INVESTIGATING THE EFFECTS OF CREDIT RISK MANAGEMENT PRACTICES ON PROFITABILITY AT ABSA BANK ZAMBIA PLC

BY

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A research Submitted to the University of Zambia in Partial Fulfilment of the Requirements for the Award of the degree of Master of Business Administration

Contents

DECLARATION

I **HELLINGS MULWANDA** submitted as part of an application for a degree or certificate at this or any other university. The sources have been properly acknowledged when other people's works have been used or alluded to.

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APPROVAL

University of Zambia has approved this research report of **HELLINGS MULWANDA (student no 718000058)** as one of the requirements for a Master's Degree in Business Administration.

Examiner	Signature	Date
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DEDICATION

This study is in honour of my wife and children. I embarked on this quest when life was so hard for use to manage to buy essential commodities and that we had to starve hoping for a better tomorrow. Thank you for your support and sacrifice. May God continue blessing you.

ACKNOWLEDGEMENTS

I offer heartfelt appreciation to the following individuals who greatly aided me in completing this study:

I would like to Glorify God Almighty, please accept my heartfelt thankfulness for the grace and love he has shown me during my academic journey.

My sincere gratitude to Dr Victor Muchemwa my supervisor for his valuable guidance and support throughout this research. I thank him in particular for sharing his knowledge with me and ensuring that we submitted on time.

There are so many unsung heroes who helped directly or indirectly to the completion of this research report that the list is limitless. I owe a debt of gratitude to each and every one of them.

I wish you all long life and God's blessings.

ABSTRACT

Commitment to credit risk management is an essential component of a comprehensive technique to risk management and critical to the long-term success to any banking institution. The rising of non-performing loans and compressed profit margins combined with slow economic growth over the past years have created a much more challenging environment for banks. The objective of this study was investigating the effects of credit risk management practices on profitability at Absa bank Zambia plc. Causal research design was used for the study.

The population of the study consisted of all the 32 workers at Absa bank that work under credit risk management. The study involved the collection and analysis of primary data for the purpose of meeting its objective. Self-administered questionnaires were used to collect the data. The study intended to establish credit risk management practices on profitability and the level of non-performing loans and therefore linear regression analysis model was used to determine the nature of this relationship.

The study revealed that Absa bank reviewed its credit policy yearly and half yearly, and that employees are made aware of credit policies through credit manual, regular training, regular meeting and supervision. The study further revealed that methods mostly used in credit risk assessment at Absa bank are risk adjusted return on capital and linear probability model. The study further established that here is a negative relationship between the level of non-performing loans and credit risk management practices at the banks with a correlation coefficient of 0.918, implying that the level of non-performing loans is inversely affected by credit risk management practices at there by affects the bank profitability.

The study recommended that there is need for banks to adopt various credit risk management's practices in order to reduce their level of non-performing loans and increase on the profitability. It further recommended for sustainable and reliable credit database for immediate and quicker use when needed by banks.

CHAPTER ONE:
INTRODUCTION

1.1 Overview

Chorafas, D., N. (2014) quotes the former president of the European Bank of Reconstruction and Development namely Jacques Attali to have made a statement that "The business of the bank is above all to anticipate and calculate the risks". This statement proposes that the banks, including commercial banks, are in the business of managing risks. Commercial banks are exposed to several risks as they carry out banking activities.

The Federal Reserve further states that risks facing a commercial bank include credit, market, liquidity, operational, compliance, and legal risk. The following are the definitions of the risks as according to the Federal Reserve (2020): Credit risk arises from the potential that a borrower or counterparty will fail to perform on an obligation. Market risk is the risk to a financial institution's condition resulting from adverse movements in market rates or prices, including, but not limited to, interest rates, foreign exchange rates, commodity prices, or equity prices. Liquidity risk is the potential that a financial institution will be unable to meet its obligations as they come due because of an inability to liquidate assets or obtain adequate funding or that it cannot easily unwind or offset specific exposures without significantly lowering market prices because of inadequate market depth or market disruptions. Operational risk is the risk resulting from inadequate or failed internal processes, people, and systems or from external events. Compliance risk is the risk of regulatory sanctions, fines, penalties or losses resulting from failure to comply with laws, rules, regulations, or other supervisory requirements applicable to a financial institution. Legal risk is the potential that actions against the institution that result in unenforceable contracts, lawsuits, legal sanctions, or adverse judgments can disrupt or otherwise negatively affect the operations or condition of a financial institution.

This chapter sets the tone of the study. The background to the study is expounded. The research objectives and questions are discussed. The scope of the study, as well as the rationale are expostulated.

1.2 Background to the study

The basic customer product of a commercial bank is the retail or corporate customer loan (Choudhry, M., 2018). The provision of loans or credit gives rise to credit risk. The loan may be secured on collateral or it may be unsecured. The price of the loan is the interest rate that is set by the commercial bank with a fixed-rate or flexible floating-rate of interest. The term of the loan is generally fixed. The re repayment of

the principal plus interest may be either "bullet repayment" where the borrower repays the principal amount borrowed plus interest in one go on maturity or it may that the principal amount borrowed plus interest are paid in installments during the term of the loan.

In addition to providing credit, commercial banks provide several other services that give rise to risks other than credit risk. Choudhry, M. (2018) lists some of the banking activities that give rise to several risks that commercial banks must manage effectively, as follows: Lending, Project finance, Trade finance, Cash management, Custodian services, Private banking, Asset management, Foreign exchange trading, and Capital markets trading.

Credit risk is the most important risk of a commercial bank by the nature of its activity (Van Gestel, T., and Baesens, B. 2009). A commercial bank that fails to put in place adequate credit risk management practices is considered to be unsafe and unsound (Federal Reserve System, 2020).

The primary focus of this study was to show how credit risk management practices at Absa bank Plc impacts on the bank's profitability. Risk management is the discipline that demonstrates to bank management the risks and returns of every strategic decision at both the institutional level and the transaction level and informs bank management how to change strategy in order to bring the risk return trade-off into line with the best long-term and short-term profitability of the bank (Deventer, D. R., et al, 2013).

The profitability of commercial banks is deduced from the bank's earnings and performance as reported in its financial statements. A bank's income statement will break down the earnings by type including interest income, trading income and commissions and fees. The other side of an income statement is the costs, such as operating and administrative expenses and provisions for bad loans referred to as non-performing loans (or "NPLs") in the banking industry. The credit decisions of the commercial banks culminate into good loans or bad loans. Loans are assets to the bank and the quality of the loan assets depend on the credit decisions of the bank. Bad loans are a huge cost to commercial banks and impact negatively on the bank's profitability. The table below shows the earnings structure of the banking industry in Zambia from 2017 to 2019.

Table 1.1: Earnings Structure of the Banking Industry in Zambia

Source of Income	2019	2018	2017
Interest Income from Loans and Advances	37.9	38.1	35.5
Income from Commissions, Fees, and Service Charges	15.4	18.9	19.8
Interest Income from Securities	30.0	26.6	27.8
Income from Foreign Exchange Transactions	10.6	9.7	10.2

Source: Bank of Zambia, 2020

Interest Income from Loans and Advances: Interest income is the main source of revenue for commercial banks in Zambia. As illustrated in Table 1.0, interest income from loans form over 35% of operating income. Interest income from loans is generated from lending activity. Interest income from loans is sensitive to credit risk (Choudhry, M., 2018). Together with interest income from securities such as treasury bills and government bonds, total interest income forms over 65% of the commercial banks' gross income.

Income from Commissions, Fees and Service Charges: Commercial banks generate fee income as a result of the provision of services to customers. Fee income is very popular with bank senior management because it is more predictable and not sensitive to risks such as credit risk. There is no credit risk because the fees are often paid upfront. However, fee income carries other risks such as operational risk (Choudhry, M., 2018).

Income from Foreign Exchange Transactions: Banks generate trading income through trading activity in foreign currency such as the United States Dollar, the Euro, the South African Rand and the British Pound. This includes acting as a dealer or market-maker in these currencies, as well as taking proprietary positions for speculative purposes. Income from foreign exchange transactions is the most unstable income source for a commercial bank because of exchange rate fluctuations and it carries high market risk

How Non-Performing Loans are a Cost to Commercial Banks: Bank operating costs comprise employee remuneration and benefits, as well as other costs such as regulatory costs, occupancy, information technology and equipment costs (Choudhry, M., 2018). Further, other costs are provisions for loan losses, which are a charge against the loan revenues of the bank. The provision is based on a measure set by Bank of Zambia of how much of the non-performing loans can be expected to be repaid by the borrower.

Profitability is usually determined by return on equity and return on assets (Federal Reserve System, 2020). Return on equity (or "ROE") refers to net profit as a percentage of shareholders' equity whereas return on assets (or "ROA") refers to net profit as a percentage of the commercial bank's assets (Golin, J., and Delhaise. P., 2013).

Commercial banks in Zambia have performed under par in the three-year period to 2019, as in table 1.1 above. According to the Bank of Zambia, the profitability of commercial banks as measured by return on assets (or "ROA") and return on equity (or "ROE") is below the designated benchmark. Table 1.2 below shows the performance of commercial banks as an industry against the Bank of Zambia benchmarks:

Table 1.2: Banking Industry Performance versus Bank of Zambia Benchmarks

	ROA		ROE	
Year	Benchmark	Industry Performance	Benchmark	Industry Performance
2017	4.0%	3.1%	20.0%	15.4%
2018	4.0%	2.8%	20.0%	15.4%
2019	4.0%	3.3%	20.0%	16.5%

Source: Bank of Zambia Annual Report 2019

From the table 1.2 above, the commercial banks in Zambia failed to achieve the benchmarks in the three years that is focus of this study. Average return on assets for commercial banks was 3.1%, 2.8% and 3.3% in 2017, 2018 and 2019 respectively. The profitability of commercial banks in terms of average return on assets was below the benchmark of 4.0% set by the Bank of Zambia. In addition, the average return on equity for commercial banks was 15.4%, 15.4% and 16.5% in 2017, 2018 and 2019 respectively. Again, the profitability of commercial banks in terms of average return on equity was below the benchmark of 20.0% set by the Bank of Zambia. The performance of some banks in the industry are a concern to the Bank of Zambia because of the "exceptionally high NPLs" which negatively impacted the commercial bank's profitability (Bank of Zambia, 2020).

1.3 Statement of the problem

Credit Risk is one of the top five concerns of commercial banks in Zambia (PwC Zambia, 2019). This is echoed by the Bank of Zambia's observation that the level of Non-performing Loans (NPLs) in the Zambian banking industry is high (Bank of Zambia, 2019). A non-performing loan is a loan in which the borrower is defaulted and hasn't made any scheduled payments of principal or interest for some time. In banking, commercial loans are considered nonperforming if the borrower is 90 days past due (IMF,2019). The ratio of NPLs to total gross loans is used as a measure of how well a bank is managing its credit risk. The higher the ratio the lower the quality of loans on the bank's loan books and the lower the NPL ratio the higher the quality of the loans. The fact that NPLs are high in Zambia reflects that commercial banks in Zambia underwrite low quality loans on the banks loan books.

According to news Diggers (2020) The Bankers Association of Zambia (BAZ) Sayed non-performing loans were a major challenge for the sector. Non-Performing Loans ratio decreased from 12 per cent in 2017 to 11 per cent at the end of 2018 but remained above the prudential target of 10 per cent and reduced to 9.5 per cent in 2019. and according to world data Atlas (2021) Zambian bank nonperforming loans stood at a total gross loan at level of 11.6 % in 2020. Absa bank recorded non-performance loans of 12% in 2018, 11.2% in 2019 and 11.8% in 2020, (Absa 2021) Based on the foregoing information it is unclear why the bank continues to record a high NPLs and no research could be found that explains credit risk management practices on profitability at Absa bank Zambia plc. Another factor leads us to the topic is that research in Zambia, as a financial market in its infancy, has not been developed until now. In order to acquire the knowledge of impact of credit risk management and profitability on Absa bank plc, we propose to carry out this study in the Zambian context as to help feel the gap in Knowledge on the effects of credit risk management practices among commercial banks in Zambia and their profitability in particular at Absa Bank plc.

1.4 Aim or Purpose of the study

Bad loans or NPLs are a problem to the commercial banks to the extent that bad loans are negatively impacting the profitability of the banks (Bank of Zambia, 2020). The aim of the study was to investigate the reasons why the credit risk management practices at Absa bank Plc are adequate enough to improve the profitability of the bank.

1.5 Study Objectives

To investigate the effects of credit risk management practices on profitability at Absa bank Zambia plc.

1.5.1 Specific objectives

The specific objectives of the study are as hereunder:

1. To establish the adequacy of risk assessment and policies on credit risk management practices on profitability at Absa bank Zambia plc.
2. To determine the effect of credit risk management practices on the profitability of Absa banks Zambia plc.
3. To ascertain the effect of credit risk management practices life cycle on the profitability of Absa bank Zambia plc.

1.6 Research questions

The following research questions must be answered satisfactorily if the study is to achieve its specific objectives:

1. What is the adequacy of risk assessment and policies on credit risk management practices on profitability at Absa bank Zambia plc?
2. What are the effects of credit risk management practices life cycle on the profitability of Absa bank Zambia plc?
3. What are the effects of credit risk management practices life cycle on the profitability of Absa bank Zambia plc?.

1.7 Significance of the study

Bad loans are a necessary risk of any commercial bank lending activities. Nevertheless, bad loans or NPLs must not be more than 10.0% of the commercial banks' total loans (Bank of Zambia, 2020). Absa bank Zambia has had a problem of keeping NPLs to as low as possible. Therefore, this study is important as it will help attempts to resolve the problem of bad loans at the bank. The findings of this study will help benefit Absa bank of how to reduce NPLs as recommendations will be made, furthermore, the

findings will contribute to the current body of knowledge on effects of credit risk management practices on profitability at Commercial banks in Zambia. Other scholars will use the findings of this study as a basis for further research. For the researcher, the study is one of the requirements for attaining the degree of Master of Business Administration with the University of Zambia.

1.8 Scope of the study

This study is limited in scope to the following:

a) Firstly, this study is limited to investigating the impact of credit risk management practices on the profitability of Absa Bank for the three-year period to 2020. The years prior to 2018 and the year after 2020 will be excluded from the study.
b) Secondly, this study intends to evaluate the quantitative credit risk management practices of Absa bank. The qualitative credit risk management practices are outside the scope of this study.
c) Thirdly, the study limits itself to the definition of credit risk to imply the possibility of losses on account of two events namely: (i) a deterioration in the credit risk score (or a deterioration in financial health) of the borrower and; (ii) in the event that the borrower is past due on the loan obligation for three months or more (default).
d) Lastly, the scope of the study is limited to ABSA Bank Zambia PLC. This is because the study is a case study of credit risk management practices of ABSA Bank Zambia PLC.

1.9 Organization of the report

Chapter one puts forth the background to the study. The research problem, objectives, questions, scope and significance of the study have been discussed. Chapter two presents the review of literature relevant to the study topic. Chapter three will discuss the methodology that the author wishes to pursue in carrying out the study.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter will present the various pieces of literature with regard to banks credit risk management and profitability.

2.2. Regulations: The Evolving Basel Accord

Banks involve businesses of taking and managing risks. The management of banking risks has become more important to financial stability and economic growth in modern economies (Ferguson, 2003, p. 395). And under the condition that Latin American debt crisis has hit the economy heavily, the Basel Committee, backed by the G10 Governors, "*resolved to halt the erosion of capital standards in their banking systems and to work towards greater convergence in the measurement of capital adequacy. This resulted in a broad consensus on a weighted approach to the measurement of risk, both on and off banks' balance sheets*" (BCBS, 2013, p.2).

2.2.1. Basel I: The Basel Capital Accord

On December 1987, a capital measurement system which referred to the *Basel Capital Accord* (or the 1988 Accord) was approved by the G10 Governors and later released to banks in July 1988 (BCBS, 2013, p. 2). The Accord has two fundamental roles. The first one is the promotion of soundness and stability of the international banking system by encouraging international banking organizations to improve their capital positions. And the second one is to provide fairness for competitions among banks (Patricia, 1999, p. 1). It was signed by all 12 members of Basel Committee and paved the way for a significant increase in the resources banks devote to measure and managing risks (Hull, 2012, p. 258).

The Accord required a minimum capital ratio of capital to risk-weighted assets of 8% to be implemented by the end of 1992 (Ferguson, 2003, p. 396). More specifically, in order to determine the bank's risk-weighted assets, different types of assets are weighted according to the level of perceived risks that each type of asset presents, and each off-balance-sheet exposure must be calculated to its equivalent amount of assets and weighted as that type of asset must be weighted (Ferguson, 2003, p. 396). In this Basel Accord, the risk-weighted-assets concern only with credit risk and addressed other risks only implicitly (Ferguson, 2003, p. 396). Another important issue related to the capital itself. The capital had two components, Tier 1 capital and Tier 2 capital. The participants agreed to global capital standards: Tier 1 capital was to be applied to all international banks equally and Tier 2 capital was to be tailored to each country's unique domestic banking system (Maurice, 2004, p. 22).

However, the Accord has been criticized by its simplicity and to some extent arbitrary (Ferguson, 2003, p. 396). For example, it has only assigned four risk weights to different asset categories. That is to say, loans that are assigned same risk weighted could have different credit qualities (Ferguson, 2003, p. 396). For example, all loans by a bank to a corporation have a risk weight of 100% and require the same amount of capital. A loan to an AAA credit rating corporation should need the same amount of regulatory capital as the loan to a BB credit rating corporation. This kind of limited differentiation indicated that the calculated capital ratios could be uninformative and may provide misleading information about bank's true capital adequacy (Ferguson, 2003, p. 396). Moreover, the limited differentiation has created incentives for banks to get into arbitrage activities and take advantage by selling, securitizing risky assets (Ferguson, 2003, p. 396 & 397). Banks therefore can otherwise avoid exposures for which required capital is higher than the market requires and pursues those for which the capital requirement is lower than the market would apply to those assets (Ferguson, 2003, p. 396 & 397). As a result, some banks can hold too little capital for their risky assets even though they have met the 8% risk-weighted-assets requirement.

2.2.1.2 1996 Amendment

In order to address risks other than credit risk, which is the main focus of Basel I (Basel Accord), the Basel committee issued a consultative document to amend the Basel Accord. This became known as the "1996 Amendment", which should be taken effect at least at the end of 1997 (BCBS, 2013, p.2). The amendment involves keeping capital for the market risks associated with trading activities including foreign exchange, traded debt securities, equities, commodities and options (Hull, 2012, p.265). An important aspect of this amendment is that banks are allowed to use internal value-at-risk models as a basis to calculate the capital they need to keep to absorb losses resulted from market risks, subject to both strict quantitative and qualitative standards (BCBS, 2013, p.3).

2.2.1.3 Basel II

There have been significant developments in the theory and practice of measuring and managing risks since the implementation of Basel I. A lot of new financial instruments, such as credit derivatives, have improved banks' ability to control and mitigate risks from trading activities (Lind, 2005, p. 23&24). Besides, there has been a rapid development towards larger and more complex banking groups with broader operations, from a global perspective (Lind, 2005, p. 23&24). Thus, a thoroughly revised framework for capital requirements was necessary. A new framework for bank capital was introduced in 2004 and should be implemented in 2007 and applied to "internationally active" banks. The Basel II is built on three pillars:

1. Minimum Capital requirement
2. Supervisory Review
3. Market Discipline

Pillar 1 addresses the minimum capital requirement, that is, the rule which a bank calculates its regulatory capital. The minimum required capital ratio (8%) remained unchanged under Basel II while the way to calculate the risk-weighted-assets has been changed. (Figure 4) Specifically, Basel II made extensive changes to the treatment of credit risk. It specified three approaches to measure the credit risk: the standardized approach for banks that are not sophisticated which is similar to Basel 1 but containing more risk weights, the internal ratings based (IRB) approach meaning the risk weights and the capital requirements are partly based on the individual bank's
internal estimates, the advanced IRB approach which an even larger part of the capital requirements is influenced by the banks' own calculations (Ferguson, 2003, p. 398; Lind, 2005, p.27&28).

As to the Pillar 2 of Basel II, it concerns with the supervisory review process and has been a supplement to the minimum capital requirement. Therefore, it requires a regular interaction between banks and supervisors in the assessment and planning of capital adequacy (Lind, 2005, p.30). The last pillar seeks to complement these activities through a stronger market discipline by disclosure of bank's key information of risk assessment procedures and capital adequacy (Ferguson, 2003, p. 398). This, to some extent, could enable market participants to assess the bank's risk profile and level of capitalization.

2.2.1.4 Basel III

The lesson from the financial crisis which began in 2007 has reminded regulators of the existence of moral hazard and forbearance in bank regulation (Feess & Hege, 2012, p.1043). Many banks failed during the crisis while many others, including some of the largest banks in the world, only survived by the substantive government "bailout" (Feess & Hege, 2012, p.1043). As a result, the Basel Committee realized that the prudential regulation of banks has come under renewed scrutiny and a major overhaul of Basel II was on the call. This led to the new Basel III Accord with enormously stricter capital requirements and new rules.

The Basel III framework imposes tighter capital ratios and new criteria, but majorly follows the direction adopted by the Basel II Accord. However, the capital requirements became more accurate which subject to the true credit risk afforded by each individual bank asset (Feess & Hege, 2012, p.1044). According to Hull (2012), the final version of Basel III was published in 2009 and there are six parts in the regulations:

1. Capital definition and requirements
2. Capital conservation buffer
3. Countercyclical buffer
4. Leverage ratio
5. Liquidity ratio
6. Counterparty credit risk

The crisis demonstrated that credit losses and write-downs come out of retained earnings, which is part of banks' tangible common equity base (BCBS, 2011, p.2). Besides, the inconsistency in the definition of capital across jurisdictions and the lack of disclosure that could have enabled the market to fully assess and compare the quality of capital between institutions are other aspects that need to be considered during the crisis (BCBS, 2011, p.2). Therefore, the new Basel Accord requires that a bank's total capital should consist of Tier 1 equity capital (at least 4.5% of risk-weighted-assets at all times), additional Tier 1 capital and Tier 2 capital. Tier 1 capital includes share capital and retained earnings but does not includes goodwill or deferred tax assets (Hull, 2012, p. 290). The additional tier 1 capital then consists of non-cumulative preferred stocks which are previously tier 1 capital but are not common equity. Tier 2 capital includes debt that is subordinated to depositors with an original maturity of five years (Hull, 2012, p. 290).
Capital conservation buffer is designed to ensure that banks build up capital buffers outside periods of stress which can be used to absorb losses when things happen (BCBS, 2011, p.54). Countercyclical buffer aims to ensure that banking sector capital requirements take account of the macro-financial environment in which banks operate (BCBS, 2011, p.57). In addition, Basel III requires a non-risk based leverage ratio that is designed to act as a credible supplementary measure to the risk based capital requirements (BCBS, 2011, p.61). Another major improvement of Basel III is that it introduces a global liquidity standard including two liquidity ratios that are designed to make sure banks can have sufficient high quality liquid resources to survive under acute stress scenarios. The two ratios are Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFL) (BCBS, 2011, p.9). The last part of Basel III is the CVA, which is the expected loss due to the possibility of a default by the counterparty. Then the reported profit is reduced by the total of the CVAs for all counterparties (Hull, 2012, p.295).

In the years before the Basle Accord, large banks in major countries seemed to hold insufficient capital relative to the risks they were taking, especially in light of the aggressive competition for market share in the international market (Federal Reserve Release, 2002). According to the description of Basel Regulations, the development has showed an important role of credit risk management in the banks'

operations. A measure of credit risk in most banks that major in commercial lending and related activities became the foundation of the Basle Accord. Therefore, capitals to absorb risks are one of the most essential parts that banks need to consider. To harmonize the different levels of approaches to capital among countries, capital ratios are introduced to demonstrate the strength of the risk management. As a consequence, the inspiration
of the vital role of capital ratio has led us to use indicators to measure the strength of credit risk management, which lays the foundation of our research.

2.3 Profitability of Commercial Bank

Profitability is an indicator of banks' capacity to carry risk and/or increase their capital. It indicates banks' competitiveness and measures the quality of management (Waifem, p. 16). Profitability is one of the key concepts in our research. This is due to the topic of this research is about the relationship between the profitability and credit risk management. Clear explanation to the profitability of commercial banks is crucial for readers to understand the research procedure and meanings. In this section, we will involve a specific discussion of profitability and two indicators (ROE and ROA) of profitability in our research.

The determinants of commercial banks' profitability can be concluded into two categories, namely those that are management controllable (internal determinants) and those are beyond the control of management (external determinants) (Guru et.al, 1999, p.3; Kosmidou et.al, 2005, p.3). The internal determinants reflect upon banks' management policy and decision concerning sources and uses of funds management, capital and liquidity management and expenses management (Guru et.al, 1999, p.3). This kind of profitability factors can be examined by financial statements of commercial banks (Guru et.al, 1999, p.3). The external factors are environment factors and firm-specific ones (Guru et.al, 1999, p.4). This research mainly focuses on the analysis of internal determinants because our purpose is to test the impact of credit risk management to firm's profitability. The determinants reflected upon credit risk management should be included into internal policy and decisions which can be examined by financial statements. On the other hand, bank's decisions are also affected by external regulation, thus this research also involves the consideration of external factors.

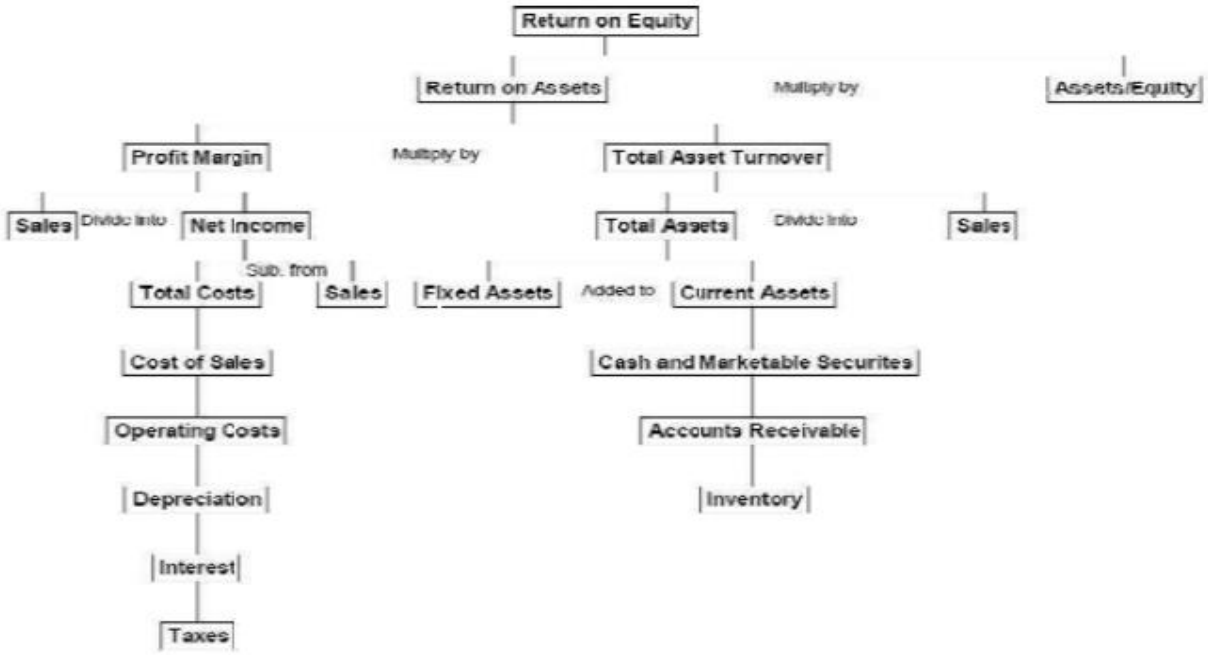
In addition, we use ratios as indicators to represent the profitability of banks. Guru et al. (1999, p.7) indicate the advantages of using ratios. They mention that researchers prefer to use ratios as measurement of profitability since they are inflation invariant so that they will not be affected by changes in price level. Besides, banks are multi-products firms and use ratio measures to eliminate problems associated with cross-subsidization between products and services (Chirwa, 2003, p.567). However, it is crucial to find

the appropriate indicators to maintain the accuracy of our test. Due to this problem, we consider DuPont system which has been widely recognized as an efficient tool in the financial analysis literature.

2.3.1 DuPont Model

Dr. Almazari (2012, p.86) measures the financial performance of Jordanian Arab commercial banks by using the DuPont model which is based on analysis of return on equity model (ROE). Alimazari (2012, p. 86) introduces that DuPont model was created in the early 1990s but is still useful for assessment of the profitability. The original DuPont method was developed in 1918 by an engineer at DuPont who notice that the product of two common computed ratios, net profit margin and total assets turnover, equals return on assets (ROA). And DuPont method has been widely used for financial analysis due to the elegance of ROA being affected by a profitability measure and efficiency measure (Alimazari, 2012, p.86). In 1970s, the concentration in financial analysis shifted from return on asset (ROA) to return on equity (ROE) (Alimazari, 2012, p.86). Based on this fact, we consider using this model for seeking the appropriate indicators of profitability of commercial banks in Europe. According to Saunders & Marcia (2011) as well as Rudra (2009), a ROE model for financial institutions based on DuPont system is presented in the following figure 2.1.

Figure 2.1 DuPont Model



Source: Alimazari, 2012, p.89

As Figure 2.1 indicates, ROE is firstly decomposed into ROA and equity multiplier (assets/equity). And ROA is decomposed into net profit margin and total asset turnover. The profit margin allows the financial analysts to measure the income statement. And total assets turnover provides financial analysts a measure to evaluate the "assets" (left-hand side) of the balance sheet. And equity multiplier presents the evaluation of the "liabilities and owners' equity" (right hand side) of the balance sheet (Alimazari, 2012, p. 89). Analysts can project the level of financial structure of financial institutions based on this system (Alimazari, 2012, p. 88). Therefore, DuPont system can provide financial analysts an efficient evaluation by decomposing the most frequently used measure of profitability, ROE, to identify the strengths and weaknesses of the banks' performance (Saunders& Marcia, 2011, p23). Based on the DuPont system, we prefer to choose ROE and ROA which are most important as indicators of profitability.

2.3.2 Return onEquity (ROE)

According to the introduction of DuPont model, we illustrate the hierarchy of the ratios. Then we will focus on the specific ratio, ROE and ROA, to expand our explanation. Return on equity (ROE) value the overall profitability of the fixed income per dollar of equity (Saunders& Marcia, 2011, p. 23). It is defined as:

$$\text{ROE} = \frac{Net\ Income}{Total\ Equity\ Capital}$$

This measures the amount of net income after taxes earned for each dollar of equity capital contributed by the bank's shareholders (Saunders& Marcia, 2011, p. 23). In general, stockholders of bank prefer higher ROE (Saunders& Marcia, 2011, p. 24). However, the increasing of ROE demonstrates the increasing risk. For example, as the defined equation indicates if total equity capital decreases relative to net income, ROE will have an increase under the constant of net income (Saunders& Marcia, 2011, p. 24). A large drop in equity capital may results in a violation of minimum regulatory capital standards and increases the risk of insolvency for the banks (Saunders & Marcia, 2011, p. 24). In order to identify potential problems, ROE can be decomposed into tow component parts, thus:

$$\text{ROE} = \frac{Net\ Income}{Total\ \ Assets} \times \frac{Total\ Assets}{Total\ Equtiy\ Capital}$$

$$\text{ROE} = \text{ROA} \times \text{EM}$$

Where:

ROA= Return on assets (a measure of profitability linked to the asset size of bank)

EM= Equity multiplier (a measure of leverage)

Net income is the profit after tax (Saunders & Marcia, 2011, p. 24).

ROA determines the net income produced per dollar of assets which we will have further discussion in the following part. EM measures the dollar value of assets funded with each dollar of equity capital (Saunders& Marcia, 2011, p. 24). The higher EM ratio indicates the more leverage (or debt) that is used by banks to fund its assets (Saunders & Marcia, 2011, p. 24). High EM ratio and ROA ratio have positive influence on ROE ratios (Saunders & Marcia, 2011, p. 24). However, the source of high ROE needs to be concerned by the bank's manager. For example, increasing EM generates increasing ROE ratio while the leverage of bank has also enhanced, which causes solvency risk (Saunders & Marcia, 2011, p. 24).

2.3.3 Return on Assets (ROA)

ROA, which is the ratio of net income to total assets, measure how profitable and efficient a bank' management is, based on the total assets (Guru et.al, 1999, p.7). As mentioned in the equation of ROE, in the next step, ROA can be disintegrated into the following elements:

$$\text{ROA} = \frac{Net\ income}{Total\ operating\ income} \times \frac{Total\ operating\ income}{Total\ assets}$$

$$\text{ROA} = \text{PM} \times \text{AU}$$

Where:

PM= Net income generated per dollar of total operating income.

AU= Amount of interest and noninterest income generated per dollar of total assets (Saunders& Marcia, 2011, p. 25).

Therefore, higher value of PM and AU ratios generate higher ROA and ROE. PM measures the capacity of bank on the expense controlling (Saunders & Marcia, 2011, p. 25). And expense control and bank's profit have positive relationship. AU values the bank's capacity to generate income from assets (Saunders& Marcia, 2011, p. 25). But high PM and AU value also demonstrate the potential risks. For example, PM will have an improvement when a bank reduces its expense of salaries and profits (Saunders & Marcia, 2011, p. 25). While if the reduction of expense is due to the loss of high skilled employees, the raise of PM and ROA might exist an underlying "labor quality" problem (Saunders & Marcia, 2011, p. 25). According to Fathi et al. ROA can be also disintegrated into the following elements (2012, p.218):

$$\text{ROA} = \frac{II - IE}{TA} + \frac{NII - NIE}{TA} - \frac{Provisions}{TA}$$

Where:

II= Interest Income

IE= Interest Expense

NII= Non-Interest Income

NIE= Non-Interest Expense

TA= Total Assets

Then this equation can be stated as:

ROA= Net interest margin + Non interest margin−Provision to total assets Based on the equation of ROE, we can restate ROE as ROE= (NETIM+NONIM−PROV)* (EM)

Where NETIM is net interest margin, NONIM is non-interest margin, PROV is provision to total assets and EM is equity multiplier. This equation indicates that bank can maximize stockholders' wealth through maximizing NETIM, NONIM and EM as well as minimizing PROV (Fathi et al., 2012, p.218).

ROE and ROA are commonly used as indicators of the profitability and financial performance. Chirwa mentions that in the previous studies, various indicators are used, including ROE, ROA and return on capital (ROC) (2003, p.567). Al- Khouri (2011) assesses the risk and performance of Gulf Cooperation Council (GCG) banking sector which involves ROA and ROE as dependent variables and credit risk, liquidity risk, capital risk and bank size as the independent variables. This research found a positive relationship between credit risk and ROA. And a significant relationship between size of banks and ROA was also founded in the same study. Al Khatib (2009) evaluated the financial performance of five Palestinian Commercial Banks by using ROA, price-to book value of equity ratio and economic value added. And his study found a positive correlation between ROA and the size of banks. In our research, size of bank is not considered as the independent variable. But based on the previous study, we consider it as control variable which we will discuss later in the following chapters. Moreover, in the Tafri et al. (2009) test of financial risk's influence to the profitability of Malaysian commercial banks also uses ROA and ROE as indicators of profitability. Ruziqa (2013) developed the similar topic to the Indonesian Conventional Banks by still using ROA and ROE to represent the financial performance. Among all the measurements, ROA and ROE are the major ones (Ongore& Kusa, 2013, p. 239; Chirwa, 2003, p.567). As previous studies that we list before, ROE and ROA are
commonly used as the indicators of profitability. Hence, in our research, we will use ROA and ROE as our profitability measures.

2.4 Bank's Risk Management

In the last part, we explain the indicators of profitability. Now we will mainly discuss the credit risk management ratios of commercial banks. Before we introduce our indicators, capital adequacy ratio (CAR) and non-performing loan ratio (NPLR), we believe it is necessary to start from the introduction of risks as well as risk management in banks to provide overview of bank's credit risk management for readers.

2.4.1 Risks in banks

According to Koch and MacDonald (2009, p. 108), banks' risks can be identified as six types: credit risk, liquidity risk, market risk, operational risk, reputation risk and legal risk. Each of these risks might generate harmfully influence the financial institution's probability, market value, liabilities and shareholder's equity. We provide a brief introduction of each risk in the following.

Liquidity risk can be described as the risk of funding which is related to an unexpected event, for example large charge off or currency crisis (Santomero, 1997, p. 89). Specifically, a bank is reducing the ability to

meet expected and unexpected current and future cash flows which indicates the liquidity risk (The Joint Forum, 2006, p. 1). Or it is unable to meet collateral needs without impacting regular operations and financial condition of the institutions (The Joint Forum, 2006, p. 1).
Market risk can be hedged but cannot be diversified completely away. In fact, it can be regarded as undiversifiable risk (Santomero, 1997, p. 88). It comes from many different forms such as variation in interest rate and relative value of currencies (Santomero, 1997, p. 88).

Operational risk relates to the issues of precisely processing, settling and taking delivery on trades for the exchange of cash (Santomero, 1997, p. 89). It also involves the record keeping, processing system failures and fulfillment the diversified regulations (Santomero, 1997, p. 89). So that, individual operating problem is small portion for a well-managed institution but causes effect which may be quite costly (Santomero, 1997, p. 89).

Reputational risk arises from negative opinions which may affect the profit and value of institutions (Protiviti, 2013, p. 1). It demonstrates a decreasing value of institution's brand or a lack of ability to persuade (Protiviti, 2013, p. 1).

Legal risk generally happens in financial contracting which is separated from the legal implication of credit, counterparty and operational risk (Santomero, 1997, p. 89). New status, tax legislation, court opinions and regulations can lead formerly well-established transaction into contention (Santomero, 1997, p. 89). For example, environmental regulation has affected the value of real estate for elder properties which cause risk to lending institutions (Santomero, 1997, p. 89). Another type of legal risk can come from the actives of bank's management or employees such as fraud and violation of regulations or laws (Santomero, 1997, p. 89).

Credit risk has commonly been identified as a greatest risk on bank's performance (Boffey& Robson, 2007, p.66). It is a risk that counterparties in loan transactions and derivatives transactions might default, which means counterparties fail to repay the principal and interest on a timely basis (Koch& MacDonald, 2000, p. 109).

Our study focuses on the credit risk of banks. Considering the credit risk, credit default becomes a key influential factor for bank's credit risk. Van Gestel & Baesens mention that there can be many reasons for credit default. Mostly, the obligor is in a financial stressed situation and may be facing a bankruptcy. He can also refuse to comply with its obligation of debt service in the case of a fraud or legal dispute.

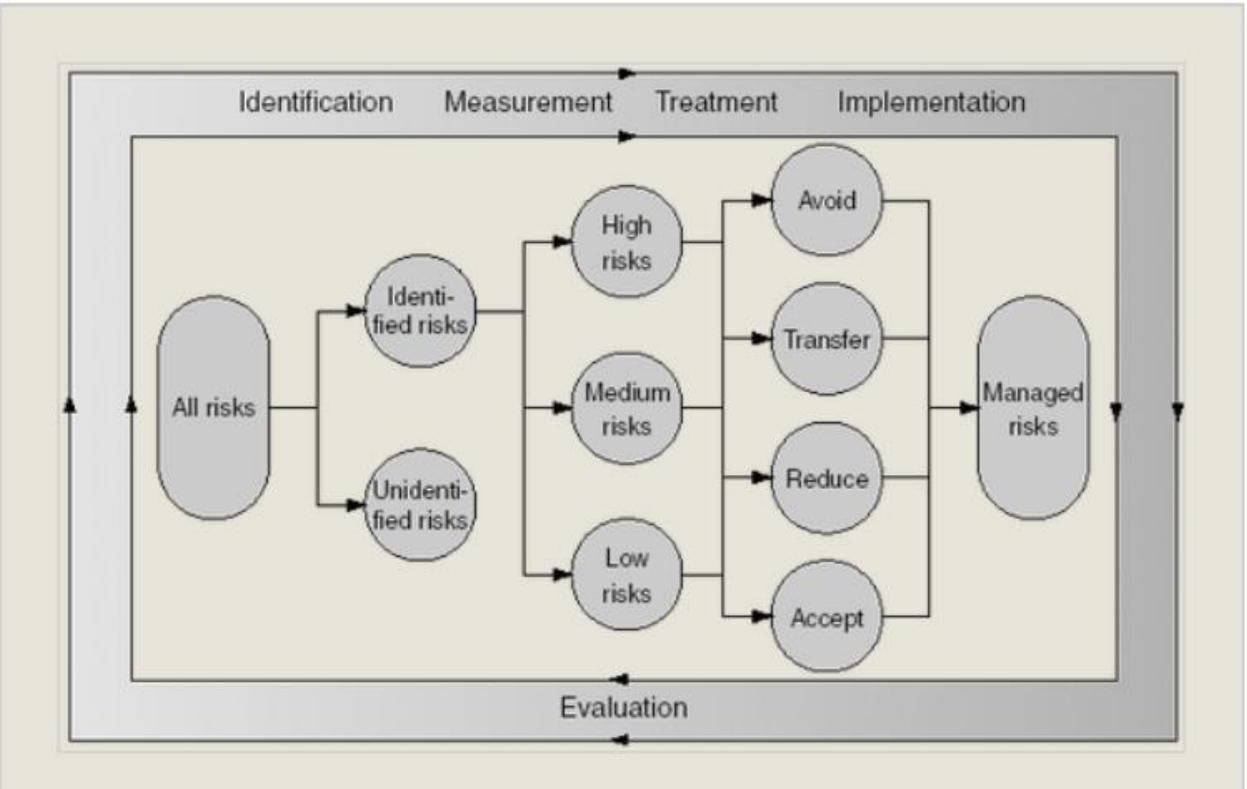
Technical defaults are generated by the flaw in the information system (Van Gestel & Baesens, 2008, p.25). Credit risk can also be a risk of loss on credit derivative market. It can be credit migration such as a downgrade in credit rating (Choudhry, 2011, p. 131). Or when the bank invests in debt to high-quality borrower whose risk profile has deteriorated (Choudhry, 2011, p. 131). In the case of liquidation, the price at which the debt is sold is lower than the price at which the debt was bought by the bank, which induces a net loss of bank on the market (Van Gestel & Baesens, 2008, p.25). In a full default, the extent of loss can be observed immediately to be the full from the administrators which is known as "recovery value" (Choudhry, 2011, p. 131).

Generally, the loss for the bank does not have to be high. The loss of default relies on the percentage that one can recover from the defaulted counterpart and the total exposure to the counterpart (Van Gestel & Baesens, 2008, p.25). The recovery may depend on the presence of collateral and guarantees (Van Gestel & Baesens, 2008, p.25). Afriyie & Akotey (2012, p. 6) indicates that credit risk situation of a bank can be exacerbated by inadequate institutional capacity, inefficient credit guidelines, inefficient board of directors, low capital adequacy ratios and liquidity, compulsory quota lending as a result of government interference and lack of proper supervision by the central bank. Therefore, efficient risk management is crucial and valuable for
banks to improve the performance and reduce the damage caused by risks. In the next part, we will introduce the risk management of banks then narrow it to the credit risk management.

2.4.2 Risk Management

Risk management is mainly focused on reducing earning volatility and avoiding large losses. One proper risk management procedure needs to identify the risk, measure and quantify risk then develop strategy to manage risk (Van Gestel& Baesens, 2008, p. 39). Figure 2.2 illustrates the risk management process.

Figure 2.2 Different Steps of a Continuous Risk Management Process



Source: Van Gestel& Baesens, 2008, p. 41

As Figure 2.2 indicates, risk management process includes identification, measurement, treatment and implementation. The most important step of risk management, identification, can begin from analyzing the sources of potential risks or defining threats.

Secondly, measurement needs to quantify the risk which has been identified in the identification step (Van Gestel & Baesens, 2008, p.42). For example, individual needs to measure the real default probability and how much the change of risk drivers influence the default probability. In this step, statistical analysis is analysis needed for the risk measurement (Van Gestel & Baesens, 2008, p.42).

The third step in risk management is treatment (Van Gestel & Baesens, 2008, p.43). Risk can be treated through four ways: risk avoidance, risk reduction, risk acceptance and risk transfer (Van Gestel & Baesens, 2008, p.43). Risk avoidance is a simple way of treatment which refers to individual investing in the products that are not too risky (Van Gestel & Baesens, 2008, p.43). Avoidance does not imply avoiding all risks. One strategy can be investing in counterparts with low exposure risk or investing only small proportion in counterparts with high default (Van Gestel& Baesens, 2008, p.43). Risk reduction

states reducing the portion of risk taken which means use collateral to reduce the actual loss. Risk acceptance is commonly applied for low-risk assets (Van Gestel & Baesens, 2008, p.43). It emphasizes the diversification of investments in
various sectors and countries. And risk transfer implies transfer risk to other institutions such as banks, insurances or companies. This treatment provides a guarantee to credit risk such as credit derivatives (Van Gestel & Baesens, 2008, p.43).

After finishing the treatment in the risk management procedure, risk management strategy should be implemented (Van Gestel & Baesens, 2008, p.43). Implementation should put people, statistical model and IT infrastructure to measure the underlying risk of current and future investment (Van Gestel & Baesens, 2008, p.42). It also needs a guideline for risk treatment to select counterparts in which to invest or not; which limit exposure of risky product should be determined; whether collateral for specific loans is mandatory or not and whether individual buys financial protection to secure investment (Van Gestel & Baesens, 2008, p.4). Such implementation of risk management is usually supervised by senior management and the risks need to be continuously reported and monitored (Van Gestel & Baesens, 2008, p.43).

In the end, effective risk management process is usually evaluated frequently. This step refers to
check whether the final risk taking keeps in line with the strategy and in a correct way of application. Specifically, it means the evaluation of risk drivers and measurement process (Van Gestel & Baesens, 2008, p.43).

The reason for conducting risk management is due to banks and banking activities have evolved significantly over the time (Van Gestel & Baesens, 2008, p.42). With the introduction of money, financial services such as deposit taking, lending money and money transfer have gradually become important. So that banks are exposed to credit, market, operational, interest rate and liquidity risk. Efficient management on these risks is necessary for banks to reduce its losses on earning, insolvent and those depositors cannot be refunded (Van Gestel & Baesens, 2008, p. 2). Another reason why banks need to carefully monitor risk is that regulators require them to do it (Hull, 2012, p. 16). However, it is error to believe that meeting regulatory requirements is the sole for establishing a sound, scientific risk management system.

Managers need reliable risk measures to direct capital to activities and estimate the size of potential losses to stay within limits imposed by available capital, creditors and regulators (Pyle, 1997, p. 2). They need

mechanisms to monitor positions and create incentives to be prudent in taking risk. Consequently, risk management is the process by which managers satisfy these needs by identifying key risks, obtaining consistent, understandable, operational risk measures, deciding which risks need to be manage and by which methods, and establishing procedures to monitor the resulting risk position (Pyle, 1997, p. 2).

2.4.3 Credit Risk Management

Credit risk management in financial institutions has become crucial for the survival and growth of these institutions (Afriyie & Akotey, 2012, p. 3). It is a structured approach of uncertainty management through risk assessment, development of strategies to manage it and mitigation of risk using managerial resources (Afriyie & Akotey, 2012, p. 3). The strategies of credit risk management involves transferring risk to other parties, avoiding risks, reducing the negative influence of risk and accepting some or all of the consequences of a particular risk (Afriyie & Akotey, 2012, p. 3).

According to Van Gestel and Baesens, credit risk is managed in various ways. The most important method starts with appropriate selection of the counterparts and products (Gestel & Baesens, 2008, p.43). And good risk assessment model and qualified credit officers are key requirements for selection strategy (Gestel & Baesens, 2008, p.43). For counterparts with higher default risk, banks may need more collateral to reduce risk. And the pricing of product should be in line with the estimated risk.

Secondly, limitation rule of credit risk management restricts the exposure of bank to a given counterpart (Gestel & Baesens, 2008, p.43). It avoids the situation that one loss or limited number of losses endangers the bank's solvency (Gestel & Baesens, 2008, p.43). Bank's determinants on how much credit a counterpart with a given risk profile can take need to be limited. Thirdly, the allocation process of banks provides a good diversification of the risks across different borrowers of different types, industry, and geographies (Gestel & Baesens, 2008, p.43). As a result, diversification strategy spreads the credit risk thus avoids a concentration on credit risk problems. Last but not least, banks can also buy credit protection in forms of guarantees through credit derivative products (Gestel & Baesens, 2008, p.43). By the protection, the credit quality of guaranteed assets has been enhanced. These techniques are translated in the

daily organization by written procedures and policies which determine how counterparts are selected, risk profile loans are granted and above which level an expert evaluation is required (Gestel & Baesens, 2008, p.43).

In summary, a strong credit risk management avoids significant drawbacks like credit concentrations, lack of credit discipline, aggressive underwriting to high-risk counterparts and products at inadequate prices (Gestel& Baesens, 2008, p.44). And an effective credit risk management is verified by internal risk control and audit which monitor credit discipline, loan policies, approval policies, facility risk exposure and portfolio level risk (Van Gestel & Baesens, 2008, p. 44).

2.4.4 Credit Risk Management Indicators

For the indicators of credit risk management, we choose CAR and NPLR. The reason we involve them is based on their properties related to the credit risk management and their frequency of occurrence in previous studies.

According to Ara, Bakaeva & Sun's research (2009, p.13), Basel Accord links the minimum regulatory capital to the underlying risk exposure of banks, which refers to the greater risk bank exposed relates to the higher amount of capital bank needs. This regulation indicates the importance of capital management in risk management and the compliance with the regulatory requirement can be expressed as risk management indicators. Brewer et al. (2006) regards non-performing loan ratio (NPLR) as a significant economic indicator. It implies that lower NPLR is related with the lower risk and deposit rate. Meanwhile, there might be a positive relationship between deposit rate and NPLR based on the possibility that bank's deposit base will be increased by the high deposit rate for funding high risk loans. And the increasing high-risk loans might enhance the probability of higher NPLR. So that the allocation of banks risk management deeply relies on the diversification of credit risk to decrease the NPL amount. NPL is also a probability of loss which requires provision.

The amount of provision is "accounting amount" which can be further subtracted from the profit. Thus high NPL increases the provision while reduces the profit. The research of Boudriga, Taktak& Jellouli (2009) illustrates this research found that CAR seems to reduce the level of problem loans which means higher CAR leads to less credit exposures. However, Rime (2001) observed a positive relationship in his research between bank risk and capital ratio of Swiss banks during the period 1989-1995. Goddard et al. (2004) study the influential factors of profitability of banks in Europe. They found a positive relationship between the CAR (bank capital and reserves to total assets) (The World Bank, 2014) and profitability. And Samy and Magda (2009) investigate the effects of capital regulations on the performance of banks in Egypt. The research provides a comprehensive framework to measure the impact of capital adequacy on two indicators of bank performance: cost of intermediation and profitability. The result of the research

indicates that higher capital adequacy "*increase the interest of shareholders in managing bank's portfolio*" which generates "*higher cost of intermediation and profitability*" (Samy and Magda, 2009, p. 70).

Previous studies also show a close relationship between NPLR and credit risk management. For example, Brewer& Jackson (2006) involves non-performing loans (NPLs) to total assets ratio (NPLR) as an indication of efficient management of credit risk. In addition, Tafri et al. (2009) examine the relationship between credit risk and profitability of the conventional and Islamic banks in Malaysia between the periods from 1996 to 2005. And found a significant relationship among them. The researcher use *"proportion of allowance for the loan loss to total assets"* (Tafri et al., 2009, p.6) which has a close relationship with NPLR to represent the credit risk. And in the beginning of Tafri et al. (2009) research, they emphasize that profitability as an *"ultimate"* test for the effectiveness of risk management. According to Boudriga, Taktak& Jellouli (2009), NPLs are also involved to assess the role of regulatory supervision on credit risk and they found a positive relationship between them. Salas and Saurina (2002) indicate the tendency of state-owned banks to take risker projects then to provide more favorable credits for small and medium firms. So that it will encourage the development of economy. But such risk taking behavior will lead to higher level of NPLs.

Some researchers also examine the relationship between the ROA and NPLR. Godlewski (2004) uses ROA as a measure of profitability and find a negative relationship between ROA and NPLR. In the later discussion of our study, we will present a regression analysis of NPLR as independent variables and ROA as dependent variables. Therefore, NPLR seems appropriate as an indicator to our study

.

Conclusively, the choice of CAR and NPLR are based on their properties and frequency of occurrences in previous studies. CAR measures the amount of bank's capital which is related to the amount of is risk weighted credit exposure. It is also regulated in Basel regulation and must be a crucial factor for bank managers to concern in credit risk management. As for NPLR, it is relevant with bank loans. Bad loans have close relationship with banks credit risk and influence the efficiency of credit risk management. Thus, we consider it would be reasonable to use CAR and NPLR in our study, and further discussion for these two variables will be present in the following sections.

2.4.4.1 Capital Adequacy Ratio (CAR)

Capital adequacy ratio (CAR) is defined as the ratio of capital to the risk-weighted sum of bank's assets (Hyun & Rhee, 2011, p. 325). It measures the amount of a bank's capital relative to the amount of its risk

weighted credit exposures (Reserve Bank of New Zealand, 2007, p.1). Capital-based regulation has become a major issue in the banking industry after financial crisis in 2007 caused by subprime mortgage problems. Losses on mortgages and other mortgage-related securities significantly decrease the capital base of many banks (Hyun& Rhee, 2011, p. 323). To keep the minimum capital adequacy ratio and secure against underlying losses, capital-constrained banks began to collect outstanding loans or became reluctant to grant new lending (Hyun& Rhee, 2011, p. 323). The specific calculation of capital adequacy ratio is estimated by dividing total capital by total risk-weighted-assets (Reserve Bank of New Zealand, 2007, p.11). More detailed estimation associated to the capital and risk-weighted-assets will be discussed further in the following.

Generally, two types of capital are measured for use in capital adequacy ratio (Reserve Bank of New Zealand, 2007, p.1). Tier 1 capital can absorb losses without a bank being required to cause trading such as ordinary share capital (Reserve Bank of New Zealand, 2007, p.1). Tier 1 capital is essential because it safeguards the survival of the bank and the stability of the financial system (Reserve Bank of New Zealand, 2007, p.1). Tier 2 capital absorbs losses in the event of a winding-up and provides a lower level of protection to depositors (Reserve Bank of New Zealand, 2007, p.1). For example, subordinated debt means that the subordinated debt holders will only be repaid after all other creditors have been repaid (Reserve Bank of New Zealand, 2007, p.1).

Minimum capital adequacy ratio has been developed to ensure banks can absorb a reasonable level of losses before insolvency and before depositor funds lost (Reserve Bank of New Zealand, 2007, p.2). Applying minimum capital adequacy ratio aims to protect depositors and promote the stability and efficiency of the financial system (Reserve Bank of New Zealand, 2007, p.2).

The minimum capital adequacy ratios encouraged by supervisory authorities are:
- Tier one capital to total risk-weighted-assets is no less than 4%.
- Total capital (Tier 1+ Tier 2) to total risk-weighted-assets to be no less than 8% (Hull, 2012, p. 262). Theoretically, three steps are involved in the calculation of CAR: First step: calculation of capital (tier 1 capital and total capital). Second step: calculation of total risk-weighted-assets. Third step: calculation of capital adequacy ratios (divide capital by total risk-weighted-assets).

2.4.4.2 Non--- performing loan ratio (NPLR)

An extraordinary meltdown of banking sector during 2007 led to many banks' severe loss on credit portfolios (Boudriga, 2009, p. 286). Many banks experienced failure and global financial markets faced

systemic crisis. The experience of crisis increases further concerns on financial system stability and the need for better control and supervision on lending activities and institutions, Diversified and periodical assessments are made to timely predict undesirable exposure (Boudriga, 2009, p. 286). The aggregate rate of non-performing loans (NPLs) is commonly measured as a soundness indicator (Boudriga, 2009, p. 286).

A loan is normally defined as non-performing when customer's payments are arrears (Kauko, 2012, p.196). Generally, default can be defined in the following ways:

- Non-payment of interest 90 days after the interest due date;
- Non-payment of a loan 90 days after the loan maturity date;
- Restructuring of the borrower's loans;
- Filing for bankruptcy, the appointment of administrators, liquidation, and so on.

Late payment is often characterized a non-performing loans (NPLs) rather than a defaulted loan if the borrower is still undertaking business (Choudhry, 2011, p. 131). Nevertheless, at some point, irrespective of the state of the borrower, an NPL will be written off as a default loss (Choudhry, 2011, p. 131). The write-down which must be funded out of the bank's capital is often at 100% of outstanding notional value. The bank might recover a percentage but at some later date (Choudhry, 2011, p. 131). NPLR is the ratio of non-performing loans to total loans (Yang, 2010, p.2019). The equation can be defined as:

$$\text{NPLR} = \frac{NPLs}{Total\ Loans}$$

Where:

NPLR= Non-Performing Loan Ratio

NPLs= Non-Performing Loans.

NPLR is a financial soundness indicator which demonstrates the quality of bank loans (Park, 2012, p. 909). The quality of bank loans plays an essential role in the overall bank soundness because one of the core activities of banking institutions is to make loans even though its importance has been gradually decreasing over the past decades (Park, 2012, p. 909). According to Yang, NPLRs can adversely influence the efficiency of risk management and investment (2010, p. 2019). Commercial banks expose

themselves to the risk of default from loan borrowers. Quality credit risk assessment, risk management and creation of adequate provisions for bad and
doubtful debts can reduce the banks credit risk (Kwambai& Wandera, 2013, p. 169).

When the level of non-performing assets is high, the assets provisions made are not adequate protection against default risk (Kwambai& Wandera, 2013, p. 169). The determinants factors of NPLs can be attributed to both macroeconomic conditions and banks' specific factors. Rinaldi and Sanchis-Arellano (2006) has found that disposable income, unemployment and monetary conditions have strong impacts on NPLs. And Berge and Boye found that problem loans are highly sensitive to the real interest rates and unemployment in the Nordic banking system (2007, p.65).

Lawrence (1995) examines a model and introduces explicitly the probability of default. This model indicates that borrowers with low income have higher rates of defaults because of increased risk of facing unemployment and being unable to settle their obligation. Rinaldl and Sanchis-Arellano extend the Lawrence's model through assuming that agents borrow in order to invest in real or financial assets (2006, p. 5). And they argue that the probability of default depends on current income and the unemployment rate which is linked to the uncertainty of future income and lending rates.

Klein also finds NPLs are sensitive to bank-level factors. Better level of the bank's management which is measured by the profitability in previous period generates smaller NPLs (2013, p.20). Excessive risk taking valued by loans-to assets ratio and growth rate of bank's loans lead to higher NPLs in the subsequent periods. And these bank-level effects are significant during both the pre-crisis and post-crisis periods (Klein, 2013, p.20).

Conclusively, the relationship between risk management and profitability will be summarized in this paragraph. Profit is the ultimate goal of commercial banks so that all strategies designed and activities performed are meant to realize this grand objective (Ongore& Kusa, 2013, p. 239). Improving financial performance requires improved functions and activities of commercial banks (Nimalathasan, 2008, p. 141).
However, when a bank increases and maximizes its profit, it must either increase risk or lower its operating cost (Ruziqa, 2013, p. 94). Koch and MacDonald (2000) argue that a bank's profitability will generally vary directly with the riskiness of its portfolio and operations. As a result, in order to increase the return, banks need to know which risk factors have greater impact on profitability which eventually leads to bank financial performance. And as we mentioned in previous section, credit risk is the most

significant factors for commercial banks. This means the probability where the credit risk influences the profitability is large. According to Tafri et al. (2009, p. 1), risk management is important both for banks and policy makers because a strong

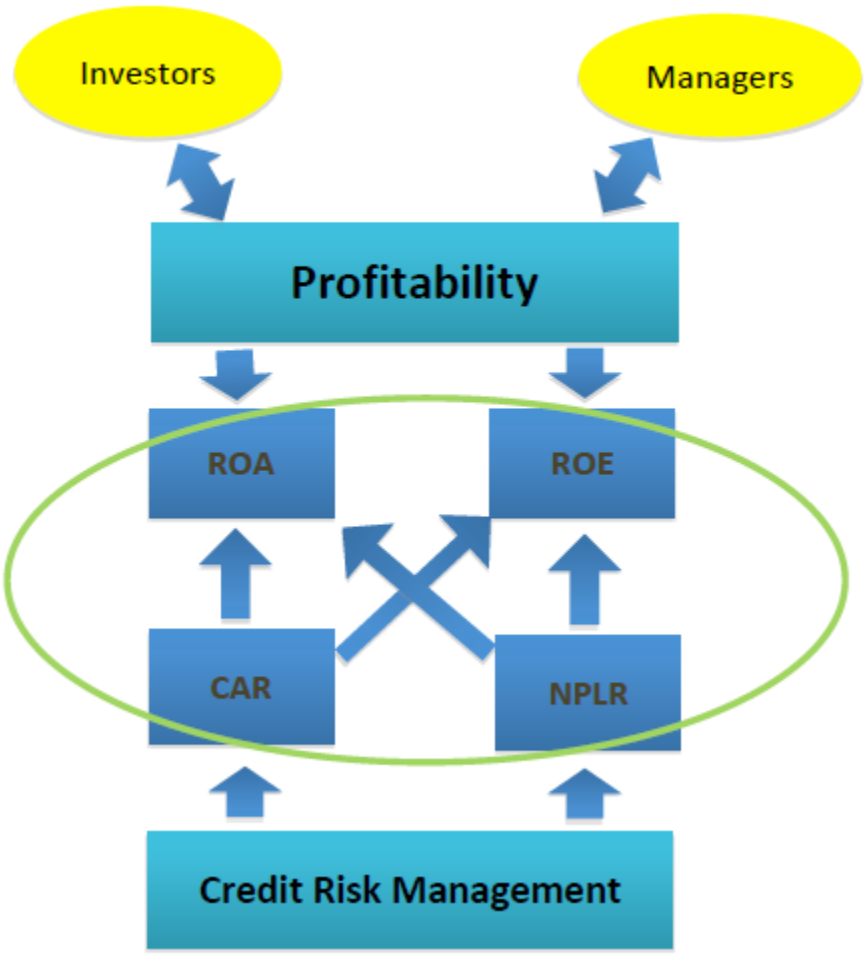
banking system can promote financial stability of a country and increase economy's resilience in facing economy crisis. Therefore the study and measure of effect of risk management to bank's profitability are crucial for financial institutions.

2.5 Critique of the validity of literature

The Federal Reserve System or The Board of Governors of the Federal Reserve System is the central bank of the United States of America. Among other things, the Federal Reserve System has a responsibility to supervise commercial banks. In their "Commercial Bank Examination Manual" that is revised every year and used by its bank examiners, the Federal Reserve System says that credit risk arises from the potential that a borrower or counterparty will fail to perform on an obligation.

Federal Reserve System contends that the profitability of commercial banks is usually determined by return on equity and return on assets (Federal Reserve System, 2020). In addition, it contends that a commercial bank that fails to put in place adequate credit risk management practices is considered to be unsafe and unsound (Federal Reserve System, 2020). However, this can only be true if a commercial bank engages in lending activities. Although the basic customer product of a commercial bank is the retail or corporate customer loan as argued by Choudhry, M., (2012) in his book entitled "The Principles of Banking", he also lists some of the banking activities apart lending in his other book entitled "An Introduction to Banking: Principles, Strategy and Risk Management" of 2018. These other banking activities include: project finance; trade finance; cash management; custodian services; private banking; asset management; foreign exchange trading and; capital markets trading. A bank may decide to concentrate on non-lending activities and the argument made by the Federal Reserve System that a commercial bank that fails to put in place adequate credit risk management practices is considered to be unsafe and unsound is not accurate.

2.6 The Conceptual Framework



ROA: Return on Assets,

ROE: Return on Equity,

CAR: Capital Adequacy Ratio,

NPLR: Non-performing loan ratio

It is apparent from the model: the foundation of this research is built on risk management of commercial banks, specifically credit risk management. It is the foundation which makes us interested in the study of the relationship between risk management and profitability

ty. And more specifically, we want to find the relationship between credit risk management and profitability. We need to quantify credit risk management as well as profitability to disclose the

relationship in a statistical and objective method. To achieve this, we actually investigate the relationship among two indicators chosen to represent or measure credit risk management and two indicators chosen to represent profitability.

Credit risk management can be disclosed from two perspectives: CAR and NPLR, which became the first level of cornerstones in this model. And profitability of commercial banks can be represented into ROA and ROE which lies upon the indicators of credit risk management (CAR and NPLR). As the information will be useful for investors and bank managers, they are the "outsiders" concerned by the profitability of banks.

In conclusion, the concept of credit risk management can be viewed as the foundation of this research. Four indicators (NPLR, CAR, ROA, and ROE) frame the research. The combination of ratios representing credit risk management and ratios disclosing profitability which will be measured in the research is the main body of our research model. The highest level of the model after testing all indicators' relationships is linked to profitability of commercial banks. The "outsiders" who might use this information are investors and bank's managers.

2.7 Gap (s) of knowledge

Credit risk is a cost to the bank not only in terms of default but also in terms of a deterioration of the financial health of a borrower. Whereas the cost is only recognised at one point only namely default, the other cost which should be recognised earlier before the cost of default must also be recognised at the point of a deterioration of the financial health of the borrower. There is a cost that is not recognised on the financial statements of commercial banks and therefore this study argues the financial statements do not reflect the true state of financial affairs of the commercial banks. This is the gap of knowledge that this research wishes to close.

2.8 How the proposed study will contribute to the knowledge base of the area of study

In order to manage credit risk adequately, all banks in Zambia including the banking regulator namely the Bank of Zambia, must define credit risk in the same way. A risk is a possibility of a loss and in terms of credit risk that possibility is triggered by two events. First the borrower goes bankrupt, and second, the borrowers suffers a deterioration in financial health and the value of the loan declines (Choudhry, M., 2012). This study will contribute to the knowledge base of "The Impact of Credit Risk Management on the Profitability of Commercial Banks in Zambia" because the study not only investigating credit risk management practices of underwriting and loans but also loan surveillance which can be argued to be as

important as the underwriting process. As shown by Chorafas, D., N. (2014), Loan surveillance is the challenge of looking at individual credit risk on a loan-by-loan basis every day, every month or every quarter. Although loan monitoring is a demanding job, it may be the key to solving the problem of bad loans in the Zambian banking industry.

2.9 Chapter Summary

This chapter considered various pieces of literature on credit risk management and bank profitability. The gaps in literature have been identified that necessitate the conduct of this study. The next chapter presents the methodology the author wishes to use in carrying out the study.

CHAPTER THREE:
RESEARCH METHODOLOGY

3.1 Introduction

In the proposed study, it is vital that a fair, respectful, and trusting rapport is established between the researcher and the bank management and managers within the ABSA Bank Zambia PLC. This relationship needs to exist, with the researcher knowing that the knowledge uncovered will be contextual, and with the researcher being respectful of varying viewpoints and the subjective truths that might arise from interactions with multiple participants. Research in credit risk management practices will call for close interaction between the researcher and bank management and employees of ABSA Bank Zambia PLC. The relationship between these factors calls for a qualitative case study approach to answering the research question in section 1.6 and subsidiary questions to those questions.

The core of this chapter is to present the practical method of our research and the variables we used in statistical tests. We will describe the population and sample in the beginning, and then the time horizon and proxies will be discussed. Finally, the statistical tests which will be used in our research will be presented.

3.2 Research Design

Because the study wants to investigate the inadequacy of credit risk management practices among commercial banks in Zambia in a bounded environment, the study will use a case study approach. A mixed methods approach will be used, encompassing both qualitative and quantitative data.

3.3 Study area or Site

The study will be conducted at head office ABSA Bank Zambia PLC in Lusaka.

3.4 Study population

The relationship between the population and sample can be described as: "*The population in a statistical study is the entire group of individuals about which we want information*" (Moore et al., 2009, p. 178).

According to this definition of population, our research's population will consist of all 32 members in the credit rsk control unit at Absa Bank Head Office.

The purpose of the research is to test the relationship between credit risk management and profitability of Absa bank plc from 2018 to 2020. The reason we chose this bank is that it is one of the largest banks in Zambia, and large banks usually have higher level of transparency and stricter regulations. Most of large banks are listed which increase the reliability of the information they published. Therefore, it also improves the reliability of our research when we use such information. A bank like Absa always publishes their annual report on their official website which is available for us to acquaint with bank's information. ABSA have operated in Zambia for close to 100 years and are now one of the country's foremost financial institutions in terms of financial strength, product offering and service capability. The bank is currently represented by 70 offices comprising of full branches and sales centres throughout the country and is continuing to expand.

The intended subjects are 32 credit risk staff of ABSA Bank Zambia PLC. They are responsible for all matters of credit risk matters, the acquisition of loans by clients and the retention of existing relationships. They also help to structure, underwrite, negotiate and manage credit relationships. Therefore, they are a reservoir of knowledge relating to the area of study in this research.

3.5 Study Participants

"*A census is an attempt to list all elements in a group and to measure one or more characteristics of those elements." (Moore et al., 2009, p. 178).* Primary Data will be collected from the 32 staff in the credit risk unit within ABSA Bank Zambia PLC. Secondary Data will also be collected from financial reports, credit policies, procedures, processes or other additional internal materials of the bank such as the loan procedures manual.

3.6 Research instruments

The study will use a structured questionnaire as part of the research process in order to go further into the data and uncover the hidden facts. Information about the respondent's demography, such as age, sex, education, gender, job experience, and employment terms will be obtained using this tool. Additionally, the same instrument will be used to access effects of credit risk management practices on profitability at Absa bank Zambia plc. These questionnaires will be distributed to all 32 participants in the Unit The respondents will be accorded an opportunity to express their opinions on credit risk management practices on profitability at Absa bank Zambia plc. The Questionnaire will be convenient, save time, and allow for clarification on specific topics.

3.7 Data Analysis and Presentation.

When data is obtained, the instruments used to collect it will be examined for completeness, consistency, and accuracy. Reading through all of the responses made on the closed-ended questions. Each category will be allocated a code, which will then be entered and analysed using SPSS version 21.0 windows. After the data was entered, it was cleaned and validated using frequencies and cross tabulations to ensure that there were no anomalies in the data. The results will later be presented in tables, graphs and charts, to quantify the uncertainty or variability associated with the data. Then inferential statistic will help to be able to generalize the results. The researcher will further perform a correlation Analysis-Pearson Correlations at 95% level of confidence and 5 percent level of significance to show the nature of the relationship existing between the independent variables (Adequacy of risk assessment and policies, Management Practices and Management practices life cycle) and dependent variable (Credit Risk Management Practices on Profitability at Absa bank Zambia plc.)

Further, the study will use a multiple regression model at 95 percent level of confidence and 5 percent level of significance to establish how independent variables (Adequacy of risk assessment and policies, Management Practices and Management practices life cycle) affected dependent variable (Credit Risk Management Practices on Profitability at Absa bank Zambia plc).

In this case, the regression equation will be expressed as;

$Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + €$……. (i)

Where: Y= Credit Risk Management Practices on Profitability at Absa bank Zambia plc.

$\beta 0$ = coefficient of intercept

X1= Adequacy of risk assessment and policies

X2 = Management Practices

X3= Management practices life cycle

€ =error term $\beta 1 \ldots \beta 3$ = regression coefficients of the independent variables.

3.8 Validity and Liability

The research will use a guided questionnaire to establish the adequacy of risk assessment and policies on credit risk management practices on profitability at Absa bank Zambia plc. This questionnaire will be modified through vigorous literature review on the matter and its study objectives. The study development and perfection of the questions in the questionnaire will be guided by the supervisor based on his expertise in the field of research. The validity of the findings was based on the creation of a robust study design, the selection of an appropriate method, population, and the meticulous and consistent execution of the research. To ensure reliable of data collected, a pilot study will be conducted and also

participants will be instructed not to discuss the questions with their friends. If they have any queries, they will be encouraged to ask the researcher and will be guided on what to do.

3.9 Ethical Considerations

The consideration of issues of ethics within business has provided an interesting and potentially important stream of organizational research in recent years (Crane, 1999, p.237). According to Saunders et al. (2009), *"ethical refers to the appropriateness of your behavior in relation to the rights of those who become the subject of your work or are affected by it."*

Consent process

The consent document will be used as a guide for the verbal explanation of the study. Consent will be obtained from the respondents and they will be given adequate information pertaining the study. they will also be provided with an opportunity to enable them to consider all available options, as well as to ask questions, all to ensure that they have fully understood what the intent of the research. when the respondent agrees to participate in the study they will fill in a voluntary agreement form and ensure they sign it. The researcher will continuously provide information to the participant or as situation may require.

Confidentiality

Steps will be taken to ensure that study participants view, and rights of confidentiality are always upheld. Names of participants will be with-held throughout the study when data is being collected and coded. The data collected will be used purely for academic purposes. This information will be shared with the relevant authorities that will also ensure that information obtained about research participants will remain protected from disclosure outside of the research setting or to unauthorized persons.

Benefits

Besides helping the Student to critically think and use analytical skills through hands-on learning and develop an academic career that will lead to the attainment of a Masters of Business Administration, the research will help with expanding the adequacy of credit risk management practices on profitability at Absa bank Zambia plc. The selected respondents with have an opportunity to take part in a research that will help provide more information to be known about their roles providing insights that may improvement the Banks performance.

Risk

Some questions may be found to be inconveniencing especially to more sensitive people on the subject matter, this could have psychological risks that include depression, altered self-concept, increased anxiety, decreased confidence in others, guilt, shame, fear, embarrassment, boredom, frustration by receiving information about oneself that is unpleasant, and inconvenience (Sieber, 2000)

Mitigation of Risks,

Data collection from participants will be voluntary. No respondent will be coerced to fill out the questionnaire and it exclude women below the age of 18. Respondents will be allowed to ask questions to completely clear out grey areas and will be given enough opportunity to completely understand the questions being asked or stop answering the questionnaire at any point during the interview if they felt infringed upon. At every stage of the research the researcher will be guided by the supervisor to ensure no form of bias is introduced in the study.

Study Withdrawals

The respondents will be told in advance that they could withdraw at anytime if they feel like discontinuing. They will be informed that they are allowed to state or not to state why they have resolved to withdraw.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

Methodology used for data collecting and analysis in the study was described in the preceding chapter. The information came from 32 credit risk staff of ABSA Bank Zambia PLC.The findings are presented using a thematic approach in accordance with the dissertation's three objectives, which are outlined in chapter one.

The researcher opens this chapter by outlining the response rate, the demographic characteristics of the study participants. Statistical tables, frequency counts, and charts are then used to present quantitative data.

4.2 Response Rate

A sum of 32 questionnaires were distributed to the target population, to which there was a response rate of 100%. Questionnaires were distributed to credit risk staff.

Table 4.2: **Demographic Characteristics**

Variable	Category	Frequency	percentage %
Gender	Male	22	**68.75**
	Female	10	**31.25**
Age	18 - 28	6	**18.75**
	29 - 38	16	**50.0**
	39 - 48	7	**21.9**
	49+	3	**9.4**
Qualification attained	Diploma	8	**25.0**
	Degree	17	**53.1**
	Master Degree	3	**9.4**
	PhD	0	**0.0**
	Others	4	**12.5**
Years of experience	below 3years	5	**15.6**
	3 -5 years	11	**34.4**
	6-10 years	9	**28.1**
	Above 10 years	7	**21.9**

Source: Own data collected in the field

The study findings revealed that 22 (68.75%) were male and 10 (31.25%) were female, There was no balance in the distribution of personnel by gender as it was seen to be of biased towards male respondent.

Many who answered were between the age of 29 - 38 years representing 16(50%) of the respondents, followed by the age group 39 -48 years at 7 (21.9%), the age group 18 -28 had 6 (18.75%) and 49 years had 3 respondents representing 9.4%. From the findings of the research and the results of the interviews, the majority of the respondents had Degrees 17 (53.1%). 8 (25.0%) had diplomas, 3 (9.4%) had masters degrees and no respondent had a PhD while the remaining 4 (12.5%) had other qualifications. These results also showed that 5 (15.6% had worked for the organization for less than 3 years. 11(34.4) had worked for the organization for between 3 -5 years. 9(28.1%) had worked with the organization for between 6-10 years and 7 (21.9%) had worked for the organization for over 10 years.

4.3 Adequacy of risk assessment and policies on credit risk management

When the respondents were asked with the questions if Absa bank did review its credit risk management policies, the finding of the study showed that (65.6%) agreed that the bank did review its policy, minority (17.4%) refuted the statement while 17.2% of the respondents remained uncertain. The findings of the study showed that most on a regularly basis Absa banks reviews its credit policy , When subjected to the Likert scale of 1 to 5, respondents agreed with the statement that Credit risk management practices had an effect on profitability with a (Mean=3.56) while these responses were spread from the mean at 1.22 standard deviation.

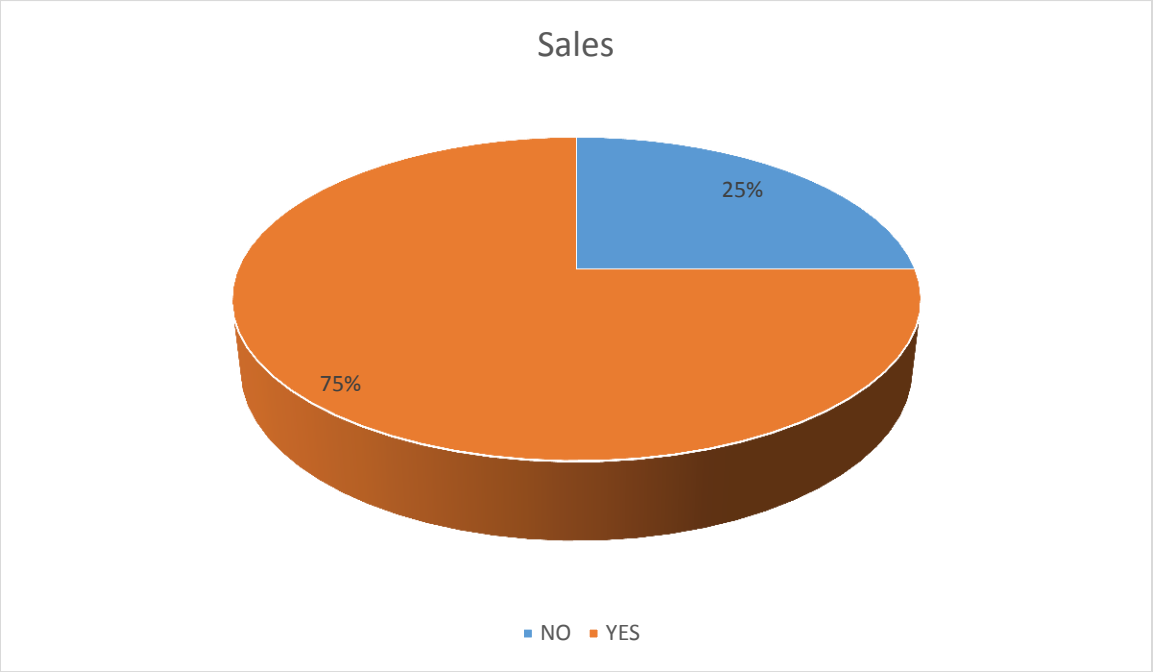
Table 4.3 Adequacy of risk assessment and policies on credit risk management

	Strongly agree	Agree	undecided	Strongly Disagree	Disagree	Mean	Standard Deviation
YES	10.0%	66.8%	3.0%	2.90%	20.00%	3.41	1.42
NO	5.60%	61.2%	5.3%	8.50%	19.40%	3.45	1.21
Average	**5.72%**	**34.43%**	**5.66%**	**28.70%**	**15.40%**	**3.56**	**1.22**

4.3. Credit Risk Management

Regarding whether there is a relationship between credit risk management and profitability, the responses were as follows;

Figure 4.3. Relationship between Credit Risk Management and Profitability.



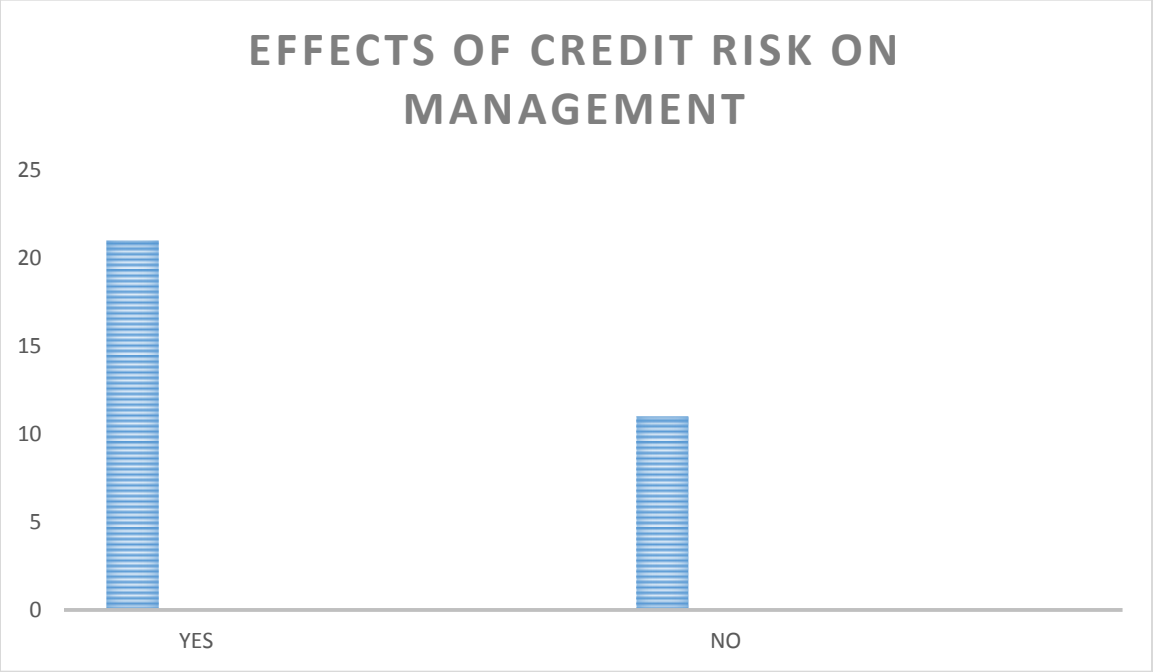
Source: Research data

As in table and figure 4.2.5 above 75% of the respondents felt that there was a relationship between credit management and profitability while 25% disagreed. This indicates that there is a relationship between credit management and profitability.

4.4. Effect Management on Profitability of Credit Risk Management

On whether credit risk management affects profitability, the responses were as follows;

Table 4.4. Effect of Credit Risk Management on Profitability

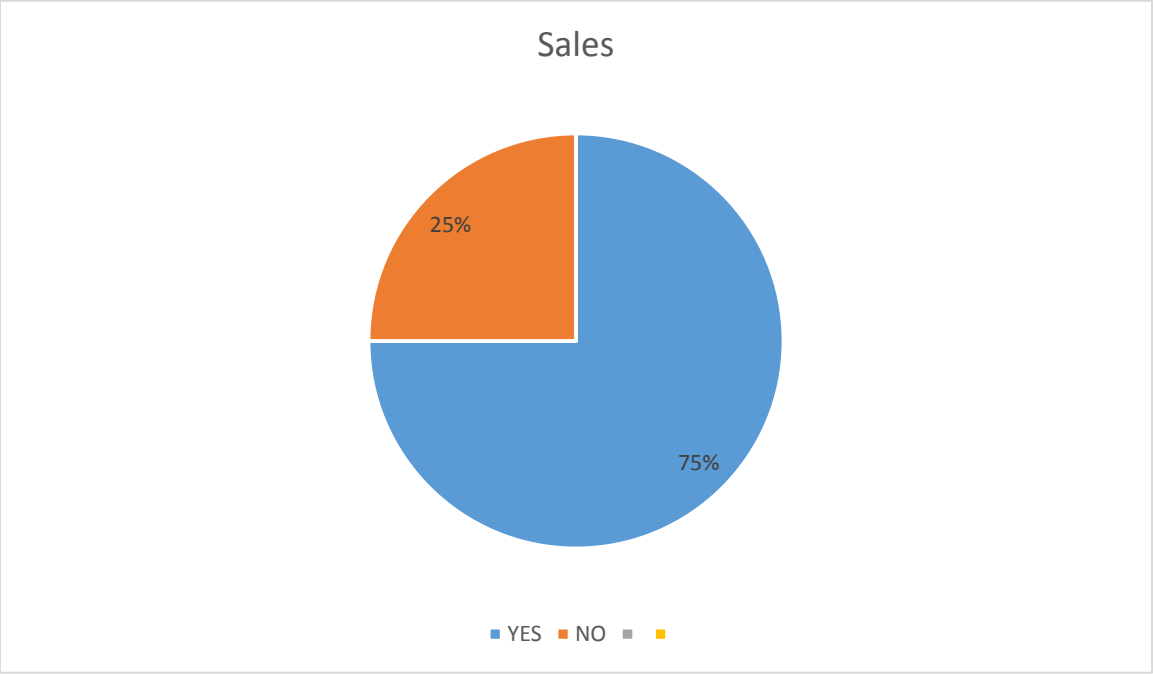


Research data As in table 4.4. above, 68% of the respondents indicated that credit management affects profitability while 32% felt that credit management had no effect on profitability. This shows that credit management affects profitability.

4.5. Application of Credit Management Principles

On whether the banks applied the principles of credit management, the responses were as follows.

Figure 4.5.1 Applications of Credit Management Principles

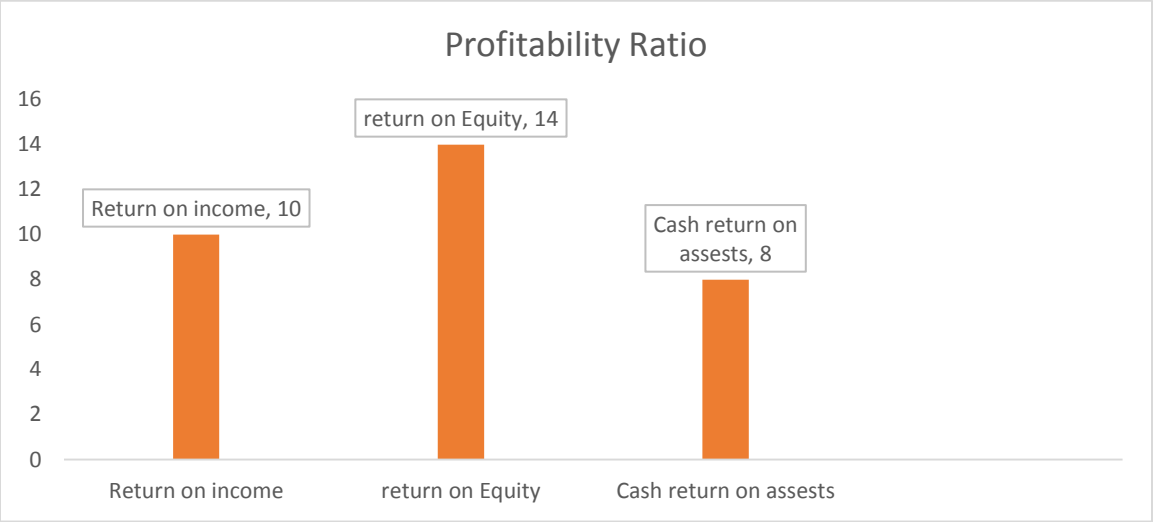


Source: Research data

As in figure 4.5.1 above, 75% of the respondents indicated that credit management principles were applicable in their banking institutions while 25% denied. This shows that credit management principles are applicable in the various banking institutions.

4.2.8 Profitability

Figure 4.6.1 Profit Calculation Ratios



Source: Research data

Figure 4.6.1 presents the ratios of ascertaining profitability. 14 (44%) of the respondents indicated that they preferred Absa to use return on equity ratio. 10 (31%) indicated that they preferred Return on income ratio while 8 (25%) indicated that they preferred Cash return on asset ratio. From this, it can be concluded that return on equity is the commonly thought out as the most profitability.

4.7.2 Effect of Profit Ratios on Credit Management

Table 4.7.3 Effect of Profit Ratios on Credit Management

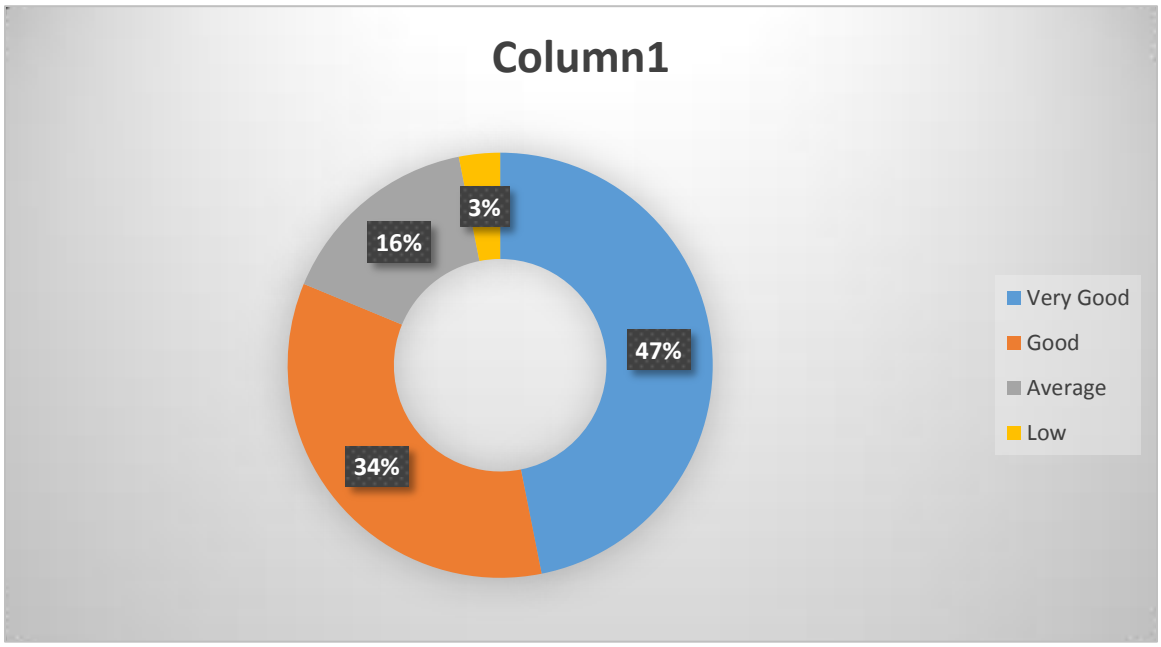
Response	Frequency	Percentage
YES	21	67%
NO	11	33%
TOTAL	32	100

Research data

As in table 4.7. above, 67% of the respondents indicated that profit ratios affect credit management while 33% disagreed. This shows that credit ratios affect credit management.

4.7. Extent to which Ratios Relate to Credit Risk management

Figure 4.7.3 Extent to which Ratios Relate to Credit Risk management



Research data

Figure 4.7.4, presents the extent to which ratios relate to credit risk management.47 % of the respondents indicated that it was very good extent,34% that it was good and 16% said it was average and 3% said it was low. This shows that profitability ratios greatly affect credit risk management.

Table 4.7: Descriptive Statistics

	Mean	Std deviation
Return on Equity	12.933	21.88400
NPLR	.1846	.16023

Research data

The average value of ROE had a mean of 12.93 and a standard deviation of 21.88 while NPLR had a mean of 0.1846 with a standard deviation of 0.160. There is very high variability in both ROE and NPLR among the commercial banks during the period 2016 to 2019 as shown by their standard deviation values.

Table 4.7.4 Pearson Correlation

	ROE	NPLR
Return on Equity	1.00	
NPLR	-.516	1.00

Research data

Table 4.4.2: Model Summary

R	R Square	Adjusted R Square	Std. Error of the estimate	R Square change	F Change	df1	df2	Sig. F change
.527 (a)	.278	.275	18.6618	.278	114.1170	1	276	.000

Predictors: (Constant), NPLR Source:

Source: Research data

Analysis in table 4.7.2 shows that the coefficient of determination (the percentage variation in the dependent variable being explained by the changes in the independent variables) R2 equals 0.268, that is, NPLR explain 27.8 percent of ROE for commercial banks leaving 72.2 percent unexplained. The P- value of 0.000 (Less than 0.05) implies that the model of ROE is significant at the 5 percent significance.

Table 4.7.3: ANOVA

	Sum of Squares	Df	Mean of square	F	Sig
Regression	40027.940	1	40027.940	114.690	.000 (a)

Residual	104004.123	298	349.009
Total	144032.063	299	

Predictors: (Constant), NPLR

Dependent Variable: Return on Equity

Source: Research data

ANOVA findings (P- value of 0.00) in table 4.4.3 show that there is correlation between the predictor's variables (NPLR) and response variable (ROE).

Table 4.7.6: Coefficients of regression equation

	Unstandardized coefficients		Standardised coefficients	t	Sig
	B	St. Error	Beta		
(Constant)	26.251	1.645		15.546	.000
NPLR	-73.219	6.752	-573	-10.675	.000

Dependent Variable:

Return on Equity

Source: Research data

Regression equation

The established simple linear regression equation becomes:

$Y = 26.25 – 72.19X$

Where

Constant = 26.25, shows that at zero value of NPLR for all commercial banks, ROE takes the value 26.25

X1= -72.19, shows that one unit change in NPLR results in 72.19 units decrease in ROE.

NPLR is also linearly related with ROE as shown, its P- value of 0.00 which is less than

0.05

Summary of findings and Interpretation

The aim of our study was to investigate credit risk management and profitability at Absa Bank PLC. Credit risk management is vital in all commercial banks in that it is one of the major contributors to the income stream. To satisfy the objective of the study both primary and secondary data were collected. The primary data was collected by use of a structured questionnaire to the thirty-two members from the credit risk department were interviewed The secondary data was collected from the annual published financials for the target sample; the data covered a period of ten (3) years i.e. 2016-2019.

The data was analysed by use of descriptive statistics and presented in form of frequency tables, graphs and percentages.

As per the response rate analysis, out of the 32 questionnaires that were issued to the respondents, and 32 were collected which translated to 100%. This represented a high response rate.

The questionnaires were given to credit managers and finance managers in respective commercial banks. Gender analysis indicates that 68.75% of the respondents were male while 31.25% were female. This shows that most of the respondents who participated in the study were male. An analysis of the highest education levels attained by the respondents shows that 25% had acquired diploma, 53.1% bachelor's degree while 9.4% had masters. 12.5% had other forms of qualification and non-had a PhD qualification. This show that majority had at least bachelor's degree thus understood their work and related issues. Regarding work experience 15.6% of the respondents had worked with their institutions for less than 3 years.34.4% had worked for 3-5

years, 28.1% for between 6-10 years and 21.9% for 10 years and above. Majority therefore had been in their banking institutions for 3-5 years which is a period enough to understand the individual firms and the banking industry.

On whether there is a relationship between credit management and profitability 75% of the respondents felt that there was a relationship between credit management and profitability while 25% disagreed. This indicates that there is a relationship between credit management and profitability. When asked about the application of the credit management principles in the banking institutions, majority of the respondents indicated that credit management principles were widely used at Absa bank.

In determining the effect of credit management on profitability, 68% of the respondents indicated that credit management affects profitability while 32% felt that credit management had no effect on profitability. This shows that credit management affects profitability. On whether credit management principles were applicable in the banking institutions, 93% of the respondents indicated that credit risk management principles were applicable in their banking institutions while 7% denied. This shows that credit management principles are applicable in at Absa bank Plc. The respondents gave examples of credit management principles used as Creating value , explicitly addressing uncertainty ,basing on the best available information and taking into account human factors .They also cited on the 6Cs of credit management which include character, capability, context, credibility, collateral and conditions.

Various ratios are used to ascertain profitability.36% of the respondents indicated that their banking institutions used return on income ratio.46% indicated that they used Return on equity ratio while 18% indicated that they used Cash return on asset ratio. From this, it can be concluded that return on equity is the commonly used ratio followed by return on income. When asked on the procedure of determining profitability most of the respondents pointed out Return on equity which is the amount of net income returned as a percentage of shareholders equity. Return on equity measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested. Return on Equity is expressed as a percentage and calculated as net income divided by shareholder’s equity.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

The objective of the study was to establish whether there is a relationship between credit risk management and profitability at Absa Bank Plc. The study used both primary and secondary data collection methods. The primary data was collected by use of a structured questionnaire and the secondary data was obtained from the banks published annual financials. To achieve the objective, profitability and credit risk management indicators were computed from all the sampled date. Return on equity was used as an indicator of profitability and Non- performing loan ration was used as an indicator of credit risk management. A regression analysis was done and it established a negative co-relationship between the dependent variable (profit indicator) and independent variable (credit risk management indicator). The study results reveal that there is a relationship between credit risk management and profitability at Absa bank. The respondent on the primary data indicated that there is a relationship between credit risk management and profitability this was further enhanced by the secondary data, the regression analysis equation established a negative relationship. This means that as the independent variable changes it has a negative change on the dependent variable. Therefore, as the non- performing loan ration increases it results to a decrease on the return on equity. The analyses asserts that as the commercial banks non-performing loan book increases it has a ripple effect in that it leads to a reduced profitability. Therefore, Absa banks have to prudently manage its loan book to achieve

high levels of profitability. This can be achieved through establishment of effective credit risk management tools and close monitoring of the portfolio.

5.2 Conclusions

The findings have shown that there is a relationship between credit management and profitability such that credit management affects profitability. When asked about the application of the credit management principles in the banking institutions, majority of the respondents indicated that credit management principles were widely used in the banking and even microfinance institutions. Credit management principles were applicable in their banking institutions .They gave examples of credit management principles used as Creating value , explicitly addressing uncertainty ,basing on the best available information and taking into account human factors .They also cited on the 6 Cs of credit management which include character, capability, context, credibility, collateral and conditions. Various ratios are used to ascertain profitability. These include return on income ratio, Return on equity and Cash return on asset ratio. Return on equity is the commonly used ratio followed by return on income. Return on equity which is the amount of net income returned as a percentage of shareholders equity. Return on equity measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested. Return on Equity is expressed as a percentage and calculated as net income divided by shareholder's equity. NPLR as an independent variable was linearly related with the dependent variable (ROE) thus simple linear regression model could be used to forecast ROE for Absa bank; however care should be taken when using the model and where necessary other independent variables should be included in the model so as to strengthen the value of R2 The findings are in congruent with other earlier studies i.e. Juanjuan et al. (2009), that concluded

that there is a relationship between credit risk management and profitability in commercial banks. The study was carried out on four major banks in Sweden.

5.3 Policy Recommendation

The research findings have showed that there is a relationship between credit risk and profitability in commercial banks therefore policy makers should come up with policies that enhance profitability through prudent credit risk management. These policies should be reviewed periodically to be in check with reality. Based on the findings, following are the recommendations to policy makers and regulators. The main stake holder to ensure that Absa banks adhere to set credit risk management policies as set by Bank of Zambia, being the regulator CBK should review policies set to manage credit risk and ensure full implementation. As indicated by the research findings credit risk management is critical to profitability of commercial bank. Profitability is a key pillar to the stability of the financial system, consistent loss making by Absa bank can lead to adverse effect on the country's financial system. Therefore central bank plays a key role in ensuring that the financial system is safe guarded by establishing policies and regulations. To enhance profitability in credit management, the credit risk measures should be tightened. The loan officer must assemble and evaluate information and then determine what the entire picture looks like. The banking system should be based on organizational and legal policies. Organizational policies regulate the lending activities within individual banking institutions while Legal policies are aimed to create legal relationship and thus ability to take the necessary measures in case one of the parties to the contract defaults. The modern day shareholder is interested in a firm that generates wealth for them, this can only be achieved through making profits because from the profits the shareholders are paid dividends and also earlier research shows that profitability is a fundamental influencer of the share prices at the stock exchange. High share prices leads to capital gains to shareholders. Therefore, commercial banks managers should establish policies that are geared towards ring fencing the organizations profitability. The policy should seal all the loopholes that lead to haemorrhage of profits. Lending policies should be in line with the existing legal frameworks both internal and external. In addition, the credit policies should facilitate business growth through creating an enabling environment and not hinder it through long bureaucratic procedures

5.4 Limitations of the Study

Researchers on the subject of credit risk management and profitability at Absa bank were few and little literature on the international arena was also not available on the subject, in addition much of the literature obtained related to the developed economies whose circumstances may be different from that of a developing economy like Zambia. Some of the respondents were suspicious about the study and left gaps on the questionnaires for fear that the confidentiality of certain information about their banks may be exposed to competitors and other parties. This fear was in spite of the respondents not being required to necessarily disclose the identities of their banks. In addition, each questionnaire was attached with an assurance letter to the respondents that their responses would be treated with ultimate confidentiality and solely for academic purposes. This deprived the study some necessary information. Granted that the secondary data used in this study was obtained from published annual financial reports, one must be cautious of the limitations associated with such data.

5.5 Suggestions for Further Research

The study sought to establish the relationship of credit risk management and profitability in commercial banks in Zambia. Further research may be carried out to establish the relationship between other various risk exposures i.e. liquidity risk, foreign exchange risk, operational risks, interest rate risk faced by commercial banks and profitability. The study applied only one independent variable in determining the results, a further study can be carried out by including more independent variables to the regression model. Use of more variables may better capture the strength of the relationship. Also the study could be further enhanced by examining Basel II effect on profitability of commercial banks upon full implementation. Profitability indicator could be developed by adding other relevant dependent variables to grasp the whole variations in profitability. The study was only carried on thirty commercial banks. As at 30th December 2019 there were forty four commercial banks in Zambia. A further census study should be carried out to evaluate if there is a substantial change of the findings. This study can also incorporate other risk exposures on commercial banks.

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