

Assessing the Impact of Electronic Banking on the Financial Performance of Commercial Banks in Ghana

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ABSTRACT

The use of computer and communication networks to provide a variety of value-added goods and services to bank clients is known as electronic banking. Therefore, e-business is transforming the way that business is done across all industries, and commercial banks are no different from other businesses in this regard. The introduction of electronic banking services has shown to be a key advancement in the banking sector in Ghana. In light of this, the study looked into the connection between Ghana's commercial banks' performance and e-banking.

The specific goal of the study was to determine whether there is a relationship between the independent variables—such as the number of ATMs, debit and credit cards issued to customers, point of sale terminals, and the amounts of e-banking usage such as electronic funds transfers, mobile banking, and internet banking—and the dependent variable, such as performance as measured by profit after tax.

The findings of the study were that e-banking has a strong and significant effect on the profitability of commercial banks in the Ghanaian banking industry. Thus, there exists a positive relationship between e-banking and bank performance. The significance test showed that the influence of bank innovations on bank profitability was statistically significant meaning that the combined effect of the bank innovations in this research is statistically significant in explaining the profits of commercial banks in Ghana. The study recommends to the management of those banks that are slow in innovation adoption, to move in and adopt various innovations in their operations to shore up their profitability. It also recommends that Government policymakers should review policies related to the promotion of innovation adoption and transfer of technology. Adoption of innovations will improve the profitability of organizations because it will translate to better tax revenues for the government.

Keywords: Electronic Banking, Financial Performance, Banking Institutions

INTRODUCTION

Background of the Study

Electronic banking can be emphasized as the computerized, smooth and efficient delivery of modern and traditional banking services through electronic and communicative channels (Shan, 2020). It comprises of the schemes that customers use to access accounts, transact businesses and obtain information through networks, including the internet. These networks could be private or public. Electronic banking is, consequently, a general term describing the whole process of performing such transactions without the need to physically visit the financial institution. All of the following terms refer to different practices of electronic banking; personal computer (PC) banking, online banking, home banking, mobile banking and virtual banking (Shan, 2020). Virtual banking is the situation where banks do all their transactions online by the use of mobile, emails and Automated Teller Machines without having a physical location while online banking involves the bank having a physical location but offering services online. In Ghana, various banks have launched electronic banking. The banks include; National investment bank, Absa Bank, Standard Chartered Bank, Access Bank, Ghana Commercial bank

just to mention a few among the market leaders. The concept of electronic banking was first apprehended in the mid-70s. Conversely, with the high cost of internet that resulted to lack of internet users, growth of electronic banking was stunted. During the internet boom of the mid to late 90s, people started to ease up about making transactions over the internet. Electronic banking grew together with the internet. Despite that growth that was inevitable, customers were still reluctant and hesitant to carry out monetary transactions over the internet. It took widespread adoption of e-commerce which was based on innovative companies such as AOL, Amazon and eBay to make the idea of online purchasing common. Up until 2000, over 80% of banks offered online banking services and growth were slow. For instance, for standard chartered bank, it took several years to attain 2 million customers of e-banking. However, an important cultural change happened after the year 2000 where humans thought that computers were only able to store 2-digit figures and that it will come to an end. As given away by Egland et al., (2019), the main attraction to electronic banking is the elimination of the tiresome bureaucratic red tape in registering personal details as well as other services have translated into a literal boom in the banking industry over the last five years. Large national banks, regional and even smaller banks and credit unions offer e-banking known as PC banking, home banking, online banking or internet banking. Those that do are sometimes referred to as brick to click banks and can be distinguished from brick and mortar banks since they have yet to offer electronic banking from virtual or online banks that have no physical branches or tellers anywhere (Ombati et al., 2019). Many new virtual banks have entered the banking industry, and this has enabled customers to have access to financial services over the internet. The cost savings have helped Internet-based banks offer lower or no service fees and higher interest rates on interest-bearing accounts than traditional banks (Shan, 2019).

Problem Statement

In the recent past, there has been a drastic increase in the use of electronic banking being practiced in commercial banks in Ghana, examples of these banks are Access Bank, NIB Bank, Absa Bank, Standard Chartered Bank, and GCB Bank. Banking services in Ghana have always been offered through the traditional 'brick and mortar' branch system. Customers who require banking services have had to leave everything and travel to their branches to be able to transact banking business. This put banking services out of reach of many people across the country. The emergence of electronic banking has meant that many banking products and services can be accessed via the Internet. Thus electronic banking has enabled many products and services to be offered to customers who do not have to travel to the branch before accessing banking service. Banking services can thus be accessed in the comfort of the customer's home or office at

his or her convenience. E-banking has made banking more competitive. Bank customers are more discerning, sophisticated, and demanding. In order to meet customers' needs and expectations, banks have invested heavily in IT Infrastructure to offer a wide range of products and services including ATMs, Telephone banking, Internet banking, Mobile banking, and so on. However, this new venture is costly to launch and manage. There was a need therefore to investigate whether electronic banking has any impact on the financial performance of banks by evaluating whether the increase in costs and the possibility of eventually having less personnel has had any positive impact on the performance of these banks. Several studies have been conducted in Ghana to highlight these problems faced by commercial banks and the relationship between electronic banking and financial performance but have not been able to show clearly how costs have contributed to the performance of these banks (Mwangi, 2019). This study therefore sought to show an overview of how electronic banking has impacted the financial performance of the banks by highlighting the key factors to indicate whether the bank is making profits or losses and if its customers are being satisfied by the services being rendered. It also aimed to find the relationship between electronic banking and the financial performance of banks where past studies have failed.

Main Objectives

The general objective of the study was to investigate the impacts of electronic banking on the financial performance of commercial banks in Ghana.

Specific Objectives

The research objectives are as follows:

- To establish the impact of electronic banking on profitability
- To investigate impact of electronic banking on costs
- To establish impact of electronic banking on extent of banking services offered electronically.
- To assess the motive behind the provision of electronic banking services to customers.

LITERATURE REVIEW

Conceptual Literature Review

Extensive research has been conducted on the impact of information and communication technology (ICT) on the development of industries and countries at large (Pilat et al 2022). It is believed that the use of ICT tends to improve efficiency and is a major enabler for the integration of multinational corporations in the world today. The effective use of ICT is critical to achieving competitive advantage as well as economies of scale in today's worldwide market. It also increases the market share of productive firms which eventually might lead to growth. Interestingly, not every country with developmental capabilities has experienced the same growth with ICT. Even though most developed countries have high levels of ICT investments and adoption, faster growth and productivity is not guaranteed. According to an article by McCauley (2022), European countries seem to have been outpaced by the United States in its use of ICT to enhance the growth and productivity of its economy. The rewards of ICT are dependent on complex interaction between technology and a range of factors such as ICT related management skills, effective research and development, and a spur of innovation. It further mentions that the US and Nordics of Europe (Denmark, Finland, Iceland, Sweden and Norway) have been successful in creating an environment that permits innovation to thrive and for the benefits of ICT to be fully realized. Europe for instance has been successful in developing the Global System for Mobile Communication (GSM) which has enabled the region to be highly competitive in mobile services and equipment industry. From this, Europe has no shortage of technology but lags behind the US. This is because it lacks the entrepreneurial spirit that makes US companies more likely to take risk, innovate and undertake new ventures. Due to the risk-averse nature of

most countries, new ventures have grown slowly and this has been a major impediment to the growth of the Ghanaian economy.

According to Stamoulis et al. 2022, the profitability of delivery channels by banks is calculated not only on the basis of revenue generated by charging customers but also exploring other avenues for reducing operating cost. The adoption of e-banking ensures operational efficiency as it is evident that expenses on labour, premises, back-office paper work and facilities are minimized. The second is the sophistication of banking services delivered over electronic channels. Sophisticated e-banking services range from one way information-push services where customers obtain information about the banks' products and services to information download. With information downloads services, customers are able to download account information and forms and also perform full transaction such as making transfers between accounts, bill payment and cards and loan applications electronically (Boateng, R. &Molla, A. 2016). With these determinants, banks need to decide on what e-banking services to provide, to which customers and when and how to provide customers with their services.

Overview of Electronic banking

Recently, banks have resorted to using information systems for the running of their internal business activities and major banking services for their customers. In effect, making the dematerialization of the customer relationship with the bank branch in the banking sector becomes an issue of prime importance in the sector. In spite of this, banks are still finding it difficult to fully maximise the opportunities that are made available by the introduction of information systems. This has been attributed to customers' unwillingness to adopt these systems irrespective of the benefits that come with the adoption (Martins et al., 2019). Atypical example of such information systems is the electronic banking application. Moreover, the adoption of these information systems by the customers of banks would not only benefit banks, but also enable the banks to satisfy most of the demands of its clients with the least human intervention (Frye &Dornisch, 2020).

The Application of Electronic Banking in Different Economies

Different countries offer different internet banking products. The choice of products and services depends on a very large extent on internet accessibility, penetration and the level of economic development; the level of responsiveness of the prevailing regulatory authority to the economic environment and finally the level of financial sophistication in the country. Research relating to electronic banking has been conducted in a multiplicity of contexts. Extensive research has been carried out in Europe (Bradley and Stewart, 2019). Other research works have also been undertaken in Australia and Asia (Sathye, 2019). Until the advent of ATMs people in India were not aware or affected by the technological revolutions happening in the banking sector. ATMs became a major revelation for customers since it offered customers the opportunity to avoid long queues in front of cashiers at their banks.

The Application of electronic Banking in Ghana

Narrowing the adoption of electronic banking in different economies to Ghana, Ghana's banking industry has over the years witnessed a significant amount of transformation with the emergence of technologically innovative products and services. Banks have employed these innovative products and services in their operations to provide customers with easy accessibility. The industry has not been adversely affected by the current economic crunch. The industry has been built on strong regulatory and supervising framework. In 2008, as part of the Central Bank's obligation to improve the banking industry, a technologically friendly product was launched. This product was the Ezwich, a common electronic platform that integrates and links all payment systems of bank and non-bank financial institutions with a biometric smart card. Ghana's banking industry began to experience its technological revolution in the 1990s where most banks adopted

electronic and communication technologies such as telephones, personal computers and facsimile. The main purpose was to speed up and make service delivery to customers more efficient. The advancement in computer technology created an opportunity for banks to network their branches. The pioneers to this significant electronic novelty were Barclays Bank now Absa bank and Standard Chartered Bank. The lead by these banks resulted in an absolute transformation of Ghana's banking landscape. Most banks followed suit in networking their branches. Customers generally benefited from this transformation. Customers were able to transact business not necessarily with their branch but with other branches of the same bank. In 1995, the first Automated Teller Machine (ATM) was installed by The Trust Bank Limited. To gain a competitive position in the industry, most major banks also began installing their ATM networks which resulted in fierce competition. Currently, all banks operate ATMs which makes it the most successful electronic delivery medium for customers. ATMs have become a factor for customers' choice of a bank.

In Ghana, some banks started to offer PC banking services, mainly to corporate clients. The banks provide the customers with the proprietary software, which they use to access their bank accounts, sometimes via the World Wide Web (WWW). Banks have recognized the internet as representing an opportunity to increase profits and their competitiveness. Currently, all banks are offering internet banking (banking) in Ghana. Telephone banking, has also taken a big leap with its convenience and time. Absa Bank (Gh.) launched its telephone banking services in August 28, 2002. SSB Bank also launched its "Sikatel" or "SSB Call Centre" (telephone banking) in September 19, 2002. The services available with this system are ascertaining credible information about the bank's products, the customers' complaints, bank statements and cheque book request and any other complaints and inquiry. In recent times mobile banking is gaining momentum in Ghana. The widespread use of mobile phones in Ghana is fast tracking mobile banking to become a more convenient and accessible way of transfer of money or making payments. Telecommunication networks in Ghana are collaborating with banks in bringing this new form of banking to the door step of customers. MTN Ghana, a leading Telecommunication giant in Ghana was the first to introduce MTN mobile money. With this facility customers could transfer money through their mobile phones to another person anywhere across the country. This was in collaboration with major banks like Ghana Commercial Bank, Universal Merchant Bank etc. Airtel Ghana was next to follow with the introduction of 'ZAP' which also enabled customers to send money and make payments via mobile phones. The ZAP was not particularly successful so airtel repackaged the service as Airtel money which is competing favourably with MTN Mobile money. Now, Tigo has also introduced 'Tigo Cash'.

THEORETICAL REVIEW

The theories usually employed in electronic banking include: Technology Acceptance Model theory (TAM); Theory of Planned Behaviour (TPB); Theory of Reasoned Action (TRA); Innovation Diffusion Theory (IDT), the Agency theory and the balance score card.

Theory of Reasoned Action

The theory of Reasoned Action (TRA) posits that the behaviour of an individual is usually driven by behavioural intention, which is often a function of an individual's attitude toward the behavioural and subjective norms surrounding the performance of the behaviour. This theory generally posits that the performance of a person's specific behaviour is determined by his or her behavioural intention to perform the behaviour. Therefore, this theory is guided by the principle of compatibility and behavioural intention. In regards to Internet banking, the more positive the attitude towards Internet banking adoption and the greater the perception of social pressure towards the use of Internet banking, the stronger the intention to adopt or continue using Internet banking. However, Ajzen (2019) has argued that the theory was limited by correspondence. In essence, for the theory to predict specific behaviour, there should be an agreement of attitude and intention on an action, target, context, time frame and specificity (Sheppard, Hartwick, & Warshaw, 2018). In view of this, a major criticism of TRA is that it ignores the situational factors that

may influence the attitude–intention–behaviour relationship and is thus ill-equipped to predict situations in which individuals have low levels of volitional control (Yousafzai, Foxall, & Pallister, 2020).

The Theory of Planned Behavior (TPB)

The theory of planned behaviour (TPB) builds on the limitations of the theory of reasoned action (TRA) by expanding the boundary conditions of the theory of reasoned action to deal with the behaviours over which individuals by introduction have incomplete volition control. The theory posit that the behaviour of an individual is driven by behavioural intentions where behavioural intentions are a function of an individual's attitude towards the behaviour, the subjective norms surrounding the performance of the behaviour, and the individual's perception of the ease with which the behaviour can be performed. Ajzen (2020) opined that an additional determinant of intentions and behaviour is the perceived behavioural construct. Therefore, this construct is said to be the resource and opportunities available to an individual that influence the adoption of a particular behaviour. For instance, in the context of Internet banking, if an individual realises that technology is available and other resources are available to him and that he is able to use it, there is the possibility of adoption and continued usage of Internet banking. The theory of planned behaviour has also short comings with some writer criticising it for ignoring important factors that may influence intention behaviour relationships (Yousafzai et al., 2020). For instance, Eagly and Chaiken (2020) has argued that habit, perceived moral obligation and self-identity are variables that could predict intention in the TRA that TPB failed to address. Yee-Loong Chong, Ooi, Lin, & Tan (2020) and Taylor and Todd (2015) have criticised the theory by stating that, since the theory requires individuals to be motivated to perform a certain behaviour, this assumption may be problematic when studying consumer adoption in addition to an identical belief structure among respondents when it comes to performing a behaviour. The use of the theory of planned behaviour has been successfully applied to predict Internet banking behaviour and has been seen as a better alternative to the theory of reason action. Accordingly, (Yee-Loong et al 2020) used this theory to study the impact of electronic banking on the Ghana banking system.

Agency Theory

The theory was proposed by Jensen and Meckling (2019) and view commercial bank as the principle and correspondent bank as the agent whereby problems arise owing to misunderstanding or incongruence of their interest. Agency theory will occur where the bank agency fails to observe the agency regulations as issued by the central bank and hence putting the interest of the bank at risk since it is the one required to ensure that the agents comply with the regulations. Generally, according to agency theory, intermediation places financial institutions (banks and their agents) as intermediating between money and the market or households. Resource (money) allocation based on perfect and complete markets is hindered by frictions such as transaction costs and asymmetric information (Aduda et al, 2019).

According to Jensen and Meckling (2019), an agency relationship exists where one party referred to as the principal engages another party known as the agent to undertake some assigned tasks hence offer services on their behalf. There is a delegation of some decision-making power by the principal to the agent. These delegations of powers serve to promote the efficiency and productivity of the engaged agents. The agents are hired and retained due to the possession of specific knowledge, capabilities and talents that serve to increase the value of assets owned by principal. Such delegation implies that the principal has to place a certain level of trust on their engaged agents. This theory therefore assesses the conflicts of interest that arise in between the agent and the principal especially where motives by agents are questionable. In this regard, principals readily seek to obtain crucial information by way of evaluation and inspection by designing systems that ensures agent's indeed acts in line with the interests of the principal (Jensen &Meckling, 2019).

According to Cetorelli& Goldberg (2022), agency concept is directed at improving the infrastructure that

increases efficiency in providing of financial services. In this study, the agency theory is utilized to show how modern E-paying systems has transformed the banking technology and hence facilitated the changes in the strategy and traditional structures of commercial banking sector. By studying the commercial banks resources, competencies and capabilities thus the approach is extended to services and is linked to boosting financial performance and ensuring that bank customers are able to access financial services without having to visit the banks. Several scholars have criticized this theory for instance Perrow (2016) argued that agency researchers have only concentrated on the agent side of the principal and agent problem and ignored that the problem might also arise as a result of the principal side. According to Donaldson (2020), agents are unknowingly dragged into the working environment where principals are opportunistic. Perrow (2016) further argues that the theory is unconcerned about the principals who exploit the agents. This theory is relevant to the study since it is concerned with the agency banking variable.

Empirical Literature Review

Types of electronic banking

The common types of electronic banking include the following:

a. Mobile/SMS Banking

Mobile Banking refers to provision and availing of banking and financial services with the help of mobile telecommunication devices. The scope of offered services may include facilities to conduct bank and stock market transactions, to administer accounts and to access customized information. According to Meute (2020), mobile Banking consists of three inter-related concepts: mobile accounting, mobile brokerage and mobile financial information services. With mobile technology banks can offer a variety of services to their customers such as doing funds transfer while traveling, receiving online updates of stock price or even performing stock trading while being stuck in traffic. Smart phones and 3G connectivity provide some capabilities that older text message-only phones do not (Shan, 2020).

b. Telephone Banking

Telephone banking is a service provided by a financial institution, which allows its customers to perform transactions over the telephone (Vila et al., 2019). Most telephone banking services use an automated phone answering system with phone keypad response or voice recognition capability. To guarantee security, the customer must first authenticate through a numeric or verbal password or through security questions asked by a live representative. With the obvious exception of cash withdrawals and deposits, it offers virtually all the features of an automated teller machine: account balance information and list of latest transactions, electronic bill payments, funds transfers between a customer's accounts and so on. Usually, customers can also speak to a live representative located in a call center or a branch, although this feature is not always guaranteed to be offered 24/7. In addition, telephone banking representatives are usually trained to do what was traditionally available only at the branch: loan applications, investment purchases and redemptions, checkbook orders, debit card replacements, change of address, and so on.

c. Electronic funds transfers

Electronic funds transfer or EFT is the electronic exchange or transfer of money from one account to another, either within a single financial institution or across multiple institutions, through computer-based systems (Bahia, 2017). Electronic Funds Transfer (EFT) is also a system of transferring money from one bank account directly to another without any paper money changing hands. One of the most widely-used EFT programs is Direct Deposit, in which payroll is deposited straight into an employee's bank account, although EFT refers to any transfer of funds initiated through an electronic terminal, including credit card,

ATM, and point-of-sale (POS) transactions. It is used for both credit transfers, such as payroll payments, and for debit transfers, such as mortgage payments. According to Bahia (2017), transactions are processed by the bank through the Automated Clearing House (ACH) network. The growing popularity of EFT for online bill payment is paving the way for a paperless universe where checks, stamps, envelopes, and paper bills are obsolete. The benefits of EFT include reduced administrative costs, increased efficiency, simplified bookkeeping, and greater security. However, the number of companies who send and receive bills through the Internet is still relatively small.

d. POS Banking (Credit and Debit cards)

It is a system that uses a computer terminal located at the point of sales transaction so that the data can be captured immediately by the computer system. It is also a retail payment system that substitutes an electronic transfer of funds for cash, cheques or drafts in the purchase of retail goods and services (Gerlach, 2020). In a POS system, sales and payment information are collected electronically, including the amount of the sale, the date and place of the transaction, and the consumer's account number. If the transaction is done on a bank credit or debit card, the payment information is passed on to the financial institution or payment processor, and the sales data is forwarded to the retailer's management information system for updating of sales records. According to Gerlach (2020), much of the actual processing volume is for credit card sales.

f. Internet banking

Internet banking, sometimes called online banking, is an outgrowth of PC banking (Egland et al 2022). Internet banking uses the Internet as the delivery channel by which to conduct banking activity, for example, transferring funds, paying bills, viewing checking and savings account balances, paying mortgages, and purchasing financial instruments and certificates of deposit. An Internet banking customer accesses his or her accounts from browser software that runs Internet banking programs resident on the bank's World Wide Web server, not on the user's PC. Egland et al., (2022), define a "true Internet bank" as one that provides account balances and some transactional capabilities to retail customers over the World Wide Web. Internet banks are also known as virtual, cyber, net, interactive, or web banks.

g. ATMs

An automated teller machine (ATM), also known as an automated banking machine (ABM) or Cash Machine is a computerized telecommunications device that provides the clients of a financial institution with access to financial transactions in a public space without the need for a cashier, human clerk or bank teller. On most modern ATMs, the customer is identified by inserting a plastic ATM card with a magnetic stripe or a plastic smart card with a chip that contains a unique card number and some security information such as an expiration date.

Mobile Banking on Financial Performance

Several studies have been conducted on the effects of mobile banking on bank performance. For instance, Mabwai (2020) conducted a study on the effects of mobile banking on the financial performance of commercial banks in Kenya. The study adopted a descriptive research design and descriptive statistics for analysis. The findings indicated that the number of mobile banking transactions, capital adequacy, markets share and the size of the assets had a positive influence on the financial performance of commercial banks. Hence, the conclusion that mobile banking adoption has resulted to improved financial performance of the commercial banks. The study recommended that commercial banks should increase their focus and investments in mobile banking as this is the future of the banking industry in order for them to remain profitable. Amoah (2019) carried out an investigation on the impacts of mobile banking on the financial performance of commercial banks in Ghana. The study acknowledged that mobile banking offers millions of

people a potential solution in emerging markets that have access to a cell phone, yet remain excluded from the financial mainstream. The study employed a descriptive research design and descriptive statistics for analysis. The findings of the study revealed that there exists a weak positive relationship between mobile banking and the financial performance of commercial banks in Ghana. The study recommended that policy makers keep a keen eye on the developments of mobile banking as it is a new platform for competition among commercial banks as the world moves into a digital age.

Internet Banking on Financial Performance

Kagendo (2019) studied the E-banking strategy and performance of commercial banks in Ghana. The findings of the study showed that the connection between e-banking infrastructure, e-banking efficiency strategies, and e-banking quality improves the performance of commercial banks in Ghana. This research recommended that banks should improve devices for more e-banking approaches that address the needs and wants of the customers in a timely and manner that are important. E-banking approaches should be more than ICT infrastructures, competencies and quality but again customers' value addition through the e-banking approaches. Asia (2018) studied electronic banking and financial performance of commercial banks in Rwanda: A Case Study of Bank of Kigali. The findings showed that banks in Kigali have diversities of e-banking services for their customers in order to offer effective and competence service delivery. These include: ATM that is one of the e-banking services that is commonly used by e-banking by the customers of bank of Kigali, pay direct that let you approve particular deposits, phone banking that let you call your financial institution with instructions to pay certain bills or to transfer funds between accounts after an agreement with the institution to make such transfers and many others. The various electronic banking endorses effectiveness and competence in service delivery since customers can be able to withdraw and deposit money, approves payments and check account balance.

Kombe and Wafula (2019) conducted a study on effects of internet banking on the financial performance of commercial banks in Ghana a Case of Ghana Commercial Bank. From the findings of the study, there is an important connection between financial performance of the commercial banks and internet and the income of mobile banking. This can be as an outcome of a rise of transactions in internet and mobile banking following the rise advancement of the yields of internet and mobile products by the commercial banks that are local and the growth in the number of people that are using the technology. The study recommended that banks should invest hugely in the innovations of technology that would improve their clients to continuously use mobile and internet banking. The study further recommended that those who make policy should be keen and control advancements of internet and mobile banking to make sure that those who make plans do not lose their significance and important regulatory duty in their advancement.

Automated Teller Machines and Financial Performance

Jegede (2019) did a study on effects of automated teller machine on the performance of Nigerian banks. The findings show that the positioning of ATMs terminals have enhanced averagely the performance of Nigerian banks due to the ATM fraud that is at an alarming rate. ATM service quality is less correlated to security and privacy of those who are using and the providers. This study concludes that banks should strive to grow their security layers to undermine the tricks of web scammers, reduce the amount that clients may be permitted to withdraw at a time and offer electronic attention to clients phone for all the transactions that have been carried out on their bank accounts through ATMs and the provisions of extra security layer that can prevent third party to utilize ATM card that belongs to someone else for illegal withdrawals electronically.

Automated teller machine banking has become a significant channel for banking products and services behind branch banking in and banks continue to invest in new and efficient technologies that can handle more functions that include cash depositing to attract more customers and achieve customer satisfaction

with the banks. 300 respondents participated in this study to assess the impact of Automated teller machine banking performance on customer satisfaction with banks. The study adopted a performance only approach to measuring customer satisfaction. A self-administered questionnaire containing multi-dimension and multi-attribute Likert measurement scales was used where respondents rated the performance only and their satisfaction with Automated teller machine banking and satisfaction with their respective banks. Using SPSS, regression analysis of satisfaction with Automated teller machine banking performance and satisfaction with the bank was conducted and the results indicate that performance of automated teller machine banking has 40 percent predictive capability of customer satisfaction with the bank. The study further found that despite influencing customer satisfaction with the bank, Automated teller machine banking has no capability to attract customers to switch banks.

Risks Associated with Electronic Banking

Electronic banking is faced by several risks for example:

a. Operational risk – The reliance on new technology to provide services makes security and system availability the central operational risk of electronic banking. Security threats can come from inside or outside the system, so banking regulators and supervisors must ensure that banks have appropriate practices in place to guarantee the confidentiality of data, as well as the integrity of the system and the data (International Monetary Fund, 2022).

b. Reputational risk – Breaches of security and disruptions to the system's availability can damage a bank's reputation. The more a bank relies on electronic delivery channels, the greater the potential for reputational risks. If one electronic bank encounters problems that cause customers to lose confidence in electronic delivery channels as a whole or to view bank failures as system wide supervisory deficiencies, these problems can potentially affect other providers of electronic banking services. In order to manage such risks measures should be put in place to oblige the Directors and senior management to document and explain the strategic decisions of how the bank will develop their e-banking services. Management supervision should include approval and review of the bank's security control infrastructure; safeguard the e-banking systems and data from internal and external threats (Carlson and Lang, 2021). The security challenges of e-banking services are greater than those of conventional banking services. These challenges can be addressed through establishment of relevant authorization privileges and authentication measures, clear audit trail for e-banking transactions and put up measures to preserve confidentiality of e-banking information. (Ombati et al 2021).

RESEARCH METHODOLOGY

Research Design

A research design can be defined as a plan used for data collection and utilization in order to obtain desired information with accuracy or for a researcher to test their hypothesis sufficiently Saunders et al. (2019). This particular research used several methods to make sure that the information was accurate and comprehensive. One of the methods employed was descriptive design so as to define facts in the field accurately. Descriptive design aims at describing data and characteristics of the phenomenon or population being studied (Wetherbe, 2022). In our case, questionnaires and interviews were employed so as to capture all the information accurately. Quantitative and analytical survey methodologies were employed to examine and report the manner in which things were so as to assist in generalization. This was intended to determine the impact electronic banking has on the financial performance of commercial banks in Ghana.

Samples

A sample can be described as an element chosen to represent the target population while a sampling

technique can be defined as a framework in which the researcher utilizes to assist in the choice of a sample. The study selected 60 respondents so as to give a fair reflection of the total population that has access to electronic banking. The sample study was carried out using probability sampling which entailed simple but random and stratified sampling. The simplicity and randomness was to ensure that anybody in the population could be included in the study. Stratified sampling was used because it offers more precision than a simple random study in the same sized population.

Table 2: Population Stratum

Population Stratum	Population	Sample 60%
Ghana Commercial Bank	20	10
National Investment Bank	25	10
Standard Chartered Bank	15	15
Access Bank	25	15
Absa Bank	15	10
Total	100	60

Questionnaires

A questionnaire is an instrument in written form that has a number of items and administered to several people to collect data for surveys. The researcher employed questionnaires as a data collection method for the management and other staffs in selected departments. The questionnaires are close ended questions of which Respondents ticked the applicable answer per their view. The close ended questions are important because the researcher had various views with respect to some particular questions. Questionnaire provided an efficient means by which statistically quantifiable information were collected. The responses were arranged in categories, analyzed and presented mainly in a narrative form. However, some quantitative tools used such as percentage and average will also be used in the analysis to establish some relationships.

Data and Data Collection Techniques

Data and its collection techniques are a means to collect data from the correspondents. The research utilized both primary and secondary techniques. Primary data that was used included personal interviews with the respondents as well as the application of both open-ended and closed questionnaires. Secondary data that was utilized included the internet and journal publications. These were the main sources of all the data was analyzed to come up with the conclusion of this study.

Validity and Reliability

The legitimacy and validity of data used was cross checked before the results were processed. This has assisted in establishing a reliable tool for collecting data. This was carried out using a questionnaire that is formulated using a sample of 60 respondents and interviews were carried out on the same 60 respondents. This process was helped by correction of mistakes and errors which could have occurred in the process of collecting data so as to produce significant results from the field.

Data Analysis Methods

The questionnaires were first checked for complete responses and edited wherever necessary. Coding and analysis of the collected data was done using the Statistical Package for Social Sciences (SPSS) computer

software, as well as, Microsoft Excel. The data was initially analyzed in line with descriptive statistics which includes, but not limited to, measures of central tendencies, percentages and frequencies.

DATA ANALYSIS AND RESEARCH RESULTS

Data and Information Description

This chapter dealt with the analysis of the findings from the study and shows the results from the analyzed data which is presented using tables. This research aimed at finding out the impact of electronic-banking on the financial performance of banks in Ghana. The analysis was done after the collection of data from the banks that offer electronic banking in Ghana. The objectives utilized in analyzing the data were the impact of electronic banking on profitability, costs and its impacts on intensity and extent of electronic banking services.

Context of Research Sites

Analysis of the Questionnaires

60 questionnaires were distributed equally to the sampled banks and only 46 were filled and returned. The table below illustrates the distribution.

Table 5.1: Response Rate

Distribution of Respondents	Questionnaires Issued	Questionnaires Returned	Percentage Response
Ghana Commercial Bank	10	8	80%
National Investment Bank	15	12	80%
Standard Chartered Bank	10	7	70%
Access Bank	15	10	67%
Absa Bank	10	9	90%
Total	60	46	77%

Number of Branches Covered

The Number of branches for each participant were found in their respective websites and recorded in the table below:

Table 5.2: Branches of the selected banks

Banks	Branches	Percentages
Ghana Commercial Bank	214	53.77%
National Investment Bank	52	13.07%
Standard Chartered Bank	27	6.78%
Access Bank	52	13.07%
Absa Bank	53	13.32%
Total	398	100%

Number of Branches

With regards to the table it is clear that all the banks involved in the research have branches across the

country with Ghana Commercial bank having the majority of branches at 53.77%. National Investment Bank has 52 branches across the country which is 13.07%. Standard chartered has a total of 27 branches in Ghana which stands for about 6.78%. Absa bank has 53 branches standing for 13.32%. This data indicates that among the banks involved in this study, GCB bank has the majority of customers using electronic banking to aid in its service delivery. GCB Bank, having the majority number of customers due to being widespread across the country means that customers will naturally be inclined to register for online services with the bank in which they have an account. Most of the other banks have branches in big cities and large towns but GCB Bank has managed to penetrate remote areas and small shopping centers.

Time of Operation

The table below indicates how long the involved banks have been in operation as per their websites.

Table 5.3: Time of Operation

Time of Operation	Frequency	Percentages
10 to 20 years	9	20%
21 to 30 years	25	54%
31 years and above	12	26%
Total	46	100%

As per the table, the findings indicate that 20% of the banks involved in the research have been operating in Ghana in the last 10 to 20 years while 54 percent of the banks have been operational for 21-30 years. 26% percent of the banks have operated in Ghana for more than 31 years. From the above information, it is clear that most banks that offer electronic banking in Ghana have been operational in the last 21-30 years.

Range of services offered electronically by the bank

The respondents were asked to indicate the different services offered by the banks they represent. Their responses were as in the table below:

Table 5.4: Series of services offered electronically by the Bank

Range of Services	Frequency	Percentages
Mobile/SMS Banking	10	20.74%
Internet Banking	5	10.87%
Telephone Banking	5	10.87%
ATM Banking	12	26.09%
EFT Banking	3	6.52%
PC Banking	3	6.52%
POS Banking	8	17.39%
Total	46	100%

According to the table above, mobile banking accounts for 20.74% of the market space, ATM banking is 26.09%, Internet banking captures 10.87% of customers, and telephone banking is not as common as it only has 6.52% while POS banking captures 17.39% of the market space. It is therefore clear from the data above that mobile banking is the most common electronic service amongst the banks in the study.

Level of service delivery

The respondents were asked to rate the level of service delivery since they were introduced to electronic banking. The response was as in the table below:

Table 5.5: Level of Service Delivery

Level of Service Delivery	Frequency	Percentage
Very Fast	32	69.60%
Fast	12	26.00%
No Improvement	0	0.00%
Slow	2	4.40%
Very Slow	0	0.00%
Total	46	100%

The findings as in the above diagram and table indicate that 69.6 % of service delivery is very fast owing to the use of electronic banking while 26% of banks applying electronic banking to deliver their banks are fast and 4.4% of banks applying electronic banking are slow. 0% shows that service delivery is very slow and the same percentage for no improvements. The information shows that majority of the respondents think that electronic banking has improved and increased the rate of service delivery.

Profitability

Range of Profits over the Previous Years

The respondents were asked their range of profits in the previous years. The responses are as indicated in table 6

Table 5.6: Range of Profits over the Previous Years

Range of Profits	Frequency	Percentage
1M – 2M	6	13.04%
3M – 5M	10	21.74%
6M – Above	30	65.23%
Total	46	100%

The above data indicates that 13.04% of the respondents have their profits ranging between 1-2 million Ghana cedi's while 21.74% have their profits between 3M-5M million Cedi's and 65.23% indicated profit margins of above 6M.

Impact on financial performance

The respondents were asked whether electronic banking has a positive, negative or no impact on financial performance of the bank. Their responses were presented in the table below:

Table 5.7

Impact of Electronic Banking	Responses	Percentage
Positive	39	85%

Negative	7	15%
No impact	0	0%
Total	46	100%

Impact of electronic banking

The table above shows that 85% of the respondents were in agreement that electronic banking has a positive impact on the financial performance of the respective banks while 15% of the respondents thought it had a negative impact on the financial performance of banks their reason being security of electronic banking. 0% of the respondents indicated that electronic banking had no impact. From the above findings it is clear that we can conclude that electronic banking has had a positive impact on the financial performance of commercial banks in Ghana.

Type of Costs Incurred

The respondents were asked to indicate different types of costs incurred in the bank. Their responses are as recorded in the table below:

Table 5.8: Type of Costs

Types of Cost	Frequency	Percentage
Variable	36	78.30%
Fixed	10	0%
Semi-Variable	0	21.70%
Total	46	100%

The research findings show that 21.7% percent dealt with semi variable costs as indicated in the figure above. 78.3% of the correspondents dealt with variable costs owing to its variance with output. Consequently, the implementation of electronic banking has affected the banks financially due to costs associated with launching it. Operational costs have also risen over gradually since this platform was launched by the different respondents. Nevertheless, it is safe to conclude that banks have benefited from this platform by reducing the turnaround time and queuing in its halls.

- **Increase in Costs**

The respondents were asked whether the increase in costs has any impact on the financial performance of the banks. The table below presents the responses:

Table 5.9: Percentage Increase in costs

Cost	Frequency	Percentage
Increase	35	76.10%
Decrease	11	23.90%
Total	46	100%

The table above show that 76.1% of the respondents were in agreement that the increase in costs has a positive impact on the financial performance whereas 23.9% showed that there 23.9% decrease in cost. From this analysis, it is very clear that electronic banking is a very costly endeavor. Banks have the

advantage as they utilize the internet to “shift cost” to the customer. This happens when an individual pays less for one service and the extra cost is transferred to another person or group and therefore shifting the right cost from one customer to the other. This has been enabled by the huge expansion of the banking online infrastructure. The high cost of acquiring and implementation is transferred to the customer.

Measures Put in Place

The respondents were asked what measures are in place to bring down the costs. Their responses were recorded in the table below:

Table 5.10 Measures put in place

Measures	Frequency	Percentage
Diversification	41	89%
Reduction in Subscription	5	11%
Total	46	100%

The findings from the research as in table 5.10 show that 89% considered diversifying their resources to the bank branches while 11% of the respondents considered internet bringing down the Internet subscription fees. The research findings from table 11 indicate that 89% considered diversifying their resources to the branches while 11% considered reducing the internet subscription fee.

Benefits

The respondents were asked how the bank has benefited from investing in electronic banking and they responded as in the table below:

Table 5.11

Benefit	Frequency	Percentage
Reduction in queues	25	54.35%
Reduce turnaround time	21	45.65%
Total	46	100%

The findings as indicated in table 11 shows that 54.34% reduced the number of queues in banking halls whereas 46.65% reduced the number of turnaround time.

Services

Services offered

The respondents were asked what type of services the banks offered to their customers. The table below shows the responses:

Table 5.12: Services Offered

Services Offered	Frequency	Percentage
Payment of bills	12	26%
Viewing of Statement	10	22%
Bank Transfer	24	52%
Total	46	100%

The results as of table 5.12 indicate that 26% of the respondents pay their utility bills by the means of electronic banking whereas 22% look up for their statements electronically. 52% offer bank transfers electronically. This data shows that a number of different services are offered by the means that a number of services are provided using electronic banking by each of the banks in this study.

Reliability

The respondents were asked how reliable electronic banking is to its customers in service delivery. The responses are indicated in the table below:

Table 5.13

Reliability	Frequency	Percentage
Very Reliable	30	65%
Moderately Reliable	10	22%
Unreliable	6	13%
Total	46	100%

According to table 13, 65% of the respondents agree that electronic banking is very reliable to use while 22% think that it is moderately reliable. 13% of the respondents think that electronic banking is unreliable. The findings prove that electronic banking is a very reliable mode of delivering services.

Challenges faced

Challenges faced

The respondents were asked to indicate the challenges they face in service delivery by using electronic banking. Their responses were recorded in the table below:

Table 14 Challenges

Challenges	Frequency	Percentage
Trust Issues	20	44%
Navigation difficulties	6	13%
Costly Service Delivery	10	22%
Customer Ignorance	10	22%
Total	46	100%

The findings indicated in table 14 show that banks in Ghana face various challenges when executing their duty and dealing with customers. 44% of the respondents highlighted trust issues while 22% indicated ignorance on the part of the customer. 13% indicated difficulties in navigation and 22% showed customers not conversant with electronic banking. Therefore, it can be concluded that trust issues is the biggest challenge affecting electronic banking and its service delivery. The reason for this is that most of the customers are not well educated especially on matters relating to technology hence the resistance and fear.

FINDINGS, CONCLUSION AND RECOMMENDATIONS

Summary

The purpose of the study was to assess the impact of electronic banking on the performance of commercial

banks in Ghana. This chapter is mostly concerned about the summary, conclusion, and recommendations of the study that will be of great benefit to the Ghana banking system in the evaluation of efficient services to customers.

Findings and Discoveries

This section repeats in less detail the major findings of the study. It was discovered during the study in relation to the question as to what is the impact of electronic banking on profitability. What is the impact of electronic banking on costs? Does the banking services offered electronically have any significant impact on the bank's financial performance? What is the motive behind the provision of electronic banking services to customers?

What is the impact of electronic banking on profitability?

The study revealed that in average, the return on equity of the banks involved in the study declined by 8.3% this was due to capping of interest rates by the central bank of Ghana as well as liquidity problems of borrowers. The study shows that many of the banks have been able to increase profitability steadily over the past few months and they need to expand their customer base so as to maximize their profits.

What is the impact of electronic banking on cost?

The study has also revealed that the research has clearly indicated that the banks involved in this study dealt with semi-variable and variable costs owing to their variance with borrowers and customers. Transaction costs through e-banking are minimal therefore, a lot of consumers have been able to afford the services.

Limitation to the Study

In the course of the study, a number of limitations were encountered. The researcher faced financial and time constraints. Some respondents were slow to fill and return the questionnaires and therefore it required a lot of follow up to get the results. Some respondents answered the questionnaires hurriedly and therefore the results were limited. Some respondents were not willing to grant interviews and others withheld information due to institutional secrecy.

Recommendations

Based on the findings in this study, it is recommended that:

- Banks should embark on educating and creating awareness among their customers on the benefits of electronic banking and the charges involved.
- Banks in Ghana should invest more on electronic banking so as to reach more customers electronically.
- The study has shown that electronic banking has a positive impact on the financial performance of the banks and therefore they should offer more targeted online services as well as come up with more technology based services that are easily reachable by customers.

Further Study and Research

Further research can be carried out in the following topics;

- To investigate measures that Ghanaian banks are putting in place to enable all customers access more

than one platform of electronic banking.

- How electronic banking impacts return on equity.

Conclusions

Based on the findings of the study a conclusion of the study is drawn.

Impact of Electronic Banking on Profitability

The study aimed at investigating whether electronic banking had some impact on Banks profitability as well as the impact electronic banking has on the financial performance of these institutions. It was found out that profits have improved after the introduction of electronic banking in the banks involved in this study.

Impact of Electronic Banking on Costs

It is clear that the introduction of electronic banking cost the banks significantly. The study found out that the increased costs have both positive and negative impact to the financial performance of the studied banks. This has led to the banks diversifying their resources and reducing the subscription fees for POS banking, mobile banking as well as Internet banking as a measure to bring down the increased costs.

Impact of Electronic Banking on Services

The study aimed at investigating whether electronic banking had any, positive or negative, impact on the intensity and extant of services offered by the institutions. It was established that electronic banking has a positive impact on the services offered as more customers have been able to transact different services electronically. It has also been very easy to access their accounts and therefore saving on valuable time.

Impact on the motive behind the provision of electronic banking services to customers

The study aimed at exploring the motive behind the institution of electronic banking to customers. It further revealed that electronic banking has a positive impact on the services offered as more customers have been able to transact different services electronically. It has also been very easy to access their accounts and therefore saving on valuable time.

REFERENCES

1. Berry, M.J.A.; Linoff, G.S. (2020), *Mastering Data Mining: The Art and Science of*
2. DeYoung R (2005). The performance of Internet-based business models: Evidence from the banking industry. *Journal of Business* 78 (3), 893–947..
3. Kobrin, Stephen J., (2019), "Electronic Cash and the End of National Markets" *Foreign Policy*, No. 107 (Summer), pp. 65-67
4. Lee, B. and Longe—Akindemowo O. (2022), *Regulatory Issues in Electronic Money: A Legal—Economics Analysis*, *Netnomics*, Vol. 1, pp. 53—70.
5. Martin, W. (2022), *Business Performance Management – Efficiently Managing Business Processes*. *Research Bulletin*, <http://www.it-research.net>
6. Ovia, J. (2021). *Internet Banking: practices and potentials*, A paper presented at a seminar organised by the Institute of Chartered Accountants of Ghana (ICAN) Lagos Sheraton Hotel & Towers, Ikeja. September 05.35

7. Prinz, A., (2019), Money in the Real and the Virtual World; E-Money, C-Money, and the Demand for CB-Money, *Netnomics*, Vol. 1, pp. 11—5.
8. Robert S. Pindyck and Daniel L. Rubinfeld (2019) *Econometric Models and Economic Forecast*, Singapore: Irwin MacGraw—Hill Companies
9. Santomero, A.M., and Seater J.J., (2020), Alternative Monies and the Demand for Media of Exchange, *Journal of Money, Credit and Banking*, Vol.28, pp. 942-60
10. Sathye M (2021). Adoption of Internet banking by Australian consumers: an empirical Investigation. *International Journal of Bank Marketing*, 17(7), 324-334
11. Shy, Oz, and Tarkka, J. (2022), The Market for Electronic Cash Cards, *Journal of Money, Credit and Banking*, Vol. 34, pp. 299-314
12. Soludo, C. C. (2022), A keynote address delivered at the inauguration of the National Payments System Committee (NPSC) at Central Bank of KENYA head office, Abuja, May.
13. Steven A. (2022), *Information System: The Information of E-Business*, New Jersey: Natalie Anderson. pp. 11 – 36
14. Woodford, M., (2020), Monetary Policy in a World Without Money, *International Finance*, Vol. 3, pp. 229 – 260
15. N. Kariuki, (2020) Six Puzzles in Electronic Money and Banking, IMF Working Paper, IMF Institute, 19, (February, 2020).