

Research

Financial Innovations and Financial Performance: Perceptions of Commercial Bank Executives

Morris Ayaa Mensah^{*1}*Sir. Agboifo Edmond Omenonye*²*Dr. Williams Gabriel Brafu-Insaaidu*³
Lan Yan(兰燕)⁴

¹University of Cape Coast, the Department of Business Studies, College of Distance Education,

²DEIL group of Company, Dept. International Educations, Mathematics & Statistics,

³Lecturer, University of Cape Coast, the Department of Business Studies, College of Distance Education,

⁴Southwest University of Finance and Economics (西南财经大学), the Department of Accounting.

**Corresponding author*

Accepted: 30 November, 2019; *Online:* 05 December, 2019

DOI : <https://doi.org/10.5281/zenodo.3564931>



Abstract: *The emergence of technology in the Ghanaian banking sector has had a huge impact in the development of financial innovative products today. The introduction of these financial innovative products has transformed and continues to revolutionize banking today, and banks in Ghana are no exception to this transformation. This study aims at examining the impact of financial innovations on the financial performance of selected banks in Ghana in terms of their income or revenue generation, efficiency, liquidity, profitability and general patronage of banking services in Ghana. This work is a survey of bank executives from universal banks in Accra and Kumasi. Questionnaires were administered to find out the opinions of bank executives on the impact of financial innovations on financial performance. From the study, it was discovered that financial innovations improve significantly the efficiency, liquidity and profitability of the banks. In addition, its recommended that corporate banks must make it a policy as part of their strategic management process to establish an efficient and effective marketing department to oversee the publicity of all financial innovative products. It is also recommended that the pricing of innovative products should be reasonable in order not to further scare prospective customers or users.*

INTRODUCTION

Background to the Study

This study is to show how financial innovations through product creation, affect the financial performance of selected banks in Ghana. According to Lerner and Tufano (2011), ‘financial innovation is defined as the act of creating and then popularizing new financial assets or products,

as well as new financial technologies, organizations and markets'. Lerner(2002) puts forward that innovations are not just critical for firms in the financial services sector, but also affect companies for instance, enabling them to raise capital in larger amounts and at a lower cost than they could otherwise and that innovation is an important phenomenon in any sector of a modern economy.

Rose (1999) defines bank as any financial institution which offers a broad range of financial services including the provision of credits, deposits and payment system and employ an extensive variety of financial intermediation functions in any business economy. In recent past, it was possible for banks to satisfy their customers and to meet their own performance targets without the need to develop any new products to enhance service delivery due to the fact that account holders and banks were few, with the low volume of transactions and lack of competition in the banking industry.

The banking sector in Africa and the rest of the world have experienced major transformation in its operating environments. In Ghana, these started in the late 1980s as part of an ongoing economic recovery program (ERP). They began with partial liberation of interest rates in 1987 and removal of sectoral credit ceilings the following year. This was accompanied by liberation of access to foreign exchange bureau (Brownbridge & Gockel, 1996). The financial sector Adjustment Programs (FINSAP) commenced in 1989, supported by a financial sector adjustment credit (FSAC) from the World Bank. The objectives FINSAP, inter alia were to address the institutional deficiencies of the financial system, in particular by restructuring distressed banks, reforming prudential legislation and the supervisory system permitting new entry into financial markets by public and private sector financial institutions and developing money and capital market (Brownbridge & Gockel, 1996).

Objectives of the Study

The study also pursued specific objectives in evaluating the impact of financial innovations on financial markets as follows to:

Examine the impact of innovations on the revenue or income of selected banks in Ghana.

Establish the effect that financial innovations have on returns on total assets of universal banks in Ghana.

Analyze the impact of these innovations on liquidity and efficiency of selected banks in Ghana.

Assess the consequences of financial innovations on the levels of profits of selected banks in Ghana.

Significance of the Study

The study is significant on the basis of its contribution towards understanding the crucial role of financial innovations in the Ghanaian banking industry and the economy as a whole. The study would give an upper hand to the management of Ghanaian banks to understand the innovations that they can replicate in their businesses in order to improve on their performance.

To investors, this would add impetus to knowledge on which financial products to invest their resources in that would enhance their returns. The study would in addition bring to light the impact of these innovative products on the banks and how it will help improve service delivery to their customers and to improve profitability and efficiency. 'Innovations in electronic banking (e-banking) in Ghana have helped to improve not only efficiency but also financial intermediation' (Acquah, 2006).

The benefits of financial innovations with regards to policy makers cannot be overlooked as it would be useful to the Central bank of Ghana whose desire is to grow the financial services in Ghana and to reduce the level of cash transactions in the country through monetary policies.

The findings and recommendations of this study would bring to light areas of innovations worth supporting by Government either by waiving taxes or non monetary incentives.

Finally, the research work will become a secondary source of information for anyone who wants to undertake a further research work in this area.

Delimitation and Limitations of the Study

The study was restricted to eighteen (18) universal banks out of 33 universal banks in Ghana.

The research was also restricted to only banks in Accra and Kumasi. There are many financial innovative products but the study concentrated on Automated Teller Machines, E-zwich, Mobile/internet banking. A section of the bank staff were reluctant to responding to questions addressed to them due to the confidentiality, which is cardinal, principle under banking law.

Financial Performance

Financial Performance can be defined as the measurement of how well an organization has put to good uses, its resources or assets to conduct business and generate revenue and thereby making profit, which is the ultimate goal of every business organization, for its stakeholders.

Financial Performance could also be described as the measurement of an organization's total financial wellbeing over a specific period usually one year. The same bank could have its performance compared over a number of years; there could also be comparison of performance between firms across the banking industry.

Universal Bank

According to Rose (1999), a bank is a financial institution that undertakes a broad variety of financial services; especially the provision of credits, savings and payment services and undertakes a broad variety of financial activities in any business economy. Universal banks combine the services of commercial bank and an investment bank. They deal in commerce, merchandising, agriculture, investment in socio-economic development and provision of services to the peripheral market like under-banked in economy.

Return on Asset

Return on assets (ROA) is an indicator of how profitable a company is relative to its total assets. ROA gives an idea as to how efficient management is at using its assets to generate earnings. It is the ratio of a company's annual earnings to its total assets. It also measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested over a period, usually one year.

Innovations

Innovation is the development of new approaches or techniques for delivering existing products or on the other hand, the creation of new product or requirement. According to Lerner & Tufano (2011), two categories of innovation exists which are product and process innovation. The former exemplified by new derivative contracts, new corporate securities or new firms of pooled investment products while the latter are typified by new means of distributing securities, processing transactions or pricing transactions.

Financial Innovations

Financial innovations can be defined as the act of creating and then popularizing new financial instruments as well as new financial technologies, institutions and markets. It includes institutional, product and process innovation. Information and communication technologies (ICTs)

are changing the way financial products are accessed by customers in Sub-Saharan Africa (Abor, 2004). In Ghana, technological developments have created new delivery channel for banking product and services such as Automated Teller Machines (ATMs), Internet and mobile banking. Over the years, these innovations have grown increasingly important in Ghanaian banks (Abor, 2004). Traditionally, banks have sought technologies, which enable them to serve their clients more cost-effectively, and made them more useful to their clientele. Their main concern has been to serve clients more conveniently while growing their profits and improving their competitiveness. Arguably, the most revolutionary electronic innovation in Ghana (and the world) has been the ATM (Abor, 2004). In Ghana, banks that offer ATM services have networked their machines to increase their utility to customers. Since Trust Bank Ghana introduced ATMs in 1995, the technology has found acceptance on a massive scale from the banking industry.

Internet and Mobile banking have received massive acceptance from the banking industry. Most banks collaborate with telecommunication companies to provide banking services via the internet and mobile phone, which they hope, would help them gain sustainable competitive advantage (Hinson et al, 2006; Asante et al, 2016). The idea of internet banking according to Essinger (1999) is “ to give customers access to their bank account via a website and to enable them undertake certain transactions on their account, given compliance with stringent security checks.

In Ghana, most banking firms have introduced internet banking in their operations. By its nature, internet banking offers customers greater convenience and flexibility, coupled with virtually absolute control over their banking. Mobile banking (internet banking using mobile devices, also as M-banking, SMS banking etc.) has also become important channel of delivering investment products to Ghanaian banking customers. With the development of mobile applications, customers are able to perform account balance and transaction history enquiries, transfer funds and pay bills via mobile devices such as cell phones, smart phones and PDAs (personal digital assistants). Backed by improvement in IT, these innovations in the Ghanaian banking industry are helping to improve financial intermediation. The widespread introduction of these products unto the banking market means customers are benefiting from such innovation.

Organization of the Study

The organization of the study was presented as follows: Chapter one dealt with the background of the study, statement of the problem, significance of the study, research question,

scope and limitation of the study and finally the organization of the study. Chapter two of the study also covered the literature review on the research topic. Chapter three dealt with the research methodology. Chapter four of the study covered the analysis and presentation of data collected. Finally, Chapter five took into account summary of findings, conclusions and recommendations base on the research topic.

LITERATURE REVIEW

Introduction

This chapter undertakes an academic appraisal of diverse literature pertaining to financial innovations. The study focuses on the following important areas of the phenomenon under review; bank innovations and their effects on bank performance.

Financial Performance of Universal Banks

According to Damanpour, Walker and Avellaneda (2009), ‘innovation affects a firm’s performance positively’. According to Frimpong, (2010), ‘innovations provide an impetus for banks to improve their market performance by recovering from palpable inefficiencies prevalent in the banking industry, as in the case in Ghana and other emerging countries. Performance measurement and reporting is now widespread across the private sector as well as public sector of many industrialise and industrialising countries (Williams, 2003).

The common tool that is used for this process, key performance indicators (KPIs), has been argued to provide intelligence in the form of useful information about a public and private agency’s performance. Scholars have however maintained that the implementation of performance measurement possess important symbolic value. Profitability and efficiencies are the major motives for banks to assume risks for expansion and its operation. Some of the measures that are used in evaluating a bank’s profitability and efficiency are Return on Asset, Return on Equity and Net Profit Margin.

Bank innovations have the potential to increase the volume of retail transactions through increase usage of electronic transfers and payment systems which encourage the banking business. According to Mawutor (2014), the introduction of E-banking has indeed had a positive effect on the productivity of Agricultural Development Bank (ADB) since it was introduced.

Types of Financial Innovations

Financial System Innovations

Such innovations can affect the financial sector as a whole, relate to changes in business structures, to the establishment of new types of intermediaries or to changes in the legal and supervisory framework. Important examples include the use of the group mechanism to retail financial services, formalising informal finance systems, reducing the access barriers for women or setting up a completely new service structure.

Process Innovations

Such innovations cover the introduction of new business processes leading to increased efficiency, market expansion etc. Examples include office automation and use of computers with accounting and client data.

Product Innovations

Such innovations include the introduction of new credit, deposit, insurance, leasing, hire purchase and other financial products. Product innovations are introduced to respond better to changes in market demand or to improve the efficiency.

Classification of Financial Innovation

Risk Management Instrument

These are instruments which allocate financial risks to those who are less averse to them, or who have offsetting exposure and thus are presumably better able to shoulder them.

Arbitraging Instruments and Processes

These are instruments which enable investors and borrowers to take advantage of differences in cost and returns between markets and which reflect differences in the perception of risks as well in information, taxation, and regulation.

Innovative Financial Instruments

Automated Teller Machine (ATM)

ATMs are the most commonly used financial innovative instruments in recent times. Almost all the universal banks in Ghana have this facility available for their customers. The modern ATM machine identifies the client/customer after 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 data, such as cessation date and personal identification number (Pin), join computer terminals accounting records and the cash vault in one unit, allowing clients to go into the banks' record keeping system with a plastic card containing a personal identification number (Pin) or by punching a special code number into the computer terminal linked to the banks computerized records 24 hours a day. Once entrance is attained, it grants a lot of retail banking services to clients. ATMs are usually situated outside of the banking halls and could also be situated at filling stations, airport mall, supermarkets and places far from the branches of a bank. They were established initially to work as cash generating or dispensing devices. However, because of advancement in technology, ATMs are capable of offering a variety of banking services, for example withdrawing cash generating or dispensing devices. However, because of advancement in technology, ATMs are capable of offering a variety of banking service, for example withdrawing cash, cash transfers from one account to another, bill payments, checking account balances, making deposits and printing account statement. Banks use the ATM as well as other innovative products to achieve competitive advantage, because it has the effect of cost reduction and depicts an image of a strong bank.

Internet Banking

Internet banking also referred to as online banking, uses the internet as the delivery channel by which one uses to conduct banking activities. Internet banking will allow an individual to manage his account by doing the following activities; make payments, view accounts, enquire about the balances, apply for credit cards and loans electronically. In order to access accounts online, one should have browser software installed in their computers. This software will run the online banking programs stored on the banks World Wide Web server. Due to minimal expenses, online banks tend to offer low charges on the services they give as compared to the physical site banks. Several internet banks also offer 24 hour telephone support, so clients can discuss their needs with

bank service representatives directly. Internet Banking has the disadvantage of exposure to internet fraud, frequent network breakdown and virus infection.

Mobile Banking

This is a wireless internet application of banking generally referred to as m-banking. This involves the use of a smart phone or other cellular device to perform online banking tasks while away from your home computer. This form of innovation is very convenient in today's digital age. The ability to deposit a cheque, to pay for merchandise, to transfer money to a friend or to find an ATM instantly are reasons why people choose to use mobile banking.

Cash Smart Cards

Smart cards are implanted with micro chip that enables data to be stored on the card. These cards are referred to as store value cards. Its application is to store the customer's account information, identification and value his account and electronically transfer the customer's account. It has the advantage of carrying cash without the risk of having the cash lost or stolen. The smart card gives the customer the convenience to cash money even after normal banking hours and can be spent and loaded easily. It also gives the bank the ability to control the secure communication or transaction information between itself and its customer. It is expected that the multifunction smartcards will replace the credit card, debit card and potentially the medical insurance card. While widely used in the developed countries, smart cards are starting to appear in some developing countries.

E-Zwich

E-zwich is the brand name for the National switch and smart card payment system. When the Ghana interbank payment and settlement system (GhIPSS) launched the E-zwich in April 2008, the Governor of the Bank of Ghana, Dr Paul Acquah described it as having been primarily designed ... 'for promoting branchless banking and financial inclusion'. The E-zwich payment system is an innovative method for improving accessibility to banking and retail services in Ghana. The E-zwich system offers deposit-taking financial institutions (i.e. Universal commercial and merchant banks, rural banks and savings and loans) a platform that enables them to interoperate. This therefore, enables e-zwich cardholders to perform banking and retail transactions at the outlets of other e-zwich financial institutions.

As an E-zwich cardholder, a customer has available to them a large group of banks and their branches where E-zwich transactions can be performed. It is therefore no more necessary to commute to a specific bank just to do banking transactions. The e-zwich was designed to facilitate the mobility of funds from one station to another without actually using cash but electronic transfer. This makes it easier for business and facilitates the quick transaction of business deals, arrangements and agreements.

The E-zwich smart card is currently the only card in Ghana that provides the convenience of nationwide access as well as greater control over transactions for cardholders, retail merchants and other corporate users (IMANI, 2009).

The benefit of the E-zwich card includes: improved revenue from a rising smartcard customer base, reduced cash holdings, bank charges, communication cost, reconciliation problems and reduction of risks linked with fraud. Additionally, the ability of the system to reach the unbanked easily would bring more people outside the banking system into the financial system and increase deposits mobilized by bank to enable them to create more credit. The users will also profit from a more comfortable, less risky and easier means of spending and receiving money through the use of the smart card.

Telephone Banking

Telephone banking is a bank innovation that enables the clients of a bank to undertake banking activities through the telephone. It can be considered as a form of remote or virtual banking, which is basically the performance of bank financial activities through the communication devices whereby bank clients can undertake retail banking business by calling on the telephone or mobile communication unit which is connected to a system of the bank by Automated Voice response (ABR) technology, Balachandler, Santha, Norhazlin and Rajendra (2001).

For the assurance of the system, the client must be first authenticated via a numeric or verbal password or by means of security questions being asked by a line representative at a centre or branch. With a clear exception of card dispensing in the form of deposits and withdrawals, it offers almost all the functions of account balance information, standing orders, ordering cheque books and change of address. In addition to the self service activities listed earlier telephone banking operatives are usually trained to do what is conventionally obtainable exclusively at the

branches. According to Leow (1999), 'Telephone banking has numerous benefits for both customer and banks. It increases convenience; expand access and significant time gaining. On the other hand, from the bank's perspective, the costs are substantially lower than those of branch based services.' Telephone banking has nearly all the effects on performance of ATM's apart from the ability to produce or dispense cash to the user.

As delivery medium that offer retail banking activities to customers even after banking hours (24hours a day), It provides persistent efficiency for the bank. It makes banking at the client convenience possible both in their homes and offices, the customer can perform banking without visiting the ATM's or the branch office of the bank. These result in saving time spent on banking. It also provides convenience, efficient and higher productivity for both the bank and customers.

Branch Networking

Networking of bank branches is the computerization of inter-connecting of geographical scattered uncommon branches into one integrated system in the form of a Wide Area Network (WAN) or Enterprise network (EN) for creating and sharing of consolidated customer information or records. The advantage is that it present is faster rate of inter-bank dealings as the problem of remoteness and time constraint are removed. Thus, there is extra output per time period. There are a number of network branches serving the customer at different locations of convenience to the client. There is virtual division of labour between bank branches by means of its connected positive effect on output among the branches. Additionally, as it reduces customer journey distance to their home bank, it makes extra time available for the clients' productive activities.

The Electronic Funds Transfer System (EFTS)

EFTS is an application of advanced computer and communication technology in effecting payment. It is a communication network which allows the faster movement of information from one location to another without any personal contact. Bank deposit balances can be transferred to any area by electronic impulses. This system reduces the use of cheque payment within the system; the need for currency reduces and minimizes the production and destruction costs in the use of coins, notes and cheque payments. With this system, the problem of dude cheque risk on the part of both the bank and the customer is eliminated since the adequacy of a customer's checking balances are made known to the payee prior to the transaction. It also benefits both the bank and customer by reducing float, quicker availability of credit to the account.

Fierce, competition for consumer credits impersonalized banking service for individuals, greater velocity and smaller necessary volume of demand deposits and concentration of account data. The use of EFTS has come about as a result of different kinds of problem associated with the payment mechanism. The transfer of money in particular has become increasingly expensive to operate especially as the tendency has been for transactions service to be paired at minimum. The cheque is very costly to handle because of its legality and the banks have therefore developed more economic methods of payment in keeping with modern requirement by using the system.

Electronic Fund Transfer at Point Of Sale (EFTPOS)

An EFTPOS is an on-line arrangement that enables clients to transfer funds directly from their bank account to merchant's accounts after making purchases (at purchase points). An EFTPOS employ a debit card to start an electronic fund transfer process (Chorafas, 1988), improved banking efficiency resulting from the use of EFTPOS to service clients shopping payment conditions as an alternative to the bookkeeping duties in handling cheques and cash withdrawals for purchases. Also, the system remained operational even after regular banking hours; therefore the bank continues to achieve efficiency even after normal banking hours. It also saves clients time and energy in travelling to branches or ATM's for cash withdrawals which can be exploited in other productive services.

Theories on Financial Innovations and Performance

There have been several theories on financial innovations. Mugane and Ondigo (2016) study found two main theories which included Schumpeter theory of innovation and innovation diffusion theory. Another study by Kombe and Wafula (2015) found four theories on innovation and consisted of innovation diffusion theory, transactions cost innovative theory, constraint-induced financial innovation theory and theory of information production and contemporary banking theory. Koech and Makori (2014) identified two additional theories namely contingency and implementation theory.

Schumpeter Theory of Innovation

Schumpeter (1928) advocate that entrepreneurs can create the opportunity for new streams of income with their innovations. Also, groups of imitators attracted by super-profits would start a wave of investment that would erode the profit margin for the innovation.

Schumpeter (1934) emphasized the role of entrepreneurship and the seeking out of opportunities for novel value generating activities which would expand and transform the circular flow of income, but it did so with reference to a distinction between invention or discovery on the one hand and innovation, commercialization and entrepreneurship on the other.

Schumpeter (1934) saw innovations as perpetual gales of creative destruction that were essential forces driving growth rates in a capitalist system. Schumpeter's assertions have been supported by Porter (1992) that innovation is vital for a country's long-run economic growth and competitive advantage.

Innovation Diffusion Theory

Innovation Diffusion Theory (IDT) by Rogers (2003) has been employed in studying technology adoption. According to the theory, four elements of diffusion including innovation, time, communication channels, and social systems affect adoption of innovation. Rogers, (2003) states that an individual's technology adoption behavior is determined by his or her perceptions regarding the relative advantage, compatibility, complexity, trialability, and observability of the innovation, as well as social norms.

Diffusion of innovation theory attempts to explain and describe the mechanisms of how new inventions in this case internet banking is adopted and becomes successful. Sevcik (2004, cited Kombe & Wafula, 2015) stated that not all innovations are adopted even if they are good it may take a long time for an innovation to be adopted. He further stated that resistance to change may be a hindrance to diffusion of innovation although it might not stop the innovation it will slow it down. If a Bank is persuaded that there are benefits that can be derived from mobile and internet banking, then it will adopt these innovative products taking into considerations the availability of required tools, such as internet connectivity and other infrastructure facilities.

Transactions Cost Innovative Theory

The transaction cost innovation theory pioneered by Niehans (2006, cited Kombe & Wafula, 2015) advocated that the dominant factor of financial innovation is the reduction of transaction cost, and in fact, financial innovation is the response of the advance in technology which caused the transaction cost to reduce. The reduction of transaction cost can stimulate financial innovation and improvement of financial service.

It states that financial innovation reduces transaction costs. Mobile, Internet-connected IT may further lower transaction costs as it provides also off-site access to the firm's internal database and other relevant sources of information. Consequently, reduction of operation costs through agency banking, internet banking and mobile banking may influence growth in profitability for the bank (Kombe & Wafula, 2015).

Constraint-Induced Financial Innovation Theory

This theory pointed out that the purpose of profit maximization of financial institution is the key reason of financial innovation. There are some restrictions however in the process of pursuing profit maximization. These may include but not limited to policy and internal organizational management. Constraint-induced innovation theory discussed the financial innovation from microeconomics, so it is originated and representative (Kombe & Wafula, 2015).

However, it emphasized "innovation in adversity" excessively so it can't express the phenomenon of financial innovation increasing in the trend of liberal finance commendably (Kombe & Wafula, 2015). Financial constraints significantly reduce the probability that a firm undertakes innovative projects.

According to Silber (1975, 1983, Silber, 2004 cited in Kombe & Wafula, 2015) financial innovation occurs to remove or lessen the constraints imposed on firms. Firms facing imperfections (e.g. regulation, entry barriers) have the greatest incentive to innovate and boost profits because of the high shadow costs of such constraints (Silber 2004 cited in Kombe & Wafula, 2015).

Theory of Information Production and Contemporary Banking Theory

Diamond (2002) suggested that economic agents may find it worthwhile to produce information about possible investment opportunities if this information is not free; for instance surplus units could incur substantial search costs if they were to seek out borrowers directly. Contemporary banking theory suggests that banks, together with other financial intermediaries are essential in the allocation of capital in the economy.

This theory is centered on information asymmetry, an assumption that "different economic agents possess different pieces of information on relevant economic variables, in that agents will use this information for their own profit" (Freixas and Rochet, 2002).

Asymmetric information leads to adverse selection and moral hazard problems. Asymmetric information problem that occurs before the transaction occurs and is related to the lack of information about the lenders characteristics is known as adverse selection. Moral hazard takes place after the transaction occurs and is related with incentives by the lenders to behave opportunistically (Bhattacharya & Thakor, 1993).

Contingency Theory

This research was based on the contingency theory whose proponents are Kast and Rosenzweig (1985) to the study of commercial banks effects of innovation orientation on financial performance. The theory based upon the organismic analogy, views organizations as consisting of a series of interdependent subsystems, each of which has a function to perform within the context of the organization as a whole. This can be related to technology, quality customer service, employees' motivation and marketing strategy that are can be used to as a strategic response to competition by commercial banks.

Contingency theorists Kast and Rosenzweig (1985) suggest that a leaner organizational structure and reduced red tape increase flexibility and facilitate the fit between intra-organizational processes and the environment. Downsizing strategies refer to the methods used to accomplish the reduction of cost (West, 2000). Several strategies seem pertinent, notably a cost leadership strategy which enables the organization to increase return on sales, or to increase market share through aggressive costing. Following staff downsizing the company can mute the leaner cost structure into competitive advantage. Yu & Park (2006) study found that downsizing has resulted in improvement of financial performance of Korean firms.

Implementation Theory

Implementation theory provides an analytical framework for situations where resources have to be allocated among agents/users but the information needed to make these allocation decisions is dispersed and privately held, and the agents/users possessing the private information behave strategically and are self-utility maximizers.

In any situation where the information needed to make decisions is dispersed, it is necessary to have information exchange among the agents/users possessing the information. Allocation decisions are made after the information exchange process terminates. Implementation theory provides a systematic methodology for designing an information exchange process

followed by an allocation rule that leads to allocation decisions that are “optimal” with respect to some pre-specified performance metric (Felix, 2009).

The key concept in the development of implementation theory is that of game form or mechanism. A game form/mechanism consists of two components: A message/strategy space, that is, a communication alphabet through which the agents/users exchange information with one another. An allocation rule (called outcome function) that determines the allocations after the communication and information exchange process terminates (Smith, 2007). Most mechanisms employ monetary incentives and payments to achieve desirable resource allocations. In such cases, the outcome function specifies the resource allocations as well as the monetary incentives and payments.

Conceptual Framework of the Study

The study has adopted the conceptual framework illustrated below in Figure 1. The conceptual framework shows the nexus between financial innovations on the performance of universal banks in Ghana. The independent variable is financial innovations (Automatic Teller Machine, Mobile/Internet banking and E-zwich payment systems) whereas the dependent variable is performance, which is surrogated by revenue, return on assets, liquidity and efficiency and profit levels (i.e. net profit).

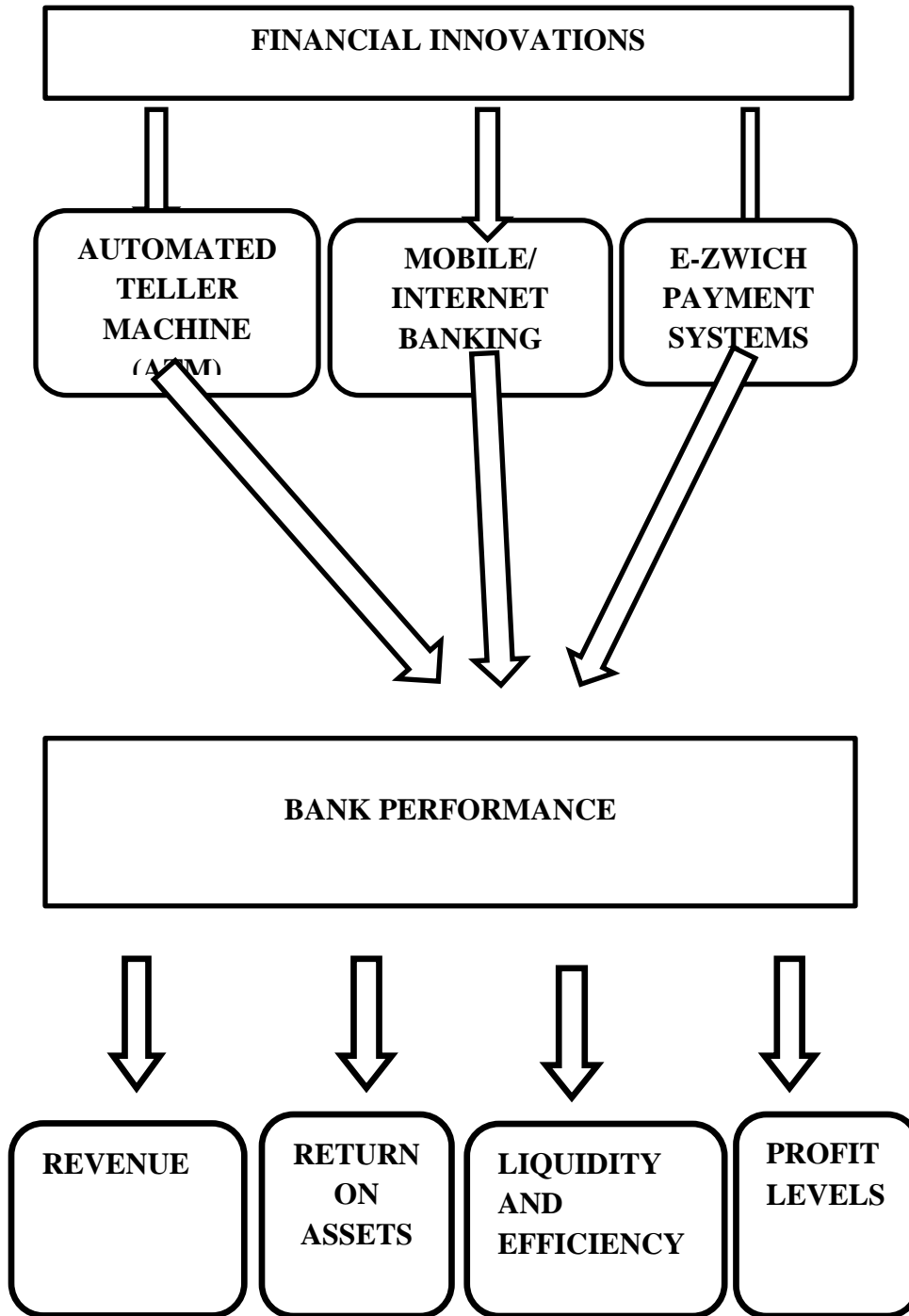


Figure 1: Conceptual Framework

Empirical Review on Financial Innovations and Financial Performance

Muiruri and Ngari (2014) examined the effects of financial innovations on the financial performance of commercial banks in Kenya. The findings of the study from the regression analysis has shown that credit cards ($p=0.029$), mobile banking ($p=0.041$), internet banking ($p=0.006$) and agent banking ($p=0.042$) were all significant in predicting the profits of the banks in Kenya. The study recommends that banks adopt internet banking to increase their competitiveness and service quality.

Gichungu and Oloko (2015) studied the relationship between bank innovations and financial performance of commercial banks in Kenya. The study findings showed that there is a significant positive relationship between mobile phone banking ($\beta=0.788$, $p < 0.05$), ATM banking ($\beta=0.725$, $p < 0.05$), online banking ($\beta=0.522$, $p < 0.05$), agency banking ($\beta=0.674$ and P value < 0.05) and financial performance of commercial banks. Therefore the study recommends that the government of Kenya and all other stakeholders should join efforts to increase the internet connectivity infrastructure in Kenya and formulate the necessary laws to guide the adoption and use of online banking by commercial banks in Kenya.

Munyoki (2015) investigated the effect of mobile banking on financial performance of banking institutions in Kenya. The results of the study postulate that there is positive and significant relationship between mobile banking (represented by mobile banking transactions volumes [$p=.008$] and mobile [$p=.011$]) and financial performance of commercial banks.

Cherotich, Sang, Shisia, Mutung'u, (2016) empirical study studied the impact of financial innovations on the performance of 44 commercial banks in Kenya. The study found out that there is a strong relationship between financial innovations and financial performance. The study concludes that financial innovations positively affect financial performance. They recommended that financial innovation information should be available particularly to regulatory and advisory bodies for guidance to the commercial banks.

Anaafi (2012) assessed the perceptions of banking customers regarding the effect of technological innovations on banking services in the Eastern Region, Ghana. The of results of the study generally indicate that, out of the 257 respondents, 205 of them representing 79.8 % patronize electronic delivery product and service out of which users of the ATM occupies 58.8% the highest with EFTPos being the least with 3.1%. Turn-around time and service delivery were

85.5% and 80.4% respectively and resulted in overall customer satisfaction to 78.2%. The study concluded that electronic banking has contributed positively to the provision of banking services and the growth of the Ghanaian banking industry.

Sampong (2015) explored the effect of bank innovations on the financial performance of universal banks in terms of their income or revenue generation, liquidity, efficiency, profitability and the general patronage of banking services in Ghana. The findings of the study showed that most of the innovations have positive effect on the income generating potentials of the banks, they also improves efficiency, liquidity and profitability of the banks. This study also found out that E-zwich as an innovation in the financial sector has no direct effect on financial performance of the universal banks in Ghana. It was recommended that corporate banks must make it a policy to establish an efficient and effective marketing department to oversee the publicity of all bank innovative products.

Kamau and Oluoch (2016) sought to determine the contribution of mobile, internet, ATM, credit cards, and agency banking to bank performance using correlational and regression analysis. The correlation analysis showed that ATM banking had the highest influence on commercial bank performance and more ATM and banking services should more availed through use of it. The results of the regression analysis showed that ATM, mobile banking, use of credit and debit cards, internet banking and agency banking all have positive significant influence on commercial banks performance in Kenya.

Abor (2004) study evaluated the perceptions of banking customers regarding the effect of technological innovations on banking services in Ghana. The results of the study generally indicate that, technological innovation or electronic delivery channels have contributed positively to the provision of banking services and the growth of the Ghanaian banking industry.

Oira and Kibati (2016) assessed the influence of innovation on the performance of commercial banks in Nakuru Central Business District, Kenya. The results of the regression analysis demonstrated that financial innovation surrogated by mobile banking [$p= 0.019$], agent banking [$p=0.014$], internet banking [$p=0.015$] and banc assurance [$p=0.017$] significantly influences the performance of commercial bank in Kenya. It was further discovered that mobile banking contributes more to commercial banks financial performance, followed by agent banking, then internet banking, while banc assurance contributes the least to commercial banks financial performance.

Kombe and Wafula (2015) studied the effect of internet banking on the financial performance of banks in Kenya and found that the impact of ICT adoption on the performance of banking sector mainly refers to time reductions and quality improvements, rather than cost reductions as reported by many authors.

Mugane and Ondigo (2016) explored the effect of financial innovations on the financial performance of commercial banks in Kenya. The study findings indicated that there is a negative and significant relationship between product innovation and ROA. The relationship between service innovation and ROA and also organizational innovation and ROA was found to be positive and significant. Based on the findings, the study concluded that commercial banks in Kenya in the study period had unsteady trends in ROA despite the fact that more financial innovations were taking place in the sector. The study also concluded that the relationship between product innovation and financial performance of commercial banks is negative and significant. Based on the study findings, the study also concluded that the relationship between service innovation and ROA and also organizational innovation and ROA is positive and significant.

Nkem and Akujinma (2017) assessed financial innovation and efficiency on the banking sub-sector, that is, deposit money banks and selected instruments of electronic banking from 2006 to 2014. They found that the value of transaction on Automated Teller Machine (ATM) and Point of Sale (POS) are negatively related with efficiency ratio while web/internet and mobile banking are positively related but only that of web/internet was significantly related. The granger impact assessment depicts that financial innovation products reflected by value of transaction on ATMs, web/internet, POS and mobile banking has no significant impact on efficiency ratio of deposit money banks in Nigeria. However, they found evidence that banks efficiency ratio exerted statistically significant impact on value of transactions on ATMs. Therefore, the study recommended that banks should invest more in ATMs and POS platforms as it reduces the operating expenses to net income ratio while ensuring effective utilization of existing web/internet and mobile banking infrastructure rather than acquiring new ones that will gulp a large fraction of their net operating income.

Discussion of Empirical Literature

With reference to the reviewed relevant literature, it has come out strongly from several writers Abor, (2004), Munyoki (2015), Muiruri Kamau and Oluoch (2016), Cherotich, Sang,

Shisia, Mutung'u, (2016), and Ngari (2014), Oira and Kibati (2016) assert that financial innovation have positive impact on performance of banks. However, this is mostly prevalent in developed economies and other developing economies like Kenya but similarly, this cannot be said much of Ghana. Additionally, positive impact of innovation in terms of influences in total revenue, return on assets, profitability and patronage of bank services or customer adoption, as reviewed from the relevant literature is inadequately covered by empirical research in Ghana and other developing and developed nations (Sampong, 2015). This study therefore intends to fill these pertinent gaps in literature by studying the impact of financial innovations on performance of selected universal banks in Ghana.

RESEARCH METHODS

Introduction to Research Method used

This chapter focuses on data collection, processing and analysis methods. Data collection instruments and procedures are also discussed. Population, sample size as well as sampling techniques are also well discussed in this chapter. The research was based on intuitive, authoritative knowledge, reasoning from findings and empirical evidence from demonstrable facts through observation and or experimentation data collection and analysis. The methodology covers the research design, reliability and validity of data and ethical considerations.

Research Design

This study used the survey methodology. According to Nesbary (2000), a survey research is a 'process of collecting representative sample data from a larger population and using the sample to infer attributes of the population.' The justification for using the design is that it allows for the generalization of results from sample perspective for the whole population. The time frame for the data collection is short as compared with the other methodologies; it also has a high level of reliability which facilitates the generalization from a sample population. Leedy (2001) argued that a survey has the advantage of wider application because it allows data to be collected on a large population within a short space of time.

Population of the Study

Lavrakas (2008) defines a population as any finite or infinite collection of individual elements. The target population for this study is management, senior staff and heads of sections or departments of 35 universal banks in Ghana.

Sample Size and Sampling Technique

The purposive or judgmental sampling technique was adopted to select the sample unit. The reason for using this technique is that it will select a logically assumed sample that can be representative of the larger population. It is also useful in situations where expert knowledge is required in selecting a sample from the population or the researcher is bias towards a specific subject that will produce the most extensive information of a population. Using Suresh (2012) sample size determination formula when the population is unknown:

$$n = [(Z_{\alpha/2})^2 * P(1-P)] / (e)^2$$

Where $Z_{\alpha/2}$ is the standard normal variant (1.96)

P = a conservative estimate of 50% is assumed for P since the population of workforce in the universal banks is unknown.

e = is margin of error set at 5%

n = the number of staff of universal banks

$$n = [(1.96)^2 \times 0.5(0.5)] / (0.05)^2$$

$$n = 384.16$$

Therefore, the sample size considered for the study was 385 respondents.

Data Collection Instruments

The study used questionnaires to obtain quantitative data. Kothari (2004) defines a questionnaire as a document that consists of a number of questions printed or typed in a definite order on a form or set of forms. The study adopted structured and close-ended questionnaire to generate statistics for this research. The questionnaire contained boxes for each respondent to tick as an indication of an answer. The questionnaire was categorized into six sections. The first section

provided bio-data of the respondents. The second section continued with series of questions meant to establish the impact of financial innovation on total revenue. The third section assessed the influence of financial innovations on return on assets. The fourth section considered the impact of financial innovations on the profit levels and the fifth section focused on the impact of financial innovations on bank liquidity and efficiency. The last section, explored the influence of financial innovations on patronage of banking services.

Data Collection Procedures

Primary data was collected through the administration of structured questionnaires to senior management bank employee. Closed-ended questions were used considering the topic studied and the characters of the sample, closed-ended statements were made requiring agreement or not agreed answers. It should be noted that it is suitable for the type of issues raised which were clear-cut and the use of this made handling and analysis easily and less cumbersome.

Questionnaires were administered directly by the researcher and assistances that were trained by the researcher. Respondents gave information on gender, department and period of work.

In the preparation of the questionnaire, a number of important factors were taken into consideration. These factors were mainly the nature of the respondents as well as the issue of time among others. To this end, simple statement with optional responses were designed, this will ensure the elimination of misunderstanding and ambiguity. It was also found that respondents may not have enough time to respond to too many questions. Hence, statements made were stream to bring out the most effective answers necessary for the purpose of the research.

Data Processing and Analysis

The responses were analyzed and presented in a form of tables. Figures calculated in percentages and inferences subsequently made. Quantitative methods are used for the data analysis. The quantitative method was appropriate for the study because it is relatively an unexplored topic for financial research in Ghana. The data was analyzed using Statistical Package for Social Sciences (SPSS) version 20.

Reliability and Validity of Data

Kombo and Tromp, (2009), defined reliability as the ‘degree of consistency that the instrument or procedure demonstrate’. Validity refers to the congruent or “goodness of fit” between an operational definition and the theory it is supposed to measure. Validity is used to review and test the conformity of the various opinions whether the information received measured what they are planned to measure.

Ethical Issues

The motivation and course of action of the study were made clear to the respondents before data was collected. Notwithstanding, there were four ethical or sensitive issues that that the study took into account which may influence the outcome of the study. Firstly, in the banking industry, confidentiality is cardinal principle and these may affect the responses the staff gave. Despite the fact that respondents’ privacy was and anonymity was guaranteed, some respondents found it difficult to make decisive commentary. Secondly, the distribution of questionnaire may not be fairly across the banks and also the selection of participants may suffer from equity.

Thirdly, the study was restricted to participants located in Accra and Kumasi and therefore ignoring the eight other regions in Ghana which could have material impact on the result of the findings.

Fourthly, perceptions, attitudes and time constraints of the staff would have influenced their responses. Some respondents were reluctant to give out information or deliberately gave wrong information which led to the difficulty in obtaining valid data and therefore, measurement error may have occurred.

RESULTS AND DISCUSSION

Introduction

This study investigated the influence of financial innovations on financial performance of selected banks in Ghana. Specifically, the study investigated the impact that that automated teller machines, debit and credit cards, mobile banking, internet banking and electronic funds transfer have on financial performance. Questionnaire was used to assemble the primary data. Out of the three hundred and eight-five (385) questionnaires issued out to respondents, 326 were returned representing a favorable response rate of about 85%. This chapter contains details of the response

rate, sample characteristics, presentation of data analysis and discussion of findings. Data presentation are organized based on specific objectives of the study.

Demographic Characteristics of Participants

Gender of Respondents

The study collected information on demographic characteristics. Gender was considered to be relevant because it has influences on the development, implementation and patronage of innovations as confirmed by earlier studies (Roger, 1995). The Comprehensive outcome is presented in each of the table below.

Table 1: Gender of Respondents

Entry	Frequency	Percent
Female	100	31
Male	226	69
Total	326	100

Source: Field Survey, 2017

Table 2 below revealed that the majority of the participants were men. Particularly, the statistics demonstrated that 226 of the respondents were male constituting 69% while 100 were female representing 47%, as exhibited in Table 1. The statistics confirmed some belief that most or majority of bank executives in Ghana are males.

Age of Participants

The next demographic variable of the participants was their age bracket the researcher wanted to find out the age characteristics of bank executives in Ghana. The Table 3 shows the age distribution of the participants.

Table 2: Age group of Respondents

	Frequency	Percent
20-29 years	10	3
30-39 years	60	18
40-49 years	131	40

50 and above years	125	38
Total	326	100

Field Survey, 2017

The age variable of the participants illustrated in Table 2 showed that the greater amount of the participants were in the age bracket 40-49 years representing 40%. This was followed by participants aged over 50years who accounted for 38% of the sampled size; the next age bracket is 30-39 with 18 percentage point. Interestingly, the age bracket of 20-29 had three percentage points with age bracket of 10-20 having zero percent. The study showed that majority of universal bank executives in Ghana are aged over forty years. According to AbuShanab and Pearson (2007), age is a significant factor that positively influences the adoption of e-banking innovations.

Departmental Distribution of Respondents

Table 3: Department of Respondents

	Frequency	Percent
ICT	28	9
Executive	14	4
Audit and Assurance	15	5
Credit management	83	26
Liability management	25	8
Human resource	18	6
Finance	143	44
Total	326	100

Source: Field Survey, (2017)

The departmental distribution of the participants examined in Table 3 shows that, the greater amount of the participants was in Finance department representing 44 percent. This was followed by participants in credit department who accounted for 26 percent of the sample size, ICT department had 9% of the sample size. Liabilities follows with 8 percent, Executive 4 percent, Audit 3 percent, HR had 6 percent, Audit and Assurance recorded 5% and the Executives constituted 4%. The Finance department recorded the highest response because of the nature of

the research, as the topic under study seeks to find out the impact of financial innovations on financial performance.

Banking Sector Experience of Respondents

Table 4: Level of Experience of Participants

Entry	Frequency	Percent
Less than 1 year	6	2
1-5 years	59	18
6-10 years	95	29
More than 10 years	166	51
Total	326	100

Source: Field Survey, 2017

The experiences of the participants examined show that, the greater amount of the participants were in the year's bracket of over 10years representing 51 percent. This was followed by participants between 6-10 years who accounted for 29 percent of the sample size; the next bracket is 1-5 years with 18 percentage point, with the least percentage point (2%) participants with less than 1 year. Most of the bank executives have been working for more than five years which shows that the staff retention in the banking sector is significant as it is generally assumed that, the more the worker stays on a job for a long time, the more efficient and effective he/she becomes in terms of performance of output and the ultimate ripple effect on the banking sector in general.

Impact of Financial Innovations on Total Revenue

The aim of this section is to find out the views of the respondents on the impact or influence of financial innovations on revenue of universal banks in Ghana. The questionnaire was framed in the form of a statement being made for the respondents to confirm the degree of their agreement or otherwise. The Likert scale was used to assign values to the respondents.

Table 5: Model Summary of Regression Results (1)

Model Summary b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.894a	0.8	0.794	0.4468

a. Predictors: (Constant), ATM 1, ATM2, ATM3, EZ1, EZ2, EZ3, MOB1, MOB2, MOB3

b Dependent Variable: Overall performance

Table 6: ANOVA Statistics (1)

ANOVAa						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	252.465	9	28.052	140.489	.000b
	Residual	63.096	316	0.2		
	Total	315.561	325			

a Dependent Variable: Total revenue

a Predictors: (Constant), ATM 1, ATM2, ATM3, EZW1, EZW2, EZW3, MOB1, MOB2, MOB3

The definition of symbols used to represent individual items under automated teller machines (ATM), E-zwich payments systems and mobile/internet banking are elaborated below.

ATM 1 represents “ATMs have had constructive impact of rising commission fee based revenue”. ATM 2 represents “ATMs have had constructive impact of raising interest based revenue”. ATM 3 represents “ATMs have raised the revenue creation prospect of the bank”. EZW1 denotes “E-zwich have had a constructive impact of raising commission fee related revenue”. EZW2 denotes “E-zwich have had constructive impact of raising interest related revenue”. EZW3 denotes “E-zwich have raised the revenue creation prospect of the bank”. MOB 1 signifies “Mobile/internet banking have had constructive impact of raising commission fee related revenue”. MOB 2 signifies “Mobile banking has had constructive impact of raising interest related revenue”. MOB 3 signifies “Mobile banking have raised the revenue creation prospect of the bank”

Table 5 and 6 shows the model summary and ANOVA statistics respectively. It was found that 79.4% of significant variation ($F = 140.489, p < 0.05$) in total revenue of universal banks is jointly explained by the contributions of ATM, E-zwich and mobile/internet banking. This result

demonstrates that increase in financial innovation of banks holding other factors constant has enhanced the performance of banks. This is consistent with Cherotich et al. (2016) that asserts that there is strong relationship between financial innovations and financial performance.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Introduction

This study sought to find out the impact of financial innovations on the financial performance of selected universal banks in Ghana. There are so many innovations in the financial sector, but this investigation was limited to Automated Teller Machines (ATMs), E-Zwich Payment systems and Mobile/Internet Banking. The study however throws light on the consequences of these innovations that the banks are coming up with on total income, liquidity and efficiency, return on assets and profitability bank services in Ghana. This chapter is a composition of the summary, conclusion drawn on all that have been discovered out of the study, the finding thereof and the relevant recommendation made that would lead to clear understanding of the impact of bank innovations on performance of universal banks in Ghana

Summary of Findings

The emergence of the Internet and the proliferation of mobile telecommunication companies in the Ghanaian economy have offered both an opportunity and a test for the Ghanaian banking sector. Over the years, banks in Ghana have used strong computer networks to mechanize millions of daily transactions, but in recent times, frequently the only paper record is the customer's receipt at the ATMs or point of sale. Now that bank customers can be linked to the internet through personal computers and mobile phones, banks foresee related economic benefits by adapting new and innovative electronic processes for their operations. Various findings were made with respect to the five stated objective as follows:

The first objective was to ascertain the impact of financial innovations on revenue of selected universal banks in Ghana. It was discovered that financial innovations has positive effect ($F = 140.489, p < 0.05$) on the income or revenue of universal banks in Ghana.

The second objective was to find out the impact of financial innovations on return on assets of the universal banks. It was discovered that financial innovations exerted positive and significant effect ($F = 167.947, p < 0.05$) on the return on assets of universal banks.

The third objective was to find out the impact of financial innovations on bank liquidity and efficiency of the universal banks. It was discovered that the financial innovations impacted positively ($F = 214.35$, $p < 0.05$) on the liquidity and efficiency of universal banks.

The fourth objective was to establish the effect these innovations on profits of the universal banks in Ghana. The findings discovered that financial innovations has significant impact ($F = 252.704$, $p < 0.05$) on the profit levels of universal banks.

Conclusion

The purpose of this work was to identify the impact of financial innovations on the financial performance of selected universal banks in terms of income generation, return on assets, liquidity and efficiency and profitability of banking services by Ghanaians. This work is a survey of bank executives from universal banks in Ghana by the use of questionnaires that were administered to find out opinions of bank executives on the impact of financial innovations on financial performance. From this study, it was found that the performance of banks in Ghana in the near future would greatly be based on factors such as the introduction of efficient and effective innovative products such as ATMs and Mobile/Internet banking to attract customers, who are seeking for ease of banking, “presence everywhere banking”, better customer service, and a convincing image of a strong bank. These innovative products have the potential to improve upon the revenue generation and profitability of the universal banks. The arrival of the Internet and the proliferation of mobile telecommunication companies in Ghana present both an opportunity and a threat to banks in Ghana. The test for the banking sector has been how to formulate a new service delivery means in such a way that its clients will enthusiastically learn to use and rely on. After all, banks have spent many years to achieve customer’s trust, and they are not prepared to risk that on an internet site that is wearisome, confusing and less secure. Most of the universal banks now present completely secure and functional online banking for free or for a small fee to the customers. The opportunities presented could be seen in the area of operational cost reduction that could be achieved through these innovative products, increase in customer base or patronage of banking services.

Recommendations

From this study it has become clear that by embarking on financial innovations, universal Banks in Ghana will consolidate their gains and assets base by becoming more efficient in service

delivery and profitable to their shareholders. The following suggestions are made to the universal banks and the entire financial market to enhance their customer base and improve upon their profitability.

It is recommended that corporate banks must make it a policy to establish an efficient and effective marketing department to oversee the publicity of all bank innovative products.

The Government through Bank of Ghana must continue to invest in researching into innovations in the financial sector. The universal banks whose operations are affected by any national innovative products or platforms such as E-zwich should be consulted and their concerns factored in the product before implementation.

The pricing of innovative products should be reasonable in order not to further drive or scare the prospective customers or users.

The problem of psychological dissatisfaction as a result of lack of trust in an innovative products' security, that most customers are likely to complain of, should be addressed.

Areas for Further Studies

This research did not cover the contentment level of customers on financial innovations which is a main attraction for the success of these innovative products in Ghana. Research should be conducted into the problems faced by users as they make attempt to adopt the financial innovative products.

REFERENCES

- I. Abor, J. (2004). Technological innovations and banking in Ghana: An evaluation of customers' perceptions. *American Academy of Financial Management*, 1, 1-16. Retrieved from <http://www.financialcertified.com/armstrong.html>
- II. AbuShanab, E., & Pearson, J. M, (2007). Internet banking in Jordan: The unified theory of acceptance and use of technology (STAUT) perspective. *Journal of Systems and Information Technology*, 9, 71-97.
- III. Acquah, P. (2006). The emerging Ghanaian banking environment. *BIS Review*, 75, 1-2.
- IV. Agboola, A. A. (2003). Information Technology, bank automation, and attitude of workers in Nigerian banks. *Journal of Social Sciences*, 7(3), 215-222.

- V. Akhisar, I., Tunay, K. B., Tunay, N. (2015). The Effects of Innovations on Bank Performance: The Case of Electronic Banking Services. *World Conference on Technology, Innovation and Entrepreneurship, Procedia - Social and Behavioral Sciences*, 195 (2015), 369 – 375.
- VI. Al-Hawari, & Ward (2011), the effect of automated service quality on Australian banks' financial performance and the mediating role of customer satisfaction, *Marketing Intelligence & Planning*, 24 (2) (2006), 127-147.
- VII. Anaafi, F. (2012). The impact of Electronic Banking Transaction in the Banking Industry: The case of ADB, SG-SSB and Barclays Bank branches in the Eastern Region. (Master's thesis, Kwame Nkrumah University of Science and Technology, Kumasi-Ghana). Retrieved online at ir.knust.edu.gh/bitstream/123456789/4802/1/Anaafi%20Frederick.pdf
- VIII. Banking Act, 2004, Act 673 of Parliament of Ghana.
- IX. Bhattacharya, S., & Thakor, A. (1993). Contemporary Banking Theory. *Journal of Financial Intermediation*, 3, 2-50.
- X. Cherotich, K. M. (2014). The Effect of Financial Innovations on Financial Performance Of Commercial Banks in Kenya. (Master's thesis, University of Nairobi, Kenya. Retrieved online at http://erepository.uonbi.ac.ke/bitstream/handle/11295/75716/Korir_The%20effect%20of%20financial%20innovations.pdf?sequence=3
- XI. Cherotich, K. M., Sang, W., Shisia, A., & Mutung'u, C. (2016). Financial Innovations and Performance of Commercial Banks in Kenya. *International Journal of Economics, Commerce and Management*, III(5), 1242-1265.
- XII. Chorafas, D. N. (1988). *Electronic Funds Transfer*. London, UK: Butterworths.
- XIII. Damanpour, F., Walker, R.M., & Avellaneda, C.N. (2009). Combinative effects of innovative types and organizational performance: A longitudinal study of service organizations. *Journal of Management Studies*, 46(4), 650-675.
- XIV. Dawson, C. (2002). *Practical research methods: A user friendly guide to research*. Newtec Place, UK: How to Books Ltd.
- XV. Diamond, J. (2002). The Strategy of Budget System Reform in Emerging Economies. *Public Finance and Management*, 2(3):358-386.

- XVI. Edwards, F. R., & Mishkin, F. S. (1995). The Decline of Traditional Banking: Implications for Financial Stability and Regulatory Policy. FRBNY Economic Policy Review, July. Accessed online at <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.202.5917&rep=rep1&type=pdf>
- XVII. Felix, O. (2009). Kenya Banking Industry Experience. Retrieved from <http://www.slideshare.net/simandef/kenya-banking-industry> on 28th November, 2017.
- XVIII. Freixas, X., & Rochet, J. C. (2002). Microeconomics of banking. Cambridge, MA: MIT Press.
- XIX. Ghana Banking Survey (2014). The Future of Banking in Ghana... What's next?' PriceWaterhouseCoopers, Accra. Retrieved from
- XX. Gichungu, Z. N., & Oloko, M. A. (2015). Relationship between Bank Innovations and Financial Performance of Commercial Banks in Kenya. International Journal of Education and Research, 3(5), 443-456.
- XXI. <http://www.sjsu.edu/faculty/gerstman/statPrimer/sampsize.pdf>
- XXII. Irving Fisher Committee on Central Bank Statistics (2009). Measuring financial innovation and its impact. (Bulletin, No. 31). Basel, Switzerland: Bank for International Settlements.
- XXIII. Kamau, D. M., & Oluoch, J. (2016). Between Financial Innovation and Commercial Bank Performance in Kenya. International Journal of Social Sciences and Information Technology, II (IV), 576-594.
- XXIV. Kast, F.E. & Rosenzweig, J.E. (1985). Organization and Management: A System and Contingency Approach. Singapore: McGraw-Hill.
- XXV. Koech, S. C., & Makori, M. (2014). Effects Of Innovation Orientation On Financial Performance Of Commercial Banks In Kenya: A Case Of National Bank Of Kenya. European Journal of Business Management, 2(1), 1-13.
- XXVI. Kombe, S. K., & Wafula, M. K. (2015). Effects of Internet Banking on the Financial Performance of Commercial Banks in Kenya a Case of Kenya Commercial Bank. International Journal of Scientific and Research Publications, 5(5), 1-10.
- XXVII. Kombo, D.K., & Tromp, D.L.A. (2006). Proposal and thesis writing. Nairobi, Kenya: Paulines Publication Africa.
- XXVIII. Kothari, C. (2004). Research methodology: Methods and techniques (2nd ed.). New Delhi, India: New Age International.

- XXIX. Kumekpor, T. K. (2002). *Research methods & techniques of social research*. Accra: Son Life Press & Services.
- XXX. Lavrakas, P. (2008). *Encyclopedia of survey: Research methods* (vol. 1&2). Los Angeles, USA: Sage Publications.
- XXXI. Leedy P. D. (2001). *Practical research planning and design* (5th ed.). New York: Macmillan Publishing Company.
- XXXII. Lerner, J. (2002). Where does state street lead? A first look at finance patents, 1971-2000. *Journal of Finance*, 57, 901-930.
- XXXIII. Mawutor (2014). Impact of e-banking on the profitability of banks in Ghana. *Research Journal of Accounting and Finance*, 5(22), 53-63.
- XXXIV. Mugane, C., Ondigo, H., (2016).The Effect of Financial Innovations on the Financial Performance of Commercial Banks in Kenya. *International Journal of Finance and Accounting*, 1(1), 16-29.
- XXXV. Muiruri, J. K., & Ngari, J. M. (2014). Effects of Financial Innovations on the Financial Performance of Commercial Banks in Kenya. *International Journal of Humanities and Social Science* 4(7), 51-57.
- XXXVI. Munyoki, K. S. (2015). Effect of Mobile Banking on the Financial Performance of Banking Institutions in Kenya. *Strategic Journal of Management, Business & Change*, 2(98), 1440-1457.
- XXXVII. Mutuku, B. M. (2014).The Relationship Between Financial Innovation And Efficiency Of Saccos in Kenya. (Master's thesis, University of Nairobi, Kenya). Retrieved from http://erepository.uonbi.ac.ke/bitstream/handle/11295/75195/Mutuku_The%20relationship%20between%20financial%20innovation%20and%20efficiency%20of%20Saccos%20in%20Kenya.pdf?sequence=3
- XXXVIII. Nesbary, D. K. (2000). *Survey Research and the World Wide Web*. Massachusetts: Allyn & Bacon Press.
- XXXIX. Ngumi, P. M. (2013). Effect of bank innovations on financial performance of commercial banks in Kenya.

- XL. Nkem, I. S., & Akujinma, A. F. (2017). Financial Innovation and Efficiency on the Banking Sub-sector: The Case of Deposit Money Banks and Selected Instruments of Electronic Banking (2006 - 2014). *Asian Journal of Economics, Business and Accounting*, 2(1): 1-12.
- XLI. Nkem, I. S., & Akujinma, A. F. (2017). Financial Innovation and Efficiency on the Banking Sub-sector: The Case of Deposit Money Banks and Selected Instruments of Electronic Banking (2006 - 2014). *Asian Journal of Economics, Business and Accounting*, 2(1), 1-12.
- XLII. Porter, M. E. (1992). Capital disadvantage: America's failing capital investment system. *Harvard Business Review*, 70, 65-82.
- XLIII. Rogers, E. M. (1995). *Diffusion of innovations* (4th ed.). New York, NY: Free Press.
- XLIV. Rogers, E. M. (2003). *Diffusion of Innovations*. New York: Free Press.

Acknowledgments

The undertaking and completion of this research work was made possible by a number of people, to whom I am profoundly grateful. I'm particularly indebted to my supervisor, Dr Williams Gabriel Brafu-Insaaidu, for his guidance and encouragement in the course of the work. My appreciation also goes to Dr Edward Amartefio of the Department of Business Studies, University of Cape coast for his relentless effort in examining my research topic and encouraging me.

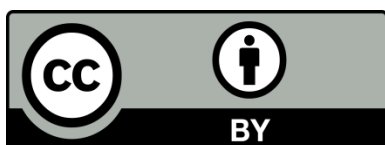
Lastly, appreciations goes to DEIL Company Sir. Agboifo Edmond Omenonye who gave me the drive and strategic ideas about financial innovations and financial performance with the perceptions of commercial bank executives and its applications with DEIL Money regression.

Dedication

To my parents, Mr. and Mrs Mensah.

Conflicts of Interest

There are no conflicts to declare.



© 2019 by the authors. TWASP, NY, USA. Author/authors are fully responsible for the text, figure, data in above pages. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>)

