# THE IMPACT OF DIGITAL BANKING ON THE PERFOMANCE OF COMMERCIAL BANKS IN ZIMBABWE

**Mr. Gladmore CHINDUDZI**

*Department of Economics, Midlands State University, Gweru, Zimbabwe*

**Mr. Takudzwa. C. MARADZE**

*Department of Economics, Midlands State University, Harare, Zimbabwe*

**Mr. Thabani NYONI**

*Department of Economics, University of Zimbabwe, Harare, Zimbabwe*

**ABSTRACT**

The main objective of the study was to investigate the impact of digital banking on the financial performance of commercial banks in Zimbabwe. The study was centred on 40 branches of commercial banks in Zimbabwe making use of annual secondary data for the period 2013 to 2017 obtained from the banks' annual financial reports and publications. Four digital banking variables (online customer deposits, online banking transactions, internet fees and commissions and internet banking expenditure) were adopted and return on assets (ROA) was used as the measure of financial performance. Panel data analysis (the Random effects regression model) and the Pearson's Product Moment Correlation analysis were employed as the statistical data analysis tools. The study established that digital banking has contributed positively to the performance of Zimbabwe's commercial banks through increased online customer deposits and banking transactions. On the other side, the study found that electronic banking usage inversely and significantly influenced the financial performance of commercial banks as measured by ROA. The study recommends that commercial banks in Zimbabwe should partner and subscribe to reliable local mobile network providers for uninterrupted and effective service delivery and also ensure that the mobile network providers craft innovative services that are tailor-made to the banks' customers. The banks should continuously upgrade their electronic banking technology so that they have an updated system in place for effective and efficient service delivery.

**Keywords: -** *Commercial Banks, Digital Banking, Zimbabwe*

---

## 1.0 INTRODUCTION

This research investigates the impact of digital banking on the financial performance of commercial banks in Zimbabwe and overall service delivery to bank clients. Digital banking has transformed the manner banks offer services, allowing individual and corporate customers to view transactions, download statements and transact online without visiting banking halls (Boniface & Ambrose, 2015). Improvements in technology have contributed to the distribution channels of banks and these electronic delivery channels are collectively referred to as electronic

banking (Goi, 2005 cited in Kombe & Wafula, 2015). Financial institutions have also revisited their distribution strategies by closing branches in remote and loss-making regions, only resorting to deployment of electronic banking services. In Zimbabwe, commercial banks are reorganizing and restructuring their distribution networks by closing branches in less profitable or loss-making areas, leaving agents to offer banking services such as collecting cash deposits (Reserve Bank of Zimbabwe (RBZ), 2017). The goal of the research is to assess the impact of electronic banking on business performance in the banking sector in Zimbabwe, assessing the impact of digital banking on service delivery and bank performance in Zimbabwe.

### 1.1 Relevance and Timeliness of the Study

Zimbabwe has traditionally used cash as a medium of exchange for trade purposes; however, we have started to see a growth in electronic transactions in Zimbabwe due to the current liquidity crisis, which is characterized by the shortage of cash. The shift to digital products has posed a threat to financial institutions in Zimbabwe as they are struggling to process electronic payment instructions, both local and international requests, due to a huge increase in physical Real Time Gross Settlement (RTGS) requests (RBZ, 2017). The bank systems can only accommodate specific transaction volumes or limits before being maintained to allow additional transactions to be processed. As a result, the transaction failure rates for both physical instructions and electronic transactions are gradually increasing across the banking industry (RBZ, 2017). However, the sector has been performing well in terms of profitability for the past years and this is credited to increase in fees and commissions as a result of the rise in electronic transactions (RBZ, 2017). So, despite the fact that transaction failure rate has increased significantly across the digital platforms due to high transaction volumes banks' profits have still been increasing over the past few years. Therefore, this research seeks to examine if digital banking enhances financial performance of banks in Zimbabwe.

## 2.0 LITERATURE REVIEW

### 2.1 Theoretical Literature Review

#### 2.1.1 Relevant theories

Digital banking literature consists of several theories which include Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), Transactions Cost Innovation (TCI) Theory, Innovation diffusion theory (IDT) and Resource based view (RBV) theory. The technology Acceptance Model (TAM) was designed by Davis (1989) to examine the acceptance and usage of technologies. This concept is centred on analyzing users' adoption behaviour according to external and internal factors in technology. TAM is utilized to describe the way the client receives or decrease the usage of a technology predicated on "perceived ease of use" and "perceived usefulness" of a technology (Safeena *et al*., 2014). Perceived usefulness and perceived ease of use that are the principal factors of TAM have an immediate influence on electronic banking adoption (Suping &Yizheng, 2010; Safeena *et al*., 2014). These interactions could be illustrated as shown in Figure 2.1 below:

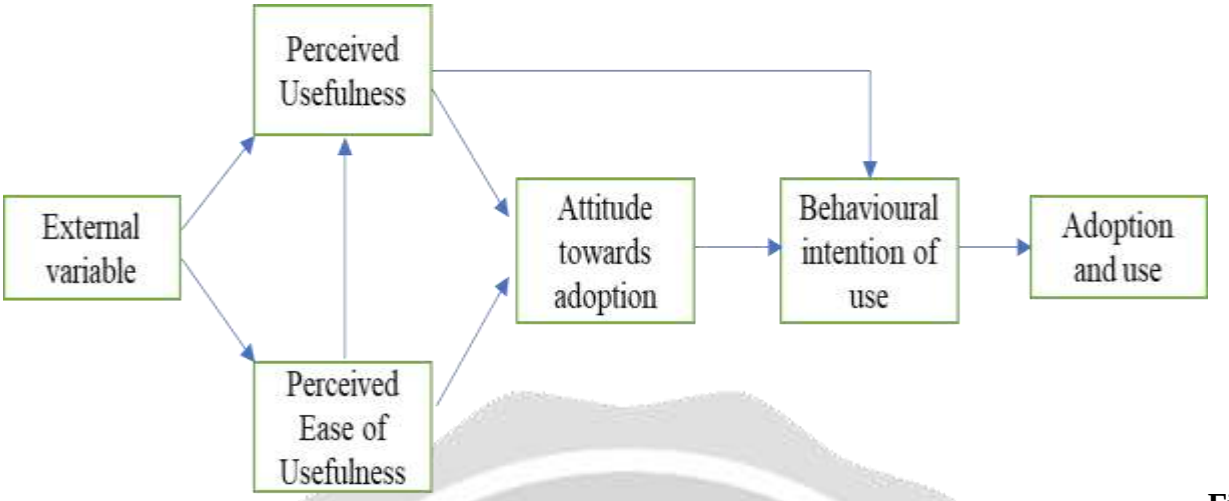


**Figure 2.1: The TAM Model**

*Source: Adopted from by Davis et al., (1989)*

The Unified Theory of Acceptance and Use of Technology (UTAUT) model was developed by Venkatesh, Morris and Davis in 2003. A more comprehensive set of factors is obtained from Venkatesh *et al*. (2012) UTAUT as a unified view of user adoption. These factors are seen as having a direct effect on Internet banking adoption and are likewise used as fundamental antecedents to untie internet banking adoption in the developing world (Yuen, 2013). Although UTAUT is still a relatively new model and has not been as widely used as TAM, it has gradually drawn researchers' attention and has been recently applied to exploring the users' acceptance of online banking (Yuen, 2013; Alalwan *et al*., 2014; Martins *et al.*, 2014). The Transactions Cost Innovation **(**TCI) theory pioneered by Niehans (2006) 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 (Kombe & Wafula, 2015). TCI theory is also relevant in this context: for instance, the use of digital banking technology can substantially reduce a firm's transaction costs as it enables efficient coordination, management and use of information. Online banking 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 digital banking may influence growth in profitability for the bank (Kombe & Wafula, 2015).

Innovation Diffusion theory (IDT) attempts to explain and describe the mechanisms of how new inventions in this case internet banking is adopted and becomes successful. Sevcik (2004) cited in Kombe and 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. Resistance to change may be a hindrance to diffusion of innovation although it might not stop the innovation it will slow it down. The rate of adoption of new innovations will depend on how an organization perceives its relative advantage, compatibility, triability, observability and complexity. If any commercial bank in Zimbabwe observes the benefits of digital banking they will adopt these innovations given other factors such as the availability of the required tools. Adoption of such innovations will be quicker in banks that have internet access and information technology departments than in banks

without (Rogers, 2005 in Kombe & Wafula, 2015). RBV theory developed by Wernerfelt in 1984 puts emphasis on the importance of resources and their effect on the performance of the firm. The theory is used to explain how business firms such as banks gain competitiveness through innovatively delivering superior value to customers, focusing on identifying unique resources and using them optimally to their advantage. This can only be achieved when firms gather resources and use them optimally to their advantage (Barney, 2007 in Mwiti, 2016). RBV theory also suggests that the various assets that a firm has are the inputs to its production process (Crook, 2008 in Mwiti, 2016). The performance of firms is consequently primarily determined by the capability of the resources that it has (Mwiti, 2016).

### 2.1.2 Comparison of Theories

TAM is a simplification of this Theory of Reason Action (TRA) and the Theory of Planned Behaviour (TPB). Both of these theories are criticised for not recognizing the effect of outside factors in the adoption of technologies and being restricted in measuring users' attitude towards behaviour, subjective norm and perceived behavioural goals (Safeena *et al*., 2014). The RBV theory is imperative to this study for its idea that firms with more resources are more likely to be more innovative in digital banking channels to deliver quality services to customers thus, leading in increased profits in the long run.

### 2.1.3 Impact of digital banking on bank performance

As the use and demand of electronic banking increases as more banks understand and appreciate that electronic based banking provides advantages of low costs, and high return (Akhisar *et al*., 2015). Nonetheless, in the context of developing nations such Zimbabwe and Botswana there is lack of well –developed telecommunications resulting in non-realisation of cost-effectiveness and financial performance related to electronic banking owing to limited technology infrastructure ((Akhisar *et al*., 2015; Mazana, Rupere & Kabanda, 2016). This implies that banks ought to have a significant initial capital expenditure in infrastructure prior to benefiting in terms of performance and cost effectiveness. The purpose of digital banking is to directly affect the profitability or return on assets and enhance the quality of assets (Gutu, 2014). Conversely, there are significant indirect impacts. According to DeYoung (2001) online banking and other electronic banking services reduce operational costs on banks that tolerate physical overhead expenditures.Various studies have been conducted concerning the connection between electronic banking and its effect on bank performance. Surprisingly, studies on this subject matter provided ambiguous outcomes. However, positive relationship was observed in some studies (Aduda & Kingoo, 2012; Bagudu *et al*., 2017; Mehmood *et al*., 2015; Akhisa *et al*., 2015; Maduku, 2014; Mazana *et al*., 2016). Studies which observed positive results revealed that banks which offer extensive digital banking services tend to perform better than the ones that lag behind (Mazana *et al*., 2016).

Studies carried out in developed countries (Mehmood *et al*., 2015; Soh *et al*., 2014) indicated that electronic banking reduces operational costs and hence lead to greater profits for banks. Another study conducted by Akhisa *et al.* (2015) found positive relationship between technological innovations and bank performance in both developed and developing countries. This resonates with research conducted in Africa especially Zimbabwe (Mazana *et al.*, 2016), Nigeria (Bagudu *et al*., 2017), Zambia (Lusaya & Kalumba, 2018) and South Africa (Maduku,

2014), where results indicate that banks which have adopted digital banking have improved their performance through improved productivity and efficiency. It is against this background that this study attempts to investigate the impact of electronic banking among commercial banks in Zimbabwe.

In financial services, the lifeblood of a lender is decided by how long it could collect funds from the consumers at the lowest cost; purchase cash, do something with all the money, then sell it for their benefit (Dew, 2012). Financial creations enable companies from all businesses to increase cash in more significant quantities and at a more affordable cost than they might elsewhere (Lerner, 2012). It will become evident that there's a trend for a lender to minimize expenditures and costs. After implementing innovations, a lender, will discover new opportunities which may be manipulated further and therefore, in the long run, provides more income to a lender (Nofie, 2011). Dependent on the nation level retail payment support information from around 27 EU markets, proof verifies that banks perform much better in countries with more sophisticated retail payment services, according to accounting ratios and benefit and cost efficacy scores (Iftekhar, Schmiedel & Song, 2015). ATMs, as analysed by Massoud and Bernhardt (2012), think about the chance that ATM surcharges could affect banks elevation, both directly in addition to indirectly via a so-called consumer connection effect. To avoid paying ATM surcharges, this impact results in a customer in a bank with few ATMs accounts to a bank with many ATMs. If switching happens then greater, ATM surcharges must bring about a rise in the market share of bank goods (e.g., deposits) and sustainability of bigger banks and a reduction in the market share and viability of smaller banks (McAndrews, 2012). Performance of a lender is enhanced via the following:

### 2.1.4 Revenue Generation

It is anticipated that banks offering e-banking will have some profitability edge over their competitors. E-banking provides more avenues for income generation, because they generate income from additional non-interest sources. Introduction of e-banking services and products, which are accessible and convenient, has made it possible for banks to attract prospective customers thus allowing them to boost their market share. Value is added by providing better quality services and products to the client (Ciciretti *et al*., 2008). This leads to high levels of satisfaction and client retention rate. The other major benefit from e-banking innovation is fee-based income (Dew, 2012). If a bank joins in an ATM network, it can generate income from other banks' customers that use its ATM machines or from third parties that cooperate with it. The more transactions with a third party, the more fee-based income acquired, enforcing the bank to enrich the features of e-banking transactions, such as mobile telephone top ups, ticketing, paying telephone or electricity bills and house taxes. Joining a certain ATM network will also create customer awareness of that bank and influence the market share (Iftekhar, Schmiedel & Song, 2012).

### 2.1.5 Improved Efficiency

E-banking strategy entails implementation of core banking systems which reduces manual tasks and process time. To implement e-banking, create new practices that are working and organizations have to reinvent their business systems. This leads to greater efficiency and endurance in associations (Shah and Clarke, 2009). Elimination of data and error redundancies results in branch productivity. This enriches reduction in processing and turnaround time, enabling greater efficiency in service delivery and increasing output. More so, consumer

dissatisfaction with division banking due to long-term and inadequate customer support is removed, and this contributes to increased market share for electronic monies (Karjaluoto, Mattila & Pento, 2012). But, the dedication of senior management is a driving force in the adoption and exploitation of technologies (Shiels, McIvor & O'Reilly, 2013). Banks Services were directed by are currently earning from innovation in a means of yearly and commission deductions. The banks charge a particular amount or level fees or a specific percentage on goods and services such as ATMs, capital transfer, etc... The results reveal that e-banking increased the gains of banks and had led. Banks are transitioning into the way that is electronic instead of jumping to banking methods. Performance has risen since the costs are decreased; costs of labour, the supply of services, time stored, precision, reliability and high quality of providers has increased (Sana, Mohammad, Hassan & Momina, 2011).

### 2.1.6 Cost Saving

In Addition to revenue enhancement may enable banks by letting them reduce expenses on buildings, resource, and equipment. This contributes to costs associated with maintaining branches. Jayawardhena and Foley (2000) assert that the cost savings come through joint effects of reduction and greater use of workforce, more economical use of space and operational savings that help increase the profit margin by a sudden large number. Banks with high costs of keeping branch network are therefore motivated to adopt Internet banking from the possibility of future cost savings (Furst *et al*., 2002). Processing offers a route for a bank to provide services and reduces transaction costs and lower charges. These cost savings offer diverse and efficient services and can give the banks and customers with fees of banks. The Internet supplies a possible competitive advantage for both banks and also this edge can be found in the regions of cost reduction and even much more satisfaction of consumer demands (Bradley & Stewart, 2013). Encouraging consumers to use the web for banking transactions could lead to substantial operating costs savings, and thus increasing the gain margin (Sathye, 2013). The World Wide Web is the most affordable distribution station for standardized banking operations, including account management and capital transfer (Polasik & Wisniewski, 2013).

### 2.1.7 Cross-Selling Opportunities

E-banking Systems provide attributes for banks to deploy and design products for market segments that are varying. The product bundling capabilities of this solution offer a wide assortment of possibilities for banks to make products with advanced features (Tawfik and Albrecht, 2008). This empowers banks to innovate and expand their suite of products. E-banking system's capability to provide comprehensive information about customers' financial profiles and buying behaviour which also offer detailed comprehension of customers enables customizing of advertising and products and gives an opportunity for cross-selling (Shah and Clarke, 2009).The end result is improved bank performance as it is able to meet each customer's needs.

### 2.1.8 Benefits E-Banking over Traditional Banking

Electronic banking is changing the banking sector and it has the primary impact on banking relationship. For instance, what used to perform in a branch such as to draw cash or deposit a cheque or request a statement of accounts etc. today it is possible anytime and anywhere in the world through any delivery stations. Providing e-banking is often becoming a "need to have" than a "nice to have" (Shilpan, 2012). Banks are moving away from "handling branches" and instead are "managing distribution" throughout the whole bank's channels.

**Table 2.1: Comparison of e-banking and traditional banking services**

| E-banking | Traditional banking |
|---|---|
| The market is unlimited | The market is limited |
| Competing brands | There is a big competition between banks |
| Very wide services based on customer needs | There is a limited service |
| Banks rigs equipped with electronic features | Services will be provided on the base of specific branches |
| Focus on cost and revenue growth | High cost to make money through margin (facilities) |
| 24 hour services | The services should be done by office hours |
| Using of manpower will be reduced for computer use | A lot of human resources will be used |

***Source: Adapted from Vyas (2012)***

According Vyas (2012), e-banking service with all the functions and contains many Advantages when compared with conventional banking services as shown in Table 2.1. E-banking transactions are less expensive than branch transactions. It enhances competitive advantage allowing e-banking to undercut bricks-and-mortar banks. According to the financial banking services can be categorized in two basic theoretical groups traditional and modern. However, in traditional banking, the presence of the customer is important but in modern it is not (Vyas, 2012).

### 2.1.9 Reasons for implementing e-Banking

E-banking is the newest delivery channel. It delivers information at much higher speed than traditional banking. Lukic (2014), stated that e-banking is "a wave of the future". Nowadays customers expect new and effective techniques and services, so e-banking would be the best choice to achieve this goal (Havasi, *et al*., 2013). E-banking is a significant investment, so the

questions must be answered as to what motivates banks to participate and deal with the associated problems and risk. Some of the reasons often cited by the bank to be their primary motive for implementing e-banking include:

### 2.1.10 Customers' demands

Good customer services are one of the best ways for the banks to develop their services. Customers constantly are demanding better services, 24 hours per day and 7 days per week availability, with a good customized to their exact needs, at less cost, and as quickly as possible (Patgar & Arundhekar, 2015). Therefore, to meet these demands, banks need to develop innovative ways of creating value and e-banking is seen as one of those innovative ways to meet customers' expectations. According to Kerem (2003), "customer needs at least minimum comparative advantage in order to accept change". This means new innovative services should be better than its predecessor.

### 2.1.11 Increased sales to existing customers

The financial services markets have developed significantly, and there is a minimal chance for the growth of new niches (Shah, and Clarke, 2009). This usually means that the perfect method to improve revenue is to sell more. Banking is referred to as banking. Information technology had given rise to inventions in the products, and their delivery from both the finance and banking businesses; client satisfaction and customer support are the functions. Clients decide which of these technologies will be approved, although e-banking decides what could be provided to clients.

### 2.1.12 Change in the environment

Given today's banking, a multichannel banking environment, new technologies like the internet and mobile telecommunications play a key role in opening new markets and value creation. Social changes are also forcing financial institutions to change the way they are doing business with their customers (Shah, & Clarke, 2009). In business life, the banking sector is one of the main users of information and communication technologies.

### 2.1.13 Achieving competitive advantage

Porter (1985) defined competitive advantage as an advantage over competitors gained by offering consumers greater value, either by means of lower prices or by providing greater benefits and services that justify a higher price. The goal of the most companies is to reach competitive advantage, but only a few of them can succeed on it, even if they do, few of them can maintain it (Kireru, Ombui & Omwenga, 2016). The banking sector is one of the first sectors that have adopted a lot of electronics applications to improve performance and gain a competitive advantage (Omari, & Bataineh, 2012). Internet and communication technologies develop an innovative connection between customers and vendor of products or services (Havasi, *et al*., 2013). Therefore, IT department of a bank can use this opportunity, which can build another level of competitive advantage.

### 2.1.14 To achieve efficiencies

"Efficiency is using the resources at best, brings the saving in money and time, and consequently leads to improve company's performance" (Roghaniana, Raslia, & Gheysaria, 2012). Technical efficiency measure reflects the ability of a bank to maximize outputs with a given set of inputs or to produce a given amount of output with minimum inputs (Momparler, Lassala & Ribeiro, 2013). Through offering e-banking services, banks can achieve efficiencies whether personal or

business. E-banking increases the efficiency of banks such as reductions in labour costs, quality of transactions and maintenance improves as computer took a place of human, human errors reduced, services and process are now quicker and safe which saves time, money, efforts and decreases costs (Sumra, Manzoor, & Abbas, 2011).

### 2.1.15 Factors affecting the adoption and use of digital banking

Centeno (2004) cited in Baffour (2015) in his research of analyzing the acceding and candidate countries (ACCs) adoption of e-banking, classified e-banking adoption factors in two areas which are ICT factors and Banking factors. The ICT factors include the ability of customers in utilizing internet and other related technologies, internet, concerns related to privacy and security, penetration rates, and attitudes towards technology. Banking factors involve trust in banking industry, Digital banking culture, banking culture, and Digital banking drive. Baffour (2015) also points out that lack of online penetration and personal computers is a barrier for growth in digital banking both in developing and developed markets. Cost of access to services is a primary issue for internet penetration, and the personal computer in Eastern and Central Europe countries. Conversely, there has been a lack of confidence in the banking industry because of previous unstable periods in certain countries (Baffour, 2015). This study also concentrates on identifying the factors affecting the adoption of digital banking in commercial banks in Zimbabwe. The research framework for this study is based upon the expansion of the decomposed theory of planned behaviour (Tan & Teo, 2000).

### 2.1.16 Customer Attitude

Attitude is described as the negative and positive emotions (evaluative effect) related to attaining desired behaviour (Fishbein & Ajzen, 1975). The various aspects of attitudinal belief on innovations could be quantified utilizing the 5 perceived characteristics (compatibility, complexity, relative advantage, observability, and trial ability) especially initial three characteristics of innovation (Taylor & Todd, 1995). These characteristics were initially suggested in the diffusion of innovations theory by Rogers, (1983) who found practical application within this model with the exclusion of observability that can be described as the level to which the outcomes of an innovation are perceived by others (Rogers, 1983). Observability was considered insignificant within this research because of a significant characteristic of banking is privacy. Thus, observing others utilizing digital banking services can appear to be daunting unless a conscious attempt to accomplish this is made (Tan & Teo, 2000).

### 2.1.17 Subjective Norms

Subjective norms denote an individual's perception that many people that are significant to him/her believe that he/she should not or should behave in a certain way (Fishbein & Ajzen, 1975). It is behaviour related because individuals behave according to their understanding of what others believe that they ought to do, it is associated with behaviour. Subjective norms are found to be important before, or in the initial stages of implementation of innovation when users have restricted direct expertise from which to produce attitudes (Taylor & Todd, 1995). Tan & Teo (2000) provide that the majority of services can help determine an individual's adoption of

digital banking facilities. Adopter's family, colleagues/peers, and friends are classes which will possibly influence the adoption. Even though there is not any foundation on which to forecast how every one of those groups will affect adoption of electronic banking, it is nevertheless expected that the overall impact of these categories will likely be significantly associated to individual adoption of digital banking (Tan & Teo, 2000).

### 2.1.18 Perceived Behavioural Control

Perceived behavioural control describes the aspects that might negatively affect behavioural performance. An individual confident in possession of skills of utilizing the internet and a personal computer is inclined to embrace electronic banking (Tan & Teo, 2000). Tan and Teo (2000) attributes this to the fact that the person is at ease with the innovation. Government authorities can perform a leader deliver and intervention role in information diffusion. Potential customers subsequently could perceive new innovations like digital banking services in a more favourable way and consequently be more inclined to utilise them (Tan & Teo, 2000). Past studies have identified several factors that may influence behavioural performance. Nearly all the studies highlight electronic banking perceived characteristics as major factors that influence users' adoption and use of services. Regardless of the support for the usage of this TAM in comprehending technology acceptance and usage behaviour, the study by Moon and Kim (2001, p. 217) reveals the TAM does not precisely capture the consequences of technological and utilization context factors that affect consumer approval of IT systems. Therefore, many studies include additional characteristics such as confidence, subjective standards, privacy and security, perceived self-efficacy and pleasure, demographic factors and information available concerning online banking to supply a fuller comprehension of the subject (Maduku & Mpinganjira, 2012; Yaghoubi, 2010). According to previous research, this research adds confidence from the e-banking system, client awareness of e-banking perceived and services self-efficacy, and the TAM constructs of perceived usefulness and ease of usage to enhance the comprehension of this predicators of e-banking providers in Zimbabwe.

### 2.1.19 Perceived usefulness

Ease of use is one of the essential elements which determines the achievement of online banking and can also be crucial for its growth and in addition to delivery of online banking services to the clients of online banking (Al-Hajri & Tatnall, 2008). Quite a few researches underscore the fundamental role that perceived usefulness plays on e-banking approval and utilization (Jeong & Yoon, 2013; Maduku, 2014, Akturan & Tezcan, 2012). The ease of use at e-banking involves the bodily or psychological effort that clients exert or are more very most likely to apply through e-banking (Maduku & Mpinganjira, 2012, p. 174). Empirical evidence demonstrates that a system that's perceived as simpler to utilize supplies inspiration because of its adoption and usage (Maduku, 2014; Jeong & Yoon, 2013). There are two kinds of perceived usefulness and therefore are categorized as planned and unintentional rewards (Lee, 2009). Lee (2009) clarified the planned rewards would be the concrete and immediate rewards that customers love using online banking services such as reduced transaction fees, higher deposit rates, chances to prizes amongst others. The accidental advantages on the other hand those benefits which are tough to quantify like services which enables customers to perform banking transactions everywhere across the world (Lee, 2009). Complexity could be described as the contrary of simplicity of usage. For that reason, it affects the adoption of their banking. The reduced the need for

specialized skills, the more likely the user is to embrace a new technology (Al-Hajri & Tatnall, 2008).

### 2.1.20 Perceived Ease of Use (PEOU)

Refers to the degree to which an individual believes that using a specific system could be without any attempt of bodily and psychological effort (Davis, 1993 cited in Kamutuezu, 2016). As provided by (Singh & Agnihotri, 2015), PEOU is an important element which affects approval of information system. Kamutuezu (2016) who commented about the association between PEOU and PU indicates that "in a causal perspective that, regression results imply that simplicity of use might be an antecedent of viability, instead of parallel, lead determinant of use". This suggests that if banking systems are simple to use; they're more inclined to be approved by the users. Whether an online support is difficult to work with, the customer is more inclined to give the service up and chose another manner of doing transactions which will be simpler. Haneen *et al*. (2014) investigated the factors that influence the E-Banking adoption of customers who have net access in Jordan. The research found that compatibility, PEOU, safety and PU positively impact digital banking adoption. PEOU was found as an important element for digital banking adoption.

## 2.2 Empirical Literature Review

**Table 2.2: Summary of empirical literature**

| Author(s) | Year | Variables used | Method used | Conclusion |
|---|---|---|---|---|
| 1. Mbama, C | 2018 | Customer experience, loyalty, satisfaction and financial performance | The research surveyed UK bank customers' perceptions of digital banking. It also used Structural Equation Modelling, ANOVA and Multivariate Factor Analysis tests. | The major factors determining customer experience in digital banking are service and quality, perceived value, employee-client engagement, perceived risk and usability. There is a significant connection among customer loyalty, experience and satisfaction which enhances financial performance. |
| 2. Bagudu, H. D., Mohd Khan, S. J.& Abdul-Hakim, R | 2017 | Bank profitability, mobile banking services | Simple random techniques were used in this research in choosing 22 commercial banks in Nigeria. To facilitate the obtaining of relevant information that was used for analysis in this study, structured | Concluded that electronic banking positively and significantly impacts the financial performance of commercial banks in Nigeria and advocated the constant adoption of mobile banking services within their operations since the amount of individuals using a cellular handset |

| | | | | |
|---|---|---|---|---|
| | | | questionnaire was used. | is increasing daily. |
| 3. Singh, S. and Sharma, D.K. | 2014 | Electronic banking use, challenges to e-banking use. | A sample of 150 respondents was chosen by using judgment sampling. ANOVA technique was also used to confirm the study outcomes. | The main challenges customers encounter while using e- banking are lack of knowledge, lack of proper training, outdated technology, technical bottlenecks, frustration in getting work done electronically, reduced personal efficiency and strain due to e-banking as compared to visits in banks personally. |
| 4. Giudice, M. D., Campanella, F & Dezi, L | 2016 | The study used products offered by electronic banks (banks of things), relative ROE | The research contained 3692 banks located in 28 European countries so as to determine whether e-banking influenced banks' profitability. The researchers adopted the classification analysis (classification and regression tree) method. | High return on equity for banks is achieved by offering internet retail services, internet corporate services, home banking services to customers. |
| 5. Mehmood, D., Nisar, M. & Rehman, H. | 2015 | ICT surrogates, bank operation | The analysis utilized the Transcendental Logarithmic and Cobb-Douglas Production Functions with OLS and Seemingly Unrelated Regression Estimation methods to quantify production change on account of the adoption of ICT by 30 Pakistan banks from 2006 to 2014. | Majority of those ICT surrogates (like debit cards) have favorable effect on the operation of the banking industry in Pakistan. |
| 6. Rodrigues, A. | 2017 | Use of E-banking services, lack of trust, lack of personal contact | The study used an analysis of a proposed research model following current tested | Lack of trust and lack of personal contact are the two main factors preventing consumers from using electronic- |

| | | | | |
|---|---|---|---|---|
| | | | theories present in literature. Primary data was collected from a sample of 256 bank customer in Portugal using an online survey. | banking services. |
| 7. Alsamydai, M. J. *et al.* | 2014 | Customers' acceptance and adoption of mobile banking services, motivating factors and impeding factors of acceptance and use of mobile banking | Used a model that was designed using motivating and impeding factors. A questionnaire, comprising 19 questions covering the hypothesis and dimensions of the study was designed. Data collection resulted in 36 usable surreys for subsequent analysis | PEOU is the most motivating factor towards the use of mobile banking services.<br>Personal desire is the most limiting factor to mobile banking use.<br>The effect of motivating factors is more significant than the effect of impeding factors in determining mobile banking use. |
| 8. Kimani, N. | 2015 | Mobile banking, Operational efficiency of commercial banks | The research was a census survey of the 43 Kenyan commercial banks in. The study used secondary data on the amount of registered mobile banking customers, sums of money transferred through mobile banking, earnings of the banks and operational cost for the period 2011 to 2014. Data analysis was created and the correlation between growth in mobile usage and expansion in banking efficiency was estimated. | Mobile banking positively and significantly impacts the operational efficiency of commercial banks in Kenya. The research recommended policy makers to constantly look at adopting mobile banking technologies. |
| 9. Siddik, N. A. *et al.* | 2016 | ROA, ROE | The study used panel data of 13 commercial banks in Bangladesh over a | The study found out that electronic banking positively influences on the financial performance of |

| | | | | |
|---|---|---|---|---|
| | | | 10 year period of 2003–2013. ROE and ROA were both used as dependant variables and the Pooled regression analysis was used. A dummy variable for internet banking was used as the main variable | commercial banks in terms of ROE but insignificant in terms of ROA. |
| 10. Lusaya, S. & Kalumba, B. | 2018 | Usage of e-banking, accessibility of information regarding e-banking, expense related to e-banking | The study was descriptive, and a sample of 50 banking customers in Kasama district in Zambia has been used. | Accessibility of information regarding e-banking, instruction level and also the expenses related to e-banking are the substantial challenges to embracing and using e-banking by customers. |
| 11. Miwangi, K. D. | 2014 | ROA, Independent Variables were; Deposit to Assets Ratio, Loan to Assets Ratio, Income/ Total Operating Loans), Fees and Commission | Panel data analysis was used. Panel data for 44 Kenyan banks was collected for the years from 2009 to be 2013. | The study found out that investment in electronic banking enhances financial performance of banks. Fees and commissions was found to have a positive effect on ROA. |
| 12. Katsika, V. | 2014 | Factors impacting internet banking (perceived usefulness and self-efficacy) | The study used a random sample of 200 retail bank customers from Greece that were requested to fill in questionnaire relevant to the use of online banking. The results were analyzed by a string of statistical measures and were generalized so as to correspond to the study objective. | The main factors impacting internet banking use among Greek bank clients were Perceived Usefulness and Self-Efficacy. Ideas for bank supervisors were suggested and those included launching campaigns to stimulate bank customers' interest to e-banking. |
| 13. Ozsoz, E. and Helvacıoğlu, A. D. | 2014 | Financial growth in banks (ROA, ROE and Return on financial intermediation margin), online banking | Used panel data in 14 savings and commercial banks from Turkey, the nation that had embraced net | Aside from investment in e-banking becoming a process banking factor, it has a positive influence on the operation of the |

| | | | | |
|---|---|---|---|---|
| | | | banking between 1996 and 2005. | banking system in Turkey concerning returns. |
| 14. Taiwo, J. N. and Agwu, E. | 2017 | Operational efficiency of banks (bank revenue and capital base, customer loyalty) | Used a case of commercial banks in Nigeria. Primary data were obtained by administering questionnaires to staff of four purposively selected banks. Pearson correlation was used to analyse the results obtained using the Statistical Package for Social Sciences (SPSS). | Banks' operational efficiency improves after e-banking adoption. The improvement occurs in the form of banks' revenue and capital bases, as well as in customers' loyalty. |
| 15. Maduku, D. K. | 2014 | Customer adoption of e-banking services, customer's trust in banking system | Cross-sectional descriptive survey research design was adopted in the study to collect data from 394 customers of the 4 major retail banks in South Africa through self-administered questionnaires. | Customers' trust in the electronic banking system is the strongest predictor of internet and cell phone banking services adoption.<br>Banks were recommended to formulate and implement strategies that could increase customers' trust in the internet and cell phone banking systems. |
| 16. Mazana, R., *et al.* | 2016 | Usage of self-service technology | The study used a case of a local Zimbabwean bank and data was collected using questionnaires administered to bank clients, workers and management. | There is a lack of confidence in using banking services and the banks are failing to tap into the informal sector for the largely unbanked market.<br>Strategy given was alignment of information technology with the bank's business and corporate unit strategies. |
| 17. Akhisar, I. *et al.* | 2015 | Technological innovations, bank performance | Study encompassed countries both in the developed and developing countries. The analysis covered a | There is a positive association between technological innovations and bank performance in both developing and |

| | | | | |
|---|---|---|---|---|
| | | | period from 2005 to 2013. Electronic banking data of the countries was obtained from BIS (Payment Systems Statistics), World Bank's (World Development Indicators) and bank performance data from the IMF (Financial Soundness Indicators). The data was analysed using dynamic panel data methods | developed countries. However, the relationship is stronger in developed countries |
| 18. Nader, A. | 2011 | Profit efficacy of banks, accessibility of internet banking devices | Sampled Saudi Arabian banks' profit efficacy from 1998 to 2007. | Accessibility to ATMs and quantity and telephone banking have a positive impact on profit efficacy of banks. |
| 19. Asante-Gyabaah, A. *et al*. | 2015 | Awareness of E-banking services, Use of e-banking services | The methodology used to conduct this study consisted of interviews and surveys to collect data. A sample size for the analysis consisted of 200 clients and 25 workers of GCB Bank Ltd in Kumasi, Ghana. | Many clients used the bank's electronic products largely because it was convenient and saved the clients' time. The research suggested that the management use powerful presentations through all types of media advertising such as brochures, leaflets and web pages to present the products and solutions to its customers and a wider audience. |
| 20. Morufu, O. | 2016 | Internet Banking Transactions and ROA | Panel Regression was used and secondary data was collected from 10 banks in Nigeria for the period 2005 to 2012. | Internet banking transactions were found to have a negative effect on banks' profitability. |
| 21. Mulwa, F. N. | 2017 | ROA, Online bank transactions, online transaction fees, online | Descriptive design was used. The population studied | The study concluded that online banking transaction |

| | | | | |
|---|---|---|---|---|
| | | customer deposits. The regression model used was as follows:<br>$Y_{it}= \alpha + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + ę$ where;<br>$Y_{it}$ – ROA, $X_{1t}$ – Online Customer Deposits, $X_2$ - Online Banking Transactions, $X_3$ - Internet Fees and Commissions, $X_4$ - Internet Banking Expenditure | comprised of 40 commercial banks in Kenya. Data collection questionnaires were used, and Pearson correlation coefficient and inferential test multiple regression analysis were used for analysis | significantly and positively predicts ROA and that an increase in online banking transactions leads to increase in ROA. |
| 22. Vekya, J. M. | 2017 | Profitability of commercial banks (ROE), ATM transactions, Point of sale (POS) transactions | The study adopted a descriptive design. The population of the study consists of Kenyan 43 commercial banks in operations as at 2014. A census survey was undertaken. The study used secondary data obtained from various Kenya' central bank publications. SPSS was used. | A rise in ATM and POS transactions leads to a rise in bank profitability. |
| 23. Wanja, N. C. | 2012 | ROA,<br>Investment<br>in Internet Banking, e-banking<br>Income | Secondary data for 43 banks in Kenya was used and regression analysis was done | Internet banking has positive effect on bank profitability thus banks should invest in internet banking |

## 3.0 METHODOLOGY

### 3.1 Research Design, Population and Data Sources

The study adopted a descriptive research design for the purpose of seeking and illustrating the nature and features of the unit of analysis which in this study is the banks (Mugenda & Mugenda, 2012). Descriptive survey research design is suitable since the research is designed to construct a picture for the readers about observed effects of online banking on financial indicators among commercial banks in Zimbabwe. A population consists of the larger set of observation elements while the selected smaller set is known as the study sample (Cooper & Schindler, 2014). The target population for the study was all the commercial bank branches in Harare as at 31 December 2017. The study collected secondary panel data. The study's main data source was secondary in nature and it is from the banks' published financial statements and other reports on

digital banking as at 31 December for each year for the period 2013 to 2017. Other secondary data sources included RBZ reports and bank newsletters.

**3.2 Empirical Model Specification**

Based on empirical literature, the regression model used is presented as follows:

$ROA_{it} = \alpha + \beta_1 OCD_{it} + \beta_2 IFC_{it} + \beta_3 OBT_{it} + \beta_4 X_{4t} + \Omega_t$……(1)

Where;

| |
|---|
| $ROA_{it}$ - Financial performance as measured by Return on Asset of bank $_I$ at time t,(Net interest income /Asset growth rate) |
| $\alpha$ = Estimated value of Y when all the other variables are zero |
| $OCD_{it}$ - Online Customer Deposits/Total Assets |
| $OBT_{it}$ - Online Banking Transactions/Total Assets |
| $IFC_{it}$ - Internet Fees and Commissions/Total Assets |
| $IBE_{it}$ - Internet Banking Expenditure/Total Assets |
| $\Omega_t$ - Error term |

Where $\beta_j$, $_j$=1, 2, 3 are coefficients whose sign shows the how significant the effect internet banking on financial performance of banks indexed by the return in assets. Moreover, the test of hypotheses to find out the level of significance of an independent variable against the dependent variable will also be tested. Data was analysed using panel data analysis. According to Gujarati (2009) panel data refers to data from individual cross sections collected over a particular period of time. Panel data regression was used and there are three main ways namely pooled OLS, fixed effects and random effects regression models. Pooled regression assumes homogeneity data whilst fixed effects model assumes data is heterogeneous (Gujarati, 2009). Lastly, the random effects model assumes heterogeneity and is time invariant however individual specific effect is not correlated with the explanatory variables (Gujarati, 2009). A random effect model assumes that individual effect (heterogeneity) is not correlated with any regressors and then estimates error variance specific to groups (or times). Hence, ui is an individual specific random heterogeneity or a component of the composite error term. Random effect model can be called an error component model. The intercept and slopes of regressors are the same across individual. The difference among individuals (or time periods) lies in their individual specific errors, not in their intercepts. Choice of the right model between the three models was based on the correlated random effects Hausman test and the Wald test. The formula implies that a Hausman test examines if the random effects estimate is insignificantly different from the unbiased fixed effect estimate. If the null hypothesis of no correlation is rejected, you may conclude that individual

effects ui are significantly correlated with at least one regressors in the model and thus the random effect model is problematic. Therefore, you need to go for a fixed effect model rather than the random effect counterpart. However the null hypothesis may not be rejected if the p value is greater than 5% in which case we use the Random effects model. This study will use the Random effects model since the p value in the Hausman test is greater than 5%.

## 4.0 DATA ANALYSIS AND INTERPRETATION OF FINDINGS

Outcome of the research is presented based on the data gathered from the field. The study aimed at analysing the impact of digital banking on the performance of commercial banks in Zimbabwe. Panel secondary data obtained from the banks' audited financial reports was used. Variables such as online customer deposits, online banking transactions, internet fees and commissions and internet banking expenditure were used to explain financial performance of the banks measured by Return on Assets. Panel Data analysis will be used in this research. The results are interpreted such that the findings may be meaningful to all the scholars and students that may be interested in the subject. A study period of 5 years, 2013 to 2017 was used.

### 4.1 Unit Root Test Results

**Table 4.1: Unit root test results**

| Variable | ADF (Fisher Chi-square) statistic | Intercept | Trend and Intercept | P-value | Order of integration |
|---|---|---|---|---|---|
| **ROA** | 112.43 | Yes | Yes | 0.0098* | I(0) |
| **IBE** | 378.28 | Yes | No | 0.0000* | I(0) |
| **OCD** | 225.48 | Yes | No | 0.0000* | I(0) |
| **OBT** | 246.86 | No | No | 0.0000* | I(0) |
| **IFC** | 103.86 | Yes | No | 0.0377* | I(0) |

***NB: * means significant at 1%, 5% and 10% respectively***

Unit root tests using the Augmented Dickey-Fuller (Fisher Chi-square) test were conducted for all variables. As shown in Table 4.1 all the variables were found to be stationary at level that is they were I(0). The series were examined graphically to find out whether they contain an intercept or a trend and were therefore tested empirically using the ADF (Fisher Chi-square) test. The dependent variable (ROA) was found stationary at level and was significant at 5% whilst internet banking expenditure (IBE) was found to contain an intercept and was stationary at 5%. Online banking transactions (OBT) and online customer deposits (OCD) were found to be stationary at level and OCD was found to have an intercept without trend. Internet fees and commissions (IFC) were found to be stationary at level and the ADF statistic was significant at 5%.

### 4.2 Diagnostic tests

As mentioned earlier, diagnostic tests help in the detection of errors before running regression and after running regression. Diagnostic tests also provide evidence of robust estimates since the absence of errors such as serial correlation and stationarity imply that the findings are without fault more reliable. The stability diagnostic tests also provide evidence that we are not running a spurious regression model. The results for the diagnostic tests are presented in Table 4.2.

The Hausman test was used to check if the model was correct. As shown in Table 4.2, the test estimated a p-value of 1.00 and is greater than 5% level of significance. Therefore, the null hypothesis may be rejected and conclude that the Random effects model is appropriate.

From the DW d-statistic was found to be 2.33 (Table 4.2). The value is close to 2 therefore we fail to reject the null hypothesis and conclude that there is no serial correlation.

**Table 4.2: Diagnostic test results**

| Test | Results | | | | Decision at 5% level |
|---|---|---|---|---|---|
| JB test | JB Statistic | 38.18 | P-value | 0.23 | Errors normally distributed |
| DW test | DW d-statistic | | | 2.33 | No serial correlation |
| Hausman Test | P-value | | | 1.00 | Model appropriate |

As shown in Table 4.2, the computed JB statistic was found to be 38.18 with a probability value of 0.23. The probability value is higher than 0.05, therefore, the study failed to reject the hypothesised normality assumption and conclude that the residuals are normally distributed. The absolute correlation coefficients are less than 0.8 implying that each variable's effect on the dependent variable can easily be isolated. The model does not suffer from serious problems of multicollinearity (Table 4.3).

**Table 4.3: Multicollinearity test results**

| | OBT | IBE | IFC | OCD |
|---|---|---|---|---|
| **OBT** | 1 | | | |
| **IBE** | 0.50 | 1 | | |
| **IFC** | 0.39 | 0.35 | 1 | |
| **OCD** | 0.25 | 0.14 | 0.31 | 1 |

### 4.3 Regression Results

As mentioned earlier, ROA is one of the most important benchmarks of profitability, which is considered as the dependent variable in this study. Other ratios such as the Online Customer Deposits/Total Assets (OCD), Online Banking Transactions/Total Assets (OBT), Internet Fees and Commissions/Total Assets (IFC) and Internet Banking Expenditure/Total Assets (IBE) are

used as independent variables. Table 4.4 represents the results obtained from the multiple regression analysis of ROA. It is apparent that coefficients of all the variables (OCD, OBT, IFC and IBE) are statistically significant. It means that, these variables are associated with profitability of the banks. The results show that ROA of bank was significantly predicted by Online Customer Deposits (OCD) ($\beta 1$= 0.656533, p=0.0000<0.05). This implies that an increase in Online Customer Deposits would lead to a significant increase in ROA in commercial banks. The result of Online Banking Transactions positively and significantly predict ROA ($\beta_2$=0.582337, p=0.0000<0.05), Internet Fees and Commissions (IFC) predict ROA negatively and significantly ($\beta_3$= -0.57754, p=0.0000<0.05) and Internet Banking Expenditure (IBE) predict a significant and negative effect on ROA in banks ($\beta_4$= -0.359875, p=0.000<0.05). As shown in Table 4.4, the coefficient of determination, R-squared of 0.67 is higher than 0.5 indicating that the model is relatively of good fit. This value of 0.67 indicate that about 67% of the sample variance in the dependent variable (ROA) is being jointly explained within the model by internet banking expenditure, online banking transactions, online customer deposits and internet fees and commissions. The remaining 33% represents other determinants of bank profitability which have been omitted in this study. In addition, the whole model is significant at 5% level since the probability value of the F-statistic is 0.0000 meaning that the whole model is valid and significant.

**Table 4.4: Regression output**

| Dependent Variable: ROA | | | | |
|---|---|---|---|---|
| **Variable** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.** |
| **C** | 4.461907 | 5.66E-15 | 7.88E+14 | 0.0000* |
| **IBE** | -0.359875 | 3.54E-15 | -1.02E+14 | 0.0000* |
| **OBT** | 0.582337 | 3.11E-14 | 1.87E+14 | 0.0000* |
| **IFC** | -0.577540 | 2.51E-15 | -2.30E+14 | 0.0000* |
| **OCD** | 0.656533 | 6.39E-14 | 1.02E+14 | 0.0000* |
| R-squared | 0.67 | Prob(F-statistic) | 0.0000 | |
| Adjusted R-squared | 0.66 | DW Statistic | 2.33 | |

***NB: *, ** and *** means significant at 1%, 5% and 10% respectively***

The regression model can therefore be presented as follows:

$$ROA_{it} = 4.461907 + 0.656533OCD_{it} + 0.582337OBT_{it} - 0.577540IFC_{it} - 0.359875IBE_{it} + \Omega_t$$

### 4.4 Interpretation of Findings

The results indicate that when Online Customer Deposits increase by 10%, profitability (ROA) increases by 6.5%, holding other variables constant. These results are similar to the findings of Mulwa (2017) who established that the use of internet banking led to mobilisation of large sums of customer deposits at relatively low interest rates resulting in accumulated deposits to long

term investors at a higher rate able to cover the operation costs. This results in high bank profits. From these results it can be concluded that digital banking increases bank customer deposits which culminates in high profits. A 10% increase in Online Banking Transactions was also found to increase profitability (ROA) by 5.8% when the other variables are held constant. The findings corroborate Vekya (2017) findings who revealed that the adoption of internet results in lower transaction costs, thus attracting more customers for those banks which embrace the internet banking facilities. This would in turn improve the banks' return on assets. It can therefore be alluded that digital banking leads to increased transactions which then results in improved performance of commercial banks in Zimbabwe. It was also established that a 10% rise in Internet Fees and Commissions induces approximately 5.8% decrease in bank profitability measured by ROA. The same finding was revealed in Mulwa's (2017) study where it was concluded that high internet fees and commissions add to overall bank costs thereby reducing return on assets (performance). The findings are however contrary to those of Wanja (2012). These findings indicate that digital banking may negatively influence banks' performance due to increased internet fees incurred by the banks. Internet Banking Expenditure was also found to predict a significant and negative effect on ROA in banks. Holding the other variables constant, it was established that a 10% increase in Internet Banking Expenditure would reduce return on assets by 3.6%. Wanja (2012), Wanjiha (2014) and Mulwa, 2017also found that unnecessary increase in banking expenditure leads to a decrease in ROA in banks. These findings leads the researcher to the conclusion that financial performance of banks is sensitive to increase in internet banking expenditure as clients transact using digital banking methods.

### 4.5 Correlation analysis

The study sought to test the hypothesis that there is no significant impact of digital banking on financial performance of commercial banks in Zimbabwe. In order to test this hypothesis, the Pearson's Product Moment Correlation coefficient was used. This statistical test rule of thumb state that a correlation coefficient of 1 indicates a perfect correlation, between 0.9 and 1 indicates a very strong relationship, between 0.7 and 0.9 indicates a strong relationship, between 0.4 and 0.7 indicates a moderate relationship and a zero coefficient indicates that no linear correlation exists between variables (Mukaka, 2012). As shown in Table 4.5, a significant positive coefficient of 0.761 ($p=0.006<0.05$) was found between ROA and online customer deposits (OCD) implying that there exist a strong positive correlation between the two variables. The results of the test showed a coefficient of 0.898 ($p=0.021<0.05$) between online bank transactions (OBT) and ROA indicating a positive strong correlation. More so, a negative coefficient (-0.678, $p=0.068<0.1$) was found implying that there exist a negative moderate association between internet fees and commissions (IFC) and ROA. Lastly, a negative correlation coefficient (-0.534, $p=0.044<0.05$) between ROA and internet banking expenditure (IBE) inferring that there exist an inverse moderate relationship between internet banking expenditure and ROA. Generally, these results indicate that there is a significant relationship between digital banking and ROA, thus, the study may fail to accept the hypothesis and conclude that digital banking significantly influence financial performance of commercial banks in Zimbabwe.

**Table 4.5: Correlation between digital banking and performance**

| | | ROA |
|---|---|---|
| **ROA** | Pearson Correlation<br>Sig. (2-tailed)<br>N | 1<br>-<br>200 |
| **OCD** | Pearson Correlation<br>Sig. (2-tailed)<br>N | .761<br>.006*<br>200 |
| **OBT** | Pearson Correlation<br>Sig. (2-tailed)<br>N | 0.898<br>0.021**<br>200 |
| **IFC** | Pearson Correlation<br>Sig. (2-tailed)<br>N | -0.678<br>0.068***<br>200 |
| **IBE** | Pearson Correlation<br>Sig. (2-tailed)<br>N | -.534<br>.044**<br>200 |

***NB : *, ** and *** means correlation significant at 1%, 5% and 10% respectively (2-tailed)***

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Conclusions

The study revealed that online customer deposits and online banking transactions had a positive significant correlation with ROA whilst internet fees and commissions and internet banking expenditure had a negative significant relationship with ROA. Guided by these findings the study concluded that profitability of the Zimbabwe's commercial banks is significantly predicted by online customer deposits through increased online banking transactions which then results in an increase in ROA. In addition, the study resolved that digital banking results in increased internet banking fees and commissions which can therefore lead to a decrease in profitability since increased banking fees reduce the banks' total assets. Finally, the study established that electronic banking leads to increased internet banking expenditure which then results in lower bank assets and subsequently lower profitability. In general, it can be concluded that digital banking can significantly influence financial performance of the commercial banks in Zimbabwe.

### 5.2 Recommendations of the Study

Following the findings of the study, the following policy directions are suggested:

i. Based on the findings that digital banking leads to increased transactions, the commercial banks in Zimbabwe should partner and subscribe to reliable local mobile network providers for uninterrupted and effective service delivery so as to promote increased use of digital banking by the customers. This will ensure that the mobile network providers craft innovative services that are tailor-made to the banks' customers.

ii. Given a positive correlation between online customer deposits and profitability, the commercial banks should continuously upgrade their electronic banking technology

so as to have an updated system for effective and efficient service delivery and attract more customers.

iii. The study further recommended that the commercial banks in Zimbabwe keep embracing the use of electronic banking in their daily business operations since the number of people with access to mobile phones, internet and personal computers keeps swelling day by day since this will result in increased profits through increased deposits and transactions.

iv. In order to realise increased profits through digital banking, the banks' management should also establish a country wide training of the general public regarding usage of several electronic banking applications for sustained use of digital banking which then increases customer deposits.

**REFERENCES**

[1] Aduda, J., & Kingoo, N. (2012). The relationship between Electronic banking and Financial performance among commercial banks in Kenya. *Journal of Finance and Investment Analysis, 1(3),* 99-118.

[2] Akerlof, B. C. & Girardone, D, E. (2011). The Impact of Electronic Banking on the Performance of Banks. *Journal of internet banking and commerce, 16(2),* 101-120.

[3] Akhisar, I., Tunay, K. B. & Tunay, N. (2015). The Effects of Innovations on Bank Performance: The case of Electronic Banking Services. *Procedia - Social and Behavioural Sciences, 195,* 369 – 375.

[4] Akturan, U., & Tezcan, N. (2012). Mobile banking adoption of the youth market perceptions and intentions. *Marketing Intelligence & Planning, 30(4),* 444-459.

[5] Al-hajri, S. & Tatnall (2008). The adoption of e-banking: The Case of Omani Banks. *International Review of Business Research Papers, 4(5),* 120-128.

[6] Asante-Gyabaah, G., Oppong, C. N. & Idun-Baidoo, N. (2015). Electronic Banking in Ghana: A Case of GCB Bank Ltd. *European Journal of Business and Management, 7(12),* 239-256.

[7] Alsamydai, M. J, Saad Galib Yassen, S. G., Alnaimi, H. M., Dajani, D. M. & Al-Qirem, I. A. (2014). The Factors Influencing Customer Usage Of Mobile Banking Services In Jordan. *International Journal of Business Management & Research (IJBMR), 4(2),* 63-78.

[8] Baffour, B. A. (2015). *Examining the Impact of Information Technology on the Financial Performance of Asutifi Rural Bank.* Unpublished Master's Thesis, Kwame Nkrumah University of Science and Technology.

[9] Bagudu, H. D., Mohd Khan, S. J. & Abdul-Hakim, R. (2017). The Effect of Mobile Banking on the Performance of Commercial Banks in Nigeria. *International Research Journal of Management, IT & Social Sciences, 4(2),* 71-76.

[10] Barney, A. W. (2011). *Resources Management Guide* (1st Edition). Hopkins Publishers: New York.

[11] Bashuri, E. (2016). E-Banking and its features - Albania as a special case. *Academic Journal of Business, Administration, Law and Social Sciences, 2(1),* 133 - 140.

[12] Boniface, R. M. & Ambrose, J. (2015). Mobile Banking and Financial Performance of Commercial Banks in Kenya**.** *International Journal of Finance and Current Business Studies, 4 (12),*16-31.

[13] Bradley, L., & Stewart, K. (2013).The Diffusion of Online Banking. *Journal of Marketing Management, 19(9-10),* 1087-1109.

[14] Chovanová, A. (2006). Forms of Electronic Banking. *International Journal of Applied Research, 3(6), 44-66.*

[15] Ciciretti, R., Hasan, I. & Zazzara, C. (2008). Do internet Activities Add Value? Evidence from the Traditional Banks. *Journal of Financial Services Research, 22,* 95-118.

[16] Cooper, D., & Schindler, S. (2014). *Business Research Methods*. New York: McGraw-Hill Irwin.

[17] Davis, F. D., Bagozzi, R. P., Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science, 35(8),* 982-1003.

[18] Del Giudice, M., Campanella, F., & Dezi, L. (2016). The bank of things: An empirical investigation on the profitability of the financial services of the future. *Business Process Management Journal, 22(2),* 324-340.

[19] Dew, K. (2012). Innovation Segregation by Two Australian Merchant Banks: A Private Alternative to the Financial Patent for Protecting Financial Innovations and Informing Investors. *Working Paper,* available at http://ssrn.com/abstract=995960, accessed on 22 September 2018.

[20] DeYoung, R., Lang, W. W., & Nolle, D. L. (2007). How the Internet affects output and performance at community banks. *Journal of Banking & Finance*, *31*(4), 1033-1060.

[21] Drigă, I. & Isac, C. (2014). E-Banking Services – Features, Challenges and Benefits. *Annals of the University of Petroşani, Economics, 14(1),* 49-58.

[22] Ekwueme, C. M., Egbunike, P. A. & Amara O. (2011). An Empirical Assessment of the operational efficiency of electronic banking: Evidence of Nigerian banks. *Review of Public Administration & Management, 1( 2), 1-31.*

[23] Eshna. (2012). *Financial Performance - Understanding its Concepts and Importance.* Retrieved from Simple Learnhttp://www.simplilearn.com/financialperformance-rar21-article (Accessed on 5 September 2018)

[24] Fishbein, M. A. & Ajzen, I. (1975). *Belief, Attitude, Intention and Behaviour: An Introduction to Theory and Research, Reading*. MA: Addison-Wesley.

[25] Forbes 2017 https://www.forbes.com/sites/the-worlds-largest-banks-in-2017 (Accessed on 5 September 2018)

[26] Furst, K., Lang, W. W., Nolle, D. E. (2002). Internet banking: developments and prospects. *Program on Information Resources Policy*, Centre for Information Policy Research, Harvard University.

[27] Giordani, G. (2012). Essays on the Econometric Analysis of Electronic banking in Greece (Doctoral dissertation, University of Portsmouth).

[28] Gu, S., Irshad, F. & Zaman, K. (2011). Factors affecting bank profitability in Pakistan. *Romanian Economic Journal, 24(39),* 61-87.

[29] Gujarati, D.N. (2009). *Basic Econometrics.*5th Ed. McGraw Hill.

[30] Gutu, L. M. (2014). The impact of internet technology on the Romanian banks performance. *12th Internetional Academic Conference,* Prague, 1September 2014.

[31] Halili, R. (2014). *The impact of Online Banking on Bank Performance.* Unpublished Report.

[32] Haneen A. Abu-Assi, Hani H. Al-Dmour1 & Zu'bi M. F. (2014). Determinants of Internet Banking Adoption in Jordan. *International Journal of Business and Management, 9(12),* 22-31.

[33] Havasi, F., Meshkany, F., & Hashemi, R. (August 2013 г.). E-Banking: Status, Implementation, Challenges, Opportunities. *IOSR Journal of humanities and social science (IOSR-JHSS) 12(6),* 40-48.

[34] Hernando, I. & Nieto, M. J. (2016). *Is the Internet Delivery Channel Changing Banks' Performance? The Case of Spanish Banks.* Banco de Espana, Unpublished Manuscript.

[35] Iftekhar, H., Schmiedel, H., & Song, L. (2012). Return to retail banking and payments. *Working Paper Series 1135,* European Central Bank.

[36] Jayawardhena, C. & Foley, P. (2000). Changes in the banking sector-the case of internet banking in the UK. *Internet Research: Electronic Networking Applications and Policy, 10(1),* 19-30.

[37] Jeong, B. & Yoon, T. E. (2013). An empirical investigation on consumer acceptance of mobile banking services. *Business and Management Research, 2(1),* 31-40.

[38] Kamutuezu, E. U. (2016). *The Adoption of Digital Banking in Namibia*. Unpublished Master's Thesis.

[39] Karjaluoto, H., Mattila, M. & Pento, T. (2012). Factors underlying attitude formation towards online banking in Finland. *The International Journal of Bank Marketing, 20,* 261-273.

[40] Katsika, V. (2014). *Factors influencing the adoption of internet banking in Greece*. Unpublished Master's Thesis.

[41] Kerem, K. (2003). *Adoption of electronic banking: underlying consumer behavior and critical success factors. The case of Estonia.* Tallinn: Tallinn Technical University.

[42] Kim, K. K., Prabhakar, B., & Kim, B. H. (2001). *Initial trust as a determinant of the adoption of Internet banking*. Available: http://mri.inha.ac.kr/article/8-1/.

[43] Kimani, N. (2015). *The effect of adoption of mobile banking systems on operational efficiency of commercial banks in Kenya*. Unpublished MBA project. Nairobi: University of Nairobi.

[44] Kireru, J., Ombui, K., & Omwenga, J. (2016). Influence of Product Differentiation Strategy in Achieving Competitive Advantage in Commercial Banks: A Case of Equity Bank Limited. *International Journal of Business & Law Research 4(2),* 40-52.

[45] 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(1),* 1- 10.

[46] Kothari, C.R. (2014). *Research Methods and Techniques*: New Age International.

[47] Lee, M. (2009). Factors Influencing the Adoption of Internet Banking: An Integration of TAM & TPB with Perceived Risk & Perceived Benefit. *Electronic Commerce Research & Applications, 8(3),* 130–141.

[48] Lerner, J. (2012). The new financial thing: The sources of innovation before and after State Street, *Journal of Financial Economics, 79,* 223-255.

[49] Lukic, A. (2014). Reasons for introducing and basic advantage of electronic banking in the modern business environment. *International Journal of Management and Social Science 2(1),* 1-6.

[50] Lusaya, S. & Kalumba, B. (2018). The Challenges of Adopting the Use of E-Banking to the Customers: The Case of Kasama District Banking Customers. *Sch J Appl Sci Res, 1(2),* 26-31.

[51] Maduku, D. K. (2014). Customers' adoption and use of e-banking services: the South African Perspective. *Banks and Bank Systems, 9(2),* 96-100.

[52] Maduku, D. K. and Mpinganjira, M. (2012). Empirical investigation into customers' attitude towards usage of cellphone banking in Gauteng, South Africa, *Journal of Contemporary Management,* 9, 172-189.

[53] Malhotra, P. & Singh, B. (2012). The impact of internet banking on bank performance and risk: The Indian experience. *Eurasian Journal of Business and Economics, 2(4),* 43-62.

[54] Massoud, N. & Bernhardt, D. (2012). The Impact of ATM Surcharges on Large versus Small Banks: Is There a Switching Effect? *The Journal of Business, 79(4),* 2099-2125.

[55] Mazana, R., Rupere, T., & Kabanda, G. (2016). An assessment of the impact of self-service technology (SST) on firm performance: Case study of a bank in Zimbabwe (2009-13). *Journal of Payments Strategy & Systems*, 10: 96.

[56] Mbama, C. (2018). Digital banking, customer experience and bank financial performance: UK customers' perceptions. *International Journal of Bank Marketing,* 36 (2), 230-255.

[57] McAndrews, J. J. (2012). *A model of ATM pricing: Foreign fees and surcharges*. Mimeo, Federal Reserve Bank of New York.

[58] Mehmood, B., Nisar, M. & Rehman, H. (2015). Technology matters: Evidence from Pakistani banking sector using flexible transcendental logarithmic production function. *Pakistan Economic and Social Review, 53(2),* 203–224.

[59] Miwangi, K. D. (2014). *The Effect of Electronic Banking on the Financial Performance of Commercial Banks in Kenya*, Unpublished Report, University of Nairobi.

[60] MMC Capital (2017). Annual Report 2016-2017.

[61] Momparler, A., Lassala, C., & Ribeiro, D. (2013). Efficiency in banking services: a comparative analysis of Internet-primary and branching banks in the US. *Service Business, 7(4),* 641-663.

[62] Moon, J. M. & Kim, Y. G. (2001). Extending the TAM for a World-Wide-Web context. *Information and Management, 28,* 217-230.

[63] Morufu, O. (2016). E-payments adoption and Profitability Performance of Deposits Money Banks in Nigeria. *IPASJ International Journal of Information Technology, 4(3),* ISSN 2321 -5976.

[64] Mugenda, O. M., & Mugenda, A. G. (2012). *Research Methods: Quantitative and Qualitative Approaches*. Nairobi: Acts Press.

[65] Mulwa, F. N. (2017). *Effect of Internet Banking of Financial Performance in Kenya*. Unpublished Master's Thesis.

[66] Mwiti, B. (2016). *The Effect Of Alternative Banking Channels On Financial Performance Of Commercial Banks In Kenya.* Unpublished Report, University Of Nairobi.

[67] Nader, A. (2011). The Effect of Banking Expansion on Profit Efficiency of Saudi Banks. *2nd International Conference on Business and Economic Research (2nd ICBER 2011) Proceeding 269.*

[68] Ngango, M. A. (2015). *Electronic banking and financial performance of commercial banks in Rwanda: a case study of bank of Kigali*. Unpublished Banking Report.

[69] Njogu, J. N. (2014). *The effect of electronic banking on profitability of commercial banks in Kenya.* Research project submitted to the School of Business, University of Nairobi.

[70] Nofie, I. (2011). *The diffusion of electronic banking in Indonesia*, Manchester Business School.

[71] Okun, D. M. (2012). *The Effect of Level of Deposits on Financial Performance of Commercial Banks in Kenya.* Unpublished Master's Thesis, University of Nairobi, Kenya.

[72] Omari, H., & Bataineh, T. (2012). The Impact of e-Banking on Achieving Competitive Advantage for Banks in Jordan. *Interdisciplinary Journal of Contemporary Research in Business, 4(7),* 271-282.

[73] Omondi, O. M., Maokomba, C., Musiega, D. (2014). The effects of alternative banking channels on profitability of commercial banks- case of the Cooperative bank of Kenya. *The International Journal of Engineering and Science (IJES), 3(3),* 29-34.

[74] Ozsoz, E., & Helvacioglu, A. D. (2014). The impact of internet banking on bank profitability: The case of Turkey. *Oxford Business and Economics Conference* Program, Oxford, UK.

[75] Patgar, C. M., & Arundhekar, N. D. (2015). Facebook Banking – An emerging way of E-Banking. *International Journal of Applied Research 1(8),* 464-466.

[76] Pikkarainen, T. (2015). Consumer acceptance of online banking: an extension of the technology acceptance model. *Internet Research,14(3),* 224-35.

[77] Polasik, M. & Wisniewski, T. P. (2009). Empirical Analysis of Internet Banking Adoption in Poland. *The International Journal of Bank Marketing, 27(1),* 32-52.

[78] Porter, M. E. (1985). *Competitive advantage: creating and sustaining superior performance p. 592.* New York: A division of Simon & Schuster Inc.

[79] RBZ (2017). Quarterly Annual Report 31 December 2017.

[80] RBZ (2018). *Analysis of the 2018 Reserve Bank of Zimbabwe Monetary Policy Statement Presented by The Governor Dr. J Mangudya on 08 February 2018.*Parliarment Budget Office.

[81] Reserve Bank of Zimbabwe (2018). National Payments Systems Reports for the Quarter ending 31 March 2018.

[82] Rodrigues, A. (2017). *E-Banking: Current Use and Factors Affecting its Adoption in Portugal*. Unpublished Master's thesis, ISCTE Business School.

[83] Rogers, E. M. (2003). *Diffusion of Innovations*. New York: Free Press.

[84] Roghaniana, P., Raslia, A., & Gheysaria, H. (2012). Productivity Through Effectiveness and Efficiency in the Banking Industry "The 2012 International Conference on Asia Pacific Business Innovation and Technology Management". *Procedia - Social and Behavioral Sciences, 40,* 550-556.

[85] Rose, P. S. (2001). *Commercial Bank Management*; 5th Edition, McGraw-Hill Irwin.

[86] Safeena, R., Kammani, A., & Date, H. (2014). Assessment of Internet Banking Adoption: An Empirical Analysis. *Arabian Journal for Science and Engineering, 39*(2), 837- 849.

[87] Sana, H. S., Mohammad, K. M., Hassan, H. S. & Momina, A. (2011). *The impact of e-banking on the profitability of banks: a case study of Pakistani Banks,* Retrieved from www.macrothink .org/jpeg.

[88] Sarreal, R. (2016). *History of online banking: How internet Banking becomes mainstream*. Go Banking Rates: https://www.gobankingrates.com/banking/history-online-banking/#disqus_thread.

[89] Sathye, M. (2013). The impact of online banking on performance and risk profile: Evidence from Australian credit unions. *Journal of Banking Regulation, 6(2),* 163-174.

[90] Shah, M. & Clarke S. (2009). *E-banking Management: Issues, Solutions and Strategies*. Hershey: Information Science Reference.

[91] Shiels, H., McIvor, R., & O'Reilly, D. (2013). Understanding the implications of ICT adoption: insights from SMEs. *Logistics Information Management, 16(5),* 312-326.

[92] Shilpan, V. (2012). *The impact of E-banking on Traditional Banking Services.* Rajasthan: School of Computer Science and Information Technology, Singhania University, Pacheri Bari, Jhunjhunu – 333515. Cornell University Library: https://arxiv.org/abs/1209.2368.

[93] Siddik, N-A. et al. (2016). Impacts Of E-Banking On Performance Of Banks In A Developing Economy: Empirical Evidence From Bangladesh. *Journal of Business Economics and Management, 7(6),* 1066–1080.

[94] Singh, S. & Sharma, D. K. (2014). Analysis of Problems Faced by Customers during Use of Internet Banking. *International Journal of 360 Management Review, 2(1),* 1-11.

[95] Sumra, H., Manzoor, K., & Abbas, M. (2011). The Impact of E-banking on the Profitability of Banks: A Study of Pakistani Banks. *Journal of Public Administration and Government, 1(1),* 31-37.

[96] Sundaram, N., & Sriram, M. (2015). Financial Inclusion Determinants-An Empirical Investigation in Rural Regions of Vellore District, Tamil Nadu. *American International Journal of Research in Humanities, Arts and Social Sciences*, 110-114.

[97] Taiwo, J. N. & Agwu, E. (2017). The Role of E-Banking on Organization Performance in Nigeria - Case Study of Commercial Banks. *Basic Research Journal of Business Management and Accounts, 6(1),* 01-10.

[98] Tan, M. & Teo, T. (2000). Factors influencing the adoption of Internet Banking. *Journal of the Association for Information System. 1(5),* 1-42.

[99] Tawfik, J. & Albrecht, E. (2008). *Strategies for e-business: creating value through electronic and mobile commerce : concepts and cases*. 2nd ed. Harlow, England: FT Prentice Hall.

[100] Torkzadeh, G. & Van Dyke, T. P. (2002). Effects of training on Internet self-efficacy and computer attitudes. *Information and Management, 18,* 479-494.

[101] Vekya, J. M. (2017). Impact Of Electronic Banking On The Profitability Of Commercial Banks In Kenya. *Journal of Technology and Systems, 1(1),* 18-39.

[102] Vyas, S. (2012). The impact of E-Banking on Traditional Banking Services. *School of Computer Science and IT, Singhania University, Pacheri Bari, Jhunjhunu – 333515 Rajasthan, India.*, 1-3.

[103] Wanja, N. C. (2012). *The Effect of Internet and Mobile Banking on Financial Performance of Commercial Banks in Kenya*. the School of Business, University of Nairobi, (Research Project).

[104] Wooldridge, J.M. (2008). *Introductory Econometrics*, 5th *Ed*. McGraw-Hill.

[105] Yaghoubi, N. M. (2010). Factors affecting the adoption of online banking-an integration of Technology Acceptance Model and Theory of Planned Behavior. *International Journal of Business and Management, 5(9),* 159-165.