

**THE ROLE OF FINANCIAL RATIOS ON INVESTMENT DECISION IN THE
BANKING SECTOR IN TANZANIA**

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**THE ROLE OF FINANCIAL RATIOS ON INVESTMENT DECISION IN THE
BANKING SECTOR IN TANZANIA**

BY

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**A Dissertation submitted to Mzumbe University Dar-es-salaam Campus College
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Administration in Corporate Management (MBA-CM) Degree of Mzumbe
University**

2020

CERTIFICATION

We, the undersigned certify that, we have read and hereby recommend for acceptance by the Mzumbe University this research report titled “***The Role of Financial Ratios on Investment Decision in the Banking Sector in Tanzania***”, in partial fulfillment of the Requirements for the Award of the Degree of Master of Business Administration in Corporate Management (MBA-CM) of Mzumbe University.

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LIST OF ABBREVIATION AND ACRONYMS

ADF	Augmented Dickey Fuller
BOT	Bank of Tanzania
CV	Critical Values
DSE	Dar-es-Salaam Stock Exchange
DW	Durbin Watson
P-value	Probability value
PCA	Principal Component Analysis
ROA	Return on asset
ROE	Return on Equity
ROCE	Return on Capital Employed
WLSR	Weighted Least Square Regression
VIF	Variance Inflation Factor

ABSTRACT

The study assesses the role of financial ratios analysis on investment decisions within the banking sector. Specifically, the study assesses the role of financial ratios in investment decisions making on a number of branches and human resources. Independent variables involved in the study are liquidity ratios (liquid assets to deposit ratio,) profitability ratios (return on equity).The study used secondary data that was collected from Dar es Salaam Stock Exchange and from annual reports of sampled five selected commercial banks for the period of seven years from 2010 to 2016.The data included information contained in annual reports and financial statements.

The study used Principle Component Analysis (PCA) of Factor Analysis to extract variables with high factor load which could clearly influence dependent variables. After that, Weighted Least Square Regression (WLSR) analysis was used to identify independent variables (extracted financial ratios) with a significant relationship with dependent variables (investment decision).

The results obtained indicated that liquid assets to deposit-borrowing ratio had negative insignificant power to predict investment in both numbers of branches and the number of human resources. Net Loans to deposit and borrowing has negative significant power to predict investment decision in both branches and human resources. Meanwhile, return on equity was found to have positive significant power to predict investment in both branches and human resources. The remained proxies/variables of financial ratios were noted to be unreliable in explain investment decision in the banking sectors since they were eliminated through PCA

With these statistical results, the study revealed that financial ratios had both negative and positive significant effects on influencing investment decisions within the banking industry in Tanzania. Other prior studies on the Roles of Financial Ratio analysis in banking sector shows inconclusive or contradictory on the actual roles of the financial ratio analysis.The study recommends that the Bank of Tanzania (BOT) should deliberately speed up the sensitization campaign of the Tanzanian commercial banks to focus on ratios analysis as among the best tool in the effective decision.

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CHAPTER ONE

GENERAL INTRODUCTION

1.1 Introduction

This chapter presents the background of the study, statement of the problem, research objectives, and significance of the study, organization of the study as well as the limitations of the study. This is a general introduction to the topical area. It is a general/broad statement that provides an overview of the area involving the study.

1.2 Background of the study

Decision making process requires information on both financial and non-financial information. The most important financial information needed in the process of business decision comes from financial accounting (Kigadiye, 2014; Qurramine, 2015). Basically, financial accounting gathers, processes and analyses raw data and converts them into suitable information for investment decision making. However, the financial information contained in the financial statements does not provide useful and understandable information to users without being analyses and interpreted.

Pandey (2010) argued that financial ratios (ratio analysis) are fundamental factors that determine the decision in the business operations. The most used financial ratios have been liquidity ratios, efficiency ratios and profitability ratios (Mrisho, 2014). Successive firms use financial ratio analysis to compare themselves with other firms so as to pinpoint their weaknesses and make an improvement (Kibacho, 2014). For the business institutions or organization to be sustainable it requires effective management of the financial resources and proper plan. Financial ratios analysis is a useful tool for managing financial resources and planning for better business operations. Through financial ratios analysis of the company, one can identify weaknesses and strengths that can lead to the establishment of strategies and initiatives for the betterment of the company (Almumani and Abdelkarim, 2014).

Financial ratios analysis is an acceptable tool for analyzing a firm and its performance over time. Financial analysts and researchers combine key financial ratios (quantitative measures) over time and across industries alongside with qualitative measures to gain insight regarding the firms (Barnes, 1987 and Nkoba, 2010). Hoskin (2017) mentioned that ratios are used to represent outcomes of decisions made by the firm and the results of outside conditions surrounding the firm. Therefore, financial ratios seem to be a very important tool in investment decision making for the firms.

The effective performance of an organisation depends much on the number of human resources who can deploy the available assets to generate income (Abdulrahman, 2011). Proper decisions on human resources investment can be reached when there is an effective analysis of financial ratio compared concurrently with human resource ratio like productivity ratio (Alshati, 2015).

Likewise, opening a different branch has meaning on banking and it is considered an extension of its normal business to gain more revenues and thus increase its profitability which will enhance the liquidity of the company (Burja 2011). Despite that fact, the opening of a new branch of a bank needs proper evaluation of a number of factors such as economic factor, social factor and political factor, but the financial factors are also very important in analysis mechanism (Caddy, 2000).

With reference from Mercy (2014), financial institutions use financial ratios as a guiding factor for making decision in their operations to make investment decisions. Financial ratios help the banking industry to determine the loan provision rate as well as how far banks can open new branches as well as how they can employ new employees to meet an increased bank operation (Erasmus, 2015). Unfortunately, there are limited studies that had been empirically examined whether financial ratios analysis form the basis of investment decisions in Tanzanian banking industry. Therefore, it is upon this background, the researcher is amplified to find out the influence of financial ratio analysis on investment decision making, particularly on the opening of new branches and the number of people to employ in banking sector in Tanzania.

1.3 Statement of the problem

For the business institutions or organization to be sustainable it requires effective management of the financial resources and proper plan (Kigadye, 2014 and Qurramine,2015). Financial ratios analysis is a useful tool for managing financial resources and planning for sustainable business operations. Through financial ratios analysis, the company can identify weaknesses and strengths that can lead to the establishment of strategies and initiatives for the betterment of the company (Almumani and Abdelkarim, 2014).

Tanzania banking industries have been facing several managerial difficulties, particularly ineffective investment decisions for lack of financial interpretations especially through the use of ratio mechanism(Almumani and Abdelkarim, 2014).Zawadi (2013) which said the commercial banks is 80% efficiency, which contradicts with other studies done on the banking industry in Tanzania.

Despite the fact that there are number of studies which have been done on the role of financial ratios on investment decisions in Tanzania; most of the previous studies have been done on manufacturing industries, and most of them assessing the impact of financial ratio analysis against performance of the firm in general.However, the results that are meaningful to the manufacturing industry might be meaningless to the banking industry, because financial reporting in banking is significantly different from most other manufacturing and service industry.The empirical review from prior study which assesses on whether banks in Tanzania use ratios to determine the number of branches to be opened and the number of human resourcesto be employed for decision making have been contradicting. Other studies say there are positive contributions, other studies deny. According to survey, closure of some Banks in Tanzania are associated with inefficiency in the use financial ratio analysis in decision making. Therefore, this study intended to assess the role of financial ratio in decision making in the banking sector in Tanzania to evaluate the contradicting part from prior studies.Particularly, the study focuses on assessment of the liquidity, efficiency as well as profitability ratios.

1.4 General objective of the study

To assess the role of financial ratio analysis on investment decisions in the banking sector in Tanzania, to achieve whether financial ratios positively or negatively influence decisions making in banking industry in Tanzania.

1.4.1 Specific objectives of the study

The study dealt with the following objectives:

- i. To determine the effect of liquidity ratio analysis on investment decision, whether positively or negatively influence decision making.
- ii. To determine the effect of profitability ratio analysis on investment decision, whether positively or negatively influence decision making.
- iii. To determine the effect of efficiency ratio analysis on investment decision, whether positively or negatively influence decision making.

1.4.2 Research questions

The study aimed to answer the following objectives:

- i. What is the effect of liquidity ratios on investment decision?
- ii. What is the effect of efficiency ratios on investment decision?
- iii. What is the effect of profitability ratios on investment decision?

1.5 Significance of the Study

This study has both theoretical and practical contributions. Theoretically, the study adds to the body of knowledge on the roles of financial ratio analysis towards decision

making. The study provides some guidance to different stakeholders and decision makers in the banking sector in Tanzania.

To researchers, this study will be a source of interest for academic researchers to study and explore contributions of financial ratios in investment decisions when there is the need to conduct further specific research. The information presented in this study encourages the government and non-governmental organizations to fund researches in this area for more in-depth studies.

This study gives invaluable information to players in the banking sector on the best ways to manage investments and reduce selection of nonperforming loan portfolios. Good management of investment decisions within the firm based on the findings and recommendations of this study enhance shareholders' wealth through the increase of profits and dividend earnings.

1.6 Scope of the study

This study was conducted in the banking industry in Tanzania. Five commercial banks were selected to represent the rest of banks in this industry. Their financial ratios (independent variables) for the thirteen years were fetched as well as their investment decisions (dependent variables). The study specifically looks on the liquidity ratio, efficiency ratio, and profitability ratio as well as the number of branches and human resources.

1.7 Organizational of the study

This research report has five chapters whereas the first chapter has presented the general introduction of the study by showing the background of the study, statement of the problem, research questions and objectives as well as the significance and scope of the study.

The second chapter of this study has presented the literature review by showing the definition of key terms, theoretical arguments on the study variables, empirical literature review with existing literature gap as well as the conceptual framework.

The third chapter based on the methodologies applied in the study. This chapter presents research strategy, design, population, sampling design, methods of data collection and analysis as well as trustworthiness of the study.

The fourth chapter based on the presentation of the study findings, analysis and discussion of the study results. The last chapter based on the conclusion and recommendation of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter carried the definition of the keywords, theoretical and empirical review, study gap and conceptual framework of the study.

2.2 Concept of commercial bank

This is a financial institution providing financial services for businesses to organizations and individuals. The main services offered by banks are cash saving and deposit, money transfer, loan and several other trade finance services (Parry, 2019). In commercial banks, the objective is to receive the deposit as a security agent while they anticipate the percentage return from the depositors or they increase in value at an acceptable cost. The bank then reinvests the deposited fund and earns higher returns from borrowers. In this way, the banks depend on financial ratios analysis so as to identify and evaluate its financial position (Tugas, 2012).

Tanzania banking industry host both foreign and local commercial banks. Commercial banks in Tanzania are owned by a group of individuals, some are publicly owned and some are Parastatal (own by the government) institutions. Data from several banks' profitability studies in Tanzania have shown, Tanzanian banks have been growing slowly since 2014 (Wanke, et al). This makes Tanzanian banking industry unattractive for the investors to trust investing their money in Tanzanian banks. Likewise, business people may be doubted to deposit their money in the bank institutions which are facing a risk of bankruptcy. Such data are also discouraging in the sense that poor development of the banking industry is an indication of the reduced monetary depth in the country. That, in turn, led to a shortage of external financing to the companies within the country. This might be contributed by lack of consistency, and proper ratio analysis of financial reports to assess the weaknesses and strengths for immediate remedy.

2.3 Concept of investment

There are several definitions of investment but all of them bearsimilar meanings. Investment is the process where real assets are deployed to generate income or revenue to an organization (Caddy, 2000). In other words,the investment can be referred to as the act of adding capital today so as to increase revenues tomorrow. Therefore,an investment can be defined as the money allocation to the organization inputs with an expectation of having income generation in the future (Kisu, 2014; Omare, 2016). Investment, in finance sense, is monetary goods/assets that are bought with the trust, that it will produce a profit in the future or it will appreciate and be sold at a higher price.

This study defined investment as the action of committing capital or money in the business operations with the aim of attaining some additional earnings. The additional earnings obtained from investing can come in different forms such as appreciation, interest earnings, or profit. Kibacho (2014) stressed that investment activities are long term activities that deal with heavy turnover and have a high amount of risk. This is because the value of the investment may go down or even disappear completely. Kisu (2014) added that one of the main tools to build wealth in an organization or by an individual person is the investment, but it should be used wisely since it is a risky tool.

2.3.1 Investment decision

A decision is a choice made from a list of alternative suggestions, in a given context in order to influence certain action(s) that will bring the best results (Higgins, 2012). According to Kisu (2014)decision making is the process of selecting the best way or method to perform an action that will take the matter/situation to the conclusion or resolution very fast and accurately than the available alternative methods. The decision is done prior to action and is based on the preferences or values of possible alternative options. The decision represents what should be or not be done (Emekewue, 2008). Decision making can take several important steps to arrive at the final choice. In

making a decision, decision makers highlight several suggested options and assess for their suitability through reasoning systems (Agala et al., 2014).

Investing decision is referred to as the choice of investment portfolio from the list of portfolios with respect to the available budget and payback period (Sanjeev, 2006). It involves the injection of capital in the business operations, purchase of raw materials, machines and assets to mention a few. Also, investment decision in a business environment involves the selection of number and character of people/workforce to carry out investment activities and opening of new branches. Each investment associate with its amount of risk. It has been proclaimed by several economists that investment with great risk might result in a great profit or great loss (Emekewue, 2008; Kisu, 2014).

2.3.2 Human resources investment in a bank

Human resource is among the major assets of any organisation. The effective performance of an organisation much depends on the number of human resources as well as their quality. Human resource quality heavily depends on the education achieved and training offered to employees. Always firms want to effectively use their human resource through effective human resource management (Abdulrahman, 2011).

In the context of the banking industry, effective human resource investment can be reached only when its liquidity is effective enough. It should be noted that human resource investment decisions are not only in terms of hiring new employees or adding the number of employees but it is also in terms of training and developing employees, therefore an organisation spend the amount of money on human resource investment. Alshati, 2015 argued that proper decisions on human resources investment can be reached when there is an effective analysis of financial ratios. The profitability, liquidity, and efficiency of the firm would depend on the quality of human resources managing the firms' decision making. The reverse is the same that the quality of human resources depends on the firm's profitability, liquidity and efficiency which should be properly analysed and interpreted using financial ratios.

2.3.3 Branches investment in a bank

In the banking industry, one of the key factors which are considered as the banks development is an expansion of the bank through different channels such as opening new branches. Opening new branches is regarded as a factor that can bring the bank closer to the potential customers in the market thus increasing its profitability (Burja, 2011). The opening of new branches must be well calculated and see whether a bank can be in a better financial position to effectively operate the new branch. One of the key factors considered in the opening of new bank branches is the financial performance and position of the bank. It is through financial ratio analysis that the bank can open new branches in consideration of its liquidity. But banks must be careful where they build or open a branch as all markets are not equal (Caddy, 2000). Investment decision in the opening of new branch is assumed as capital budgeting decisions that take the shape of acquiring several assets like building, plant, and machinery which entails for an increase of revenue in the future to cover costs and release profits. This decision requires proper analysis of financial information using ratio analysis techniques.

2.3.4 Concept of financial ratios

A financial ratio is a relative degree of two-digit values that are obtained from an organization's financial statements which are mostly used in accounting. Kabera, (2009), defined that financial ratio analysis is a quantitative analysis of information contained in a company's financial statements. Ratio analysis is used in different aspects to evaluate the company's operation, performance, and investment decision making. For the purpose of this study, the investment decision is referred to the opening of new branches and human resources. Ratio analysis is always identified in decimal values such as 0.10, or in percentage form as 10% (Emekekwe, 2008). To that end, for the purpose of this study, financial ratios have been categorized into three main groups as liquidity, profitability and efficiency ratios.

2.3.5 Liquidity ratios

Liquidity refers to the ability of the firm to meet its obligations as they become due. This means at which rate assets of the firm are transformed into cash to meet the liabilities (Emekwue, 2008). According to Khidmat and Rehman (2014), the management of liquidity is very important for the management of an organization. It gives the organization's capacity to settle short term liabilities, which include operating expenses and financial obligations occurring within the organization in the short term. Liquidity management is attained through the proper use of assets. Liquidity ratios involve liquid assets to deposit ratio, net loans to total assets ratio, net loans to deposit ratio. Liquidity ratios measure a firm's ability to pay off its debts as they come due using the firm's current or quick assets. When the ratio is high, it indicates that the bank is more liquid, signifying that investment in opening more branches and human resources is possible.

2.3.6 Liquid assets to deposit ratio

The ratio of liquid assets to deposit represents the value of liquid assets (assets easily converted to cash) to short-term funding plus total deposits. Liquid asset to deposit ratio = $\text{Total liquid assets} / \text{Total deposits}$. The ratio may be expressed as a percentage (%), decimal points or proportional. Liquid assets include cash and cash equivalents, due from banks, trading securities and at fair value through income, loans and advances to banks, reverse repos and cash collaterals. Deposits and short term funding include total customer deposits (current, savings, and other negotiated term) and short term borrowing (money market instruments, and other deposits) (Khalad, 2011). This link of the ratio and number of investments is this: when the numbers of liquid assets are high, it will raise the ratio, hence encourages the bank to open more new branches and hence more human resources will be required.

2.3.7 Net loans to deposit ratio

The loan-to-deposit ratio compares the total bank loans to its total deposit and borrowing to assess its liquidity for the same period (Hoskin, 2017). In other words, it can be said that the loan-to-deposit ratio is used to assess a bank's liquidity by

differentiating a bank's total credit with its debit for a comparable period. This ratio is expressed in percentage and when the ratio is too high it indicates that the bank may fail to have sufficient liquidity to pay for any unforeseen financial liabilities. Conversely, when this ratio is very low, it indicates that the bank might not earn as much income as it could be (Kieso, et al., 2001). At this point, it expresses that the bank is not able to earn income from the interest; hence it will have the low capacity to invest more in new branches and employ more human resources.

2.3.8 Net loans to total assets ratio

This ratio measures the total liability of the bank or company as a percentage of total amounts of the assets of the banks/company (Kwei, 2014). The loan or debt to total assets ratio is a measurement representing the percentage of a corporation's assets financed with loans or other debt obligations lasting more than one year. This ratio provides a general measure of the long-term financial position of a company, including its ability to meet financial requirements for outstanding loans. When this ratio is very high it indicates that the bank is leverage and its liquidity is low. The banks become at high risk of bankruptcy when this ratio increases and reduces its ability to open new branches and employ more staff.

Kwei (2014) narrated that a year-over decrease in the loan to total assets ratio may suggest a company is progressively becoming less dependent on debt to grow its business. With the ultimate objective to consider the general utilization position of the company, it proposes the business has a decently abnormal state of danger, and at last, it will not be able to repay its commitments. This makes banks more doubtful about propelling the business and creates more suspicious about obtaining shares with high value.

2.3.9 Profitability ratios

Profitability ratios are used to find out how the firm utilizes its assets and control expenses to generate a satisfactory rate of return. This ratio also used to indicate the

ability of managers in operating the company (Emekekwe, 2008). Profitability ratios that were analysed in this study are the following:

2.3.10 Return on assets

Return on asset (ROA) can be considered as the ratio used to determine the amount of profit generated from the business. This ratio used as an indication of the ability of the firm to utilize its assets to generate profit (Emekekwe, 2008). The return on assets ratio assists to value how effectively an entity offers its stakeholders for their investment. Its computations involve findings of revenue or turnover and taking out all costs used in earning the revenue, then taking the balance as numerator to the value of assets used to generate the revenue. The ratio can be expressed as a fraction or as a percentage. The interpretation of the ratio is that: When the ratio is high, it means that the total net income exceeds total assets. This is desirable because it permits the bank to open more branches and hire more personnel.

2.3.11 Return on equity

Return on equity, also known as return on average common equity explains how the firm generates incomes from the invested funds (Kieso, et al., 2001). This ratio is computed by dividing net income by common stockholders' equity. When the ratio is high, it implies the equity has generated a reasonable amount of income which may be used to expand both branches and staff.

2.3.12 Cost to income ratio

The cost-to-income ratio is a key financial measure, particularly important in valuing banks. It shows a company's costs in relation to its income. To get this ratio, divide the operating costs (administrative and fixed costs, such as salaries and property expenses, but not bad debts that have been written off) by operating income (Kieso, et al., 2001). This ratio gives investors a clear view of how efficiently the firm is being run, the lower the ratio the more profitable the bank will be. Therefore, the bank will opt to open more branches and hire more staff if the ratio is low. Changes in the ratio can also highlight

potential problems: if the ratio rises from one period to the next, it means that costs are rising at a higher rate than income, which could suggest that the company has taken its eye off the ball in the drive to attract more business (Kamani, 2016).

2.3.13 Efficiency ratios

An efficiency ratio is used to assess the effectiveness of the management in utilize the company's assets and available funds to generate income. The ratio can calculate the quantity and usage of equity, repayment of liabilities, turnover of receivables, and the broad utilization of inventory and machinery. These ratios compare assets of the company to its profit or sales performance and explain the ability of the company to use what it owns to generate the most profit for shareholders and owners. The increase in efficiency ratio can indicate either a decrease in revenue or an increase in costs. Hence, the bank may decide to open more branches and recruit more human resources when the ratio is low.

Marković, et al. (2015) put it that efficiency can be viewed in terms of expenses incurred in production or in terms of quantity produced. This leads to the two categories of efficiency which are cost efficiency and technical efficiency. Efficiency ratio can be mathematically expressed as:-

$$\text{Efficiency Ratio} = \text{Expenses} / \text{Revenue}$$

The efficiency ratio is the one that measures how well a company utilises its assets and liabilities internally. The ratio calculates the turnover that is receivables of the firm, the repayment of liabilities that is payables of the firm, the quantity and usage of equity and the overall use of inventory and machinery (Mabwe, 2010). This ratio can also be used to trace the performance and investment of commercial banks. The investment in opening more branches and human resources is possible when the ratio is low. The efficiency ratios comprise of inventory turnover ratio, asset turnover ratio and receivables turnover ratio (Mustafa, 2014).

Power (2007) asserted that, the inventory turnover measures the firm's capacity to manage the inventory efficiently. The ratio is computed by dividing the cost of goods sold by the average of inventory, the higher the ratio indicates that the firm is not managing its inventory properly. Hence, the firm will not be able to open more branches and hire more people.

The receivables turnover ratio measures how the company is efficient to collect its debts and extend its credits. Normally the ratio is calculated by dividing a company's net credit sales by its average account receivables, generally, a higher ratio indicates that the company is efficient in making collection from its debtors (Vincet, 2013). Therefore, when the ratio is high investment in both items can be implemented.

2.3.14 Earnings ratio

Earnings ratio estimates the prospects of the shares in the firm together with the perception of the future market (Kieso, et al., 2001). Earnings are essential due to the fact that management and investors want to know how profitable the company is, and how profitable the company will be in the future. Therefore, managers would want to know the profitability status of the company, through the use of earnings ratio, before introducing a new business or invest some funds. This ratio also helps the management of the company to predict the profit that will be obtained from the new investment. Hence, the high ratio will encourage the bank to open more branches and recruit more human resources.

2.4 Theoretical review

A theory is a preposition consisting of a set of interrelated statements made by theorist which tend to suggest the occurrence of the event in the future based on the previous situation (Kenneth, 2005). The theoretical review is considered as the review of important suggestions or assumptions on the topic of interest that elaborate on how things relate in the real world (Sekaran, 2000). In this section researcher present

theories which formed the basis of this study. The theories are basic accounting theory and modern portfolio theory.

2.4.1 Basic accounting theory

It is important for business owners and other stakeholders to understand basic accounting concepts. The principles underlying these theories entail rise over time to the actual practices employed by finance practitioners to ensure finances are properly managed and tracked. There are several principles considered part of accounting theory, comprising cost principle, matching principle, materiality, conservatism, and monetary unit assumption. For the purpose of this study, the cost principle, and matching principle are briefly discussed.

2.4.2 Cost principle.

This principle requires the recording of assets as soon as they are acquired, these can range from things as small as office supplies and factory equipment to new franchises. The most point here is to keep track records of all firms' assets deployed into operations, thus enabling them to have proper figures when making financial ratio analysis.

2.4.3 Matching principle.

This principle demands that all business transactions associated with a certain type of revenue be recorded together and reported as a unit. Under matching, principle theory expenses are always reported in the same period associated with the revenue. Normally this theory exists in the accrual method of accounting, which requires the expenses and revenue to be recognised as they occur and not when they are earned or paid out. The principle in this way will make the financial statement represent a specific period, and hence the financial analysis will also represent the specific period, and enable the management of the firm to make appropriate investment decisions.

2.4.4 Modern portfolio theory

Harry Markowitz developed a theory of portfolio selection in investment that wants every investor to analyse risk associate with expected investment profit before engaging in any investment. The theory was kept modified and its latest version, in today's economic science studies, is now called Modern Portfolio Theory (MPT). MPT attempts to increase portfolio benefits for a given amount of risk or to reduce the amount of risk for a given degree of portfolio benefits (Chirinko, 1993; Agala et al, 2014). Therefore, the theory wants investors to carefully make the choice of investment strategies in such a way that their money will bring an optimal return. This can be attained through consideration of various economic variables (Labatt and White, 2002).

The theory has been very important in the mathematical modelling of investment decision making and profitability. The theory wants the management of an organization to diversify company assets with respect to market risks and unique risks of the organization under concern. The manager should use mathematical methods to estimate, classify, and control profit and risks, in all types of investments they have chosen. The theory assumes that information available from income statements, cash flow statement and balance sheets can be used by manager in selecting and monitoring investment portfolios (Gilchrist and Himmelberg, 1998).

MPT assumes that there is a numerical relationship between profit and risk and therefore, managers or investors should concentrate on the quantification of investment information (Crotty, 1992). The MPT departed from Traditional investment theory and introduces financial ratios in making investment decisions. Thus, management of an organization or company should put much emphasis on analysis of a few financial ratios rather than collecting huge qualitative information (Gilchrist and Himmelberg, 1998). In so doing, it maintains the selection of an asset to invest is not done under individual bases, rather the profitability of the entire organization is considered.

Kaplan and Zingales (2000) argued that the best factor to consider in making investment choices is the profitability of the company because without profit the

company will not grow, and its stock will fall down. A company with increasing profit will attract many investors since investors are sure of getting their dividends. Also, its share prices will rise up irrespective of its liabilities. The profitable company according to Labatt and White (2002), can use debt to increase shareholder's profit even more. Kaplan and Zingales (2000) added that the best profitability measures are those which compare profit with equity, asset, sales, and liabilities. These include return on equity, return on assets, return on capital employed and net profit margin.

Crotty (1992) contended that ratio analysis, both profitability ratios and liquidity ratios are the major tools the company should rely on deciding which investment modality and time to commence investment. He referred ratio analysis as a judgmental process to which past and current financial position of the company can be defined and the future position can be estimated. Financial ratios provide the investors with a hurriedly diagnostic look at the financial health of the company and play the role to determine the best possible strategy for growth and development (Bertolla and Caballero, 1991).

Moreover, to recognize the financial trend of the company, the present ratios should be compared with the foregoing ratios. Ratios can also be compared with ratios of other companies in the same industry in order to verify the weaknesses and strengths of the company with respect to the industrial average (Nkuhi, 2015). According to Marković et al. (2015), although MPT has been extensively used in the financial sector its basic assumption has been generally challenged. This study used financial ratios as suggested by MPT to find out whether they had a relationship with investment decision making in Tanzania banking industry.

2.5 Empirical review

General overview

This section presents different researches which had been done by different researchers on financial ratios and investment decision. This was done so as to know what has been

done and what has not yet been done on this topic so as to know what the study could cover.

Kosmidou et al. (2005) researched the role of liquidity on investment decision making in domestic commercial banks of the United Kingdom for the period of 1995 – 2002. The study came out with mixed results. It was found that there is a positive significant relationship between decision making and net loan to total assets but there was no significant relationship between investment decision making with a net loan to deposit ratio and a total asset to deposit ratio.

Kabera (2009) conducted a study to find out the extent to which financial ratios have been used to draw investment decisions in the firms in Nigeria. The main aim of the study was to establish the role and limitations of financial ratios in investment decision making. The study used a financial statement of 100 companies and several financial ratios were used in decision making. The study identified that financial ratios were essential in making reasonable investment decision making. The liquidity ratio was noted to be considered quite different among companies. The variation in using liquidity ratio was influenced by the decision to be made by the management of the company. This shows that decisions over certain investment objectives could guide analysis of liquidity ratio rather than liquidity ratio to guide decision making. This makes contradictions which should guide the other, ratio analysis or investment decision.

The study conducted by Podder (2012) narrated that there is no enough evidence of an association between financial performance and business investment decisions in the financial institutions within developing countries. It is important to note that how financial ratios have been in use to judge operations strategies and investment decisions in Tanzanian commercial banks is not well understood.

2.6.0 Specific overview

2.6.1 Liquidity ratio analysis and investment decision making

Kwok (2009) conducted a study on the role of financial ratios on the banks' lending decision. The findings reported that the level of liquidity is more important in decision making concern lending business than the status of profitability. The study concluded that the level of liquidity is very useful for the banks to decide how much should be invested in the lending business and to which category of borrowers the bank should lend. The study wanted managers and creditors in the financial institutions to make adequate use of liquidity ratios in lending decisions in order to protect their institutions from bankruptcy. The study also wanted other researchers to investigate more on the usefulness of liquidity ratio on lending decisions, therefore, to provide insight into this area. Although the study concluded the liquidity ratio to be used in decision making, the study used the lending variable only without considering other factors like the opening of new branches.

Kalanidis (2016) investigated the impact of the liquidity on the profitability and decision making in 50 largest commercial banks in Europe during a period of 2009 - 2015. The study was conducted to assess the role of liquidity in post-financial crisis. Data were collected from the banks' balance sheets and analysed using the data envelop analysis model. Regarding the relation between liquidity ratios and decision making, the study reported that total loan to total liquid asset ratio had a positive significant relationship. However, banks' profitability seemed to be reduced because of high loan to liquid asset ratio. An asset to deposit and loan to deposit ratios showed a negative relationship with decision making. The study concluded that banks should mostly use capital reserves techniques to maintain their liquidity levels and take action to minimise debt financing.

The study by Demircuc-Kunt et al., (2003) examined the impact of liquidity ratios on decision making in a sample of 1400 banks from 72 countries. The results of that study indicated that a high level of loan to liquid asset ratio could associate with lower net interest margins. They also reported the high loan to deposit that was associated with lower interest income. Finally, the study reported lack of significant relationship

between liquidity ratios and bank decision making, the study thus disagree with other research which concluded that there is a significant relationship between liquidity and investment decision making (Kalanidis, 2016).

In Malaysia, Guru et al. (1999) used a sample of 18 commercial banks from 1990 to 1997 and examine the role of liquidity ratios on the lending and investment decision. The results demonstrated that the loan to liquid asset ratio and loan to deposit ratio had no significant power to predict decisions in the banks. An asset to deposit could predict investment decisions but not lending decisions. The same results were supported by Barth et al., (2003) who investigated the influence of liquidity ratios on 2300 banks from 55 countries in Europe and Asia.

Ariffin (2012) investigated the relationship between decision making and liquidity ratios in 12 big and 12 small commercial banks operating in Japanese financial market. The study covered a period of 2006-2008 which was a period of financial crisis. The study noted that during crisis liquidity ratios and investment decisions tend to behave in the opposite ways. In particular, the increase of loan to liquid asset ratio could have a worse impact on the banks' liquidity.

Tugas (2012) examined the impact of current ratio, acid-test ratio and cash ratio in assisting management in making effective investment decisions. The study was conducted in Philippines. Their major source of data was annual reports of selected from organizations in different sectors of the economy. Banks were among the selected organizations in this study. The study used regression and correlation analysis in data analysis. Their findings show that the three mentioned variables were crucial tools in making investment decisions, especially in manufacturing organizations.

Naceur and Kandil (2009) used a sample of 28 commercial banks operating in Egypt over the period 1989 to 2004. The study employed time series analysis and noted that liquidity ratios had positive significant effects on the determination of when and how much should be invested. There was a bidirectional relationship between liquidity score and investment score. Therefore, the level of liquidity could predict the level of

investment at the same time level of investment could predict the level of liquidity. However, government financial regulations were found to affect the equation between liquidity ratios and investment decision making.

David and Samuel (2017) analysed the impact of liquidity on the managerial decision making in commercial banks. Data were solicited in 44 banks from Nigeria. They sent both structured and unstructured questionnaires to the management of banks by email. Pearson correlation was used to test the hypothesis that managerial decisions were significantly influenced by the level of liquidity and vice versa. This hypothesis was conferred true. The study thus, contradicts with other research which concluded that there is insignificant relationship between liquidity and investment decision making (Kalanidis, 2016).

2.6.2 Efficiency ratio analysis and investment decision making

Firdaus and Hosen (2013) analysed financial information of Islamic banks in Indonesia from 2010 to 2012. The study used Tobit regression model and noted that the efficiency ratio was ranging between 71.21% and 94.73%. The study did not find any significant relationship between efficiency ratio and banks' decision making. However, a high level of non-performing loans was reported to affect efficiency ratio. The study called for the improvement of Islamic banks' efficiency in Indonesia. At the international level, there is need also to find out the influence of efficiency ratios analysis in relation to the opening of new branches and staffing of human resources.

Zeitun and Benjelloun (2013) assessed the efficiency of commercial banks operating in Jordan. The study selected twelve biggest banks in the Jordanian stock exchange for their study. The study covered a period of 2005 -2010. The study findings indicated that eleven banks were inefficient since their efficiency ratios were very high. The only bank which was found to be efficient was Arab Bank which had an efficiency ratio of 48%. The other banks had an efficiency ratio that ranges from 65.4% to 81.9%. The study concluded that most banks were unable to manage their operating costs.

However, the global financial crisis was mentioned to have a negative impact on the Jordanian commercial bank.

Hosen and Muhari (2014) examined the efficiency score of seventy three commercial banks in rural areas of Indonesia for the period of 2011 to 2013. The study found the average efficiency score was 65.23%. This result indicated that commercial banks were able to earn profit within the rural areas in Indonesia. The study found a weak correlation between efficiency ratio and banks' decision making. It was also noted that banks were continued to open more branches in the rural areas since operation costs were not very high and banks could get satisfactory profit.

A study of Brazilian commercial banks was conducted by Wanke and Barros (2014) with the aim of analysing cost efficiency, productivity and investment decision in a number of branches and employees. The study noted that Brazilian commercial banks were less cost-efficient since the mean efficient ratio was 63%. However, there was a positive significant relationship between efficiency ratio and investment in a number of employees but not branches. Efficiency was noted to have a positive significant influence on both numbers of employees and branches. On the other hand, the study revealed that private-owned banks were slightly better in cost-efficient than state-owned banks. The study thus shows the results which differ with other research showing inefficiency due to high operation costs, the most variable to determine the efficiency. (Hosen and Muhari, 2014).

Shyu et al. (2015) examined the influence of efficiency on the investment decision of 56 commercial banks operate in Mainland China, Hong Kong and Taiwan. The study covered a period of 2004 to 2013. The study used regression analysis to estimate the influence of operational efficiency on investment decisions. The study found that operational efficiencies could vary from location to location. Banks' branches in Taiwan and Hong Kong had very satisfactory operational efficiency ratios compare to branches in Mainland China. Likewise, banks could open many branches in Taiwan and Hong Kong than in the Mainland. The study concluded that operational efficiency could contribute to the managerial decision on where to open branches.

Marković et al. (2015) conducted a study on thirty three commercial banks in Serbia. The study assessed the efficiency of those banks for a period of four years from 2007 to 2010. The mean efficiency score was found to be 72%. Low technological development in Serbia was connected to the inefficiency of Serbian commercial banks. Further, the study reported the absence of attributes of efficiency score on decision making of the bank. Probably this was because of the short period for the analysis; the findings could be different if they could use data over a long period.

Tyunin (2018) conducted a study in Russia with the aim of comparing the efficiency of small and large commercial banks. The study used data envelop analysis (DEA) with the help of a vector auto regression model and covered financial information of the selected 200 commercial banks from 2013 to 2017. The banks found that large banks operating in Russia were more efficient compare to small banks. The average efficiency ratio for the large banks was 32.01% while for the small banks was 87.46%. The study concluded that it is very expensive to operate a small bank with Russia's financial market since large banks could outperform small banks. Finally, the study identified private banks were also ineffective compared to the banks which were directly or indirectly owned by the public.

Zager and Zager (2006) assessed the influence of financial ratios on the security of investment in Nigerian industries. They reported that efficiency ratio was significantly related to the quality of the entire investment project, on the basis of determining sales on the capital employed and inventory period. The study concluded that successful investments are the ones secured from downfall through a regular calculation of the efficiency ratio. Amedu (2012) also concluded that during the investment decision making efficiency ratio play a vital role. Through this ratio, managers can predict the future levels of investment profitability and liquidity. The financial statements enable the investors to predict the future performance of the business and its profitability.

According to Amedu (2012), banks in Ghana invest millions of dollars in fixed assets every year. He emphasized that, according to the nature of the banking industry, this kind of investment would affect banks' fortunes over several years. The study wanted

banks to invest highly in credit business because it has the potential to boost earning and significantly increase the value of the banks. This is because of the low return on fixed asset investments. The study wanted banks to have a clear observation of their sales on capital employed (efficiency ratio) for each fixed asset, as well as other banking investments before making further investment decisions.

Sandwell (2014) studied the role of accounting ratios in investment decision making in pension fund institutions in Tanzania. The study used a case study design and included Public Service Pension Fund (PSPF). Several account ratios were examined for their role in the investment decisions. The study classified investment into three categories which were expansion of new business (investment in new activity), expansion of existing business (expand existing operations) as well as replacement and modernization. The study noted that the debtor collection period and creditor payment period which synonymously refer to efficiency ratio were among the ratios with a big role in the investment decision in PSPF. The two ratios could significantly show the financial health and predict future size of this institution. The study conclusion differs from other research which shows insignificant efficiency ratio in the investment decisions. As noted at all levels, the international and local levels, there is a need to find out the influence of efficiency ratios analysis in relation to the opening of new branches and staffing of human resources.

2.6.3 Profitability ratio analysis and investment decision making

Baba (2013) applied multiple regression analysis to find out whether financial ratios had an effect on the expansion of the firms in Malaysia for the period covering 2008 - 2012. The study collected financial statements and financial information from the top 100 leading companies. The study findings indicated that both profitability and liquidity ratios had significant effects on the expansion of the firms. Firms could expand their market areas (through the increase of workforce and distribution points) with an increase of both profitability and liquidity ratios.

Agala et al. (2014) conducted a study titled “significance of financial ratio analysis in decision making, a case of selected leading companies in Tokyo.” The study used questionnaire and collect information from 40 different companies in Tokyo-Japan. Managers and accountants were randomly selected from each company and recruited to the study. The study noted that financial ratios analysis assist managers and economic analysts in making quantitative judgement concerns the position of the organization and profitability of the existing investments. The study noted that almost all companies had a problem with absolute liquidity. However, through profitability ratios, the management can decide whether to drop or continue with certain investments. All studies on profitability ratios, none of the studies assesses the influence of profitability with the opening of a new branch or the influence on human resources.

Asgari and Shalafi(2016) assessed the impact of profitability ratios on decision making within the banking sector. The study used panel data of twenty Iranian banks registered in Tehran Stock Exchange. The study reported that profitability ratios return on equity (ROE), return on assets (ROA), and return on capital employed (ROCE), provide an appropriate guidance to the management and policy makers in deciding the right and fit investment portfolios. Specifically, the study noted that ROA and ROCE have strong predictive power to determine investment decisions of the banks rather than ROE. The study called for the accurate calculations of profitability ratios in order to improve and manage Iranian bank industry.

Nkuhi (2015) conducted a study on the role of financial management on investment decision making in Tanga Port Authority. The study examined how financial ratios aid investors in decision making. The study collected data from annual financial reports of this authority. Profitability ratio, gearing ratio, and liquidity ratio were the ratios evaluated in this study. It was found that profitability was a critical factor in investment decision making. The study concluded that other government authorities should apply financial management through the calculation of ratios in making investment decisions.

As noted earlier, all researches to assess the influences of financial ratio analysis on investment decisions concluded with either significance or insignificance, and most of the studies in Tanzania based on industry or manufacturing firms. Few studies in the banking industry and with different conclusions, leaving a study gap for more research to work on it.

2.7 Study gap

Scholars have assessed the roles of the financial ratios from different perspectives. For instance, Kwok (2009) analyzed the role of financial ratios on banks' lending decisions. Demirguc-Kunt et al. (2003 and Kalanidis (2016) examined the influence of financial ratios on profitability, to list a few. Some studies also link the financial ratios and banks' decisions. For example, Guru et al. (1999), Ariffin (2012), Tugan (2012) and David and Samuel (2017), to list a few. However, all of these studies were done outside Tanzania and they did not analyse how the financial ratios influenced investment decisions in the number of branches and human resources.

Similar studies done in Tanzania include Samwel (2014), who studied the role of accounting ratios in investment decision making in pension fund institutions in Tanzania. The study used a case study design and was done in the Public Service Pension Fund (PSPF). However, this study was done in the pension funds and not in commercial banks. Moreover, the investment decisions were measured in terms of growth of investment funds and the types of investment that included government securities, fixed deposits, loans, and special government projects, equities, real estate, and corporate bonds. The study concluded that there is a positive relationship between ratios and decision making. The existence of the study gap motivated to conduct this study entailed with a conceptual frameworking.

2.8 Conceptual framework

The study of the conceptual framework touches important features of how researcher thought to establish a relationship between financial ratios and investment decision

making in the banking industry. It was assumed that investment decision was made from the analysis of financial ratios and investment can be rejected or accepted base on those ratios. Financial statements of profit and loss together with cash flows could help to mathematically model the net future value of the investment.

The relationship of the variables in the conceptual framework is that they all use the same financial report data covering the same period, or what is referred as accounting period and that all ratios are expressed in the same measurement (percentage or decimal points or proportional). Under liquidity ratio, liquid assets to deposit ratio and net loan to deposit ratio, they all use the same denominator, (deposit), and net loan to total assets, and net loan to deposit ratio, they all use the same numerator (net loan). They both measure the liquidity of the firm.

Under profitability ratio, returns (profit) is the numerator on assets and equity for return on assets ratio and return on equity ratio. The cost on income ratio stands alone under profitability ratios.

Under efficiency ratio, we have two variables, expenses and income which measures the efficiency; $\text{efficiency} = \text{expenses over income}$, and earnings ratio which measures the profit to be earned by shareholder from the whole profit realised by the company.

All these are independent variables to dependent variables investment decisions in assessment whether it influences decision making in the banking sector to have a greater number of branches and number of human resources.

Need for more deposit, delivering closer services, and banks philosophies are intermediate variables (control variables) between dependent variables and independent variables

These are policies and regulations laid down by the government to be considered when making investment decisions.

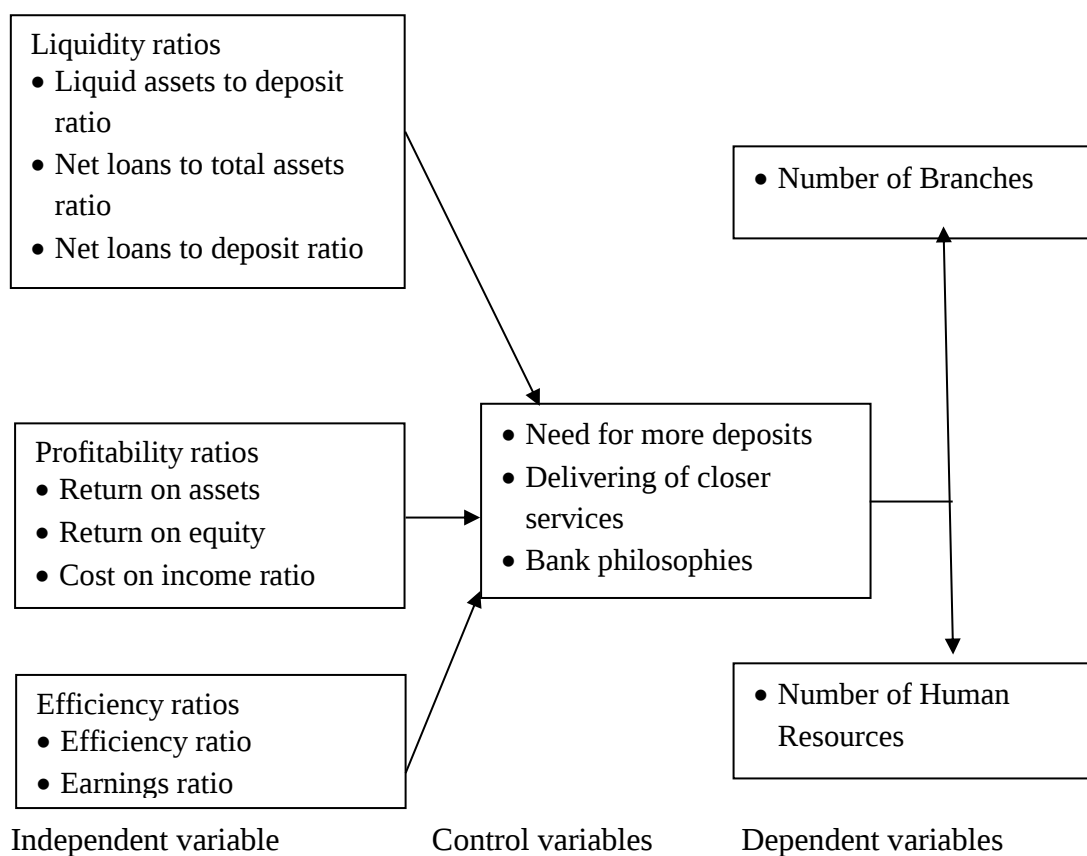
It was assumed that these financial ratios could have effects on the dependent variables (investment in a number of branches and human resources). But that effect could be

possibly interfered by factors such as governing policies in the industry and institutional investment policies. Therefore, these two variables (in the middlebox) were considered as the control or intervening variables, because based on the policy or regulations of the control variable, the decision may be made according to what the policy suggests.

The conceptual framework continued to indicate that the eagerness to open investment decisions in a number of branches and human resources could depend on the financial ratios. Therefore, it was the aim of this study to establish the relationship between investment decision (dependent variables) and financial ratios (independent variables).

Figure 2.1: Conceptual framework of the study

Financial Ratios



Source: Researcher's creation (2020)

2.9 Hypotheses

For the econometric study like this, it was better for the study to formulate and test hypotheses. The study tested the following null hypotheses:

Hypothesis 1: liquidity ratios do not significantly predict investment in a number of branches within the bank industry.

Hypothesis 2: liquidity ratios do not significantly predict investment in a number of human resources within the bank industry.

Hypothesis 3: profitability ratios do not significantly predict investment in a number of branches within the bank industry.

Hypothesis 4: profitability ratios do not significantly predict investment in a number of human resources within the bank industry.

Hypothesis 5: efficiency ratios do not significantly predict investment in a number of branches within the bank industry.

Hypothesis 6: efficiency ratios do not significantly predict investment in a number of human resources within the bank industry.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology. It stipulates the description of the area under the study, research design, research approach, data types and sources, sampling and sampling techniques, data collection techniques and analysis. It also presents the data validity and reliability of the tools as well as ethical considerations

3.2 Study area

This study was conducted in the city of Dar-es-salaam. The study involved banks listed in the Dar-es-Salaam stock exchange (DSE) market. Therefore, the study was centered in the city of Dar-es-Salaam where all of the banks' headquarters are located.

3.3 Research design

This was a descriptive survey. The descriptive survey is a research design that describes the existing phenomena of a particular issue(Kothari and Garg, 2015).The research design was used to describe the role of financial ratio analysis on investment decision making. The researcher analyses the financial records of banks listed under the DSE to see how far the financial ratio has impacted their decision making. Descriptive research is unique in the number of variables employed. Like other types of research, descriptive research includes multiple variables for analysis. For the case of this study, a descriptive study employed several variables such as liquidity ratio, profitability ratio and performance (efficiency) ratio.

Descriptive research can be either quantitative or qualitative. The quantitative part of this design involves collections of quantitative information that can be tabulated along a continuum in numerical forms, such as scores on a test or the number of times a person chooses to use a certain factor, or it can describe categories of information such as gender or patterns of interaction when the aim is to establish a relationship between

variables(Saunders, Lewis, Thornhill, 2012).For the case of this study, the researcher used quantitative approaches so as to have a clear picture of the findings.

3.4 Population of the study

Generally, in the various fields, a population of the study is a group of individuals or items taken from the general population who share a common characteristic, such as common experience, common function in an organization(Saunders et al, 2012). This group may be studied for different reasons. For the case of this study, the population comprised of all commercial banks operating in Tanzania from 2010 to 2016

3.5 Sampling procedures and sample size

The researcher purposely targeted banks that are listed under the DSE; they believed to be reliable for this study. Purposive or judgemental sampling technique was used, and the judgment of the researcher selected the cases that make up the sample. Purposive sampling technique refers to the sampling techniques which enable a researcher to select a sample based on his /her knowledge of the population, research elements, and objectives. Purposive sampling is also based on the researcher's judgment and purpose of the study (Kothari and Garg, 2015).

Purposive sampling is a practical and efficient tool when used properly, and can be just as effective as, and even more efficient than, random sampling. The danger with the purposive method is that the researcher exercises judgment on the informant's reliability and competency. This is a relevant concern especially regarding key informants on whom the data quality rest. It is critical to be certain of the knowledge and skill of the informant when doing purposive sampling, as inappropriate informants rendered the data meaningless and invalid(Kura, 2012). The study selected 5 leading commercial banks in Tanzania that were listed in Dar es Salaam Stock Exchange. It was the researcher believes that the leading banks, in terms of operation capitals, have been using different measures in order to make strategic investment decisions(Kothari and Garg, 2015).

Since all of commercial banks listed in Dar es Salaam stock exchange market were the subject of the study. All financial data relating to the financial performance of the banks were taken from DSE and from annual reports of the selected banks. The researcher collected the financial data of banks for the past seven years, from 2010 to 2016. The period was seen to be long enough to provide the researcher with adequate data that could be used to make a conclusion on the roles of financial ratios on investment decision making.

3.6 Data collection methods

The researcher used only secondary data for this study, therefore, the only documentary review was applied as a method of data collection.

3.6.1 Documentary review/ Secondary data

Secondary data can be collected from reports or any composed or recorded materials that are not set up at the demand of the researcher or with the end goal of the research (Cooper and Schindler, 2006). Secondary data from financial records from selected commercial banks under DSE were reviewed. The secondary data collected was those in relation to the study variables for the period under investigation. These data were obtained from the Dar es Salaam Stock Exchange and respective banks' financial statements. There were no hindrances in obtaining all this data as it is all public information. Data on a yearly basis were collected over a range of seven years (2010-2016), this period was considered sufficient.

3.6.2 Variables definition and measurement

There were three main variables to this study which are liquidity ratios, profitability ratios, and efficiency ratios. The liquidity ratios measure liquid assets to deposit ratio, net loans to total assets ratio and net loans to deposit ratio. The profitability ratios are measured by return on assets. Return on equity and cost on income ratio and the efficiency ratios used the following intermediates for efficiency ratios and earnings

ratios(Emekekwe,2008).The data used for measurement was derived from financial statements. All of the variables were interval fixed yearly and continuous.

Table 3.1: Variables measurement

Core Variables	Control Variables	Source of data	Measurement and Scale
Independent variables			
Liquidityratio analysis	Liquid assets to deposit ratio Net loans to total assets ratio Net loans to deposit ratio	Financial Statements	Interval fixed in years
Profitability ratio analysis	Return on Assets Return on Equity Cost on income ratio	Financial statements	Interval fixed in years
Efficiency ratios	Efficiency ratio Earnings ratio	Financial statements	Interval fixed in years
Dependent and control variables			
Investment decision making	Number of Branches, Number of Human Resources	Annual reports	Interval and continuous
Control variables	Bank regulations and investment policies	Annual report	Descriptive only with time frame coverage

3.7 Data analysis

SPSS software was used to process and analyze collected data. Different tests/analyses were applied to reach the conclusion of the study.

3.7.1 Principal Component Analysis

Principal Component Analysis (PCA) is the analysis that measures the degree of inter-correlation among study factors/variables. The analysis uses Kaiser-Mayer-Olkin (KMO) and Bartlett's Test of Sphericity (Bartlett's test) to assess whether the variables used are appropriate and adequate. The variables are considered appropriate when the significant value ($p < 0.5$) of Bartlett's Test is obtained. The adequacy of variables for factor analysis is determined when the value of KMO is more than 0.6. Usually, the

index of KMO ranges from 0 to 1. When KMO is less than 0.6 it means that the variables/factors are not adequate for data analysis (Pallant, 2001).

The study applied factor analysis under the extraction method of principal component analysis with the rotation method of varimax. The varimax was considered appropriate since it maximizes correlation within the factors and minimized across factors. Hence clear factors can be extracted and clear interpretation can be made.

3.7.2 Regression analysis

The researcher ran Weighted Least Square Regression (WLSR) analysis to settle the relationship between extracted independent variables and dependent variables. Moreover, regression analyses were the main way of assessing predictor variables for the investment decision in the selected commercial banks. The regression equation/model was used to link the independent variables to the dependent variable as follows:

$$\text{Var9/Var10} = a + \beta_1 \text{Var}_1 + \beta_2 \text{Var}_2 + \beta_3 \text{Var}_3 + \beta_4 \text{Var}_4 + \beta_5 \text{Var}_5 + \beta_6 \text{Var}_6 + \beta_7 \text{Var}_7 + \beta_8 \text{Var}_8 + \varepsilon \dots$$

equation 1

Var9 / Var10 = Investment decision making (either number of branches (var9) or human resource (var10))

Var₁= Liquid assets to deposit ratio

Var₂= Net Loans to total assets ratio

Var₃= Net loans to deposit ratio

Var₄= Return on assets

Var₅= Return on equity

Var₆= Cost on income ratio

Var₇= Efficiency ratios

Var₈= Earnings ratios

a = is the constant term of the coefficient

$B_i = 1 \dots 8$ was used to measure the sensitivity of the dependent variable Var9 or Var10) to a unit change in the predictor variable Var1, Var2, Var3, to Var8 and ϵ is the error term that captures the unexplained variation in the model.

A regression model was tested against heteroscedasticity, normality, autocorrelation, and multicollinearity as recommended by Gujarati and Porter (2010) and we found that no serious problems were found.

3.8 Validity of the data

Validity is an explanation of correctness and accuracy of the data used in the research study (Polit and Hungler, 1995). This definition is also reflecting on how the study tries to express the reality and truth of the findings. Yin (1994) presented three kinds of research study validity. These are constructing external and internal validity.

Construct validity illustrates the correctness of the studied concept. In another word, constructive validity tends to ensure the obtained answers are correct. Through a re-examination of the information entered in the analytical software as well as repetition of analysis; the researcher ensured construct validity.

External validity refers to how best the findings of the study can be generalized beyond the selected sample study. This study was conducted in the banking industry and therefore the study findings can only be applied within the Tanzanian banking industry. The study selected five leading banks in Tanzania which have branches almost in all regions of the country. Therefore, the findings can be trusted to represent other banks operating in Tanzania.

Internal validity concerning with truthiness of the fact that all independent variables cause dependent variables. The study used longitudinal econometric data which have a high chance of suffering from regression problem, especially multicollinearity. Hence data was subjected in Principal Component Analysis in order to remove independent variables with less influence. However, the study tested the hypothesis that showed that independent variables were causing dependent variables.

3.9 Reliability of data

According to Ary, Jacobs, and Sorensen (2010), reliability means the precision of data based on the ability of the research tool to produce consistent results. Quansah (2017) asserted that the coefficients of Cronbach alpha range from 0-1 and as the value of coefficients are approaching 1 indicates that the data are more reliable. Creswell (2012) affirmed that in order for the value of Cronbach alpha to be accepted, it should range from 0.70 to 0.95. The Cronbach alpha statistics use the method known as test-retest which measures the correlation among the variables. The findings from Table 3.2 shows that the mean value of Cronbach alpha is 0.7984, indicating that data were reliable.

Table 3.2: Reliability Results

Variable	Cronbach Alpha
Liquid assets to deposit-borrowing ratio	0.772
Net Loans to total assets ratio	0.713
Net Loans to deposit and borrowing	0.718
Return on Assets (ROA	0.762
Return on Equity (ROE)	0.830
Cost to income ratio (C/I)	0.755
Efficiency Ratio	0.742
Earnings Ratio	0.790
Number of Branches	0.954
Number of Human Resources	0.948
Mean	0.7984

3.10 Limitations of the study

There few possible limitations for this study: the first one is the lack of primary data in the study. The study used only secondary data that were mainly taken from the annual reports of the selected commercial banks. The disadvantage of using secondary data is

that data cannot be expanded, only available data may be used. It would be better if the findings of secondary data could be boosted or supported with primary information.

The second limitation of doing this study was the lack of enough time. This is an academic study and therefore it is limited by time. The study was supposed to be completed within academic time frame which was not possible.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION

4.1 Introduction

In this chapter, researcher presented findings of the study as per specific objectives. The presentation of the findings went hand in hand with the discussion of study results. The chapter has three sections wherein, the first section presents the correlation analysis of the study variables, the second section presents an analysis of the study findings in which researcher applied principal component analysis and weighted least square regression analysis, while the third section presents a discussion of the study results that relate with the study specific objectives.

4.2 Descriptive statistics of study variables

In this section, descriptive statistics of the study variables have been provided. The statistics involved data collected for a period of seven years, from 2010 to 2016. Mean, standard deviation, minimum and maximum values were calculated. It should be noted that a standard deviation of greater than 1.5 indicates the very high variation of the values from the mean; while the standard deviation of less or equal to 1.5 indicates the values were closer to the mean. Table 4.1 carries a summary of descriptive statistics.

In interpreting the results var1 to var3 represent proxies of liquidity ratios which were liquid assets to deposit ratio (var1), net loans to total assets ratio (var2) and net loans to deposit (var3). The proxies for profitability ratios were return on assets (var4), return on equity (var5) and cost to income ratio (var6). Efficiency was measured by efficiency ratio (var7) and earnings ratios (var8). Meanwhile, investment decisions of the banks were presented by two empirical models which were a number of branches (var9) and human resources/employees (var10).

Table 4.1: Descriptive statistics of study variables

Variables	N	Minimum	Maximum	Mean	Std. Deviation
var1	35	0.042	1.456	0.646	0.414
var2	35	0.260	0.769	0.562	0.134
var3	35	0.102	0.996	0.635	0.206
var4	35	-0.017	0.356	0.039	0.062
var5	35	-0.118	0.293	0.131	0.101
var6	35	0.715	1.307	0.855	0.118
var7	35	0.048	0.948	0.480	0.278
var8	35	0.691	1.667	0.909	0.176
Branches (var9)	35	5	185	91.40	58.708
Employees(var10)	35	132	3432	1710	966

Source: Field Data (2020)

The results in table 4.1 indicate that the reviewed banks were not geared due to the fact that the mean of net loans to total asset ratio was less than one. Whereby, the mean of the net loan in selected banks was about 56.2% of the mean of total assets. Similarly, mean of net loan to deposit ratio (which is equivalent to debt/equity ratio) was less than one. This shows that selected commercial banks had low debt financing than equity financing. The amount of loan in the reviewed banks was about 63.5% of the deposits.

Liquid assets to deposit ratio suggest the banks had a satisfactory amount of liquid, which was about 64.6% of the deposits. Since liquidity ratios measure the ability of the firm to repay its short term liabilities (such as short-term debts, operation expenses, and other short term obligations), it can be accepted that the reviewed commercial banks were able to meet their short term obligations within the reviewed period (from 2010 to 2016).

Concerning the descriptive statistics of profitability ratio, it was found that the return on assets was 3.9%, return on equity was 13.1% and the cost to income ratio was about 85.5%. Verfaillie and Bidwell (2000) together with Shyu et al., (2015) reported that the good value for return on assets and on equity should be 5% and 20% respectively or more. Hence, the findings show that the reviewed banks had earned a satisfactory

income from the equity but not assets within the seven years period under review. This is depicted by a good mean value of return on equity and the bad (very low) mean value of return on assets.

The mean cost/income ratio was very high at 85.5% which indicates that banks could spend 0.855 unities to produce 1 unit of profit. The suitable value of cost to income ratio has been recommended not to exceed 70% (Verfaillie and Bidwell, 2000). Hence, the reviewed banks were quite ineffective in terms of operational cost management. General conclusion in respect of profitability ratios is that managers of the reviewed banks were capable to ensure their banks got profit from equity shares purchased by the investors/shareholders but not from existed banks' assets. Hence, they have to improve their management strategies in order to earn a satisfactory income from assets. Also, they should work to minimize the cost/income ratio which was noted to be very high than the recommended maximum value. Mercy (2014) reported that corporate managers should keep the cost/income ratio as lower as possible.

On the other hand, the mean value of efficiency ratio was found to be 48%. The findings of the efficiency ratio assumed that the reviewed banks had tried to earn more than they spent. Verfaillie and Bidwell (2000) mentioned that companies try to lower their efficiency ratios because the low the ratio the higher the profit. A suitable efficiency ratio should be less than 50%. Although the efficiency ratio was found to be good still the reviewed banks have a chance to improve efficiency ratio by decrease outputs and increase inputs.

The findings continue to suggest that the stocks of reviewed banks were overvalued within the reviewed period. This is because the mean earnings ratio was 90.9% which is greater than the average earnings ratio of the entire banking industry. This suggests investors overprice stocks of the reviewed commercial banks. According to BOT (2017), the earnings ratio of the Tanzania banking industry has been ranging between 17.7% and 28.9%. The researcher of this study argued that the reviewed banks were facing lower bankruptcy risk since they have shown to be well capitalized banks in the

industry. However, they can have access to cheaper funding that will increase their profit.

4.3 Analysis of the study results

4.3.1 Principal component analysis of the independent variables

Principal component analysis (PCA) was used to extract independent variables which highly explain dependent variables. In conducting PCA the following assumption are important. KMO score greater than 0.5, factor load greater than 0.5, commonalities also greater than 0.5, Bartlett test significant less than 0.5 and none of cross loading

Factors loaded for analysis were all eight independent variables; var1, var2 to var8 which presented variables for liquidity ratios, profitability ratios, and efficiency ratios. The test based on eight values to extract a set of independent variables/factors with high load. The results presented in table 4.2 show KMO score was 0.608 and the value of Bartlett's Test of Sphericity was 0.000 which indicates the extracted factors/variables were significant. This means that they had a very high level of reliability.

Table 4.2: KMO and Bartlett's Test for independent variables

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.608
Bartlett's Test of Sphericity	Approx. Chi-Square	117.707
	Df	28
	Sig.	.000

Source: Secondary data (2020)

Figure 4.1 indicates three factors of the financial ratio were extracted by the SPSS as the best predictors of the banking investment, while the other five factors were eliminated. Therefore, the three extracted factors/variables were used in the subsequent analyses.

Figure 4.1: Scree plot for independent variables



Source: Secondary data (2020)

Table 4.3 depicts that the three extracted factors contributed 74.6% of the total variance explained and the five dropped factors present 25.4%. Table 4.4 shows the first extracted factor was var5 (return on equity) which contributed up to 37.9% of the total variance with factor load of 0.926, the second factor was var1 (liquid assets to deposit-borrowing ratio) which present 19.8% of the total variance with factor load of 0.871, the third extracted factor was var3 (net Loans to deposit and borrowing) with percentage representation of 16.9% and factor load of 16.9%. However, according to Nunnally (1978) variables with factor load of 0.4 and above are considered reliable.

Table 4.3: Total Variance Explanation

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.032	37.904	37.904	3.032	37.904	37.904
2	1.587	19.837	57.742	1.587	19.837	57.742
3	1.349	16.861	74.603	1.349	16.861	74.603
4	.945	11.817	86.419			
5	.475	5.938	92.357			
6	.286	3.573	95.931			
7	.197	2.467	98.397			
8	.128	1.603	100.000			

Extraction Method: Principal Component Analysis.

Secondary data (2020)

Table 4.4: Rotated Component Matrix

	Component		
	1	2	3
var5	.916	.187	-.026
var1	.900	.067	.182
var3	.859	-.093	.028
var6	-.661	-.239	.351
var4	.099	.903	-.169
var8	.088	.877	.316
var7	.120	.019	.785
var2	-.098	.054	.713

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 4 iterations.

Source: Secondary data (2020)

4.3.2 Relationship between financial ratios and investment on bank branches

The study used weighted least square regression analysis to establish the relationship between extracted financial ratios (var1, var3 and var5) and banks' decision to invest in a number of branches. In order to have clear results, all data were changed to the

logarithm. The results have been presented in table 4.5 where it can be observed that the effects of these three extracted financial ratios on the decision to invest on the number of branches were significant ($p\text{-value} < 0.0001$). The correlation coefficient (R-Square) was 0.470 which implies that there was a moderate relationship between the selected proxies/variables and investment on the number of branches. The coefficient of the determinant (Adj R-Square) was 0.431 and this indicated 43.1% of the decision to invest on the number of branches could be influenced by selected financial ratios.

Table 4.5: Relationship between financial ratios and bank branches

R = 0.589 R-Square = 0.470 Adj R-Square = 0.431 Sig < 0.0001							
Model (1)	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	6.071	.662		9.165	.000		
var1	-.004	.006	-.029	-.555	.593	.910	1.098
var3	-.133	.054	-.136	-2.473	.035	.829	1.206
var5	1.670	.088	1.029	19.039	.000	.853	1.173

- Dependent Variable: Branches (var9)
- Predictors: (Constant), var5, var3, var1

Source: Secondary data (2020)

Specific results showed liquid assets to deposit ratio (var1) had a negative insignificant relationship with investment on branches ($p\text{-value} = -0.029$). Also net loan to deposit ratio (var3) and return on equity (var5) had a negative significant relationship with investment on the number of branches (var9). The level of

Significance of var3 was less than 0.035 and that of var5 was below 0.0001. With these statistics, it can be said that liquid assets to the deposit-borrowing ratio (V1) have no significant power to predict investment on the number of branches in the banking industry. But net loan to deposit ratio (var3) and return on equity (var5) have the power. Nevertheless, the increase of the number of branches could depend highly on the

increase of return on equity but the decrease of branches could highly depend on the increase of net loans to deposit ratio.

The regression equation to predict investment on the number of branches within the banking industry using financial ratios can be given as the equation below (equation 1): -

$$Var9 = 6.071 - 0.004var1 - 0.133var3 + 1.67var5 \dots \dots \dots \text{equation 1}$$

4.3.3 Relationship between financial ratios and investment on human resources

Similarly, weighted least square regression analysis was employed to establish a relationship between the extracted financial ratio (var1, var3 and var5) with banks' decision to invest on the number of human resources (var10). Data was also changed to their logarithm values in order to have clear model. The regression analysis revealed the model was also significant with a probability value of less than 0.002. The coefficient of the determinant was 0.792 that means the three extracted financial ratios could contribute up to 79.2% of the decision on whether to invest in the number of human resources. Meanwhile correlation coefficient was 0.680 which indicate a strong correlation between investment decision on the number of human resources and the three extracted financial ratios.

From table 4.6, it can be noted that net loan to deposit ratio (var3) and return on equity (var5) had a strong significant relationship with investment on the number of human resources (var10). All had a significant value of less than 0.05. However, net loan to deposit ratio (var3) shown to have a negative relationship with investment on human resources while return on equity (var5) shown to have a positive relationship with investment on human resources. On the other hand, liquid assets to deposit ratio (var1) had a negative insignificant relationship with the number of human resources (p-value = 0.683). With these statistics, it can be accepted that number of human resources/employees could increase when the return on equity increases and/or when a net loan to deposit ratio decreases.

Table 4.6: Relationship between financial ratios and human resources

R = 0.890 R-Square = 0.792Adj R-Square = 0.723 Sig = 0.002							
Model (2)	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	6.143	.629		9.761	.000		
var1	.003	.006	.067	.421	.683	.910	1.098
var3	-.136	.051	-.447	-2.678	.025	.829	1.206
var5	.322	.083	.636	3.864	.004	.853	1.173

- Dependent Variable: Employees (var10)
- Predictors: (Constant), var5, var3, var1

The equation to predict investment on a number of human resources (var10) using liquid assets to deposit ratio (var1), net loan to deposit ratio (var3) and return on equity (var5) could be given as follow: -

$$\text{Var10} = 6.143 - 0.003\text{var1} - 0.136\text{var2} + 0.322\text{var5} \dots \dots \text{equation 2}$$

4.4 Discussion of the study results

In this section, the researcher presents the discussion of the findings of the research as per specific objectives. The study had three specific objectives which called for the relationship between investment decision which determines the opening of new branches and recruitment of new employees as dependent variable and proxies of liquidity ratio, efficiency ratio as well as profitability ratio as independent variables. The researcher performed principal component analysis (PCA) of the independent variables in order to extract factors/variables which could highly explain the relationship between independent and dependent variables. Three factors/variables were extracted and these were liquid assets to deposit ratio (var1), net loan to deposit ratio (var3) and return on equity (var5). This was followed by a linear regression analysis between extracted factors and proxies of investment decisions. However, all data were converted to logarithm values in order to have clear model.

4.4.1 The effect of liquidity ratios on investment decision making

The first objectives called for the determination of the effect of liquidity ratio analysis on investment decision making. Among three proxies of liquidity ratio included in this study; two of them were extracted after conducting PCA. These were var1 and var3. The results obtained from WLSR showed that var1 had insignificant relation with investment on banks' branches while var3 had a significant relationship with investment on banks' branches. For that reason, the study accepted var3 (one of the proxies of liquidity) could significantly predict investment on the number of banks' branches. Therefore, the study rejected null hypothesis 1 which stated that liquidity ratios do not significantly predict investment on the number of branches within the bank industry.

Concerning investment on the number of human resources, the study found that net loan to deposit ratio (var3) was significantly inverse propositional to the number of human resources/employees in the banking industry. Hence, the study accepted that liquidity ratios could significantly predict an increase and decrease of human resources within this industry. The study rejected null hypothesis 2 which stated that liquidity ratios do not significantly predict investment on the number of human resources within the bank industry.

The study accepted that liquid asset to deposit ratio and net loan to total asset ratio do not foster effective investment decision, therefore, do not enforce opening of a new branch and enforce for additional human resource/ manpower. But net loan to deposit ratio could do. The study also accepted that, in investment decision making, managers of selected commercial banks were looking on the ability of their banks to manage short term liabilities and generate income from assets. They were also looking on the market price of their products to determine whether an increase in branches or human resources could earn them more profits.

Kiwelo (2015) declared that, for the company to be sustainable, it should always consider its liquidity values in any new operations or investment. Query (2014) argued

that the liquidity values are very important to be considered if an investment is to be made to avoid the difficulties such as long time to be taken to convert back the asset into cash. Therefore, the study wants commercial banks in Tanzania also to closely consider their liquidity values in making investment decisions.

The assets to deposit liquidity ratio is regularly referred to as a key fundamental metric for safekeeping of money by the organization. This ratio represents the degree to which the company has liquidity close and, financed by moderately steady and unsurprising (for the most part retail) on funds safekeeping, as opposed to by possibly more unpredictable discount obligation to be subsidized. Obviously, a bank's monetary record may likewise incorporate deposits from huge non-bank organizations, which frequently act like discount financing (Omare, 2016). Many banks hold billions of dollars in assets and have several subsidiaries in different industries (Kisu, 2014).

4.4.2 The effect of profitability ratios on investment decision making

The next specific objective was to establish the effect of profitability ratios on investment decision making in the banking industry. The proxies of profitability ratios included were return on assets (var4), return on equity (var5) and cost to income ratio (var6); while investment decision making was still presented as invest in the number of branches (var9) and the number of human resources (var10). After conducting PCA var4 and var6 were excluded following their low factor load and var5 was extracted since it had high factor load. The results of WLSR revealed var5 had significant positive power to predict both investments in the number of branches and human resources.

The study rejected null hypothesis 3 which states that profitability ratios do not significantly predict investment on the number of branches within the bank industry. Also, the study rejected null hypothesis 4 which states that profitability ratios do not significantly predict investment on the number of human resources within the bank industry.

This study showed evidence of a significant relationship between profitability ratios and decision making in Tanzanian commercial banks. Similarly, other studies in other countries have shown the existence of a significant relationship between profitability and investment decisions in business organizations. A good example is the study by Agala et al (2014) from Japan and the study by Baba (2013) from Malaysia which found the existence of positive significant relationship between profitability and decision making in the banking sector. However, there some authors like Amedu (2012) from Ghana who did not find the relationship between profitability and investment decisions in the local commercial banks. This being the fact, the study argued that the relationship between profitability ratios and decision making depends on the business model used by each bank and/or used by each banking industry.

Demirguc-Kunt et al., (2003) also found that return on equity could not directly relate to business investments in small and medium service companies but not in large service companies. The researcher argued that equity investors do consider the size of the companies to which they can invest in terms of the amount of assets invested and amount of operation capital of the company. Return on equity, according to Higgins (2012), is the key profitability ratios that investors use to measure the amount of a company's income that is returned as shareholder equity. This ratio reveals how effectively a corporation is generating profit from the money that equity investors have put into the business.

Information presented in the literature review (chapter two) suggests that many banks, especially the leading banks in a given financial market, hold some assets and have improved their investment performance through return on assets. However, there is a cutting point where the further holding of assets results in decrease in investment performance. Cost to income ratio was omitted through PCA because it had low factor load. But the study suggested that management of the commercial banks in Tanzania consider costs before performing any investment decision. However, Ariffin (2012) and Tyunin (2018) stated that the cost-to-income ratio gives the management of the business organization a clear view of how efficiently their businesses are run.

Management can monitor the cost of opening new businesses using a cost-to-income ratio. The higher the cost suggests closure of the investment decision while the higher the income suggests the expansion of the investment.

4.4.3 The effect of efficiency ratios on investment decision making

The third specific objective of this study was to determine the effect of efficiency ratios on investment decision making. Two efficiency ratios were reviewed; these were efficiency ratio (V7) and earnings ratio (V8). However, after PCA analysis, all these two factors were dropped since they had low factor load. Hence, there were no proxies of efficiency ratio to regress with proxies of investment decisions. This being the fact the study concluded that efficiency ratio could not have the power to predict investment on the number of branches or employees/human resources within Tanzania banking industry.

The study accepted null hypothesis 5 which states that efficiency ratios do not significantly predict investment on the number of branches within the bank industry. Also, the study accepted null hypothesis 6 which states that efficiency ratios do not significantly predict investment in the number of human resources within the bank industry. The study argued that efficiency ratios were found to have no power to directly predict investment decisions in the reviewed commercial banks because the banks were not performing well in their operations. Improvement of management of commercial banks in Tanzania would increase their operational performance.

A study by Kigadiye (2014) argued that earning was having a positive relationship with the increasing number of employees in Norwegian commercial banks. This means the Norwegian banks could make the decision on the recruitment of new employees based on the received earnings. This study accepted that earnings ratio is an important efficiency ratio. Since it shows how much profit the bank is receiving from each shilling it lends to the clients/borrowers. It also shows the amount a bank receives from each shilling saved by depositors within the bank.

4.5 Conclusion

The study assessed the role of financial ratios in investment decision making within the banking sector. The information reported in this study is meaning full since data were collected from the annual reports of the selected banks, a reliable source. According to Modern Portfolio Theory (MPT), the major custodian of financial information that is important for investment decision making is the financial statement. The MPT continued to narrate that financial ratios are the bedrock on which investment decision making stood.

The study indicated that financial ratios were differently considered in decision toward investment in number of human resources and branches. Different results have been observed on liquidity ratios, profitability ratios and efficiency ratios. Efficiency ratios were found not to have the ability to influence investment decisions in the commercial banks in terms of the number of both human resources and branches. The study discovered that investment on both human resources and branches could increase with the decrease of liquid assets to deposit ratio (var1) and net loan to deposit ratio (var3) but could increase with an increase of return on equity (var5).

CHAPTER FIVE

STUDY SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

In this section, the researcher presents the summary of the entire study, conclusion based on the study questions and recommendations that will bring effectiveness in the investment decision making within commercial banks. However, the chapter gives areas for further studies.

5.2 Summary of the study

The aim of the study was to examine the effect of financial ratios on investment decisions in the banking industry. In order to achieve this general objective, the study posed three questions which were: What is the effect of liquidity ratios on investment decision making? What is the effect of efficiency ratios on investment decision making? And what is the effect of profitability ratios on investment decision making? All these three questions constitute independent variables in the researchers' conceptual framework. The dependent variables on investment decisions constitute two variables namely investment in opening new branches and investment in the increasing number of human resources.

The study collected data from commercial banks listed in Dar es Salaam Stock Exchange. They were selected on the basis of their operating capital and coverage in which the five leading banks were selected. Therefore, the study used a purposive sampling technique and covered a period of seven years from 2010 to 2016. The findings were analysed using SPSS where principal component analysis and weighted least square regression analyses were performed. PCA was conducted in order to make data reduction (so that to remove the problem of multicollinearity) while WLSR-analysis was done in order to establish a relationship between dependent and independent variables.

5.2.1 The effect of liquidity ratios on investment decision

The liquidity ratios assessed by this study were a liquid asset to deposit ratio, net loan to total asset ratio as well as net loan to deposit ratio. Through PCA net loans to total asset ratio was omitted and the other two ratios were extracted. The results of WLSR-analysis indicated that liquid asset to deposit ratio had a negative insignificant relationship with both number of branches and human resources in the commercial banks. Meanwhile, net loans to deposit ratio had negative significant power to predict investment in the number of branches and human resources. Therefore, investment in these parameters could increase with the decrease of net loan to deposit ratio.

5.2.2 The effect of profitability ratios on investment decision

The proxies of profitability ratios analysed were the return on assets, the return on equity and the cost to income ratio. The results gave a clue that return on equity had a positive significant effect on the decision to invest in the number of both branches and human resources. The study concludes that an increase in return on equity was influencing an increase in investment on both number of branches and employees in the reviewed commercial banks. Return on assets and cost to income ratio were noted to have no direct effect on the investment decision making in the reviewed commercial banks. These two variables were discovered to have low reliability (factor load) in predict investment therefore they were omitted during PCA.

5.2.3 The effect of efficiency ratios on investment decision making

The study analyzed efficiency ratio and earnings ratio as the proxies of efficiency ratios. The finding of PCA indicated that both efficiency ratio and earnings ratio were less reliable variables/factors for predicting investment decisions in the banking industry. Hence, the study accepted that efficiency ratios did not have the direct ability to predict investment decisions in the banking industry in terms of the number of human resource and number of branches.

5.3 Conclusion of the study

The study concludes that financial ratios have different effects on investment decision making in the banking industry. Some ratios could positively influence and others could negatively influence the openness of investment in terms of human resources and branches. For instance, among extracted variables liquid assets to deposit-borrowing ratio were found to have a negative insignificant power to influence investment while net loans to deposit and borrowing were found to have negative significant influence in the investment decisions. Return on equity was found to have positive significant power to predict investment in both numbers of branches and human resources. On the other hand, proxies of efficiency ratios were found to be unreliable in determine investment decisions in commercial banks. Finally, these results give a chance to the study to conclude that financial ratios have mixed effects on investment decision making in the banking industry.

5.4 Implication of the study

The findings give us a clue that banks perform investment analysis in which at certain extent financial ratios become a benchmarked for establishing investment decisions. This is because the financial position or financial healthiness of the company (in terms of asset and liability) can be identified from the financial ratios. The results also have proved the validity of MPT theory which claimed that financial ratios can be used to determine whether to pursue suggested investment or not. This is hand in hand with making investment profitability projections. Accordingly, the study has accepted financial ratios (particularly liquid assets to deposit-borrowing ratio, net loans to deposit and borrowing as well as return on equity) have an important role in making investment decisions within the banking industry.

5.5 Recommendation of the study

The following has been suggested in order to improve investment decision making within the banking industry:

- Commercial banks should make regular use of their financial ratio analysis in deciding whether to invest or not. They should consider ratios like liquid assets to deposit-borrowing ratio, net loans to deposit and borrowing, return on equity and other ratios.
- However, banks should demonstrate proper ways of keeping financial records, in such a manner that they can be retrieved when needed and analyzed quickly.
- Commercial banks should employ skilled personnel (in accounting and related subjects) who are competent and capable to collect and analyze financial information.
- The Bank of Tanzania (BOT) should deliberately speed up the sensitization campaign to Tanzanian commercial Banks to focus on ratios analysis as among the best tool in effective decision making in the banking industry.

5.6 Area for further study

To get a comprehensive picture of this study, a similar study should be conducted but it should expand the scope and cover financial data before the year 2010. Other future studies should examine the role of other factors in investment decision making rather than financial information. These factors may have a great impact on the process of making banks' investment decision.

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