that the strength of technology utilization by banks in establishing competitiveness at domestic and international financial market level is undisputable and it goes on to suggest that the computer-mediated environment has profound implications in the banking sub-sector in particular, and it has been widely acknowledged in the literature that customers increasingly require instant satisfaction through the use of new technologies (see Burns, 2018; Jibril, Kwarteng, Pilik, Botha, & Osakwe, 2020; Masocha, Chiliya, & Zindiye, 2011; Salem, Baidoun, & Walsh, 2019). The subtle issue has been triggered mainly by factors such as high efficiency, improved service delivery, low transaction cost, less time consumed, 24-hour service non-stop among others (Dauda & Lee, 2015; Garín-Muñoz, López, Pérez-Amaral, Herguera, & Valarezo, 2019). Internet usage from the perspective of technology acceptance/adoption comprises the desire and possibility to acquire and use any invented device for maximum benefit to the user. While technology adoption over the years and till now has been justified by pioneer scholars (Ajzen, 1991; Venkatesh & Davis, 2000; Venkatesh, Morris, Davis, & Davis, 2003) and had been echoed in recent works of (Aliyu, Rosmain, & Takala, 2014; Holzmann, Schwarz, & Audretsch, 2020; Lee, 2017; Tarhini, El-Masri, Ali, & Serrano, 2016). Legris, Ingham, & Collette, (2003) and Saleem & Higuchi,

(2014), in their studies, also stressed that some of the external factors (social, cultural, economic, political, etc.) significantly contribute to the reasons why developing nations have fallen behind in their quest to develop in the face of technology. According to them (the authors), these groups of countries (mostly in the Asian and African regions) have been characterized by a low interest in innovation/technology adoption, use of outdated technologies with low productivity, low-quality of product, low level of technical know-how, less investment in technology among others (Edo, Okodua, & Odebiyi, 2019; Jibril, Kwarteng, Pilik, et al., 2020; Okocha & Adibi, 2020; Osah & Kyobe, 2017). Similarly, previous researches have opined that commercial banking is undergoing a swift change as the global economy expands and advances towards institutional and market competence as a result of the changing dictates of information technology (Izogo, Nnaemeka, Onuoha, & Ezema, 2012; Kaur & Arora, 2020; Ramavhona & Mokwena, 2016). This suggests that traditional banking (brick and mortar model) is currently/gradually eroded largely by the emergence of new technologies which has given birth to more effective and efficient channels of delivering banking services. To this, one of the descendants of information technology (IT) in recent banking operations is ‘electronic banking’.

However, many industries have capitalized on this opportunity (Fintech) in developing several alternatives in their service delivery channels with the motive of improving customers’ satisfaction while ensuring growth and continuity. Though in the developed world, for instance, the adoption/acceptance of Internet usage and the accompanying technologies is on the higher rise (R. Chen, 2021; Nisar, Prabhakar, Ilavarasan, & Baabdullah, 2020; Verma & Sinha, 2018). According to Thambiah, Eze, Tan, Nathan, & Lai, (2010) the banking sub-sector in the financial industry has been utilizing adequate information services, not for only administrative purposes and their internal operations, but to improve product/service while enhancing competitive service delivery to customers to ensure value proposition..

Going forward, it is imperative to note that technology developers, innovators, and researchers play a significant role in understanding the nature of uncertainty during the COVID-19 pandemic and other related catastrophes that have transformed customers’ behavior from traditional banking to online banking across the globe (F. Khan et al., 2021). The researcher, therefore, argues and reiterates that service delivery technology could only improve firms’ performance and customer satisfaction via customer acceptance and adoption (Aduba, 2021; Kaur & Arora, 2020; Thambiah et al., 2010). Given this, online banking could be compatible with the human environment or society where there exists a potential solution to suppress unforeseen constraints in the future. Hence, this calls for research into the restraining factors of e-banking engagement in Ghana. To maintain the consistency of key concepts used in the write-up, the researcher would like to emphasize that, *the term e-banking engagement/transaction* is interchangeably in this context as *online banking engagement/transaction*.

1.2 Problem Statement and Study Objective

1.2.1 Research Gap

Although the number of users of the Internet has increased significantly over the past decade, only a small fraction of those users have made actual purchases over the Internet especially in the developing world (Edo et al., 2019; Koomson, Bukari, & Villano, 2021). Again, the failure of the Internet as a retail distribution channel has been attributed to the lack of trust consumers have in the electronic channel (E-channel) and the Web merchants (Venkatesh & Zhang, 2010; Zhang, Chen, Liu, & Zhu, 2018). Considering the risk component (lack of trust) as a function of the probability that a hazard arises (from the technology) and the consequences of the hazard on individual behaviour depends on the nature of the consequences (Hartono, Holsapple, Kim, Na, & Simpson, 2014; Kelikume, 2021). In this light, the context of high-consequence systems such as Internet banking and risk avoidance behaviour may arise since reducing risk takes precedence over cost savings. Nonetheless, Mayer, Davis, & Schoorman, (1995) further clarified the relationship between trust and risk: trust is the willingness to assume risk while trusting behaviour is the assumption of risk. If the level of trust surpasses the threshold of perceived risk, then the trustor will engage in a risk-taking relationship. Since trust develops over time, Lewicki & Bunker, (1995) affirms that the level of trust an individual has in an object would be different depending on when trust is assessed. Additionally, when the trustor does not have first-hand knowledge of electronic commerce (E-commerce), initial trust in both the Web merchant and the electronic channel is considered important, given that there is some risk involved in using an electronic channel for financial transactions (Dhoot, Nazarov, & Koupaei, 2020). Hence, avoidance motivation is used in this study to assess the level of trust and security concern a consumer has just before he/she adopts online banking.

However, despite the growing discussion of online banking service adoption in the literature, an insufficient attempt has been made to examine the customers' constraints towards intention to engage in online banking transactions within the context of emerging economies, especially, Ghana, Africa. Therefore, this dissertation aims to discover and propose a consumers' constraints model regarding the customer's inability to engage successfully in an online banking transaction in an emerging economy (Ghana). Again, while numerous researches have pointed out that the key factors to the adoption and usage of e-banking, little attention has been paid to the socio-economic factors: ranging from infrastructure availability, price of digital device, through financial charges to a knowledge gap, which could inhibit the adoption of this unique innovation (e-banking engagement). Besides, there have been inconclusive results that have been achieved over the years regarding the socio-demographic variables controlling for the adoption of e-banking engagement, especially within a developing country context. Following these observations, the

researcher considered the current theme of focus as relevant for both academics and industry.

The study offers practical knowledge to banks and other players in the financial industry to understand the nature and characteristics of online banking transactions that are best suited for. In other words, the doctoral thesis provides primary information to guide banks to restructure their marketing strategies, quality improvements, and business processes from the viewpoint of a customer. Again, this research would help to mitigate the impediments of innovation/technology adoption/acceptance by customers of banks and other non-banking institutions so far as Internet banking and mobile banking have come to stay. Finally, the theoretical implication of this research would widen the scope of a digital marketing application, particularly, the constraints in the e-banking system regarding the behaviour of users (customers) with the interplay of the online transaction from a developing country perspective.

1.2.2 Key Research Questions

The main research question of the dissertation is: “what are the major constraints affecting the engagement of electronic banking transactions amongst customers of retail banks (herein referred to as Medium-To-Large Sized Banking Enterprises) in Ghana”? Additionally, sub-questions were emerged based on the research problem of this study.

It is imperative to note that sub-research questions were established to provide a precise answer to the research problem. Hence, the researcher asked the following questions to guide the present study:

RQ1. What are the factors impeding customer’s willingness towards e-banking engagement in Ghana?

RQ2. What are the dimensions of customers’ constraints (in RQ1) impeding online banking amongst retail banking firms in Ghana?

RQ3. Does avoidance motivation significantly mediate the relationship between the identified constraints (in RQ1) and the intention to engage in e-banking transactions in Ghana?

RQ4. Do demographic variables of bank customers (particularly, Gender, Education, and customer’s Internet experience) significantly control for the outcome variable (dependent variable): intention to engage in online banking transactions in Ghana?

1.2.3 Research Objectives

The main objective of this study is to develop a comprehensive research model with regards to Customers’ Constraints Towards E-Banking Engagement amongst customers of retail banking in Ghana.

The specific objectives (partial goals) of this dissertation are as follows:

RO1. To examine the factors impeding the consumer's willingness to engage in e-banking transactions in Ghana.

RO2. To identify the dimensions of customers' constraints impeding e-banking constraints amongst retail banking firms in Ghana.

RO3. To assess the mediating role of 'avoidance motivation' between the identified constraints (in RO1) and the intention of e-banking engagement in Ghana.

RO4. To determine the significance of 'control variable' with respect to demographic variables of bank customers (particularly, Gender, Education, and customer's Internet experience) on the outcome variable (dependent variable): intention to engage in e-banking transactions in Ghana.

2 STATE-OF-THE-ART AND RELATED LITERATURE

2.1 The state of Information Technology (IT) in the banking sector of Ghana

Though Internet usage in Ghana is currently on the rise and for that matter the Internet marketing literature shows all indications point to the direction of the possibility of its application to successful online banking (see Crabbe et al., 2009; Jibril, Kwarteng, Pilik, et al., 2020). Even though, there is a rising number of researches about the evolution of electronic banking (e-banking) in the global space (Aliyu et al., 2014; Hanafizadeh, Keating, & Khedmatgozar, 2014; Nasri, 2011; Ramavhona & Mokwena, 2016), yet, the attention in the developing countries' context, particularly in Sub-Saharan Africa (H. Boateng, Adam, Okoe, & Anning-Dorson, 2016; R. Boateng, Heeks, Molla, & Hinson, 2008) remains a debate. Meanwhile, Information and communications technologies (ICTs) have persistently reformed the way and manner in conducting business transactions and satisfying the growing demands of customers for most organizations. Globally, it is quite to note that the potential of ICTs applications in the banking sector has been seen in terms of its capacity to increase customer base, reduce transaction costs (cost-effectiveness), improve the quality and timeliness of response, enhance opportunities for advertising and branding, facilitate self-service and service customization, improve customer communication and relationship among others (Boateng, Adam, Okoe, & Anning-Dorson, 2016; Nabareseh, Osakwe, Klímek, & Chovancová, 2014). Interestingly, in recent times, banks in developed and some in developing parts of the world offering e-banking services are with various levels of complexity (Woldie, Hinson, Iddrisu, & Boateng, 2008). However, most banks in Africa seemed to be content with having a relatively few Web presence of them making steps towards fully-completed e-banking integration.

In Ghana, a frantic effort has been made by the government and private firms to catch up with global developments regarding the improvement of the quality of service delivery across both local and international banks in the Ghanaian banking industry (Crabbe et al., 2009; Koomson et al., 2021; Ofori, Boateng, Okoe, & Gvozdanovic, 2017; Perkins & Annan, 2013). Instances can be seen where some banks have allowed some form of Internet related-transaction for their clients via their new banking system, checking their account balances, and to deposit/transfer money from one account to another (Boateng et al., 2016; Woldie et al., 2008; Gilmore, Gallagher, & Henry, 2007). Over the past two decades, the Ghanaian banking industry has witnessed a gradual and continual application/integration of computerized technology into banking operations (Jibril et al., n.d.; Woldie et al., 2008). Again, the application of ICT since the past two decades has become a core strategic tool for competitive advantage by redefining market segmentation as well as market share so far as e-banking adoption is concerned. At present, there is a massive influx of ICT of various forms into several banking operations in Ghana. These include (1) computerization of counter processes and banking operations – all banks; (2) national network of all or key branches across the country, (3) introduction of Automated Teller Machines (ATMs), (4) creation of smart cards and debit cards, (5) introduction of personal banking facilities (telephone banking, SMS banking, and on-line virtual terminals), (6) introduction of Internet banking, etc (Jibril, Kwarteng, Pilik, et al., 2020; Ofori et al., 2017).

More importantly, banking in Ghana has undergone many changes in service delivery to improve the quality of service being provided to the customers. These banks, in general, were serving their customers through the manual system which is characterized by long queues to embark on any financial transaction. Though, with the advent of ICT in the banking system, the other problem faced by banking institutions in Ghana in the wake of Internet banking is that many clients are unable to engage successfully with the new system. Some of the problems (constraints) are associated with socioeconomic factors in which this study seeks to highlight despite other relevant factors.

Despite the above justification, the success of Ghana's financial sector is attributed to its meeting the needs of businesses and its efficient functionality in terms of providing finances without adversely affecting financial stability. Owing to this, it is important to note that a significant factor impacting the stability and profitability of banks is their ability to manage the information of their clients. The financial sector is heavily involved in information system management. Similarly, Big data and analytics are key components of the back-office processes of financial services providers. Managing such information in a way that protects client information is crucial to the success of financial services providers and the continued existence of a financial service provider (FSP) in terms of not contravening the Protection of Personal Information (POPI) Act. The banking industry, like any industry that has to warehouse large datasets, has had to make use of innovative strategies to cut costs

and increase the speed at which data can be retrieved. However, it is well established that disadvantaged communities interact with formal banking channels less frequently due to socio-economic barriers (Kitigin, Korir, & Chepkwony, 2020; Perkins & Annan, 2013; Rodríguez-Castelán et al., 2021). One of the benefits of digital platforms is their ability to break socio-economic barriers in terms of the costs of banking. SMO technologies offer an opportunity for the financial sector to reduce the costs of banking in such a way that those who are underserved or unserved by the financial services industry can firstly be more informed (through social media interaction with banks), and secondly, better able to access financial services through the removal of geographic barriers to banking and the reduction of high banking costs. Though, the 21st century has been occupied with innovations ranging from new technologies, new products, new services to a plethora of new industries. Yet the call for innovation in business and integration in firms has not been intensified especially in financial services in most developing countries in which Ghana is of no exception. Again, the call for online banking adoption that will lead to a swift implementation of a cashless economy by governments is facing doubts in many developing countries in which Ghana cannot be ignored. Although researches on this topic exist, yet, little is known on empirical evidence regarding the critical factors inhibiting customer's adoption of electronic banking innovation in the Ghanaian banking industry. Hence, this doctoral thesis dwells on that.

2.2 Theoretical lenses of the research

2.2.1 Unified Theory of Acceptance and Use of Technology (UTAUT)

Undoubtedly, it is becoming increasingly problematic to ignore Technology Acceptance Model (TAM) as a pioneered theory to test technology adoption in the extant literature (Ali, 2016; Eid, Trueman, & Ahmed, 2006; Y. Malhotra & Galletta, 1999; Perkins & Annan, 2013; Rauniar, Rawski, Yang, & Johnson, 2014). Predominantly, TAM has been widely used to test customers' intention to accept or to decline the use of a particular technology and for that matter, electronic banking adoption cannot be avoided. While TAM has extensively been used in various studies to explore the influences of users' perceptions with regards to the 'ease of use' and 'usefulness' of technology/innovation in considering adoption and usage, the UTAUT was developed by Venkatesh et al., (2003) as an advanced theoretical framework, thus, as a new version of TAM that factored the influence of users' perception and decision to adopt and use technologies which include four(4) major other factors/variables such as performance expectancy, effort expectancy, social influence, and facilitating conditions. These factors were geared toward enhancing the adoption of technology. However, the absence of these factors gives rise to the resistance of it since the user may exhibit some level of unpleasant behaviour or unwillingness in decision making towards adoption (Venkatesh et al., 2003; Venkatesh & Zhang, 2010).

Nevertheless, the Internet Users' Information Privacy Concerns (IUIPC) was proposed by (Malhotra, Kim, & Agarwal, 2004; Singh & Malhotra, 2007) to provide a more detailed theoretical basis for examining the influence of 'security', 'trust', and 'social influence'. The authors sought to investigate the information privacy concerns of technology users (in this case Internet users) by assessing existing scales that measure users' concerns about the privacy of their personal information. Malhotra et.al. (2004); recognized the existence of differences in how users accept how their personal information is collected. Hence, they drew upon social contract theory as a basis in developing the IUIPC theoretical framework. The IUIPC consists of three factors, they are collection, control, and awareness of privacy practices. In light of this, (N. K. Malhotra et al., 2004) opined that "the lack of consumer confidence in information privacy has been identified as a major problem hampering the growth of e-commerce". Though, despite the importance of understanding the nature of online consumers' concerns specifically, on information privacy, this topic has received little attention in the information systems community, particularly in the banking sub-sector in which this dissertation sought to expound.

Again, extant literature has shown that the emergence of digital technologies has led to a significant transformation of society as well as reshaping of industry segments and operations. Digital technologies, according to scholars (Chao, 2019; R. Chen, 2021; Earnshaw, 2017; Linyard et al., 2010) may be categories under five (5) major section/segments, they are computing (the cloud); data (big data and analytics); networking (mobile and wireline broadband); people (social media platforms); and things (the Internet of Things). Practically, both living and non-living objects are sources of data which is often transmitted via networks and are held in the custody of third parties who may not be responsible for generating these data but are having access to use these data. The potential use or and exploitation of personal data has gradually raised concerns and awareness especially on the part of end-users of these technologies, which in turn has triggered practitioners (including stakeholders/regulators) and researchers to step in with measures that aim to reassure their users (or citizens) that their safety is guaranteed.

The researcher reiterates that the UTAUT combines previous models such as the Technology Acceptance Model (TAM), Theory of Reasonable Action (TRA), Theory of Planned Behaviour (TPB), Model of Personal Computer Utilization (MPCU), and the Diffusion of Innovation (DOI) theory that were developed to study human-technology interactions. The UTAUT model originally consists of six variables connected/related to behavioural intentions (BI) as mediating factors; BI, in turn, influences the use of behaviour (UB). It worth noting that, the six constructs that influence 'behavioural intentions' of users to adopt and use technology are derived from the mother construct; performance expectancy (PE). This construct explains the degree to which a user believes that using a particular technology will enable him or her to achieve better performance in a job or task (Nwaiwu, Kwarteng, Jibril, Buřita, & Pilik, 2020; Shankar & Meyer, 2009). Interestingly, Venkatesh et

al. (2003b) further combined five concepts namely “perceived usefulness, extrinsic motivation, job-fit, relative advantage and outcome expectations”, to arrive at performance expectancy as a variable for the UTAUT framework.

It is imperative to note that various scholars and researchers have applied the UTAUT model in various researches which have altogether been tested and verified, particularly the validity of the variables included in both the UTAUT and its modified version UTAUT2. The model has indeed applied in areas ranging from issues such as the adoption of mobile banking (Al-Jabri & Sohail, 2012; Chigada & Hirschfelder, 2017; Liao, Shao, Wang, & Chen, 1999), to social media (or Internet marketing orientation) adoption by micro-businesses (Bocconcelli, Cioppi, & Pagano, 2017; Mandal & McQueen, 2012; Scuotto, Del Giudice, Peruta, & Tarba, 2017), and understanding intentions of adoption of mobile payments (Jibril, Kwarteng, Pilik, et al., 2020; Yu, 2012).

2.2.2 Technology Threat Avoidance Theory (TTAT)

The TTAT asserts that individuals' perceptions regarding their susceptibility (vulnerability) to and the resulting severity of technology threats influence their awareness of the threats, which, in turn, influences their motivation and behaviour to avoid them. In the information technology (IT) realm, TTAT (Liang & Xue, 2009) suggests that the way that users perceive a threat influences their motivation to invoke a safeguarding mechanism against it. Liang & Xue, (2010) tested their theory verifying the theoretical underpinnings and offering their model to explain technology threat avoidance behaviour. The original model includes perceptions of susceptibility, severity, threat, safeguard effectiveness, safeguard costs, self-efficacy, avoidance motivation, and avoidance behaviour (Carpenter, Young, Barrett, & McLeod, 2019). To take inspiration from TTAT, it is quite remarkable to note that most technology or information system studies have been conducted around the technology acceptance theory. Though, it is imperative to consider the factors determining the acceptance of ICT. However, acceptance behavior may not be regarded as the only dimension in using ICT. The attitude of trying to avoid the use of ICT may be a part of that human behavior. Therefore, it would be quite meaningful to investigate the use of ICT threat-avoidance behaviour within the confines of Internet banking in a developing country. Fundamentally, the avoidance and acceptance behaviours are two different dimensions/perspectives and this makes the technology acceptance theory not complete when threat-avoidance behavior of users is silent. Though, there are few studies related to the technology threat, while TTAT has expanded the theory by blending various references in the fields of psychology, health care, risk analysis, and information system (Liang & Xue, 2010; Rhoa & Yub, 2011).

In order to understand the behavior of ICT users that tries to avoid perceived online risk, Liang and Xue (2009) proposed the technology threat avoidance theory (TTAT). They argue that TTAT as a dynamic and positive feedback loop could

explain the avoidance behaviour through the cybernetic theory and coping theory. To this, if users/potential are aware of possible theft and consider it seriously as a negative result, they will perceive it as a technology threat. Similarly, the threat awareness may draw a coping judgment and users may evaluate/assume the level that the technology threat can be avoided through unwillingness to engage in the e-banking platform. Therefore, we argue in the present study that the validity of TTAT starts with the assumption that the avoidance and acceptance behaviours of people are different from the qualitative perspective and hence must be looked at. In this study, the researcher considers factors such as perceived online risk (OIT): fear of financial loss, fear of reputational damage, and security and privacy concern as technological threats inhibiting the engagement of e-banking transactions. Hence, the works of various researchers that have captured security, trust, and online identity in various ways in their conceptual models seem to all agree that they have in one way or another influence user decision to adopt or resist a technology have been supported by this theory.

2.2.3 Diffusion of Innovation (DOI) Theory

Developed by E.M. Rogers in 1962, is one of the oldest social science theories. It originated in communication to explain how, over time, an idea or product gains momentum and diffuses (or spreads) through a specific population or social system. Diffusion of innovations is a theory that seeks to explain how, why, and at what rate new ideas and technology spread. Everett Rogers, a professor of communication studies, popularized the theory in his book *Diffusion of Innovations*; the book was first published in 1962 and is now in its fifth edition as the time this study was conducted. The theory still plays a significant role in several important disciplines including, Psychology, Management Sciences, Economics, Marketing, and Finance among others given that technology/innovation adoption or usage is concerned. Therefore, it is imperative to note and understand that, for a new product or service to be accepted and use, several mechanisms should be put in place to facilitate easier accessibility of the new product/service in question. In this thesis, the researcher argues that, for electronic banking transactions to be successful and sustain in the context of Ghana, particularly, a low Internet penetration environment, diffusion mechanisms should be made available for the spread and easily accessible to the service offered by the service providers (banks, and other stakeholders including government). Given this, the researcher identifies some relevant socio-economic factors that tend to impede the spread of this innovation (e-banking transaction) to its target beneficiaries. These factors include infrastructure (Internet connection and power fluctuation), digital divide (perceived knowledge gap), price of digital device, and financial charges.

Therefore, lensing through the DOI theory, the negation of these established (identified) constructs: poor/lack of facilitating condition(infrastructure), lack of digital knowledge and use (knowledge gap), unfavorable prices of digital gadgets (smartphones, computer/notebook, etc) per the income level of users, and

unfavorable financial charges (operating costs) are considered in the present study as socio-economics factors triggering the inability of several folks (customers) in their quest to engage in e-banking transaction in the Ghanaian context. Though, many banks in Ghana have started to offer banking services through mobile phones. However, not many studies investigate the factors that may help the bankers to design mobile or Internet banking services, which are suitable for and adoptable by bank customers. This study fills this gap and examines several factors obstructing (impeding) online and mobile banking adoption/engagement. Henceforth, using Diffusion of Innovation as a baseline theory, the study would expound on some factors as mentioned above.

3 CONCEPTUAL FRAMEWORK AND HYPOTHESIS FORMULATION

To begin with, the researcher deduced a conceptual model, as well as the summary of research constructs and their measurement items from the extant literature, is given below in Figure 1 and Table 1 respectively.

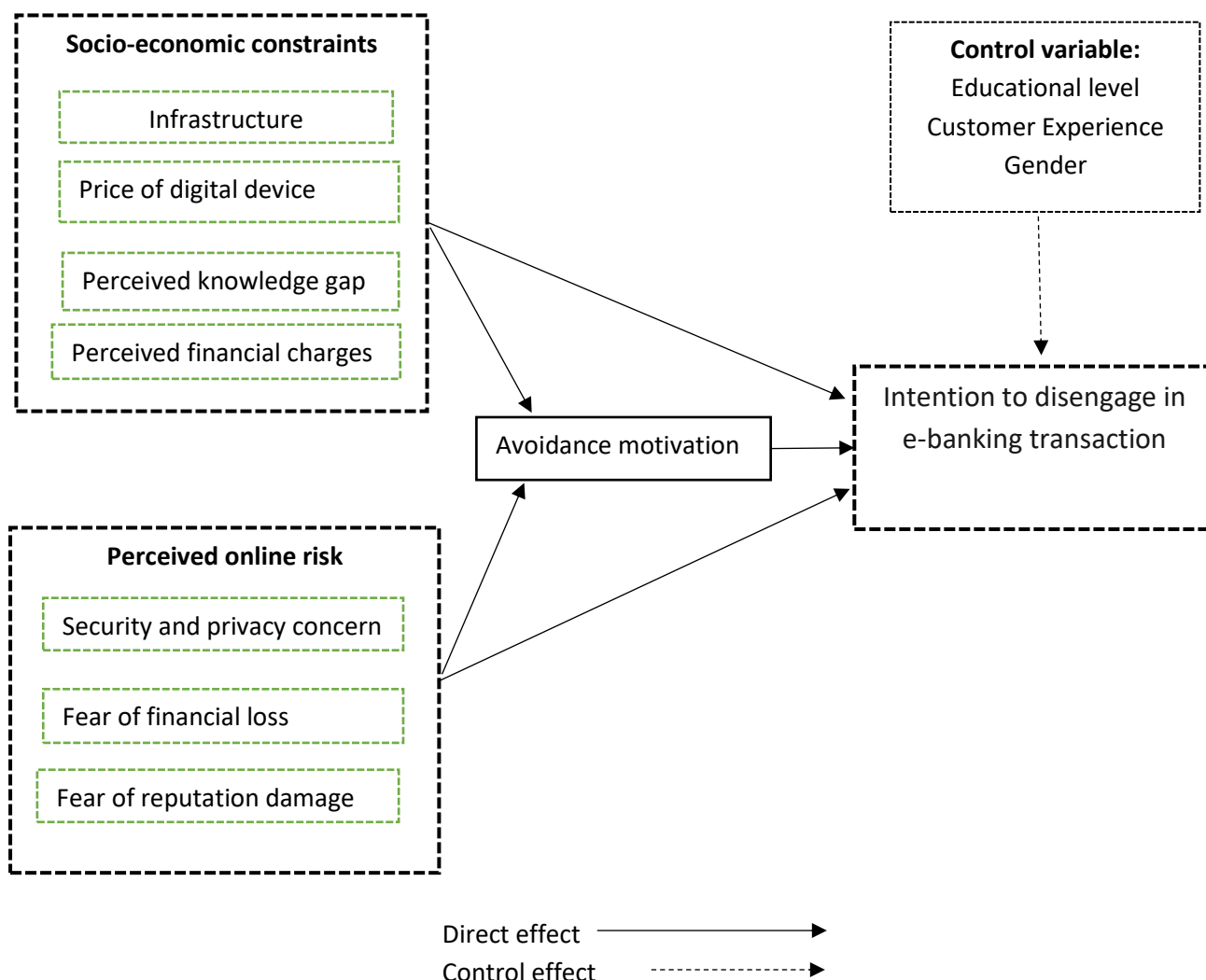


Figure 1: Research model. Source: Author's own

Table 1: Summary of the definition of construct and literature sourced

S/N	Constructs	Definition	Literature sourced/adapted
A	Perceived online risk:	<p>Perceived online risk is a serious crime, often aimed at obtaining the personal or financial information of another person. The obtained information is then used for personal gain, often by making purchases or selling someone's identity or credit card details online to the highest bidder.</p> <p>The concept encompasses '<i>identity theft</i>', or '<i>identity fraud</i>', which is a crime in which an imposter obtains key pieces of personally identifiable information, such as Social Security or driver's license numbers, to impersonate someone else mainly for a profit gain.</p>	(Doherty, Ellis-Chadwick, Allred, Smith, & Swinyard, 2006; Hille, Walsh, & Cleveland, 2015; Huang, Rau, & Salvendy, 2010)
1	Online security and privacy concern	Internet privacy involves the right or mandate of personal privacy concerning the storing, provision to third parties, and displaying information about oneself via the Internet. Internet privacy is a subset of data privacy. Privacy concerns have been articulated from the beginnings of large-scale computer sharing.	(Hille et al., 2015)
2	Fear of reputational damage	Reputational risk is a threat to the positive perception others have or should have about an individual, company, products, or services. Since a company's reputations are an intangible asset and a source of competitive advantage against rivals because the company could be viewed as more reliable, credible, trustworthy, and responsible to its employees, customers, shareholders, and financial markets, so as individual's information is also an asset to the person who possessed it.	(Hille et al., 2015; Huang et al., 2010)
3	Fear of financial loss	The fear of financial losses dimension is defined as the fear of illegal or unethical appropriation and usage of personal and financial data by a cyber-criminal or other entity to gain financial benefits such as buying products on behalf of the victim. Loss in psychology refers to the emotional side of investing, namely the negative sentiment associated with	(Hille et al., 2015; Huang et al., 2010)

		recognizing a loss and its psychological effects. It also refers to the tendency that new technology in the banking space causes harm to investors or depositors.	
4	Avoidance motivation	Refers to the psychological part of human nature. It describes the state of avoiding negative stimuli on psychological, and social rationales. It is advantageous in particularly threatening situations, or when a person anticipates a harmful effect of a phenomenon. Simply put, <i>Avoidance</i> indicates a propensity to move away from (or maintain distance from) an undesired stimulus. Whereas, <i>Motivation</i> is defined as the energization and direction of behavior.	(Elliot & Covington, 2001; Elliot, Gable, & Mapes, 2006)
B Socio-economic factors		It refers to the ways that social and economic factors influence the adoption and resistance of the e-banking environment.	(Brown, Hoppe, Mugera, Newman, & Stander, 2004; Takieddine & Sun, 2015)
5	Price of digital device	It refers to the expected cost of the digital devices necessary to engage in online banking transactions.	Author's own
6	Perceived Knowledge gap/ digital divide	The knowledge gap indicates the notion that individuals with a higher socioeconomic status absorb the information presented by mass media at a faster rate than those with a lower socioeconomic status. This leads to an increased gap in knowledge between these two segments of society as a result.	Author's own
7	Perceived financial cost/charge	Perceived financial charge/cost in this context refers to changes in activities associated with the online transaction as a result of e-banking engagement. In order words, it includes expenses incurred when buying or transferring, or depositing money via e-banking medium.	Author's own
8	Intention to adopt and retain Internet banking	The intention is a mental state that represents a commitment to carrying out an action or actions in the future. Intention involves mental activities such as planning and forethought.	Venkatesh, Morris, Davis, & Davis, (2003); Chen, Yu-Hui and Barnes, (2007)
9	Infrastructure	This refers to the support system by both public (government) and private	(Brown et al., 2004; Nabareseh et al.,

		institutions in the form of building infrastructure for organizations and individuals in a long-term benefit. For example, provision of Internet facility for easy access to information and communication. In this context, it refers to the facilitation conditions that influence the adoption or resistance to e-banking engagement.	2014; Wu, Chen, Chen, & Cheng, 2014)
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3.1 Summary of thesis hypothesis

- *H1a: Lack of infrastructural support (INFRAST) (such as Internet connectivity, constant power supply, etc.) would positively affect customers' avoidance motivation (AVDMOT) towards e-banking engagement.*
- *H1b: Lack of infrastructural support (such as Internet connectivity, constant power supply, etc.) would directly affect customers' intention to disembark on e-banking engagement (INTENT).*
- *H2a: Unfavorable prices of digital devices (PDD) (such as notebooks, smartphones, tablets, etc.) would positively trigger customers' AVDMOT to disengage in online banking transactions.*
- *H2b: Unfavorable prices of digital devices (PDD) would directly affect customers' INTENT to disengage in Internet banking transactions.*
- *H3a: Perceived knowledge gap or digital divide (PKG/DG) would positively affect customers' AVDMOT towards engaging in Internet banking transactions.*
- *H3b: Perceived knowledge gap or digital divide (PKG/DG) would directly affect customers' INTENT towards disengagement in Internet banking transactions.*
- *H4a: Perceived financial cost/charge (PFC) would positively predict customers' AVDMOT towards intention to disengage in Internet banking transaction.*
- *H4b: Perceived financial cost/charge (PFC) would directly predict customers' INTENT towards disengagement in Internet banking transactions.*
- *H5: Avoidance motivation (AVDMOT) perceived by the customer would positively affect his/her INTENT to disembark on e-banking transactions.*
- *H6a: Security and privacy concern (SEPCON) of a customer would positively affect AVDMOT towards e-banking transactions.*
- *H6b: Security and privacy concern (SEPCON) of a customer would directly affect the customer's INTENT towards e-banking transaction.*

- *H7a: Fear of financial loss (FOFL) of a customer would positively trigger AVDMOT towards e-banking transactions.*
- *H7b: Fear of financial loss (FOFL) of a customer would directly affect the customer's INTENT towards e-banking transaction.*
- *H8a: Fear of reputation damage (FORD) of a customer would directly affect AVDMOT towards e-banking transactions.*
- *H8b: Fear of reputation damage (FORD) of a customer would directly affect the customer's INTENT towards e-banking transaction.*
- ***Moreover, per the objective(s) of this thesis, the researcher deduced additional (indirect) hypotheses to take care of the mediation analysis of the research model. These are:***
- *H9a: AVDMOT would positively mediate the relationship between INFRAS and the INTENT to disengage in e-banking transactions.*
- *H9b: AVDMOT would positively mediate the relationship between PDD and the INTENT to disengage in e-banking transactions.*
- *H9c: AVDMOT would positively mediate the relationship between PKG/DG and the INTENT to disengage in e-banking transactions.*
- *H9d: AVDMOT would positively mediate the relationship between PFC and the INTENT to disengage in e-banking transactions.*
- *H9e: AVDMOT would positively mediate the relationship between SEPCON and the INTENT to disengage in e-banking transactions.*
- *H9f: AVDMOT would positively mediate the relationship between FOFL and the INTENT to disengage in e-banking transactions.*
- *H9g: AVDMOT would positively mediate the relationship between FORD and the INTENT to disengage in e-banking transactions.*

4 METHODOLOGY

4.1 Research Design

The dissertation began with theoretical research on Customers' constraints towards Internet banking adoption and retention. The conceptual model developed earlier in the literature (see Figure 1) was implemented based on the research design. However, it is important to note that the research design presents the methodological procedure in which the researcher deployed to implement the aims of the study. The literature review aided the thesis/dissertation model with the theoretical underpinning of the research theme. The thesis, therefore bent on deductive-inductive inquiry to accomplish the study's overall objectives. By extension, the dissertation considered a mixed approach thus, both quantitative and qualitative inquiry. Quantitatively, it means, the process of collecting and analysing numerical data (Mackenzie & Knipe, 2006). This was necessary since the process and the formality involved to execute the study aims helped to find patterns and averages, make predictions, test causal relationships, and generalize results to wider populations (Elkatawneh, 2016). Qualitatively, this involves collecting and analysing non-numerical data (e.g., text, video, or audio) to understand concepts, opinions, or experiences (Belotto, 2018). This approach was necessary to gather in-depth insights into a research problem to generate new ideas for the research method. This can be conducted by interviewing people who are mostly experts or users (in this case, bankers, bank consultants, customers, etc.) with regards to the research goals (or theme). Though, it is important to remind readers that both approaches were tailored towards a survey on off-line and online customers of retail banks (preferably, medium-to-large sized banking firms) in Ghana. In this light, the step-by-step procedure for the thesis implementation is given below (in figure 2).

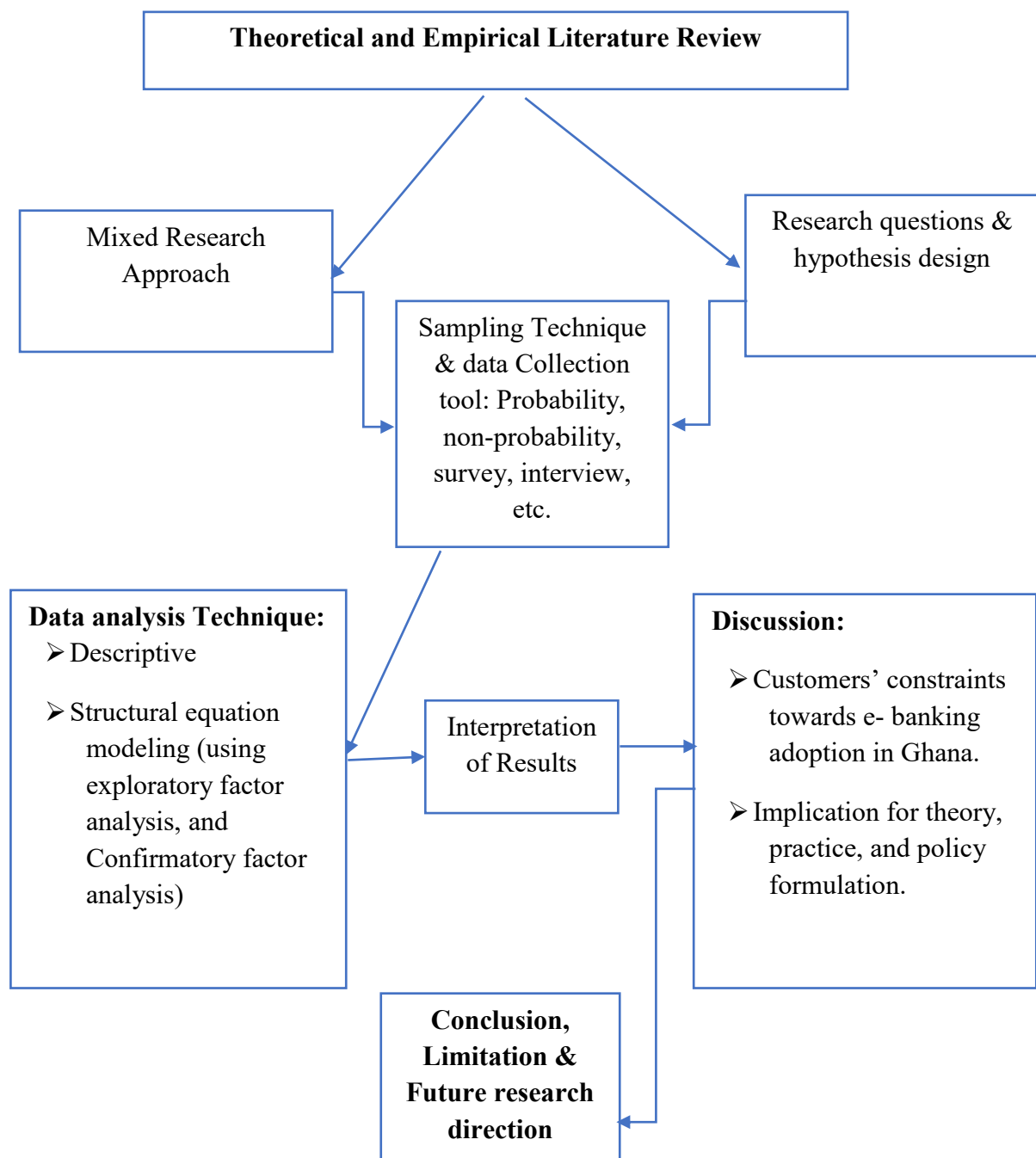


Figure 2: Research design. Source: Author's procedure for thesis implementation

4.2 Sample, demographics, and data collection instrument

As earlier stated in the research design, this is empirical research based on a mixed approach. So, therefore, in considering the participants of the study, the researcher narrowed the subjects (thus, the unit of analysis) mainly to only customers who are enrolled on or transact with banks that have integrated electronic transactions in their operation. In doing so, a checklist was designed to select banks that fulfill the basic requirement to be part of the study. Among the criteria considered include, the size (or category) of the bank; the presents of e-banking transaction/platform; customer

base; availability of bank branches; market share, etc. Considering the geographical nature of the study scope (Ghana), this procedure became relevant to ensure the geographical representation for the sixteen administrative regions (*formerly*, 10 major regions) of the country (ministry of local government, Ghana, 2019). After obtaining the qualified banks (research respondents) due to the study, both randomized and non-randomized sampling techniques were deployed for the data collection. By randomized, I mean, each member (customer) of the selected bank had an equal chance to be part of the study and minimizes the emergence of sample bias. Whereas, the non-randomized sampling technique was purposefully conducted to select the targeted banks (Etikan, Musa, & Alkassim, 2016). Again, the snowball method (as a type of non-randomized technique) aided in the data collection in that some respondents prompted the author and the field officials to other people/respondents (including their friends and relatives) who are equally qualified regarding the data collection (Heckathorn, 2011).

With regards to the data collection instrument for this research investigation, a survey questionnaire serves as the choice of the research instrument. The study questionnaire was developed based on the proposed model and was made in English and distributed only to respondents who could read and understand it satisfactorily. While those who could not understand the questions clearer were coached (detailed) by the researcher and other field officials who were recruited to help in the data collection stage. The questionnaire was developed in two forms, thus hard copy and an online survey (softcopy) via Google form. To speed up data collection while capturing a larger portion of the targeted population, particularly, for the quantitative inquiry, both randomized and non-randomized sampling techniques were implemented. In doing so, the data was gathered through a self-administered structured questionnaire and online survey/link. With the self-administered questionnaire, a hard copy questionnaire was distributed to participants who at the time of field data gathering, were intercepted at the selected bank locations while the soft copy (online survey link) was delivered to respondents who demanded it mainly due to their schedule.

4.3 Data analytical tool and software

With regards to data analysis technique, the researcher relied on structural equation modeling, specifically, the partial least square and structural equation modeling (PLS-SEM) and descriptive statistics. Generally, the structural equation modeling (SEM) is a causal modeling statistical technique that includes a diverse range of mathematical models, computer algorithms, and statistical methods that fit the network of constructs to data (Gefen, Rigdon, & Straub, 2011; Hoyle & Isherwood, 2013; Iacobucci, 2010a, 2010b; Sarstedt, Ringle, & Hair, 2014; Suhr, 2006). As a multivariate statistical analysis technique, Jöreskog & Sörbom, (2006) opined that SEM is used to analyse statistical relationships that exist between measured variables and latent constructs. It can estimate the multiple and interconnected dependence in a single analysis statistically. Finally, with regards to the statistical

software of the data process and analysis, ADANCO 2.2.1 software version and SPSS 25.0 were used for the modeling and descriptive statistics respectively.

5 EMPIRICAL RESULTS AND DISCUSSION

5.1 Measurement model verification

As earlier mentioned, the segment of this dissertation (thus, the explorative quantitative-based study) from the mixed approach draws on the PLS-SEM technique to test the thesis' hypotheses. To remind readers, the choice of this technique is simply based on the fundamental understanding of the predictive nature of this work, also it is imperative to note that the research effort is tailored towards the explanation of variances of the complex model (F. Hair Jr, Sarstedt, Hopkins, & G. Kuppelwieser, 2014; Jöreskog & Sörbom, 2006). Therefore, the preliminary stage in performing any PLS-SEM is the assessment of measurement models (Hair Jr, Howard, & Nitzl, 2020; G. F. Khan et al., 2019; Shmueli et al., 2019). Whiles in the literature (Hair Jr et al., 2020; Sarstedt, Hair Jr, Nitzl, Ringle, & Howard, 2020; Shiau, Sarstedt, & Hair, 2019). The assessment is done to confirms that the indicator variables are measuring the constructs they should measure. Hence, the researcher assessed the measurement model by using convergent validity and reliability following the suggestion of (F. Hair Jr et al., 2014; G. F. Khan et al., 2019).

In going forward, the ADANCO 2.2.1 software (Fassott, Henseler, & Coelho, 2016; Henseler, 2017; Schuberth, Henseler, & Dijkstra, 2018) fully aided this work. This was equally complemented with IBM SPSS software, WarpPLS as well as Microsoft Excel. Based on the recommendations of numerous research experts in the quantitative methodological literature as well as the research direction of PLS-SEM, with maximum emphasis, particularly, on the quality criteria for measurement (outer) model assessment, this thesis, hence, heed to the recommendations in the literature (Costello & Osborne, 2005; F. Hair Jr et al., 2014; J. F. Hair et al., 2019; Henseler, Hubona, & Ray, 2016; Iacobucci, 2010b, 2010a; Mackenzie & Knipe, 2006; MacKenzie & Podsakoff, 2012; PM Podsakoff et al., 2003; Sarstedt et al., 2014, 2016; w Creswell, 2009; Williams et al., 2010). Simply put, all suggested statistical threshold values in the PLS-SEM literature, in particular, have been satisfied in the thesis. The researcher, in rare cases, dropped items from the questionnaire that did not meet most of the measurement criteria during data processing. Tables 2, 3, & 4 show the summary of the test of reliability and validity, factor analysis, multicollinearity (variance inflation factor) as well correlation matrix (for discriminant validity) respectively regarding the reflective and the composite constructs of the research model.

Table 2: Construct reliability and validity

Construct	Dijkstra-Henseler's rho (ρ_A)	Jöreskog's rho (ρ_C)	Average variance extracted (AVE)	Cronbach's alpha (α)
Infrastructure	0.8907	0.9222	0.7478	0.8877
Price of digital device	0.8355	0.8980	0.7461	0.8299
Perceived knowledge/digital gap	0.9583	0.9723	0.9213	0.9573
Perceived financial charges	0.8530	0.9025	0.7554	0.8390
Avoidance motivation	0.8603	0.8528	0.6605	0.8566
Security privacy concern	0.9168	0.9458	0.8532	0.9139
Sear of financial loss	0.9018	0.9288	0.7658	0.8973
Fear reputation damage	0.9420	0.9522	0.8329	0.9329
Intent toward e-banking	0.9302	0.9389	0.7548	0.9192

Source: Author's processing based on ADANCO 2.2.1 software

Table 3: Factor loading and Multicollinearity (Variance inflation factor [VIF's])

Construct	Indicator	Loading	VIF's
Infrastructure	INFRAS1	0.8695	2.6860
	INFRAS2	0.8908	3.1426
	INFRAS3	0.8489	2.2810
	INFRAS4	0.8492	2.0949
Price of digital device (PDD)	PDD1	0.8884	2.2304
	PDD2	0.8712	1.8994
	PDD3	0.8307	1.7694
Perceived knowledge/digital gap (PKG/DG)	PKG/DG1	0.9507	4.9884
	PKG/DG2	0.9704	8.0307
	PKG/DG3	0.9583	6.0018
Perceived financial charges (PFC)	PFC1	0.8703	1.8454
	PFC2	0.9037	2.4857
	PFC3	0.8319	1.9663
Avoidance motivation (AVDMOT)	AVDMOT1	0.8331	2.6796
	AVDMOT2	0.7172	3.0818
	ADVMOT3	0.8792	1.7296
Security and privacy concern (SEPCON)	SEPCON1	0.9059	2.7610
	SEPCON2	0.9437	3.9272
	SEPCON3	0.9212	3.3036
	FOFL1	0.8104	1.8171

Fear of financial loss (FOFL)	FOFL2	0.9144	3.3081
	FOFL3	0.9036	3.5141
	FOFL4	0.8682	2.7201
Fear of reputation damage (FORD)	FORD1	0.8530	2.4585
	FORD2	0.9274	4.0676
	FORD3	0.9416	5.3863
	FORD4	0.9260	4.2139
Intent towards ebanking (INTENT)	INTENT1	0.8766	3.1462
	INTENT2	0.8046	2.9459
	INTENT3	0.8969	4.1103
	INTENT4	0.9042	4.5280
	INTENT5	0.8583	3.1732

Source: Author's processing based on ADANCO 2.2.1 software

5.2 Test of discriminant validity of research constructs

In this section, the outer model was examined through discriminant validity. By discriminant validity, the researcher is compelled to establish if there is a statistically significant difference between any two given constructs. In this case, the two popular criteria in the SEM methodology literature were implored for this assessment (see J. Hair et al., 2017; Henseler, Ringle, & Sarstedt, 2015; Khan et al., 2019; Shmueli et al., 2019). The Fornell–Larcker criterion was used in this study. The Fornell–Larcker criterion for discriminant validity postulates that a latent construct's average variance extracted (AVE) with its indicators should be more when compared to other latent constructs in the structural equation model (Fornell & Larcker, 1981a). Simply put, a model is validly discriminant if the square root of AVE for a construct is greater than the correlation coefficient with other latent constructs to a cut-off point of 0.5 (see Bagozzi & Yi, 1988; Fornell & Larcker, 1981b; Iacobucci, 2010a). In view of this, the present research fulfils this criterion of discriminant validity as see in Table 4. Hence all the values in the diagonal (in bold) of the said table are greater than any other value in the row or column position about any other construct.

Table 4: Correlation matrix - Test of discriminant validity (Fornell-Larcker criterion 1981)

Construct	1	2	3	4	5	6	7	8	9
INFRASTRUCTURE	0.7478								
PRICE OF DIGITAL DEVICE	0.0990	0.7461							
PERCEIVED KNOWLEDGE/DIGITAL GAP	0.1926	0.1348	0.9213						
PERCIEVED FINANCIAL CHARGES	0.2468	0.0758	0.1310	0.7554					
AVOIDANCE MOTIVATION	0.1470	0.0413	0.1644	0.1193	0.6605				
SECURITY PRIVACY CONCERN	0.2118	0.0186	0.1603	0.1495	0.2844	0.8532			
FEAR OF FINANCIAL LOSS	0.0367	0.0186	0.0443	0.0704	0.2740	0.2750	0.7658		
FEAR OF REPUTATION DAMAGE	0.0509	0.0219	0.0746	0.0374	0.2496	0.3093	0.5081	0.8329	
INTENT TOWARD E-BANKING	0.1411	0.1846	0.1527	0.0713	0.0004	0.0078	0.0113	0.0022	0.7548

Note: *Squared correlations; AVE in the diagonal.* Source: Author's processing based on ADANCO 2.2.1 software

5.3 Hypothesis testing using partial least square structural equation modeling (PLS-SEM)

In the aftermath of the assessment of the model fit, the researcher performed the outer reflective model using PLS-SEM (see Table 8). The researcher then reminds readers that the aim was to validate the research model regarding the internal consistency, reliability, convergent validity, and while discriminant validity is shown using Fornell–Larcker criterion and Heterotrait-Monotrait (HTMT) ratio in tables 7 and 8 respectively. More importantly, the output in Table 5 showed that the traditional Cronbach alpha in PLS-SEM is robust when equated to composite reliability (T. Y. Chen, Kuo, Liu, & Wong, 2013; Hu, Jiang, Cai, Wong, & Mathur, 2013; Jakada, Kassim, Hussaini, Mohammed, & Rabi’u, 2020). Nevertheless, it has been noticed that all the outer loadings (see Table 8) exceeded the baseline of 0.6 (Bagozzi & Yi, 1988). Meanwhile, the composite reliability according to Dijkstra & Henseler, (2015) should exceed 0.7 for the research construct’s internal consistency to be seen as highly considered. By the virtue of this benchmark, the composite reliability of all the nine research constructs in the model (see table 6) met the cut-off point.

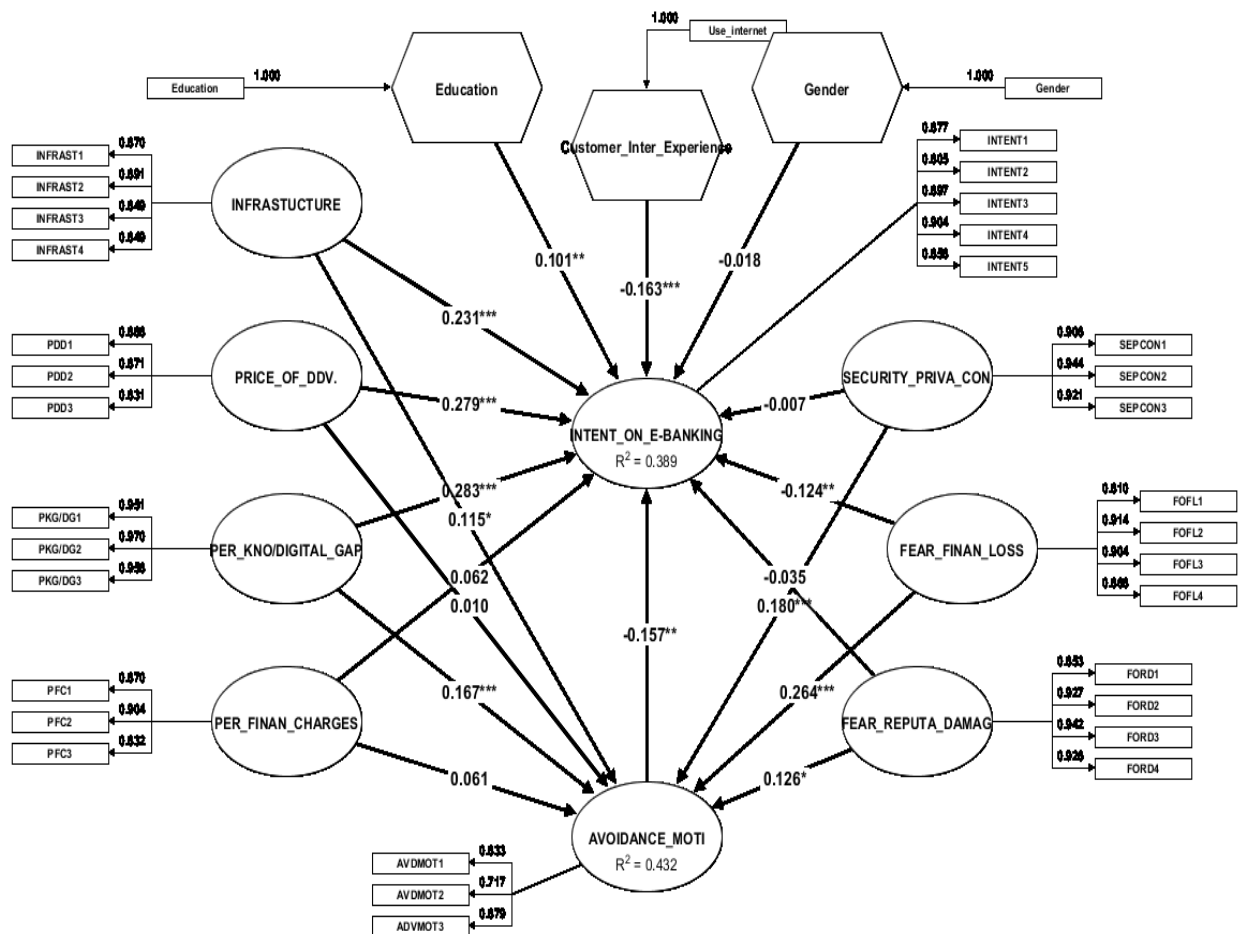
Fast-forward, as earlier mentioned, the researcher assessed the model through the PLS-SEM algorithm, with PLS iterative algorithm converged after 7 iteration(s) complemented by the bootstrap re-iterating of 5000 sampling procedure. Table 11, 12 & 13 shows the estimated path coefficients and associated t-statistics (at significant level $t > 1.96$ or $p < 0.05$) of each path in the research model of the present study. It is important to state that, the path analysis has been structured into three categories (thus, direct, indirect, and control manipulation of variables) and were estimated with their effect size (coefficient of determination). The results of the analysis show that the socio-economic and perceived online risk constructs have both direct and indirect effects (relationship) towards the intention to disengage in e-banking transactions.

Direct effect:

The direct effects describe the straight paths (antecedent variables) towards the mediator variable (avoidance motivation) and the dependent variable (intention to disengage in e-banking), whilst the indirect effects explain the role of the mediator variable regarding between the antecedent and the dependent variables. A quick summary of the data processing with regards to the direct path coefficients (or direct hypotheses) shows that: INFRAS \rightarrow AVDMOT; INFRAS \rightarrow INTENT; PDD \rightarrow INTENT; PKG/DG \rightarrow AVDMOT; PKG/DG \rightarrow INTENT; AVDMOT \rightarrow INTENT; SEPCON \rightarrow AVDMOT; FOFL \rightarrow AVDMOT; FOFL \rightarrow INTENT; and FORD \rightarrow AVDMOT were all statistically significant at t-value > 1.96 (or p-value < 0.05). Whereas, five direct hypotheses were not. Notably, PDD \rightarrow AVDMOT, PFC \rightarrow ADVMOT, PFC \rightarrow INTENT, SEPCON \rightarrow ADVMOT, as well as FORD \rightarrow INTENT. See ‘Table 11’ for all details of hypothetical coefficients.

Indirect effect and control variable:

Again, to examine the mediator variable of the research model, the mediation (indirect) hypotheses indicated that: PKG/DG→AVDMOT→INTENT; SEPCON→AVDMOT→INTENT; FOFL→AVDMOT→INTENT and FORD→AVDMOT→INTENT was significant, but INFRAS→ADVMOT→INTENT; PDD→AVDMOT→INTENT and PFC→AVDMOT→INTENT was non-significant. Moreover, the researcher further controls for the variables: customer Internet experience, respondent’s educational level, and gender. For the exception of the ‘gender’ variable, the customer’s Internet experience and educational level is significant in controlling the dependent variable (intention towards e-banking engagement). Technically, the control variables are described as factors that influence the outcome of a particular phenomenon but often arise from the experimental design, mostly not the variables of interest. In other cases, they are confounding factors that cannot be catered for by adjusting the experimental design. Their impact can be minimal or great for further assessment in the model. Hence, the summary of the research hypotheses is contained in the estimated(structural) model below.



Note: all significant relationships are indicated in values with asterisk (*/**/****)
 Figure 2: Estimated research model. Source: Author’s processing based on ADANCO 2.2.1 software

Owing to FinTech development, the phase of the entire banking industry is rapidly changing in the 21st century. Prior investigations have shown that a focus-shift from traditional banking to new service delivery channels is paramount among many banks to provide customers with 24/7 (around-the-clock) access to banking services for improved customer service delivery (Amegbe & Osakwe, 2018; Domeher, Frimpong, & Appiah, 2014; Jibril, Kwarteng, Nwaiwu, et al., 2020; Nabareseh et al., 2014). From the findings, this research revealed that there is a significant impact of socio-economic factors as well as perceived online risk menace on the advent of Fintech, particularly, e-banking transactions.

5.4 Researcher's remarks from qualitative inquiry

To get a deeper understanding of the subject matter, the study, in addition to the quantitative inquiry, conducted a brief qualitative survey to obtain an in-depth fact from the viewpoint of the user (customer of e-banking transaction). The approach intercepted twenty participants. Summary/remark from the findings was as follows:

Preliminary findings show that most of the respondents who took part in this aspect are mainly customers who also work in a bank (or a financial outlet) while the rest were mere customers of the studied banks in question. With regards to the question: *How does Infrastructure (including Internet connection, Wi-Fi, power/electricity supply, etc.) affect online banking?* – It was found that ‘poor Internet connection’ is a major hindrance to e-banking engagement from the viewpoint of the user.

Concerning the question: *How does the Price of digital devices (thus, Computer, Laptop, Tablet, smartphone/mobile phone, etc.) affect online banking?* – There was a mixed reaction to this particular question. While some are of the view that inasmuch hi-tech (improved gadgets/electronic devices) guaranteed effective and efficient online transaction or service delivery, they have to pay much for those devices. Others are also on the view that since smartphones can easily perform such functions, the price of them is better than going for a notebook (laptop) at a higher cost just because of e-banking engagement. Hence, prices of electronic devices seemingly suggest users take into consideration before expressing interest to engage in e-banking or not.

Regarding the question: *How does Financial/operating cost (thus, charges involved) affect online banking/mobile banking?* – The study discovered that customers believed that the high cost of mobile data (or bundle) in Ghana discourage most of them to perform online banking, however, they believed that additional charges from the bank are normal as they are aware that such improved service would require additional cost to them.

Again, the question of: *How does the Knowledge gap (digital divide) affect the engagement of online banking?* and *How does Internet experience (including online banking/mobile banking experience) affect online banking?* - It emerged that people without basic ICT knowledge are unable to make use of such innovation (e-

banking). The findings revealed that many users are unable to sit in the comfort of their homes for this service, they have to frequent the banking hall for transactions mainly due to their low level of ICT skills. They are also believed that their experience coupled with Internet fluctuation discourages them from e-banking engagement.

Last but not least questions: *How do Security and privacy concerns affect online banking? and How does Perceived online risk (including fear of financial loss and fear of reputation damage) affect online banking?* – Interestingly, almost all participant of the interview believed that security issue, particularly, the fear of having a device hacked and banking information retrieved by a third part is a concern and deter them largely to embark on e-banking transaction. Some are even of the view that adopting e-banking transactions in Ghana will be their last resort since they do not know how they are safe and guaranteed their account by their bank. In order words, they are not confident in engaging in e-banking since they do not know the security measures adopted by their banks to protect them.

To conclude, when participants were asked to answer the question: *What other challenges (s) do you think may impede Online/Internet/Mobile banking transactions?* – It was found that many of the challenges have to do with ‘inadequate Internet facility, inadequate/lack of experts and staff knowledge of ICT in some banks, Internet fraud, lack of user friendly of some bank’s apps and websites among others accounted for the low patronage of e-banking services in Ghana.

6 CONTRIBUTION OF THE DOCTORAL THESIS

6.1 Scientific and theoretical relevance

Generally speaking, the thesis extends the awareness of this study and is incontestably a pioneering inquiry into the customer’s constraints towards online banking transactions in Ghana. In that, the dissertation would assist in the development of a scientifically validated conceptual model, particularly, the constraint’s variables (or constructs) with regards to Internet banking engagement. Indeed, the theoretical contributions are relevant to the Internet banking literature because most of the papers currently available on the subject are largely concentrated on the motivational factors of technology adoption, thus e-banking transaction in particular. Again, lack of rigorous scientific validations of the proposed framework within the scope of an emerging economy’s context like Ghana, a sub-Sahara African region, would be highly important for the current study to explore the demotivating/constraint factors that are potential to trigger resistance to technology adoption, specifically, geared toward online banking transaction in a low Internet penetration rate, Ghana (Sub-Sahara African region). Therefore, this research will fill the gap from a theoretical point of view.

6.2 Practical relevance

Concerning the practical relevance, the study contributes practically through the development of a robust and scientifically validated framework/model that would be useful for practitioners and organizations wishing to embark on the engagement of online transaction-related initiatives for their survival. In other words, the framework serves as a practical tool that will enable the organizations to assess their level of digital penetration and diffusion while evaluating the impact of the digital revolution on organizational processes to identify firms' successes and failures regarding the application of digital technology. Notwithstanding, this research would help bankers and financial experts in the financial industry to strategically deal with the enumerated constraints associated with customers' intention to engage in an online banking transaction. Again, this study is a wake-up call to all players in the financial industry, particularly, the banking and non-banking institutions for profitable decision-making. Thus, bankers could rely upon this current study to deploy innovative ideas (strategy) to curtail the persistent constraints affecting bank customers, especially in a developing country setting. It is worth noting that, this thesis when made available for practitioners'/industry's consumption, would help them to intensify ICT literacy for organizations and consumers alike with regards to the relevance of e-commerce.

6.3 Policy relevance

Considering the potential utilization of ICT in accelerating development in the in many several economies, the study suggests that governments through their Ministry of Communication, Science and Technology has to deepen their national ICT policy to ensure the sustainability of electronic transaction while bridging the digital gap between rural communities and the urban centres. This intervention, if implemented by the regulating bodies (government and corporate institutions) would consequently boost the technological advancement of an economy with aim of making life easier for its citizens. Moreover, this research, when given the necessary attention, would be a wake-up call to the regulatory body in addressing the socio-economic and online risk associated in the banking and e-payments environment. The finding of this research is designed to safeguard operational resilience, safety, soundness, and integrity of the entire e-business sphere, particularly, the banking category while promoting confidence in the use of e-financial services. It is important to state that the research aimed to help collate relevant information from bank customers to address key issues from a regulatory perspective (policymakers). This will help policymakers to anticipate, identify, and mitigate e-banking constraints bedevilled in the financial industry since FinTech has come to stay. The government, through the ministry of finance, could ensure improvements in the security systems and infrastructure of nationally important, banks and other financial services providers, electronic money issuers, Telcos, deploying experts (staff and other insiders) in fraud management and mitigation. This will enhance e-business operators' capacity to understand, identify, and mitigate potential constraints not

only to customers, but regulators, security agencies, and the entire national ecosystem.

7 CONCLUSION, LIMITATION, AND FUTURE RESEARCH DIRECTION

7.1 Conclusion

The purpose of this dissertation is to Understand Customers' Constraints Towards E-banking Engagement Among Retail Banks in Ghana. The study deployed both deductive-inductive inquiries to establish the study goal(s). In doing so, four (4) specific goals were set for implementation: (1) *To examine the factors impeding the consumer's willingness to engage in e-banking transactions in Ghana;* (2) *To identify the dimensions of customers' constraints impeding e-banking constraints amongst medium-to-large-sized banking firms in Ghana;* (3) *To assess the mediating role of 'avoidance motivation' between the identified constraints in (1) and the intention towards e-banking engagement in Ghana;* and (4) *To determine the impact/significant of control variable concerning demographic variables of bank customers (particularly, Gender, Education, and customer's Internet experience) on the outcome variable (dependent variable): intention to engage in e-banking transactions in Ghana.* This study drew on three composite theoretical perspectives underpinning the research, notably, the Technology Threat Avoidance Theory (TTAT), Diffusion of Innovation DOI) theory, and Unified Theory of Acceptance and Use of Technology (UTAUT). The researcher adopted a self-administered structured questionnaire and online survey for the quantitative inquiry, whereas, unstructured questionnaires through interviews were used to execute the qualitative part of the study. Data was gathered from customers of selected banks that met the study criteria (specifically, medium-to-large banking enterprises in Ghana) and began from January 2020 to September 2020 via randomized and non-randomized sampling techniques. The results from the quantitative segment using structural equation modeling (SEM) (Specifically PLS-SEM) with six hundred and seventy-two (672) valid responses with the help of ADANCO software version 2.2.1, shows that the research constructs; infrastructural support, price of digital device, perceived knowledge gap (or digital gap), avoidance motivation, security, and privacy concern, fear of financial loss, and fear of reputation damage are significant antecedents that influence bank customers to desist from e-banking engagement in Ghana. Interestingly, one more construct; the perceived financial charge was insignificant towards the customer's intent to disembark on e-banking engagement. Hence, this antecedent satisfied **the research sub-objective one (1)**. Moving on, the analysis classified the aforementioned factors into two dimensions, notably, socio-economic constraints and perceived online risks/risks factors, this segment of the analytical results satisfied **sub-objective two (2)** of study aims. The findings further show that the construct; avoidance motivation plays a significant mediating role between the antecedents and the dependent construct, particularly,

between (a) perceived knowledge gap/digital divide and Intent; (b) security and privacy concern and Intent; (c) fear of financial loss and intent; and (d) fear of reputation damage and intent. These results thereby satisfy **the research sub-objective three (3)**. The study finally examined/treated the impact of some demographic characteristics (specifically, Gender, Education, and Internet experience of respondents). It has emerged that customer's educational level and Internet experience accounted for a significant control effect towards the intention to engage/disengage in e-banking transactions in Ghana, while 'gender' does not determine or have a significant effect on the customer's intent for the action. This aspect of the study analysis subsequently satisfied **the fourth (4) and last sub-objective** of the thesis. The researcher then suggests that banks and Fintech players are to adopt a strategic mechanism that could profitably influence customers to use their electronic financial services while limiting the potential rise of the abovementioned constraints. Additionally, the study admonished that banks and government institutions could ensure massive infrastructural development to resolve the examined constraints to achieve the objective/purpose of e-banking transactions in the financial industry. Interestingly, and more importantly, this study is the first of its kind in assessing socio-economic constraints as well as online identity risks, particularly, in Ghana, where Internet penetration remains low relative to the global average rate.

7.2 Limitations and future research direction

First, the researcher would like to emphasize that the enumerated constraints used for the thesis model might not be adequate to represent the entire customer's constraints towards e-banking engagement in Ghana. This can be attributed to the fact that some of the constraint factors considered, respondents have no control over them. Hence, additional constructs (or other relevant variables) from socio-economic and perceived online risk perspective which deemed fit to the abovementioned theme is highly recommended in a future study.

Secondly, this study is limited to one region in the sub-Saharan African regions which makes the scope geographically limited. Also, since the researcher considered the banking sub-sector in the financial industry, it may not reflect the general view of the financial industry in Ghana. Therefore, a comparative study across nations in the sub-Saharan African region would be welcome to established commonalities of the identified constraints bedevilled in FinTech so far as e-transaction and e-banking engagement in a developing economy are concerned.

Last but not the least, the research study largely considered opinions (responses) from the bank customers without taking into consideration the organizational perspective. Hence, the study invites interested researchers to consider empirical views from both customers' and bankers' perspectives in a future study since the current research largely considered opinions from one side (the customers). That is

to say, future scholars are to consider a study that integrates the perspectives from both individual and organizational levels.

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SCIENTIFIC PUBLICATIONS ACTIVITIES BY THE AUTHOR

PUBLICATIONS:(orcid.org/0000-0003-4554-0150) (ResearchGate:
https://www.researchgate.net/profile/Abdul_Bashiru_Jibril)

(Indexed in ISI/SSCI/Web of Science, Scopus databases, etc.)

Refereed Journals (After thesis)

- 1) **Jibril, A. B.**, Kwarteng, M. A., Botchway, R. K., Bode, J., & Chovancova, M. (2020). The impact of online identity theft on customers' willingness to engage in e-banking transaction in Ghana: A technology threat avoidance theory. *Cogent Business & Management*, 7(1), 1832825. [**Scopus, Q2**]
- 2) **Jibril, A. B.**, Kwarteng, M. A., Chovancová, M., & Bode, J. (2020). Do socio-economic factors impede the engagement in online banking transactions? Evidence from Ghana. *Banks and Bank Systems*, 15(4), 1- 14. doi:10.21511/bbs.15(4).2020.01 [**Scopus, Q2**]

- 3) Botchway, R. K., **Jibril, A. B.**, Oplatková, Z. K., & Chovancová, M. (2020). Deductions from a Sub-Saharan African Bank's Tweets: A sentiment analysis approach. *Cogent Economics & Finance*, 8(1), 1776006. [**Scopus, Q2**]
- 4) **Jibril, A. B.**, Kwarteng, M. A., Chovancova, M., & Denanyoh, R. (2019). Customers' Constraints Towards Online Banking Transaction: A Literature Review. *Journal of Sustainable Development*, 23(9), 29-43. (indexed in EBSCO, <https://www.ceeol.com/search/article-detail?id=820895>) [**Scopus**]

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1. Kwarteng, M. A., **Jibril, A. B.**, Nwaiwu, F., Pilik, M., & Chovancova, M. (2020). The prospects of Internet-Based Channel Orientation for the competitiveness of service companies on the domestic market. *International Journal of Information Management*, 102223. [**SSCI, Impact Factor: 8.21**]
- 1) **Jibril, A. B.**, Kwarteng, M. A., Pilik, M., Botha, E., & Osakwe, C. N. (2020). Towards Understanding the Initial Adoption of Online Retail Stores in a Low Internet Penetration Context: An Exploratory Work in Ghana. *Sustainability*, 12(3), 854. [**SSCI, Impact Factor: 2.57**]
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- 3) Javed, M., Tučková, Z., & Jibril, A. B. (2020). The Role of Social Media on Tourists' Behavior: An Empirical Analysis of Millennials from the Czech Republic. *Sustainability*, 12(18), 7735. [**SSCI, Impact Factor: 2.57**]
- 4) **Jibril, A. B.**, Kwarteng, M. A., Chovancova, M., & Denanyoh, R. (2019). The Influence of Selected Factors on the Use of Herbal Products. *Journal of Competitiveness*, 11(4), 57. [**SSCI, Impact Factor: 3.65**]
- 5) Javed, M., Tučková, Z., & **Jibril, A. B.** (2020). An empirical analysis of tourist satisfaction: A case-study of Zlin-Zoo in the Czech Republic. *GeoJournal of Tourism and Geosites*. [**Scopus, Q3**]
- 6) Adzovie, D. E., & **Jibril, A. B.** (2020). Motivational Factors Towards Fast-Food Joint Selection in Under-Developed Country Setting: A Partial Least Square and Structural Equation Modeling (PLS-SEM) Approach. *Cogent Social Sciences*, 6(1), 1748988. [**Scopus, Q3**]
- 7) Dey, S. K., Khan, K. A., Tučkova, Z., & **Jibril, A. B.** (2020). Motivation among travel agents in India: The moderating role of employee's expertise and marital status. *Problems and Perspectives in Management*, 18(2), 453.
- 8) Hussain, K., Abbas, Z., Gulzar, S., **Jibril, A. B.**, & Hussain, A. (2020). Examining the impact of abusive supervision on employees' psychological wellbeing and turnover intention: The mediating role of intrinsic motivation. *Cogent Business & Management*, 7(1), 1818998. [**Scopus, Q2**]
- 9) **Jibril, A. B.**, Kwarteng, M. A., Chovancova, M., & Pilik, M. (2019). The impact of social media on consumer-brand loyalty: A mediating role of online

based-brand community. *Cogent Business & Management*, 1673640. [Scopus, Q2]

Book chapter (all indexed in Scopus)

- 1) **Jibril, A. B.**, Kwarteng, M. A., Nwaiwu, F., Appiah-Nimo, C., Pilik, M., & Chovancova, M. (2020, April). Online Identity Theft on Consumer Purchase Intention: A Mediating Role of Online Security and Privacy Concern. In *Conference on e-Business, e-Services and e-Society* (pp. 147-158). Springer, Cham.
- 2) Kwarteng, M. A., **Jibril, A. B.**, Botha, E., & Osakwe, C. N. (2020, April). The Influence of Price Comparison Websites on Online Switching Behavior: A Consumer Empowerment Perspective. In *Conference on e-Business, e-Services and e-Society* (pp. 216-227). Springer, Cham.
- 3) Kwarteng, M. A., **Jibril, A. B.**, Nwaiwu, F., Pilik, M., & Ali, M. (2019, June). Internet-Based Channel Orientation for Domesticated Services Firm: Some Drivers and Consequences. In *International Working Conference on Transfer and Diffusion of IT* (pp. 90-103). Springer, Cham. Book chapter.

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CAREER OBJECTIVE

Seeking to work and further develop skills, knowledge, and experience in a competitive teaching and research environment through sharing, teamwork, and professionalism as a means of positively impacting development in my country and beyond.

Key study interest: Consumer behavior, Brand management, Service Marketing, Social media marketing, SME development, and Technology adoption in a developing country.

EDUCATIONAL BACKGROUND

2018 to present: **Ph.D. in Economics and Management (Specialization in Marketing Management) – studies on-going**
Tomas Bata University in Zlin, Czech Republic

2016-2018: **MSc. Management and Marketing (May 2018)**
Tomas Bata University in Zlin, Czech Republic

2008- 2012: **BA. Economics and Entrepreneurship development (July 2012)**
University for Development Studies, Tamale, Ghana

WORK EXPERIENCE

- **2020 - 2021:** Erasmus Intern (Research Fellow)- Department of Management Sciences, Bonn-Rhein-Sieg University of Applied Sciences, Bonn, Germany
- **2018 to Present:** Senior Research Assistant (Seminar Lecturer) at Faculty of Management and Economics, Tomas Bata University in Zin, Czech Republic
- **2012-2016:** Tutor (Full-time job), Ghana Education Service, Sumaman SHS, Jaman North District, Bono region, Ghana

ACADEMIC RESEARCH WORKS (Thesis/Dissertation)

- **2021-** Understanding Customers' Constraints Towards E-banking Engagement: Evidence from Retail Banks in Ghana (in progress/ pending defence)
- **2018** - Project to boost sales of branded herbal products. A case study of Konate Herbal Center in the Jaman North District of Ghana (**MSc. Thesis, published**)
- **2012** - The determinants of credit assessed by small-scale enterprises in Wa Municipality of the Upper West Region (**BA. Dissertation, unpublished**)

PROJECT WORKS AT FACULTY

Internal Grant Agency Projects for PhD Students:

- Project Promoter/Leader - IGA/FaME/2019/008 Project: Country-of-origin effect on domestic product/brand purchase intention toward SME's sustainability in a developing country (Completed). Guarantor: Assoc. Prof. Miloslava Chovancová, CSc.
- Team Member - IGA/FaME/2020/002 Project: The impact of digital transformation on customer behaviour and firm's sustainable performance (under preparation). Guarantors: Assoc. Prof. Miloslava Chovancová, CSc. and Assoc. Michal Pilik.
- Project Promoter/Leader- IGA/FaME/ 2021/012: Consumer Behavior Towards Organic Food Consumption in the 21st Century Market: A Comparative Study in Europe, Asia, And Africa (under preparation). Guarantor: Assoc. Prof. Miloslava Chovancová, CSc.

CONFERENCES AND WORKSHOPS ATTENDED

- Active participant, 15th International Conference on Cyber Warfare and Security (ICCWS 2020), 11 -14 March 2020, Old Dominion University, Norfolk, **Virginia, U.S.A.**
- Active participant, 6th European Conference on Social Media (ECSM 2019), 13-14 June, 2019. **University of Brighton, UK.**
- Active participant, International Working Conference on Transfer and Diffusion of IT (IFIP International Federation for Information Processing 2019), 21 – 23 June, 2019. University of Ghana Business school (UGBS), **Accra, Ghana.**
- Active participant, The 3rd International Conference on Business and Information Management (ICBIM 2019), September 12-14, 2019. Novotel Paris 17 Hotel, **Paris, France.**
- Active participant, 10th International Conference on Applied Economics and Contemporary Issues in Economy. 27 -28 June, 2019. Faculty of Economics sciences and Management, Nicolaus Copernicus University, **Torun, Poland.**
- Active participant, International Scientific Conference “Contemporary Issues in Business, Management and Economics Engineering” at Vilnius Gediminas Technical University (Lithuania). May 13-14 in **Vilnius, Lithuania.**
- Active participant, 3rd International Scientific conference on Economics and Management (EMAN 2019), 28 March, 2019, M-Hotel, **Ljubljana, Slovenia.**
- Passive participant, International scientific conference “Economics Management Finance (EMF 2018),” 10 –11 October, 2018 at Faculty of Economics and Entrepreneurship of Pan-European University in Bratislava, **Bratislava, Slovakia.**

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Engagement: Evidence from Retail Banks in Ghana**

Zákaznická omezení při zapojení do elektronického bankovníctví:
zkušenosti retailových bank v Ghaně

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