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## **Efficient Use of Electronic Banking and Financial Performance of Commercial Banks in Rwanda: A Case of Equity Bank Plc**

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# Efficient Use of Electronic Banking and Financial Performance of Commercial Banks in Rwanda: A Case of Equity Bank Plc

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## Abstract

This general objective was to examine effect of efficient use of electronic banking on financial performance of commercial banks with reference to Equity Bank Plc. The specific objectives of the study were to assess effect of internet banking on financial performance of commercial banks in Rwanda; to ascertain effect of Debit and credit cards on financial performance of commercial banks in Rwanda Equity Bank Plc in Rwanda and to establish effect of mobile banking on financial performance of commercial performance in Rwanda. This study is significant as the findings will providing information on influence of electronic banking and financial performance for banking institutions in Rwanda also the finding will help researchers interested in carrying out further studies in this field. This study used descriptive and coefficient regression size effect between variables and for each objective whereby the target population was 370, while a sample size was 193 calculated using Yamane formula obtained using simple random technique. Questionnaire and interview used as a data collection instruments. Data analysis methods were descriptive and multiple regression for quantitative results while content analysis was used for information from interview. After collecting data, analyzing and interpreting data, the study findings showed that Adjusted R Square shows that internet banking, using debits and credits cards and mobile banking contributes up to 87.2% to financial performance of commercial banks in Rwanda and there is a positive and strong correlation between dependent and independent variables whereby internet banking has 0.7742 correlation with financial performance. Credits and Debits cards has 0.812 correlation with financial performance. Mobile banking has 0.967 correction with financial performance. The study recommended that to maximize the influence of easy fund transfer using digital banking on financial performance, banks should prioritize user-friendly and intuitive digital banking interfaces. They should invest in robust security measures to protect customer information and transaction integrity. Regular monitoring, maintenance, and updates of the digital banking platform are crucial to ensure smooth functionality and address any potential issues promptly. The study concluded that, internet banking, credits and debits cards and mobile banking as analyzed independent variables significantly contributes to financial performance.

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**Keywords:** *Electronic banking, financial performance, Commercial banks, Equity Bank Plc, Rwanda*

## 1.0 Introduction

The global point of view on internet evidenced that Internet banking means the drill of performing all bank transactions employing internet. Banks have an opportunity to access exclusive technology where all duties obtain completed within a second. Internet like technologies (Meuter *et al.*, 2017). A Research done in the United States of America, argued that with support of internet banking, banks may deposit and withdrawn amount of money directly to accounts, make all kinds of bills such as phones, mobile, credit cards may also be paid using via internet by registering with the bank (Wasonga, 2019).

In Europe, internet banking allows bank customers to have accessibility of bank accounts, in order to understand instantly that account has been attributed in banking accounts in turn to support in solving pertinent issues (Hoehle *et al.*, 2012). Three decades of research on consumer adoption and utilization of electronic banking channels: A literature analysis. *Decision Support Systems*, 54(1), 122-132. It was very important to transmit amount of money to another account to which payment to the party are made. Internet banking means a method or structure that facilitates clients to control bank account or information on banking services via computer and other intelligent equipment (Rahi & Ghani, 2019). E-banking services may comprise of the comprehensive services for bank customer as well selling and monetary services for clients.

In Africa, services acquired using e-banking mat reduce services given via provision ways. These include managing cashes, wire transfer, automated clear house, presentation and paying bills (Kamande & Musumba, 2018). Fiduciary services are: balance inquiries, funds transfer, information inquiries, paying and presenting bills. Internet banking services can contain the provision of internet access as an internet service provider (Ikram *et al.*, 2022). In Nigeria, banks had adopted information for processing cheques, driving automated teller machine and producing reports. Previously, computer systems that render information system that function are often by clients. Currently, websites, e-mail, bill presentation and payment were pertinent way for banking institutions to service their clients (Kamau *et al.*, 2019).

In Kenya, the banking institutions had carried out trials for different forms of e-banking services. Most of those trials included barred systems where customers accessed banks via a deal in or cable television connection (Kemunto & Kagiri, 2018). These systems restricted banks' pertinent client base they need of area clients to incur long distance charges on their phone bills or pledge to a special cable television services accessibility from banks. In technological development, customers may adopt the technological development in world accessibility to banking network. E-banking as facilitating factor had making services adequate to clients and removed geographical challenges (Mahdiraji *et al.*, 2019).

Another study done in Kenya, argued that many factors comprising of expenses allocated to competition, client and demographic issues were stimulating firms to assess their technologies and identify their e-commerce and e-banking practices (Mohamud & Warui, 2021). Previous studies (Odhiambo & Ngaba, 2019) expected rapid growth in customers through embracing of Internet banking products and services. The constraint for bank is associated with being sure that save from e-services higher than counterbalance expenses and risks related to carrying out business in cyberspace. Marketing strategies differ from bank to bank with the intention to enlarge their market and use lower cost provision channels (Osei *et al.*, 2021). Internet banking permits widened clients via improved geography and reduce cost

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provision. Therefore, banking institutions are performing business via internet they did not possess traditional branches and attain their clients. Other banking institutions are using e-services as other provision ways to clients. The correlation building is a strategies element for several banks. E-banking technology and services is able to provide the means for them to ameliorate ongoing interactions with their clients by giving easy access to large array of services (Salman & Fahimeh, 2022). However, the financial performance was assessed through the use of return on equity (ROE), earning per share from activities, profitability, working capital, return on assets (ROA) and increased transactions (Daniswara & Daryanto, 2020).

In Rwanda, commercial banks are followed up by the National Bank of Rwanda (BNR) (Mukamunana, 2019). Equity Bank PLC adopted electronic banking system in order to deliver its services. The adopted services internet banking, short message with the intention to ensure rapid and quality service delivery. With Short Message Service (SMS) and internet banking, clients cannot only obtain instant information on their accounts employing their mobile phones and Personal Computer (PC), but the technology also permits them to make money transactions (Ndikuriyo, 2018). These new services/ products have greatly helped Equity Bank Plc to win many clients, expand its operational area and win a large market share. The present study will investigate the influence of efficient use electronic banking on financial performance of Equity Bank Plc as case.

### 1.1 Problem Statement

The traditional banking system is currently being replaced by the technological method of online banking. Despite the many benefits that have resulted from the advent of online banking, there are still several hurdles that face digital banking internationally, including the migration of banking consumers from traditional to digital, cybersecurity worries, and technological issues (Singh, 2020).

The growing issue in banking industry, low reputation of banking institutions (Njoroge & Mugambi, 2018), low level of competitiveness (Odhiambo & Ngaba, 2019), inability to attract and maintain customer (Ndikuriyo, 2018), and bad quality of service delivery (Okon & Amaegberi, 2018) are the greatest impediment on banking sector in Rwanda.

However, it was contended that e-banking would be effective way (Osei, 2021), unfortunately, few studies were conducted on that subject such as Salman & Fahimeh in 2021 but they did not find the same results. For instance, Banks in Kenya increased number of clients from 23% to 51% between 2009 and 2013 owing to the use of e-banking (Odhiambo & Ngaba, 2019).

In Rwanda, few studies were carried out on e-banking (Ndikuriyo, 2018) by focusing on spread and challenges in using e-banking, however, no research was undertaken with the purpose of assessing if e-banking in term of automatic teller machine, mobile banking, money transfer and access to account to which extent affect performance of commercial banks in Rwanda. In this regard, this research investigated the role of efficient use electronic banking on performance of commercial banks in Rwanda with reference to Equity Bank Plc.

### 1.2 Specific Objectives

- i. To assess effect of internet banking on financial performance of Equity Bank Plc in Rwanda;
- ii. To ascertain effect of debit and credit cards on financial performance of Equity Bank Plc in Rwanda;



- iii. To establish effect of mobile banking on financial performance of Equity Bank Plc in Rwanda.

### 1.3 Research Hypotheses

- H<sub>01</sub>:** Internet banking has no statistically significant effect on financial performance of Equity Bank Plc in Rwanda;
- H<sub>02</sub>:** Debit and Credit Cards has no statistically significant effect on financial performance of Equity Bank Plc in Rwanda;
- H<sub>03</sub>:** Mobile banking has no statistically significant effect on financial performance of Equity Bank Plc in Rwanda.

### 2.1 Theoretical Framework

This section provides relevant theories used in conducting the present research. Therefore, a theory was a methodological process of correlating evidences (Anitha & Patil, 2020). The present research was undertaken in the framework of Schumpeter Theory and Innovation Diffusion Theory

#### 2.1.1 Schumpeter Theory of Innovation

Ayinla (2018) assert that managers, who may be independent investors in large companies, established the change for new profit with their innovation. As a result, a set of followers stimulated by super-profits may begin the movement of investing in banks that may reduce NEM related to technology. Schumpeter could arise to start the transaction cycle over again. Barroso and Laborda (2022) focused on the contribution of entrepreneurship and observing the change for new lucrative actions that may enlarge or modify level of earnings, therefore, did not referring to any difference among creativities, businesses (Feutrill & Roughan, 2021).

#### 2.1.2 Innovation Diffusion Theory

The precursors of this theory are Ghose and Maji (2022) when they examine the role of using technology in accordance with four factors such as innovation, timeframe, channel of communication and social system. According to Guerola-Navarro, *et al.*, (2021), individual adoption of technological use has been analyzed using users point of view on profit, advantage and productivity.

### 2.2 Theoretical Literature

This section provides a revision of previous researches undertaken on the linkages between electronic banking and financial performance. Theoretical literature explains key terms associated with the research subject which are internet banking, credit and debit cards and mobile banking.

#### 2.2.1 Electronic Banking

Technology is seen as a key factor in today's ways of working, which are occurring at a significant proportion throughout the entire planet (Schot & Steinmueller, 2018). Assessment of technology and its utilization indicate that it pervaded in every key aspect of living conditions. Internet may be considered as a true worldwide event that has rendered time and distance not relevant to many businesses (Mishra & Kiranmai, 2009). The modification from traditional banking towards e-banking was a leap modification. For many customers, e-banking implies 24 hours accessibility to money via Automated Teller Machine (ATM) or deposit cheque or saving. However, e-banking includes may various transactions. It is e-fund transfer, using computer and e-technology as an extra for other transactional papers (Anderson *et al.*, 2018).

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Advancement of e-banking begun with adoption of ATM has conceded across phones, paying bills, e-fund transfer as well as the revolutionary e-banking. The escalation of electronic commerce and utilization of internet in its simplification along with the improved online/internet security of transactions and sensitive information was at heart of penetration of online banking in everyday living and working conditions (Amadala, 2019).

The internet banking also known as online is an impact of PC banking. Internet banking utilizes internet as a channel by which to carry out banking activities for example, transfer of funds, bills, viewing of checking and savings account balances, payment of mortgage and purchases of other financial tools and certificates of deposit. A customer with access to internet banking can access accounts from browsing software that runs internet bank program residing on their World Wide Web services. Therefore, websites for banking institutions were not limited to carrying out business in domestically and had capacity to achieve business comprising huge amounts of assets promptly. Conferring to analytics, e-banking gives a diversity of attraction duties for remoting account accessibility. This is available for inquiry and transactions. It also gives access to both recent and historical data and allows customers to directly control movements of international funds without needing the intermediation of banks in customer jurisdiction (Gawande & Deshmukh, 2018).

Customers who are new to the bank are able to create their accounts either through an application form completed via a personal computer banking and mailing it to a bank providing such a service or else by accessing into a bank's website and fill in an electronic form. The customer is also able to may deposit the new online account with a check or via wire transaction and other types of remittance. The physical interface between the customer and the bank is no longer necessary (Guerola *et al.*, 2021).

### 2.2.2 Internet Banking

Kamande and Musumba (2018) explains internet banking as a computer software and it has the capacity to preserve information and able to money vault, permitting clients to control their accounts and obtain financial services using only their password into the machine. Banking institutions give many retail services using internet banking to its clients. Once a card is put in card reading machine, an electronic device is able to verify information before performing the process. Ordinal bank's workers and traditional systems develop and increase the banking profitability (Kamau *et al.*, 2019). Internet banking keeps clients a lot time that had adopted in bank to join to other client duties. Banks is pertinent in internationalization of financial services and obtained pertinent profits from ICT development. Technological development in banking sector started in 1950s once banks are connected with internet banking (Ikram *et al.*, 2022).

The first internet banking was adopted for solely for money deposit in USA in 1986 (Ndikuriyo, 2018). Conversely, the development of technology, leads to the capacity of internet banking to deliver money from accounts to another, depositing and paying bills. Hanafizadeh, *et al.*, (2021) asserts that internet banking provides financial services that helped people to pull out money, transferring money, depositing money, paying bills and requesting cheque booklet and inquiry.

The introduction of internet banking played a substantial role towards improvement of customer convenience and cost reduction which led to enhanced efficiency and profitability in service delivery (Heldt *et al.*, 2021). Before introducing internet banking, accounts inquiries, withdrawal and funds transfers between accounts or face to face contact amongst employees and clients, a procedure that reduce expensive mistakes or hefty labor expenses.

The information technology advances have made it possible for banks to increasingly standby manual work with automated processes (Ghose, & Maji, 2022).

### **2.2.3 Debit and Credit Cards**

The usefulness utilization of credit cards is to connect a client to credit line and may be adopted for having access to domestic and foreign networks and may be largely recognized in many countries (Kemunto & Kagiri, 2018). It assists people to make transactions with direct available cash for customers (Muhoro & Mungai, 2018). POS employs cards for providing services guidelines but also short message services for acceptable of delivery to customers. It refers to the speed and cheap business for attaining the higher level of satisfactions (Muotolu, 2019). E-payment encompasses inquiries, transferring money, recharging phones, adjusting password and billing expense that are provided by few banks (Odhiambo & Ngaba, 2019).

### **2.2.4 Mobile Banking**

The mobile banking is succeeding bank payment by means of mobile means like phones or personalized digital assistance. Okon & Amaegberi (2018) asserts the general objective of banks on internet as a mean of offering a network for service provision in order to sell financial services to clients and to enable them in adopting 14 e-commerce frames. Owing to its kind, clients took into consideration e-banking for being suitable and dynamic joined with near the whole follow up services provided by the bank (Rahi & Ghani, 2019).

Financial service delivery gives information to clients or goods and services delivered by banking institutions and is able to provide clients an opportunity to undertake retail bank activities. E-banking had the pertinent role on effectiveness and productivity for commercial banks. On the other hand, it has been one of the most cost-effective technology explanations of attaining high performance (Wainaina, 2019). Additionally, it alleviates challenges given by timeframe and gives continuous profitability. It appeared as a crucial way of banks to attain their profits. Many banks are giving value to e-banking and money transfer. The prominent evidence was that electronic banking services use conventional via dealing out with reputable banks performing it rapidly and easily to handle (Jun & Cai, 2010).

Mobile services including prepayment mobile phone renewals were converted to share among clients (Wasonga, 2019). The use of electronic-banking. The adoption of e-banking stimulates the reduction of expenses allocated to transactions and this enhances profits realized by the bank. Introducing e-banking services emanates from extraordinary rapidity among banks and contributed to the internationalization of banking institutions (Wątróbski, *et al.*, 2019). Financial institutions did not ignore evidences meanwhile they contribute to the activities owing to customers were aware of the development of technology services (Amadala, 2019).

### **2.2.5 Financial Performance of Commercial Banks**

This term refers to any level of success of an institutional for precise timeframe and asserted as general gains or loss suffered for that timeframe as in estimation (Ayinla, 2018). According to Henderson, Chiku (2018) described, success as the firm's capability to achieve its objectives utilizing assets in an adequate and suitable way. The author focused on manager's duties as to manage assets appropriately or adequately for achieving financial performance.

The successful assessment comprises of assessment of the degree of the success utilizing mixed approaches (Ellen, 2018). These authors used a two probable means of analysis that are both quantitative and qualitative approaches. Financial success may be estimated by seeing elements of financial statements of equity adjustments (Chmielarz & Zborowski,

2019). These elements support to pinpoint the true picture of transaction associated with items of elements of financial statements.

Furthermore, all banks aim at maximizing the level of profitability (Kamau, *et al.*, 2019) but, a profit did not imply that commercial banks no other objectives. Commercial banks may bear extra socio-economic targets (Mahdiraji, *et al.*, 2019). Nonetheless, the purpose of the present research is associated with the first objectives, performance. To assess the success of banking institutions, most nature of percentage employed of ROA and ROE are crucial elements (Mohamud & Warui, 2021).

## **2.3 Empirical Literature**

### **2.3.1 Internet Banking and Financial Performance**

At the international level, it was evidenced that internet banking was adopted by banks in different countries. Internet banking gives clear profit by encouraging clients to use it when they seek money from the banks (Anderson, *et al.*, 2018). In advanced countries, internet banking contributed to the improvement of the success of banks. According to Ayinla (2018) argued that improvement in electronic through various means of investment. In African content, research carried out by, Chiku (2018), evidenced the security and adequacy of using internet in banking sector. The study argued that banks are dedicated to use electronic banking to enhance the way banks communicate with their customers. In Rwanda, some researches have been undertaken on internet banking (Mukamunana, 2019). The study emphasizes on rapidity and determinants of use it, but it does not rely its productivity and convenience.

### **2.3.2 Debit, Credit Cards and Financial Performance**

Research undertaken by Muhoro and Mungai (2018) on challenges faced in adopting credit debit and credit cards in western countries. The research adopted a sample size of 30 customers. Data was assessed using statistical methods. The study demonstrated that customers does not apply for credit cards because of severe constraints.

In Africa, Muotolu, *et al.*, (2019) examined the factors affecting the use of credit cards for banks. The study employed a sample of 23 workers. In this regard, 52 percent were males while 48 percent were female. The research demonstrated that managers are more likely to utilize cards for enhancing the financial performance.

In Rwanda, Ndikuriyo (2018) assessed the influence of information communication technology of banks in Rwanda. The research discovered that debit and credit cards, pin pad machine, electronic office affect the success of banks in term of ROA, ROE and NIM for the bank of Kigali.

### **2.3.3 Mobile Banking and Financial Performance**

Reconsidering a review done on researches undertaken at international, regional and local levels, it was observed that customers were motivated by electronic banking because of suitability, enhancing adequate use and decrease of operational costs (Njoroge & Mugambi, 2018). The e-services specifically, have developed at extraordinary rates. Between 1995 and 2003) e-banking enhanced eight times (Odhiambo & Ngaba, 2019). These are some information that computer banking is connected with between household financial management. Therefore, financial literacy, digital divide other problems that distinct deprived groups from financial development render it complex for low- and moderate-income persons to reach prominent profits related to computer banking.

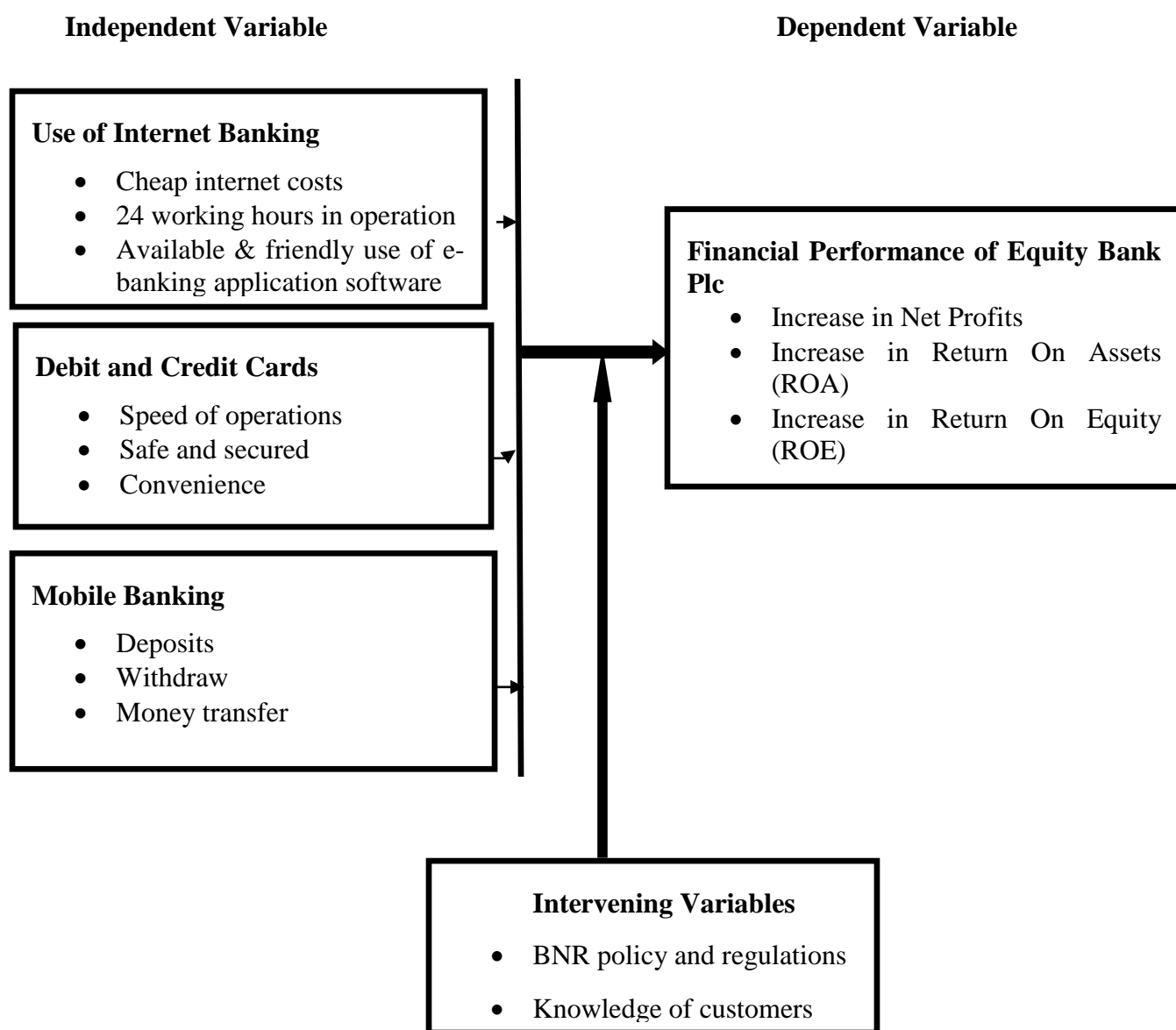


In European countries, a study undertaken by Rahi and Ghani, (2019), argues the lack of individual processors and accessibility associated with electronic banking in Europe. Therefore, 23 is lacking confidence and trust in financial sector in European Union. In Asia, Salman and Fahimeh (2022) demonstrates that electronic banking reduce cost for financial services, decreases operational expenses and improve customer satisfaction. In Africa, Li, *et al.*, (2022), classified electronic banking into accessibility and infrastructure. In this context, in Nigeria, demonstrated that trustfulness is very crucial for the success of electronic banking. In East African countries, including Rwanda (Mohamud & Warui, 2021), ICT providing banking institutions a room to reduce operational costs, facilitating the profitability, number of customers. In Rwanda, Mukamunana (2019), undertook research on mobile banking in some institutions in Rwanda, where there occurs to indicate this kind of banks have affected the success of banks and this become the area of the present study.

#### **2.4 Conceptual Framework**

The research established the correlation between variables. This refers to the model adopted in explaining the research problem in question. It is formulated to indicate the connection between the independent variables (Heldt, *et al.*, 2021).

**Figure 1: Conceptual Framework**



Source: Researcher (2023)

### 3.0. Research Methodology

The research used a descriptive design with a correlation regression size effect with the intention to assess effect of efficient use of e-banking to financial performance. According to Emmonds, *et al.*, (2019), a descriptive study design refers to procedures of gathering and analysing information for explaining specific pertinent in the present of affair or associations among various elements. For this research, the target population comprises 370 workers (Equity Bank, 2022). In determining the sample size, the researcher calculates the number of a representative from the target population using Yamane formula. After obtaining the sample size, it is pertinent to select representative group from the list established by Equity Bank Plc. The target population, sampling error the sample size was calculated using Yamane formula:  $n = \frac{N}{1+N(e)^2}$  Where n = Sample Size; N is the total population size and e is the sampling error (0.05);

Thus, Sample Size is  $n = 370/1 + 370(0.005)^2$

$n = 370/1 + 0.925$

$n = 370/1.925$

$n = 192.2077922077922 \approx 193$

In this regard, a simple random sampling means the approach that was utilized to selected a representative group where each person have equal chance of being taken from the entire population of the study (Thelwall, 2020). In carrying out this study, the sample of 193 persons were selected randomly from 370 employees. Furthermore, a purposive sampling technique was adopted to select key 5 informants who were part of 370. These included (1) branch manager, (1) IT specialist of the bank, (1) corporate director of internet banking, (1) director of debit and credit cards and (1) In charge of e-banking services at Equity Bank Plc.

Methods for gathering information was classified into three subtopics which were tools for collecting information, administration of data collection instruments, the reliability and validity of research tools. A questionnaire was adopted because they were considered to be suitable. Additionally, the researcher formulated open ended questions, permitting for discussion with key informants rather than a straightforward questions and answer format. Open ended questions encouraged individual for reason on the habits and independently direct his own understanding about what is asked.

The study gathered secondary information from financial reports from 2020 to 2022 Thelwall (2020) specifies that documentary analysis was very important to obtain relevant and reliable. In this context, data of financial statement was collected from Equity Bank Plc in form of annual reports and financial statements. Secondary data sources pertinently came up with relevant outcomes. Before data analysis, data was processed into computer-based software. Waltman and Traag (2020) asserts that the research must edit information in order to rectify errors and omissions were examined, found and rectify it. The researcher will clarify after editing, numerical response was categorized. Nuzzo (2021) felt that data from the field was gathered into similar groups. In this study, classification and tabulation of information were done on the relying on common attributes and on class intervals.

After the completion of data processing, quantitative data was performed statistically. Using statistical product for service solutions version 26.0 will be adopted analyze quantitative data that was presented and discussed in the fourth chapter. Descriptive statistics were used to analyze findings using frequencies, percentage, mean and standard deviation. Regression was used for a correlation regression size effect to evaluate the strength of correlation between electronic banking and financial performance, numerically assessed, nonstop variables (height and weight).

Inferential statistics were adopted to permit immediately assessment of effects to two or more variables (Nuzzo, 2021). This approach provided the association between variables. A variable that was expected was known as dependent variable and independent variable were used to predict the value of research variables, indicators of dependent variables were decreased operational and transactional cost, return on assets and profit and while independent variables are internet banking, credit and debit cards, and mobile banking. For variables in this research, a mean was determined using computer software for each year. The regression equation was employed:

$$Y = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + e$$

Where, Y=Financial Performance:

B<sub>0</sub>=Constant,

X<sub>1</sub>=Internet Banking,

X<sub>2</sub>=Debit and credit card,

X<sub>3</sub> =Mobile banking.

#### 4.0 Findings and Discussion

During data collection, 193 questionnaires were distributed among participants in order to facilitate them to give relevant and accurate information. However, all questionnaires distributed were not returned and filled in adequate way. The study findings demonstrated that out of 193 only 182 questionnaires are completed and returned. The response rate was 94.3% and tolerable as recommended by Mugenda and Mugenda (Creswell, 2013).

On demographic characteristics, the findings showed that the majority of the respondents were male represented by 56% compared to their counterpart's female represented by 44.0%. The study found that the preponderance of the respondents aged between 30 and 40 years represented by 42.9% followed by those aged between 41-50 years old represented by 29.1% and the least represented were those aged less than 30 years of age and those aged above 51 years old represented by 18.1% and 9.9% respectively. The findings from the collected data enables the researcher to trust the results towards the use of efficient use of electronic banking using a case of Equity Bank Rwanda plc. The proportional of respondents based on education profile. The findings indicated that the majority of the respondents had bachelor's degree (41.2%) followed by those who held Diploma (24.2%) while Masters and more earners represented by 22.5% and the least were those who completed secondary schooling represented by 12.1%. In this regards, majority of respondents were educated which is an indicator of having ability to use electronic banking.

#### 4.1 Descriptive Analysis

##### *Effects of Internet Banking on Financial Performance of Equity Bank Rwanda Plc*

The first objective of this study was to assess the effect of Internet Banking on Financial Performance of Commercial Banks in Rwanda with reference to Equity Bank Plc. The study examined to what extent does low cost of internet, having internet banking that operates 24 hours and availability well as simplicity of e-banking application software can influence financial performance of commercial banks. The table 1 illustrates the findings.



**Table 1: Internet banking and financial performance**

Statements	SD %	D %	N %	A %	SA %	Total Mean	Std
Low cost of internet of online banking stimulates financial performance	0.0	0.0	11.0	63.2	25.8	4.148	0.589
Operating 24-hours of online banking influence financial performance	0.0	0.0	3.3	66.5	30.2	4.269	0.513
Availability and simplicity of online banking application software influence financial performance	0.0	0.0	9.9	56.1	33.5	4.236	0.616

**Source: Primary Data (2023)**

Table 1 illustrates the effects of Internet Banking on Financial Performance. Researcher was interested to assess whether low cost of internet can influence financial performance. The findings showed that respondents agreed with the statement at the mean of 4.148 and standard deviation of 0.589. About 63.2% agreed with the statement, 25.8% strongly agreed with the statement and 11.0% neither agreed nor disagreed with the statement. Interview held with IT personnel and customer care services supported the findings by saying that cost of internet enables financial institution to reach a wider customer base and extent into global markets. With affordable internet cost, e- banking users feel welcomed and enthusiastic to always prefer online banking than going to physical offices to withdraw and deposit money. This expanded reach could influence the increase of sales, revenues and later influence financial performance. With low cost of internet, it facilitates financial institution to provide vast of information and resources with the hope that customers will be able to access and use and enhance timely access to relevant information which improve better financial outcomes.

Researcher also assessed the extent to which operating 24 hours of e-banking services can influence financial performance. The findings revealed that about 66.5 agreed with the statement, 30.2 strongly agreed with the statement and 3.3 neither agreed nor disagreed with the statement. Respondents concurred with the statement at the mean of 4.269 and standard deviation of 0.513. During the interview held with finance department at Equity Bank Plc, the respondents said when e- banking operate 24 hours, it increases customer convenience or allow customer to perform transactions at their convenience time irrespective of traditional banking hours. This convenience enhances customer satisfaction and stimulate customers to prefer e-banking services more than traditional banking system. The outcome of introducing 24 hours of e-banking in operation helps bank to attract and retains more customers and ultimately leading to financial performance through increased customer acquisition and transaction volume. Again, respondents said that operating 24 hours of e-banking services could provide a competitive advantage over those with limited operating hours.

Lastly, the study also assessed the influence of availability and simplicity of e-banking application software and its influence on financial performance. The results showed that respondents agreed with the statement at the mean of 4.236 and standard deviation of 0.616. Statistically, about 33.5% strongly agreed with the statement while 9.9 neither agreed nor disagreed with the statement. During the interview held with the department of risk and compliance, they said that when e- banking application software are available and simple to use, it motivates more customers to shift from traditional banking system to digital banking

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system. E-banking user friendly software lead to higher transaction volumes, increase customer base and improved financial performance. Accessible e- banking software application reduces errors and facilitate customers to perform financial transactions without third party, this kind of working motivate customers to use available e- banking software more than using traditional banking system.

Therefore, with the introduction of e-banking users, customers have benefited from using 24/7 internet and mobile banking platforms, suitable and secure ATMs increased in number, online accounting opening. According to the previous studies, the presented study concurred with the study of Musiime and Biyaki (2010). The study of these authors demonstrated that the technology can facilitate depositors to withdrawn cash at more suitable time and everywhere during banking hours at branches. Above all, low cost of internet of e-banking, operating 24 hours of e- banking and available as well as simplicity of e-banking application can significantly contribute to financial performance

*Effects of Debit and Credit Cards on Financial Performance of Equity Bank Plc*

The second objective was to assess effect of debit and credit cards on commercial banks in Rwanda with respect to Equity Bank Rwanda. The debit and credit cards are examined via transaction speed, safe and secured and convenience.

**Table 2: Debit and Credit Cards application at Equity Bank Rwanda Plc**

Statements	SD %	D %	N %	A %	SA %	Total Mean	Std
Equity Bank Rwanda has Speed transaction operations of debits and credits cards	4.4	3.8	3.3	30.2	58.2	4.340	1.026
Equity Bank Rwanda has safe and secured debits and credits cards	2.2	3.3	7.7	52.7	34.1	4.131	0.856
Equity Bank Rwanda Plc debit & credit cards system is convenience	2.2	3.8	6.6	59.9	27.5	4.065	0.831

**Source: Primary Data (2023)**

Table 2 illustrates the findings on the influence of Debit and Credit Cards on financial performance at Equity Bank Rwanda Plc. Regarding to the respondents’ view on the transition operations of Debit and Credit Cards with financial performance. Respondents agreed with the statement at the mean of 4.340 and standard deviation of 1.026. Under this attribute, 58.2% strongly agreed with the statement, 30.2% agreed with the statement, 3.3 neither agreed nor disagreed with the statement, 3.8% disagreed and 4.4 strongly disagreed with the statement.

During the interview, respondents who agreed with the statement said that when debit and credit card transaction are processed quickly, it enhances the customer satisfaction. Customers appreciate the convenience through time saving. Speed transaction of debit and credit cards attract new customers. Faster debit and credit cards motivate customers to use their cards more frequently for various transactions and this lead to increase of transaction volumes and ultimately improved financial performance. Also, slow processing of debits and credit cards frustrate customers and lead to abandoned transactions. If customers face issues during the payment using debit and credit cards, they may prefer to stop the transaction which can automatically reduce volume of transactions.

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On the other hand, respondents who disagreed with the statement, they said that high speed of debits and credits transaction may be associated with insecurity, lack adequate checking against potentially fraudulent activities. Again, high speed transactions don't provide e-banking users with sufficient time to review the transaction details which may emphasize that customers may prefer slightly slower transaction process in order to review transaction details it is processed.

Concerning to the influence of safe and secured transactions with financial performance, respondents agreed with the statement at the mean of 4.131 and standard deviation. About 34.1% strongly agreed with the statement, 52.7% concurred with the statement, 7.7% neither agreed nor disagreed with the statement, had 3.3% disagreed with the statement and 2.2% strongly disagreed with the statement. Respondents pointed out that, when online banking is safe and secured customers feel confident that their financial transactions are protected from authorized access, fraud, and data breaches, and they are more likely to engage in online banking activities. Trust in security measures implemented by a bank enhances customer loyalty, increase customers retention. In addition, Transactions that are safe and secure are essential for luring new clients and keeping those who have already purchased from you in the fiercely competitive banking sector. Customers are more inclined to choose a bank with a good reputation for security as they become more aware of the security dangers involved with online transactions. Banks may stand out from rivals, draw in new clients who appreciate security, and keep hold of current clients who value the security of their financial information by providing a safe and secure banking environment.

Regarding to the influence of convenience of e- banking on financial performance, respondents agreed with the statement at the mean of 4.065 and standard deviation of 0.831. The findings showed that 27.5% strongly agreed with the statement, 59.9% asserted with the statement, 6.6% neither agreed nor disagreed with statement, 3.8% disagreed with the statement and 2.2% strongly agreed with the statement. Respondents said that more users adopt digital banking platforms due to the convenience of e-banking services. With e-banking, there is no longer a need to go to a physical branch in order to receive banking services. More customers using e-banking as a result of this accessibility will increase the customer base and maybe increase income. This study was supported by the work of Nzalu (2015) undertook a study on challenges faced by banks in utilizing electronic cards in advanced countries and he found that customers were not able to use cards because of fraud, mistakes and pirates.

#### *Effects of Mobile Banking on Financial Performance of Equity Bank Rwanda Plc*

The last objective under this study was to examine the relationship between mobile banking on financial performance of commercial banks in Rwanda. After collecting, cleaning and analyzing data, Table 3 illustrates the findings.

**Table 3: Mobile Banking Application at Equity Bank Rwanda Plc**

Statements	SD %	D %	N %	A %	SA %	Total Mean	Std
Online mobile banking deposits influence financial performance	0.0	0.0	7.7	36.4	57.7	4.500	0.637
Safe online mobile withdraws influence financial performance	2.7	4.9	2.7	54.9	34.6	4.232	0.900
Mobile banking application makes easy fund transfer between accounts influence financial performance	6.0	6.6	7.7	19.2	60.4	4.214	1.204

**Source: Primary Data (2023)**

Table 3 indicates that the linkages between mobile banking application on financial performance at Equity Bank Rwanda Plc. At Equity Bank Rwanda Plc, respondents who were also staff of Equity Bank Rwanda Plc, agreed that Equity Banking application allow e-deposit, e-withdraw and make easy fund transfer between accounts. Respondents agreed that allowing customers to deposit money using e-banking influence financial performance and they agreed with the statement at the mean of 4.500 and standard deviation of 0.637. Whereby about 57.7% strongly agreed with the statement, 36.4 agreed with the statement and 7.7% neither agreed nor disagreed. Mobile banking with online deposit functionality allows customers to conveniently deposit funds into their accounts anywhere, anytime. As results, increased deposit levels help the bank have better liquidity, allowing it to lend and invest the money, potentially boosting interest earnings and overall financial success.

Regarding to the influence of safe and withdraws using e – banking on financial performance, respondents agreed with the statement at the mean of 4.131 and 0.900 of standard deviation. About 34.6% strongly agreed with the statement, 54.9% agreed with the statement, 2.7% neither agreed nor disagreed with the statement, 4.9% disagreed with the statement and 2.7% strongly agreed with the statement. Safe and secure withdrawals through e-banking contribute to customer satisfaction and enhance the overall banking experience. Customers appreciate the convenience and peace of mind that comes with being able to withdraw funds from their accounts securely and easily. Satisfied customers are more likely to remain loyal to the bank, increasing customer retention rates and supporting long-term financial performance.

On the influence of easy fund transfer using digital banking between accounts on financial performance, 60.4% respondents strongly agreed with the statement, 19.2% agreed with the statement, 7.7% neither agreed nor disagreed with the statement, 6.6% disagreed with the statement and 6.0% strongly agreed with the statement. Interviewed participants agreed with the statement at the mean of 4.214 and standard deviation of 1.204. Respondents said that the ease and convenience of digital banking make it more likely for customers to transfer funds between their accounts. Digital platforms provide instant transfer capabilities, encouraging customers to conduct more frequent transactions. Increased transaction volumes lead to higher transaction fees and potential cross-selling opportunities, contributing to revenue growth and improved financial performance.

Qualitative results obtained through interview with the head of mobile banking at Equity Bank Rwanda plc asserts “in our bank deposits, withdrawals have been recorded 30 million in number, this number of transactions has positive impact on financial performance of Equity Bank Rwanda Plc”. Efficient use of electronic banking and success of commercial



banks in Rwanda using a case of Equity Bank Rwanda plc mobile banking is easy and convenient. “Access your account 24/7 using mobile phone banking service. It is convenient, friendly and secure. With mobile banking, you may get balance, mini statement, account summary, fund transfers, transfer money from your Equity Bank Rwanda plc bank account to MoMo and vice versa, utility bill payment, SMS alerts, airtime top-up, cost free mobile banking, that connects the banked with the unbanked population in Rwanda.

These results indicate that mobile banking has increased financial success of Equity Bank Rwanda Plc. These results are established to concur with the findings of Davenport (2013) who assessed that in current years, banking institution. Givers and mobile agents had started experiencing with bank outlet system. These were discovered to have impacted the financial performance of Equity Bank Rwanda plc. These results concur with These results is in line with Katsioloudes (2012) evidences by adding products provided by cheques, booklets, e-mail, point of sales or e-banking. This has banking services more effective and increased their financial performance.

#### 4.2 Inferential Analysis

**Table 4: Correlation matrix between dependent and independent variables**

Statements			Debit and Credit Cards		Mobile Banking	Financial performance
		Internet banking				
Internet banking	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	182				
Debit and Credit cards	Pearson Correlation	.196**	1			
	Sig.(2-tailed)	0.000				
	N	193	193			
Mobile banking	Pearson Correlation	0.036	0.062	1		
	Sig.(2-tailed)	0.000	.003			
	N	193	193	193		
Financial performance	Pearson Correlation	.774**	.812**	.967**	1	
	Sig.(2-tailed)	0.000	0.000	0.000		
	N	193	193	193	193	

\*\*Correlation is significant at the 0.01 level (2 – tailed)

\*Correlation is significant at the 0.05 level (2- tailed)

**Source: Primary Data (2023)**

Table 4 illustrates the relationship between independent variable and dependent variable, the results showed that there is high positive relationship between digital banking and financial performance of commercial banks in Rwanda. Internet banking has 0.7742 correlation with

financial performance and p-value of 0.000. Credits and Debits cards has 0.812 correlation with financial performance and p-value of 0.000. Mobile banking has 0.967 correction with financial performance and p -value of 0.000.

**Regression analysis**

This section illustrates the relationship between independent variable and dependent variable. Under regression analysis was done using regression linear to find out the influence of independent variable and dependent.

**Table 5: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.909 <sup>a</sup>	.898	.872	.076432

a. Predictors: (Constant), Internet banking, Debits and Credits Cards Banking, Mobile banking

The findings shows that Adjusted R Square shows that internet banking, using debits and credits cards and mobile banking contributes up to 87.2% to financial performance of commercial banks in Rwanda with respect to data collected at Equity Bank Rwanda Plc.

**Table 6: Coefficients of Effect between independent variables and Net Profit**

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	St. Error	Beta	t	Sig.
(Constant)	2.586	1.248		2.072	0.000
Internet banking	0.369	0.172	0.158	2.144	0.000
Debit and Credit Cards	0.386	0.198	0.162	2.192	0.000
1 Mobile banking	0.434	0.162	0.173	2.386	0.000

**a. Dependent Variable: Financial performance**

**Source: Primary Data (2023)**

Regression line is equal to  $2.586+0.369 x_1+0.386 x_2+0.434 x_3+.076432$  whereby  $x_1$  is internet banking,  $x_2$  is debits and credit cards and  $x_3$  mobile banking. Regression line shows that online banking contributes up to 36.9% to the financial performance of commercial banks, Debits and Credits card contributes up to 38.6 % to financial performance of commercial banks, and lastly mobile banking contributes up to 43.4% to financial performance of commercial banks in Rwanda. 5.0 Conclusion

In conclusion, based on the findings from the specific objective one, it was evident that internet banking services contributes significantly to financial performance of commercial performance in Rwanda. The findings shows that Adjusted R Square shows that internet banking, using debits and credits cards and mobile banking contributes up to 87.2% to

financial performance of commercial banks in Rwanda with respect to data collected at Equity Bank Rwanda Plc. Correlation analysis demonstrated in table 4.5 illustrates positive high correlation between electronic banking and financial performance of commercial banks in Rwanda.

## **6.0 Recommendations**

Basing on concluding remarks, these suggestions/recommendations are necessary for further improvement in terms of performance of efficient use of e-banking services and the success of commercial banks in Rwanda using Equity Bank as a reference. More features of electronic banking services should be adopted in commercial banks in order to attract more clients and perform well. The public institutions of the republic of Rwanda via the national bank would asset commercial banks by negotiating availing cheaper internet costs. The study felt that other commercial banks should focus on e-banking services with the purpose to attain high level of success. Although providing 24-hour e-banking services can have a favorable influence on financial performance, banks must maintain strong security measures, consistent system upkeep, and efficient customer support to deliver a seamless and dependable e-banking experience.

To leverage the influence of mobile banking with online deposits on financial performance, banks should prioritize the security and reliability of the mobile banking platform. To maximize the influence of easy fund transfer using digital banking on financial performance, banks should prioritize user-friendly and intuitive digital banking interfaces. They should invest in robust security measures to protect customer information and transaction integrity. Regular monitoring, maintenance, and updates of the digital banking platform are crucial to ensure smooth functionality and address any potential issues promptly. Additionally, banks should continuously gather customer feedback and incorporate user preferences into the design and enhancement of digital fund transfer features, further improving the customer experience and strengthening financial performance. Further researches must on undertake a clear qualitative method for knowing costs of e-banking services the banking sector. Other areas for future studies should be conducted on the digital presence of loan application processes and its risks, convenient to customers.

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