

# Assessing the Impact of COVID-19 on Bank Customers and their Use of Electronic Banking in Ghana – A Bank Administrative Perspective

Mohammed Abubakari Sadiq<sup>1\*</sup>, Abdallah Omoru<sup>2</sup>, Abdurahim Mohammed Mutaka<sup>3</sup>

<sup>1</sup>Department of Public and Health Services Administration, School of Business, University for Development Studies, P.O. Box 1350, Tamale, Ghana

<sup>2</sup>Department of Banking and Finance, School of Business, University for Development Studies, P.O. Box 1350, Tamale, Ghana

<sup>3</sup>Department of Social Studies, Vitting Secondary Technical School, Vitting, Tamale-Ghana

DOI: [10.36348/sjef.2023.v07i06.002](https://doi.org/10.36348/sjef.2023.v07i06.002)

| Received: 26.04.2023 | Accepted: 04.06.2023 | Published: 07.06.2023

\*Corresponding author: Mohammed Abubakari Sadiq

Department of Public and Health Services Administration, School of Business, University for Development Studies, P.O. Box 1350, Tamale, Ghana

## Abstract

There is much empirical evidence that Ghanaian banks have adopted electronic banking. By using an automated teller machine, the internet, a phone call, or a mobile device, customers of a bank can request information and conduct majority of banking transactions without having to physically visit the bank branch. Electronic banking, entails all kinds of bank transactions carried out through an electronic medium. This study evaluates how COVID-19 has affected bank clients' adoption of electronic banking in Ghana. Using explanatory research approach and purposive sampling technique, we applied SPSS tool on data collected from four-hundred (400) respondents of a targeted customer population to meet the study's goal. Self-administered close-ended questionnaires were used to collect primary data from the respondents.

**Keywords:** Internet banking, ATM, Covid-19, digitalization.

**Copyright © 2023 The Author(s):** This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

## 1. INTRODUCTION

The coronavirus pandemic (shortened as Covid), whose impact has been likened to economic scenes of WWII (Nicola *et al.*, 2020), has dealt a serious blow to bank operations and returns (IFC Survey, 2020). The cited International Finance Corporation survey reveals that financial institutions are operating at 80 percent of pre-crisis level and the pandemic has made banks intensify their digital transformation process. This has effects on client activity vis-à-vis bank operations and footfall in banking halls.

The Government of Ghana has embarked on a process to digitize all sectors of the economy (CGAP, 2020), not least the financial services sector. For instance, the government has made interoperability of mobile money transactions possible, relaxed transaction limits and removed levies on low-value transactions. The efforts of the Ghanaian Government reflects what is happening in other African countries such as Rwanda, where authorities have removed merchant fees on mobile transaction, and in Kenya where mobile money transaction limits have been increased (BoG,

2020). With the launch of interoperable platforms for financial institutions, the industry has seen more regulatory visibility and coordinated operational rules for mobile money operators involved in this sector.

To the Ghanaian banking sector, which was already on the trajectory of digitizing operations to fend off fintech entrants (Pazarbasioglu *et al.*, 2020), improve service efficiency and drive down costs (Asongu & Nnanna, 2018; Aidoo *et al.*, 2021; Asare & Sakoe, 2015), adhering to Covid protocols of physical distancing (Imposition of Restriction Act, 2020; GAB Guidelines, 2020) is an added impetus for introducing more e-banking tools. There is evidence that some banks in Ghana have registered 200% increase in the use of digital platforms since the pandemic started (PWC Banking Survey, 2020). The lock-down at the early days of the pandemic, shortening of banking hours and suspension of Saturday banking by some banks compelled many clients to switch to remote banking resources.

In view of the above, this study intends to empirically investigate the evidence of the impact of

Covid pandemic on client footfall in banking halls and on the extent to which technology-supported channels are being used to serve customers in order to enforce Covid-induced physical distancing rules. In response to Bank of Ghana (BoG)'s directives to frequently sanitize physical interfaces used by customers such as banking halls, ATMs and money counting machines, banks in Ghana instituted measures to continue to operate without endangering lives of staff and clients (PWC Banking Survey, 2020). Secondly, the study aims to understand how banks' service delivery has been transformed by the pandemic. Thirdly, to what extent has customers' use of new service delivery channels changed their choice of product and service experience in contrast to in-person interactions before the Covid pandemic. In other words, how has clients' use of e-banking tools impacted their choice of banking products and services? This is the gap this paper intends to empirically investigate and provide answers to. The study results provide some answers to how bank administrators and financial sector policymakers should act in face of any future pandemics or force majeure that may impose remote interactions in preference to in-person engagement.

As to the remaining structure, the paper gives an overview of e-banking in Ghana in section two. This is proceeded by review of previously published works in this field in section three. The fourth section covers methodology used, analysis and discussion of the data and finally in section five, we draw conclusions and proffer recommendations.

## 2. Overview of e-banking in Ghana

The e-banking terminology is still a divisive one in the scholarly circles as synonymous terms have emerged over a relatively short period of time, blurring marginal differentiating lines. These days e-banking is mostly used interchangeably with virtual, digital or remote banking. For the purposes of this study, e-banking is the remote application of electronic and telecommunication networks to provide various financial services to clients of a financial institution (Steven, 2002; Gichuki & Jakongo, 2018). This definition suggests e-banking is a portmanteau term that relates to any banking activity carried out remotely from the actual physical location of the bank. It is a technological facility that eliminates in-person interaction of bank officers with customers in the process of executing a transaction. The term thus encapsulates ATM banking, internet banking, and email-banking, tele-banking, mobile banking and many other electronic tools and applications used to virtually execute banking transactions. There are similar definitions, such as 'e-banking is the use of automated information system to carry out financial transactions with or without bank customers' physical presence at bank premises or designated locations' (Omotayo & Haliru, 2020).

Going by the explanation above, the first major e-banking channel in Ghana emerged with the establishment of the first ATM by Trust Bank Ghana (now a member of Ecobank Ghana) in 1995 (Domeher *et al.*, 2017; Abor, 2005). Prior to that however, e-banking was confined to internal banking operations or took the form of telefax and telephony, which media had limited transactional scope as they were constrained to relaying important information from the bank to its remote customers or remote clients issuing instructions to their banks to execute a certain transaction without physically showing up at the branch.

The pre-colonial banks in Ghana, namely Post Office Savings Bank (established 1888), British Bank of West Africa (established 1896) and Barclays Bank DCO (which later became Barclays Bank Ghana, and now ABSA Bank Ghana, established 1917), which were overseas subsidiaries of banks incorporated in UK (Antwi-Asare & Addison, 2000), carried out their remote banking obviously through telephony and telegraph because of the extensive physical distance apart. Telefax-banking and its other contemporary technology lacked most of the real time element of transaction execution prevalent in 21 century e-banking technology. Ghana's e-banking, like in many financial sectors in developing countries, certainly missed out on the era of cash transfers via pneumatic tubes popularized in the 1800s in the Western world for speedy cash, mail, human and commodity transport (Rao & Shevade, 2019). In the early days of ATMs in Ghana, the machines were functionally uni-directional in the sense that customers could only withdraw cash as there were no deposits nor funds transfer functionalities. Today's ATMs permit deposits, withdrawals, interbank transfers and printout of abridged statement of accounts. With artificial intelligence (AI), which was first introduced by John Mearthy in 1956 as automated systems (Hong Kong Monetary Authority, 2019, Buckley *et al.*, 2020) with 'human-like cognitive functions (e.g. recognizing patterns from data and understanding images, text or speech)', taking a center stage in banking, e-banking is yet to undergo tremendous changes.

There are other developments in the area of funds transfer and payment systems worth mentioning. The Ghana Interbank Payment & Settlement Systems Limited (GhiPSS), a wholly owned subsidiary of the Bank of Ghana, which manages interoperable payment infrastructure for all financial and non-financial institutions and third party payments, has improved real time virtual transactions in Ghana. GhiPSS has been reporting its success since incorporation in 2007. It recently reported a rapid growth of 120 percent in electronic payments on its interoperable platform from 13.1 million transactions in quarter-one (Q1) 2020 to 28.5m of the same period in 2021 (Osei *et al.*, 2021). This means the number of people transacting on the platform more than doubled in Q1 2021 as compared to

the same period in the previous year. The jump in transaction volume is attributable partly to the Covid pandemic because the period falls within the peak of Covid in Ghana. The rise in transaction volume is also attributable to citizens' increasing appetite for electronic transaction, especially mobile money transactions, which have seen tremendous growth in recent times (Asare & Sakoe, 2015).

### 3. LITERATURE REVIEW

#### 3.1 Coronavirus and banking

In relatively short period, a lot of scholarly work has been undertaken on the impact of Covid pandemic on the global economy (Baker *et al.*, 2020, Wielen and Cobos, 2020; Kanapickiene *et al.*, 2020) since the disease broke in December, 2019 and the classification of the disease shortly afterwards by World Health Organisation (WHO) as a pandemic (Gossling *et al.*, 2020). Covid "is an infectious disease caused by the SARS-CoV-2 virus (WHO, 2020). WHO reports that most people infected with the virus show mild to moderate respiratory disorders and recover even without special medical treatment. The main risk factor is the rapid spread of this infectious disease from one person to another. The section of the population most seriously at risk of disturbing effects, including death, are the elderly, whose immune systems may have declined over time, and people who already have underlying health conditions such as heart and respiratory system diseases. Globally, WHO reports 225 million infected people and 4.6 million deaths as of September 14, 2021. The reason Covid pandemic, considered in light of banking and industrial operations, is so much of research interest is because the pandemic, which essentially is a health emergency, has had contagion or spillover effect in the financial sector. The reason is because it requires mandatory physical distancing contrary to what occurs in banking halls on a normal day and has also affected the real economy, which in turn is affecting performance of banks, especially the risk of loan non-payment. Financial institutions are therefore engineering ways to continue to serve their clients without endangering lives of all stakeholders. The full impact of the pandemic on financial systems is still unfolding (Gebbski, 2021) and will likely have lasting effect on especially economies without sufficient government financial support, with lower vaccination coverage, declining stock of investment, overburdened with debt and eroded skills base due to job losses (World Bank, 2021). The overall risks of an infectious disease like Covid depends on magnitude, size and state of the local economy, geographical expanse of affected area, population density and duration of the pandemic (Estrada *et al.*, 2020). Thus, the severity of the impact on the financial system is dependent on these foregoing factors.

The financial sector, which already was on a trajectory of innovation to take advantage of technological advancement (Frimpong & Marbuah,

2010), has increased its pace of digitization (Auer & Böhme, 2020) to improve performance and at the same time comply with the regulator's demand for physical distancing (BoG, 2021). The effective selection of response measures such as repayment memoranda, financial system support and limiting approvals of loan volumes reduced the full impact of Covid on the financial system in Europe (Gebbski, 2021). Having an effective regulatory system has a counteracting influence on retail finance market, however, the pandemic has changed customers' perception of banks. The customers of banks are compelled to accept the physical distancing measures introduced by banks (Vasenska *et al.*, 2021). The acceleration of digital transformation in the financial sector and expanded e-commerce activity (Auer *et al.*, 2020) due to the pandemic has increased the risk of cybercrimes (Collier, 2020). It is thus important banks and the sector regulator do not lose sight of this important factor of risk – this single factor can break the entire system and drive customers back to hard cash economy with all its inherent risks.

Research in the area of pandemic impact on bank credit has been widely undertaken (Jorda *et al.*, 2020, Liu *et al.*, 2020a). There is empirical evidence that consumer satisfaction, including that of bank customers, takes a steep decline when regulatory restrictions are severe (Brandtner *et al.*, 2021). The restrictions introduced by regulators as a result of the pandemic have unintended consequences of curtailing credit to industry and eliciting bank customer reaction to choice and use of services.

#### 3.2 Bank Innovation and Customer Response

With changing technological innovation landscape, banks must necessarily transform their operations and business models in order to meet customer demands and remain relevant (Hamidi & Safareyeh, 2019). The taste of customers keeps evolving and so must bank operations morph over time to conform to the requirements on the market. However, innovation in the banking industry does not necessarily translate to adoption by customers (Woldie *et al.*, 2008). The determinants of a technological innovation such as ease of use and relative advantage encourage customers to use a particular e-banking channel, while perceived financial risks of an innovative tool discourages adoption by customers (Domeher, 2013). Therefore, factors such as threats to customers' accounts online can become a serious discouraging factor for a customer to adopt an e-banking application. The characteristics of users of an e-banking application affect its adoption (AbuShanab & Pearson, 2007). These authors also found customers' age and income level to be positively related to their adoption of e-banking tools.

The pandemic has led to rejection of cash in many instances (Auer *et al.*, 2020) for fear of contagion.

Widespread e-banking adoption may alienate some income or demographic groups. Some low income and vulnerable groups do not have proper identification, making access to financial services such as mobile banking or opening a bank account, which require some form of identification, difficult. Increasing use of e-banking payment methods will disproportionately marginalize senior citizens (Omotayo & Haliru, 2020), undocumented migrants, people with special needs and those living in extremely remote rural settings (Brown *et al.*, 2020). On account of financial marginalization of certain sections of the population and to encourage financial inclusion, it is suggested that, options for e-banking media are increased through advancement in the application of big data, biometric technologies, digital ID, distributed ledger technology (DLT) and the internet of things (IoT) as new technologies (World Bank, 2020). For instance, biometric technologies can provide instance identification for marginalized groups. The increasing use of e-banking must also appropriately be balanced with the acceptance of cash; virtual banking ought not be the cause of rejection of national legal tenders in the era of Covid, any other pandemic or public emergencies. In a bid not to dispense of cash, the central bank of England put up a notice at the peak of the pandemic that “the risk posed by handling a polymer note is no greater than touching any other common surfaces such as handrails, doorknobs or credit cards” (Bank of England, 2020). Similar encouraging actions in favour of cash are being undertaken by the Bundesbank and ECB in a bid to strike a practicable balance between cash and cashless transactions.

The management of fluid customer behaviours is becoming a challenge for contemporary financial systems, especially in the wake of Covid. In the face of growing customer sophistication and unpredictability, it is important that banks are accommodative of client behaviour by introducing inclusive services that meet needs of all customer groups (Mistreat, 2021). The introduction of these new services, which usually are backed by technology, also imply that customers of banks undergo some form of education, especially for technophobic client groups (Baicu *et al.*, 2020). The retooling of banks and customers alike is necessary because the financial industry may never go back to pre-outbreak normal (Craven *et al.*, 2020). The banks are influencing consumer behaviour and vice versa, as evidenced by the rising online bank accounts opening by small and medium-sized enterprises in Malaysia and increased contactless payment in the UK (Ammar *et al.*, 2020).

A section of the literature addresses the issue of giving a human touch to e-banking channels in order to make them acceptable to the clients. This is the reason banks have tended to introduce chatbots and video calls to make the e-banking transition smooth and customer friendly (AbuShanab & Pearson, 2007). This is very important to rope in the unbanked sections

of the population or entice technophobic customers such as the uneducated to the new technologies. The aspect of the literature that deals with the question of whether customers will positively respond to the introduction of e-banking channels is the Technology Acceptance Model (AbuShanab & Pearson, 2007). This model is an extension of the original Theory of Reasoned Action (TRA), which is a social psychology theory, first developed in 1967 to predict human behaviours or decisions (Ajzen & Fishbein, 1975). The proponents of TRA explain that a behavioural intention is the main predictor of a person’s behaviour. This means that if the actor in a situation expects a positive outcome from a particular behaviour, then s/he actually executes that behaviour. For instance, the intention of an individual keeping safe from contracting coronavirus determines the individual’s decision to execute an e-banking transaction, which decision itself is determined by that individual’s attitude and subjective norms (Coleman, 2011). Ajzen in his proposition described subjective norms as the “perceived social pressure to perform or not perform the behavior”. These norms are thus understood as expectations of others as to how the individual performing the action should behave according to acceptable practice in their circle. The TRA was extended by Fred D. Davis in his Technology Adoption Model (TAM), by explaining that the behaviour of an individual towards accepting a technology, in this case an e-banking facility, is dependent on her attitude and the expectations of her milieu. Attitude is referred to as an individual’s beliefs, values and general orientation towards a new technology (Adam *et al.*, 2017). Other empirical literature has found that the attitude of an individual which underpins her intention to perform a certain behaviour is determined by a complex interplay of several variables, namely technology’s own inherent characteristics such as flexibility, peculiar personal characteristics of the user client and situational variables (Thakur & Srivastava, 2014; Wessels & Drennan, 2010).

#### 4. MATERIAL AND METHODS

The data used in this study were obtained through structured self-administered questionnaire from a sample of 400 respondents (customers of banks) purposively sampled (Palinkas *et al.*, 2015). The questionnaire elicited information on the socioeconomic features of the respondents such as age (in a bracket of 10-year increments), gender, educational status, profession and monthly income. In the second part of the questionnaire, information on the use of banking channels such as internet banking, ATM banking, use of banking hall and reasons for using banking hall were sought. It is worth stating that the study is a comparative research studying two different time periods (before January 2020 and after January 2020) of banking channels usage. This period represents before the Covid and during Covid in Ghana. This seeks to unravel whether there is any significant change in the

usage of and preference for the various banking channels in the two time periods.

In terms of data analysis, the study uses descriptive and explanatory approach to unravel the consequences of Covid on the various customer reaction to accessing services provided by banks. Descriptive statistics such as frequency and percentage are used to analyze the characteristics of bank customers and comparative analysis used to unravel their choice of banking channels. Bhattacharjee (2012) notes that while descriptive research aims to answer what, when and where questions, explanatory research seeks to provide answers to why and how questions.

Research design is defined as a collection of advance decisions that constitute the master plan detailing the methods and procedures for collecting and processing collected data. This guided our selection of respondents, questionnaire design and mode of administration. The types of research design mainly used by researchers are exploratory, explanatory and descriptive (Pollard, 2002). Explanatory research design was employed to determine the relationship between our dependent and the independent variables and to establish any association between these variables. This approach aided in drawing empirical conclusion as to whether Covid pandemic has affected the use of e-banking tools by customers before and during the peak

of Covid. The application of purposive sampling strategy as well as administering the questionnaire directly enhanced the success of feedback from respondents. As a result we collected large amount of data from a sizable sample in a cost-effective and in relatively short period of time (Mugenda & Mugenda, 2003). This strategy allowed the collection of data which was analysed quantitatively using inferential technique to reflect the entire bank customer base. The explanatory research method helped the study gain more insight into customer usage of e-banking tools during the Covid pandemic. The data was analysed using SPSS software package.

## 5. RESULTS AND DISCUSSION

### 5.1 Demographic Characteristics of Respondents

Table 1 presents the descriptive statistics of demographic characteristics of the respondents. From the results, it is observed that most of the respondents are between 31 to 40 years of age. Majority of the respondents are self-employed representing 33 percent while few (11 percent) are students. Most of the respondents (30 percent) receive a monthly income ranging from GH¢2001 to 3000 while a least of 5 percent receive monthly income less than GH¢1000. A high proportion of 29 percent of respondents is first and second (masters) degree holders.

**Table 1: Descriptive statistics of respondents' demographic characteristics**

Demographic variable	Frequency %
<b>Age(years)</b>	
Below 20	5%
20 – 30	32%
31 – 40	44%
41 – 50	14%
51 and above	5%
<b>Profession</b>	
Students	11%
Self-employed	33%
Educationists	20%
Health workers	13%
Others (government and private sector employees)	22%
<b>Monthly income</b>	
Below 1000	5%
1001 – 2000	20%
2001 – 3000	30%
3001 – 4000	21%
4000 and above	24%
<b>Level of education</b>	
No formal education	24.50%
SHS and basic education	18%
Diploma and HND	28%
Bachelors and Master's degree	29%
PHD	0.50%

## 5.2. Impact of COVID-19 pandemic on banking

With regard to internet banking, it is evident from Table 2 that most respondents rely on this kind of banking instead of visiting the bank during the pandemic period. For instance, the results show that, in the last twelve months prior to Covid, only 40% of respondents used internet banking once in every month whilst 55% used it at least twice a month (described as regularly) in the same period. The results also show that, in the same period prior to Covid, 5 percent of respondents did not use internet banking. During the period of the pandemic, the results show a reduction in customers who used internet banking once a month to 34 percent. However, those who used e-banking regularly or frequently as defined by 'twice or more in a month' increased significantly to 65 percent, indicating that majority of the respondents resorted to banking conveniently via the internet at the comfort of their homes rather than physically visiting the bank. The reduction in one-time usage of internet banking in a month during Covid period gives credence to the underlining fact that more people felt the need to use this medium of banking more frequently during the Covid period. Interestingly, the results give an indication that many other customers who were not using internet banking previously also switched to internet banking service following the pandemic. This has seen a decline in non-users from 5 percent to 1 percent. This finding is not surprising since customers of various banks were encouraged to stay home as much as possible to do their transactions using other means available to them rather than visiting the banks physically in order to avoid the spread of Covid.

In terms of usage of the ATM, there is an indication from the results that, the use of the ATM declined during the Covid period compared to the period before the pandemic. Results indicate that 40 percent of respondents used the ATM machine once a month in the last year before the pandemic. However, during the peak of Covid, the percentage of respondents using the ATM once a month reduced drastically to 24 percent. Also, the percentage of those using the ATM frequently, as described in this text as twice or more in a month, reduced from 55 percent in the pre-Covid period to 46 percent in the period of Covid. Meanwhile, non-users of ATM have risen sharply from 5 percent in the period before Covid to 30 percent in the Covid period. This could be attributed to the fear of contracting the virus or just a desire to adhere to the Covid safety protocols. This finding confirms that during the Covid period, the various bank customers sampled preferred other means of banking such as the internet banking to going to the bank premises to use their ATM cards where they are likely to be exposed to infected persons.

With respect to respondents visiting the banking hall, results indicate that most customers visited the banking halls frequently (at least twice a month) during the last one year prior to Covid than during the Covid period. The result, as captured in Table 2, shows that the percentage of those visiting the banking hall once a month remains the same at 15 percent before and during the Covid periods. There is, however, a difference when it comes to those visiting the banking hall twice or more in a month before and during the pandemic. About 80 percent of respondents visited the banking hall twice or more in a month before the Covid outbreak compared to 70 percent during the pandemic period. Although there is a reduction in terms of those visiting the banking hall for transaction purposes, the visit frequency is still high and quite alarming considering the possibility of being exposed to or contracting the virus. It is however important to note that most of the visits to the banking halls were as a result of other transactions which were not possible without visiting the banking hall. For instance, many of the respondents reported that their banks were not having a reliable, if any means to make inquiries or to deposit money. The results also indicate that non-users of the banking halls surged from 5 percent of respondents in the period before Covid to 15 percent in the Covid period. This could be due to customers' preference for other methods of banking rather than physically visiting the banking hall.

The results indicate deposits as the major reason why customers visited the banking hall during the last one year prior to Covid outbreak. About 52 percent, 30 percent, 10 percent and 8 percent of respondents visited banks for purposes of deposits, withdrawal, enquiry and for others reasons respectively during the period prior to Covid. Visiting the banking halls for withdrawal purposes went down significantly from 30 percent in the period before Covid to 15 percent during the Covid period. This gives an indication that customers resorted to other means of withdrawal such as mobile money. The reasons for in-person visits to the banks for purposes of enquiry and others also declined during Covid. There is also an indication that customers visiting the banks to deposit money increased from 52 percent before covid to 70 percent during the Covid period. This finding may be attributed to the fact that an appreciable number of respondents had no formal education hence their inability to use other means of banking such as internet banking and mobile money transfers. Such customers, to a larger extent, have no option than to visit the banks to do their transactions. This gives credence to the high percentage of customers that still frequently use the banking halls. This is shown in Table 2 below.

**Table 2: Impact of COVID-19 pandemic on banking**

Response category	Before COVID-19	During COVID-19	% change
<b>Internet banking</b>			
Once every month	40%	68%	70
Twice or more every month	55%	65%	18.18
None	5%	1%	-80
<b>ATM usage</b>			
Once every month	40%	24%	-40
Twice or more every month	55%	46%	-16.36
None	5%	30%	500
<b>Visits to the banking hall</b>			
Once every month	15%	15%	0
Twice or more every month	80%	70%	-12.50
None	5%	15%	200
<b>Purpose of visiting the banking hall</b>			
Deposits	52%	70%	34.62
Withdrawal	30%	15%	-50.00
Enquiry	10%	8%	-20
Others	8%	7%	-12.5

In answering the research question of how the pandemic transformed bank service delivery and operations, we avert attention to the fact that 70 percent of respondents were still visiting the banking halls to make deposits despite the risks. This suggests banks in Ghana may have to provide alternative means of deposits to customers without necessarily compelling them to visit the banking halls. For instance, the mobile money interoperable platform provides a facility to deposit money at mobile money merchant points at a cost anywhere in the country. The charges could be the reason customers are not using this service. It may well be that some of these customers are technophobic or unable to read and write. The banks can reduce the number of visits to the banking halls by reducing transfer charges on mobile-to-bank-account transfers or introducing customer targeted e-banking services. The patronage of internet banking increased drastically from 40 percent to 68 percent, signifying more banks have switched from the traditional in-person service to remote banking to protect staff and customers. This also suggests many bank customers (68 percent), reflecting an increase of 35 percent within a relatively short period have embraced virtual banking service.

## CONCLUSION AND RECOMMENDATION

This shift towards e-banking in response to the fear of contracting Covid is extremely beneficial to the banking business (Ogini *et al.*, 2013). The evidence in the data shows that customers' choice of banking services changed with the pandemic. For instance, clients' frequency of patronizing internet banking changed from 55 percent to 65 percent. The choice of physical enquiry over remote enquiry dipped by 20 percent as did in-person withdrawals by 50 percent. By exhibiting preference for remote banking to in-person banking, the customers have shown a fundamental change in behaviour and choice of banking services in a relatively short period of time.

The visit to banking halls for transactional purposes such as cash withdrawals decreased due to the Covid pandemic and thus increased the usage of electronic banking services such as ATM and mobile money services. Based on the foregoing, it can be concluded that the Covid outbreak has had a significant impact on the expansion of electronic banking in Ghana.

The pandemic has also transformed banks to respond to customer demand for e-banking services. As per the data, the number of customers who patronize virtual banking services increased by 35%. This means that banks have to deploy more e-banking services to cater for the increase in demand for electronic services. It is observed that the services provided by banks influence customer behaviours while demand by the customers also impact services offered by the banks.

From the findings, this study recommends the following policies to overreach the roles of bank administrators.

Firstly, bank administrators should enhance protective and safety procedures for all staff in times of a pandemic. The banks should ensure that all banking halls, automated teller machines (ATMs), counting machines and other relevant equipment are sanitized on a regular basis.

The study also recommends that administrators should ensure staff and customers comply with the social distancing practice or in case of any other pandemic, follow public health advice in order that critical and front line staff are provided with protective equipment and gear, for example, gloves, face masks, and also provide hand sanitizing dispensers at entry and at vantage points.

Also, the banks are to ensure that all electronic channels are fully available and functional at all times and that the ATMs do not run out of cash.

Again, bank administrators should advise the public to refrain from panic withdrawals as the banks and Specialized Deposit-taking Institutions will remain open to offer services to customers or provide customers the convenience to remotely bank from home.

It is recommended that all financial institutions activate their business continuity and disaster recovery plans proportionate to the current circumstance and to review these plans as the situation changes.

### CONFLICTS OF INTEREST

All authors declare that they have no conflicts of interest.

### REFERENCES

- Abor, J. (2005). Technological innovations and banking in Ghana: an evaluation of customers' perceptions. *IFE Psychologia-An International Journal*, 13(1). <https://hdl.handle.net/10520/EJC38611>
- AbuShanab, E., & Pearson, J. M. (2007). Internet banking in Jordan: The unified theory of acceptance and use of technology (UTAUT) perspective. *Journal of Systems and information Technology*, 9(1), 78-97.
- Adam, A. M., Frimpong, S., & Boadu, M. O. (2017). Financial literacy and financial planning: Implication for financial well-being of retirees. *Business and Economic Horizons (BEH)*, 13(1232-2017-2418), 224-236.
- Aduhene, D. T., & Osei-Assibey, E. (2021). Socio-economic impact of COVID-19 on Ghana's economy: Challenges and prospects. *International Journal of Social Economics*, 48(4), 543-556. Emerald Publishing Limited. DOI 10.1108/IJSE-08-2020-0582
- Aidoo, S. O., Agyapong, A., Acquah, M., & Akomea, S. Y. (2021). The performance implications of strategic responses of SMEs to the covid-19 pandemic: Evidence from an African economy. *Africa Journal of Management*, 7(1), 74-103, DOI: 10.1080/23322373.2021.1878810
- Ajzen, I., & Fishbein, M. (1975). A Bayesian analysis of attribution processes. *Psychological bulletin*, 82(2), 261.
- Ammar, A., Brach, M., Trabelsi, K., Chtourou, H., Boukhris, O., Masmoudi, L., & ECLB-COVID19 Consortium. (2020). Effects of COVID-19 home confinement on eating behaviour and physical activity: results of the ECLB-COVID19 international online survey. *Nutrients*, 12(6), 1583
- Antwi-Asare, T. O., & Addison, E. K. Y. (2000). *Financial sector reforms and bank performance in Ghana*. London: Overseas Development Institute.
- Asare, M., & Sakoe, J. (2015). The Effects of Electronic Banking on Financial Services in Ghana. *Research Journal of Finance and Accounting*, 6(16).
- Asongu, S., & Nnanna, J. (2018). ICT in reducing information asymmetry for financial sector competition. *DBN Journal of Economics and Sustainable Growth* (Forthcoming), AGDI Working Paper No. WP/18/035
- Auer, R., & Böhme, R. (2020): *The technology of retail central bank digital currency*. BIS Quarterly Review, March.
- Auer, R., Frost, J., Lammer, T., Rice, T., & Wadsworth, A. (2020). Inclusive payments for the post-pandemic world. *SUERF Policy Notes*, 193.
- Baicu, C. G., Gârdan, I. P., Gârdan, D. A., & Epuran, G. (2020). The impact of COVID-19 on consumer behavior in retail banking. Evidence from Romania. *Management & Marketing*, 15(s1), 534-556.
- Baicu, C. G., Gârdan, I. P., Gârdan, D. A., & Epuran, G. (2020). The impact of COVID-19 on consumer behavior in retail banking. Evidence from Romania. *Management & Marketing*, 15(s1), 534-556.
- Baker, S. R., Bloom, N., Davis, S. J., Terry, S. J. (2020). *COVID-induced economic uncertainty*. Working Paper 26983. National bureau of economic research. <http://www.nber.org/papers/w2698>
- Bank of England, (2020): *Bank of England measures to respond to the economic shock from COVID-19*. Available at: <https://www.bankofengland.co.uk/news/2020/march/boe-measures-to-respond-to-the-economic-shock-from-COVID-19> (accessed 18 February 2021).
- Bank of Ghana (2020): *Annual Report and Financial Statements*. The Editorial Committee Bank of Ghana. ISSN: 0855-0972. Retried from [www.bog.gov.gh](http://www.bog.gov.gh)
- Berkowsky, R. W., Sharit, J., & Czaja, S. J. (2018). Factors predicting decisions about technology adoption among older adults. *Innovation in Aging* 2(1), 1-12. doi:10.1093/geroni/igy002
- Bhattacharjee, A. (2012). *Social Science Research: Principles, Methods, and Practices*. Textbooks Collection. [http://scholarcommons.usf.edu/oa\\_textbooks/3](http://scholarcommons.usf.edu/oa_textbooks/3)
- Brandtner, P., Darbanian, F., Falatouri, T., & Udokwu, C. (2021). Impact of COVID-19 on the customer end of retail supply chains: A big data analysis of consumer satisfaction. *Sustainability*, 13(3), 1464.
- Brown, B., Hentschel, N., Mettler, H., & Stix, H. (2021). Financial innovation, payment choice and



- cash demand – causal evidence from the staggered introduction of contactless debit cards. *Swiss Institute of Banking and Finance*. Working papers on finance no. 2020/02
- Buckley, R. P., Dahdal, A. M., & Zetzsche, D. A. (2020). *Digital Finance & the COVID-19 Crisis*. University of Hong Kong Faculty of Law Research Paper No. 2020/017
  - Chris Woodford, 2021: Pneumatic tube transport. Retrieved on September 14, 2021 from <https://www.explainthatstuff.com/pneumatic-tube-transport.html>.
  - Coleman, L. J., Bahnan, N., Kelkar, M., & Curry, N. (2011). Walking the Walk: How the Theory of Reasoned Action Explains Adult and Student Intentions to go green. The Clute Institute. *Journal of Applied Business Research*, 27(3).
  - Collier, J. E. (2020). *Applied structural equation modeling using AMOS: Basic to advanced techniques*. Routledge.
  - Consultative Group to Assist the Poor (Dura, Y. C., & Uzmani, 2020). *The role of institutions in economic growth: A literature review*. Retrieved from <https://www.cgap.org/research>
  - Craven, M., Liu, L., Mysore, M., & Wilson, M. (2020). COVID-19: Implications for business. *McKinsey & Company*, 8.
  - Domeher, D. (2013): *Secure property rights and access to small enterprises'(SEs) credit: A comparative study of Ghana and England*. Liverpool John Moores University, UK.
  - Domeher, D., Frimpong, J. M., & Appiah, J. (2017). Adoption of financial innovation in the Ghanaian banking industry. *African Review of Economics and Finance*, 6(2).
  - Edmond, L. (2019). *Reshaping Banking with Artificial Intelligence*. Whitepaper by Hong Kong Monetary Authority. Retrieved from [https://www.hkma.gov.hk/media/chi/doc/key-functions/financial-infrastructure/Whitepaper\\_on\\_AI.pdf](https://www.hkma.gov.hk/media/chi/doc/key-functions/financial-infrastructure/Whitepaper_on_AI.pdf)
  - Frimpong, J. M., & Marbuah, G. (2010). The determinants of private sector investment in Ghana: An ARDL approach. *European Journal of Social Sciences*, 15(2), 250-261.
  - Gębski, Ł. (2021). The impact of the crisis triggered by the COVID-19 pandemic and the actions of regulators on the consumer finance market in Poland and other European Union countries. *Risks*, 9(6), 102.
  - Ghana Association of Bankers (2020): *Measure to mitigate the impact of Covid-19 on the financial services sector*. Press release.
  - Ghana Banking Survey (PWC, 2020): *The new normal: Banks' response to COVID-19*.
  - Gichuki J. M., & Jagongo, A. (2018). Electronic Banking and accessibility of financial services in commercial banks: Theoretical and Empirical literature review. *International Journal of Management and Commerce Innovations*, 5(2).
  - Gössling, S., Scott, D., & Hall, C. M. (2020). Pandemics, tourism and global change: a rapid assessment of COVID-19. *Journal of sustainable tourism*, 29(1), 1-20.
  - Hamidi, H., & Safareeyeh, M. (2019). A model to analyze the effect of mobile banking adoption on customer interaction and satisfaction: A case study of m-banking in Iran. *Telematics and Informatics*, 38, 166-181.
  - Hamidi, H., & Safareeyeh, M. (2020). A model to analyze the effect of mobile banking adoption on customer interaction and satisfaction: A case study of m-banking in Iran. *Telematics and Informatics*, 38. ISSN 0736-5853, <https://doi.org/10.1016/j.tele.2018.09.008>
  - Imposition of Restriction Act (2020): *Act of Parliament of the Republic of Ghana*. Retrieved from <http://elibrary.jsg.gov.gh/laws>
  - International Finance Corporation (2020): *The early impact of COVID-19 on financial institutions. Insights from a survey of IFC financial institution clients*. Retrieved from [www.ifc.org/financialinstitutions](http://www.ifc.org/financialinstitutions)
  - Jordà, Ò., Singh, S. R., & Taylor, A. M. (2020). Longer-Run Economic Consequences of Pandemics. *Covid Economics: Vetted and Real-Time Papers 1* (April 3), 1–15.
  - Kanapickienė, R., Teresienė, D., Budrienė, D., Keliuotytė-Staniulėnienė, G., & Kartašova, J. (2020). The impact of COVID-19 on European financial markets and economic sentiment. *Economy & business*, 14, 144-163.
  - Liu, J., Shafi, M., & Ren, W. (2020). *Impact of COVID-19 pandemic on micro, small, and medium-sized Enterprises operating in Pakistan*. <https://doi.org/10.1016/j.resglo.2020.100018>. Elsevier
  - Mastercard (2020a): *Mastercard research shows surge in digital payments as e-commerce reaches new heights around the world*.
  - Mistrean, L. (2021). Behavioural evolution of consumers of banking services in the COVID-19 pandemic situation. *Journal of Corporate Governance, Insurance, and Risk Management (JCGIRM) 2021*, 8(Series 1). DOI: <https://doi.org/10.51410/jcgirm.8.1.6>
  - Mugenda, O. M., & Mugenda, A. G. (2003). *Research methods: Quantitative & qualitative approaches* (Vol. 2, No. 2). Nairobi: Acts press.
  - Nicola, M., Alsafi, Z., Sohrabi, C., Kerwan, A., Al-Jabir, A., Iosifidis, C., & Agha, R. (2020). The socio-economic implications of the coronavirus pandemic (COVID-19): A review. *International journal of surgery*, 78, 185-193.
  - Oginni, S. O., Mohammed, A., El-maude, J. G., & Arikpo, I. A. (2013). E-banking and Bank

- Performance: Evidence from Nigeria. *International Journal of Scientific Engineering and Technology*, 2(8), 766-771.
- Omotayo, F. O. (2020). Use and non-use of internet banking among elderly people in Nigeria. *International Journal of Social Science Management*, 7(2), 42-54.
  - Omotayo, F. O., & Haliru, A. (2020). Perception of task-technology fit of digital library among undergraduates in selected universities in Nigeria. *Journal of Academic Librarianship*, 46(1), 102097.
  - Opoku, E. E. O., & Boachie, M. K. (2020). The environmental impact of industrialization and foreign direct investment. *Energy Policy*, 137, 111178.
  - Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and policy in mental health and mental health services research*, 42, 533-544.
  - Pazarbasioglu, C., Mora, A. G., Uttamchandani, M., Natarajan, H., Feyen, E., & Saal, M. (2020). *Digital financial services. Finance and Institutions report*, World Bank Group.
  - Pollard, W. E. (2002). *Use of consumer panel survey data for public health communication planning: an evaluation of survey results*. In *American Statistical Association* (pp. 2720-2724). Alexandria, Va, American Statistical Association.
  - Rama Rao, K. S., & Shevade, D. S. (2019). Hyperloop - The future of transportation. *International Journal for Research in Engineering Application & Management (IJREAM)*. ISSN: 2454-9150 Special Issue - AMET-2019. MIT College of Engineering, Pune. Vol.05, Special Issue AMET-2019 DOI: 10.35291/2454-9150.2020.0141
  - Steven, A. (2002). *Information System: The Information of E-Business*. New Jersey: Natalie Anderson. pp. 11-36.
  - Thakur, R., & Srivastava, M. (2014). Adoption readiness, personal innovativeness, perceived risk and usage intention across customer groups for mobile payment services in India. *Internet Research*, 24(3), 369-392. <https://doi.org/10.1108/IntR-12-2012-0244>
  - Van Der Wielen, W., & Barrios Cobos, S. (2020). *Fear and employment during the Covid pandemic: Evidence from search behaviour in the EU* (No. 08/2020). JRC Working Papers on Taxation and Structural Reforms.
  - Vasenska, I., Dimitrov, P., Koyundzhiyska-Davidkova, B., Krastev, V., Durana, P., & Poulaki, I. (2021). Financial transactions using fintech during the COVID-19 crisis in Bulgaria. *Risks*, 9(3), 48.
  - Vasenska, I., Dimitrov, P., Koyundzhiyska-Davidkova, B., Krastev, V., Durana, P., & Poulaki, I. (2021). Financial transactions using fintech during the COVID-19 crisis in Bulgaria. *Risks*, 9(3), 48. <https://doi.org/10.3390/risks9030048>
  - Wessels, L., & Drennan, J. (2010). An investigation of consumer acceptance of M-banking. *International Journal of bank marketing*, 28(7), 547-568.
  - Wielen, V. D., Salvado, W. B. (2020). *Fear and employment during the COVID pandemic: evidence from search behaviour in the EU*. JRC working papers on taxation and structural reforms - Seville, Spain: European Commission, ZDB-ID 2954759-3. - Vol. no 2020, 08.
  - Woldie, A., Hinson, R., Iddrisu, H., & Boateng, R. (2008). Internet banking: an initial look at Ghanaian bank consumer perceptions. *Banks and Bank Systems*, 3(3).
  - World Bank (2019): *Global Economic Prospects, June 2019: Heightened Tensions, Subdued Investment*. The World Bank.
  - World Health Organisation (2020): *Covid-19 strategy update*. Geneva, Switzerland. CC BY-NC-SA 3.0 IGO. <https://creativecommons.org/licenses/by-nc-sa/3.0/igo>