AN ANALYSIS OF THE IMPLEMENTATION OF AUTOMATED CREDIT RISK MANAGEMENT STRATEGY ON LOAN RECOVERY RATE AMONG STANDARD BANK ZAMBIA CLIENTS IN LUSAKA DISTRICT, ZAMBIA

BY

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Declaration

I **Justine Chamangwa,** do hereby declare that this dissertation represents my own effort towards the fulfilment of the **Master of Business Administration**, to the best of my knowledge, and all borrowed ideas or materials from previous publishers or by any other person, or University, has been dully acknowledged by means of referencing and quotations. I further declare, to the best of my knowledge, that this work has not been presented in part or whole to any university, however, it is just for academic purposes.

Signed ………………………………………………….

Date ………………………………………………….

Certification

The undersigned certifies that he has read and hereby recommends for acceptance by the University of Zambia a dissertation entitled: "An analysis of the effectiveness of automated credit risk management strategy on loan recovery rate among standard bank Zambia clients in Lusaka district, Zambia", in fulfilment of the requirements of the degree of Master of Business Administration.

Supervised by: Dr William Phiri

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Date ………………………………………………….

Dedication

This research work is dedicated to my lovely wife Janet N Chamangwa, my son Joshua Chamangwa and my daughter Ruth Chamangwa and all my friends and most importantly to the Almighty God.

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List of Acronyms /Abbreviations

ATM- Automated Teller Machines

BOZ- Bank of Zambia

BFSA- Banking and Financial Services Act

CRM- Credit Risk Management

CRB-Credit Reference Bureau

IFRS- International Financial Reporting Standards

LUSE-Lusaka Stock Exchange

US- United States

MOF-Ministry of Finance

SME-Small Medium Enterprises

GDP-Gross Domestic Product

FNB-First National Bank

UK- United Kingdom

JP Morgan -John Pierpont Morgan

FSAP-The Financial Sector Assessment Program

JSE - Johannesburg Stock Exchange

AIG-America International Group

MFI-Microfinance Institutions

AB Bank-Arab Bangladesh Bank

Abstract

The purpose of the study was to investigate the efficiency of automated credit risk strategy approved in 2019, compared with manual earlier used by Standard Chartered Bank, to enable reduce debt default and manage risk among clients of Lusaka, district Zambia. The study used loan client appraisal, Credit terms and policy as dimensions to compare the effectiveness of the two methods between automated and manual in credit risk management process. The descriptive and correlational research designs were used to gain understanding on the subject under investigation. Stratified simple random sampling techniques were used on sample size of 40 respondents. Questionnaires, structured interviews and test observations were used to collect qualitative and quantitative data respectively. Qualitative data were analysed using themes derived from the research objectives and quantitative data by using Regression and Correlation analysis models with the help of Statistical Package for Social Sciences (SPSS). Therefore, findings of the study reviewed, that manual credit risk strategy was not effective, it indicated incidents of loan defaults and was the cost to the bank in bad debts written off. Furthermore, the results showed a relationship of (0.9), suggested a strong positive performance of automated credit risk strategy. The study revealed, that failure to proactively follow the 5 Cs (Character, Collateral, Capacity, Capital and Condition) and lack of adequate training on loan recovery process, caused loan default, however, the study suggested that, credit risk can be mitigated by constantly sending credit reminders notices. The study further revealed, that lately, digital credit automation methodology had developed rapidly, particularly in Lusaka, district, Zambia. Even though, the study disclosed that not many clients had gotten access to digital loans. Based on the findings, the study recommended that the Bank should invest in digital automated credit risk strategy, monitoring and supervision, grant digital access and sensitize clients. Top Management to enact strategies, policies, to training staff, collaborate with telecom companies and develop applications to trace defaulters and sanctioned them, to significantly reduce the credit risk breaches.

Chapter 1- Introduction and Background

1.0 Overview

The chapter presents the background of the study, statement of the problem, research objectives and questions, significance of study, theoretical framework, and the scope of study, limitations and definitions of key terms.

1.1 Background of the Study

The core business of banking has remained central in financing economic activities. Thus, its failure can interrupt the economic development of any country as individuals will be denied access to financial services to develop themselves (Menicucci, 2016). Currently, the Zambian Financial sector which play a vital role in contributing to economic development and improving the living standards of individuals by providing various financial services, include money, financial instruments, and transferred resources from savers to borrowers is facing challenges on loan recovery. This has led to closure of many branches across the country in a move designed to fully maximize digital platforms. Implementing of these digital platforms, infrastructure and strategies by banks in Zambia can reduce high default rates, however, the issue was not taken seriously. According to Bank of Zambia annual supervision report (2019), indicated incidence of credit risks from financial institutions reflected in high levels of losses in earnings and on profitability. This is partly as the result of poor credit risk management recovery systems. The pace of technological disruption charged by the pandemic, made most banks to invest heavily in automated credit risk methodological systems in order to curb high default rates, to become digitally resilient and remained competitive. Government agencies who are responsible to make sure that the elements of financial system, markets are safe, and allow clients to buy various financial products, while they deal with risk and uncertainty. (Cecchetti, 2015). Credit risk management is critical to the well-being of financial institutions that is where revenue and profit is obtained, however, the dilemma is also to take into account non-performing loans. Credit risk strategy costs in many banks in Zambia has led to bad debts. Automated credit risk management offers a viable solution to such risks. It offers restrictive credit control system, put in place to restrain from unnecessary lending, default on loans thus, improving loan recovery rate in banks. Automated credit risk strategy is the dynamic financial spreading tools to cloud-based storage, a host of capabilities actively deployed to help streamline and automate credit risk assessment processes to improve efficiencies and stay ahead of the curve, however, the COVID-19 pandemic took hold, and the unprecedented time accelerated the change. It was clear that the surged of bankruptcies taxed traditional credit risk management workflows, which caused many Banks in Zambia to look for alternative sources of methodology to the new analytical approaches and more dynamic reporting to stay on top of the deteriorating credit conditions. However, dealing with banking business consumes time and effort of clienteles, going to any place of business of a bank or financial institution include mobile office and banking Machines, waiting in line and trying to sort out things physically consumes a lot of time too. Well, thanks to technology and the internet, online banking allows customers to conduct financial transactions on their bank`s secured website. Banks now routinely provide passwords to their customers for online banking. Having access to online banking with their unique passwords. Clients can control their savings, loans, credit cards and other accounts. Customers can conduct several transactions using online banking such as, checking account activities, extracting bank account statements, ordering cheque books, transferring funds, paying bills and filing out loan applications (Cecchetti et al 2015). The roles of banking remained paramount in the financing of the economic activities in Zambia, even though the credit risk complications caused by serious banking problems such as negligent of credit risks standards for borrowers and counterparties, poor loan portfolio risk management, or lack of consideration to changes in economic or other conditions that could lead to disrupt the economic development of the country as borrowers will not have access to financial services to develop themselves (Masheta,2019). Over the past decades, banks in Zambia, have encountered the biggest problem of default rates on debts by its clients (Maimbo, 2002). The major causes of that banking problem was directly related to lack of credit risk assessment methodological standards to recover debts from borrowers and counterparties, poor portfolio lending risk management, lack of consideration to changes in economic or other circumstances leading to a fall in the credit standing of a bank's counterparties (Beyene,2015), hence the reason to conduct this study. The responsibility of approving credit risk strategy is done by the board of directors and Senior Management of the Bank (at least annually) in accordance of the credit risk policies of the bank. Therefore, according to the Credit risk management principles (CRM), credit risk strategy is defined as the likelihood that a bank debtor/ borrower or counterparty will fail to meet its debts in accordance with agreed terms. The goal of credit risk management was to take advantage of a bank's risk-adjusted rate of return and preserving credit risk exposure within acceptable constraints.

For most banks in Zambia, loans are the biggest and most observable source of credit risk, however, other sources of credit risk existed throughout the activities of a bank, included in the banking and in the trading book, and both on and off the balance sheet. Banks are more and more facing credit risk (or counterparty risk) in various financial instruments other than loans, including acceptances, interbank transactions, trade financing, foreign exchange transactions, financial futures, swaps, bonds, equities, options, and in the extension of commitments and guarantees, and the settlement of transactions (Masheta,2019).

The escalating effects of the economic status in Commercial Banking system in Zambia has progressively moved over the past century, therefore, its effects have disrupted the economic development of the country, as individuals have been denied access to financial services to develop themselves (Cheelo, 2020). The significance of the financial services markets has been widely accepted by governments and the Central Banks and is heavily regulated (Lumpkin, 2009). Banks, must not drop the ball in ensuring that their risk credit management strategies are kept up with the changed scene brought about by new technologies (Martinez, 2006). The decade ago, most financial services firms' risk management activities with limited to market and credit risk has attempted to minimize financial loss caused by market fluctuations or poor lending by banks (Nelson, 2007).

Today, new set of regulations and customer demands by banks, has other multidimensional facets of risks, such as confidentiality, information technology, reputation risk and operations (Boz, 2016). The question to answer is, how does a company sieve through the details and focus on the risks most important to it? However, for the purpose of this study, banks should use a project risk management approach along to control automation solution. BOZ Annual Supervision Report (2019), indicated some of the reasons for customer`s high debt and non-payment on credit varies, however, it reflected high levels of losses in earnings and on profitability. In a number of cases the high debt default rate challenges in most financial services in Zambia, mainly originated from inefficient use and control of the methodology systems used by banks themselves (Chen et al, 2020). Sometimes, the high debt servicing is caused by factors beyond the control of commercial banks (Hawkins, 2008). The integrity of the borrower should be on merit, however, borrowing should be done only if the credit is worth of the borrower.

Standard Chartered Bank Zambia was established in 1906 with the first branch opened in Kolomo District (Southern Province).

Today 110 years later, the bank is one of the leading Commercial Banks in Zambia with an excellent franchise. The Bank has a total of 25 outlets spread across the country, 48 Automated Teller Machines (ATMs) of which 4 are Electronic Banking Centres and over 700 employees. The Bank has a presence in 6 of Zambia`s 10 provinces with branches in Copperbelt, Lusaka, Northern, North-Western, Southern and Western Provinces. Standard Chartered Bank is the only international Bank in Zambia listed on the Lusaka Stock Exchange (LUSE), has been ranked the most profitable bank in Zambia, for the last three consecutive years. Over the past years, Standard Chartered Bank has pursued a clear strategy of focused organic growth while aiming to be a market leader in providing innovative products and services to its customers. The Bank is a unique position able to leverage its deep-rooted local knowledge, its international network and expertise for the benefit of Zambia corporate individual depositors and multi-nationals. Standard Chartered is one of the commercial banks in Zambia a subsidiary of Standard Chartered group, an international financial service conglomerate, which has the headquarters in London, United Kingdom (UK). In the Banking system, commercial banks take an extraordinary position. The role of commercial banks is principally to mediate funds between depositors to others. Indeed, Modern commercial banks have become the financial channels of capital market in developed economies. The guided direction of assets distribution and made the financing process more effective. In Zambia the capital markets, have less developed and the finance channel are performed mainly on commercial banks. The past decades the bank along with the Zambia economy had grown while been supervised by the Central Bank of Zambia, as the national`s banking supervisory body, do release from time-to-time annual reports for the country`s banking industry, which showed, that the total asset of financial institution in Zambia had increased. In December (2020), led to the closure of eight (8) of it branches across the country across the country due the move to designed to fully maximize its digital platforms agenda, however, that made big reactions from stakeholders due to unprecedented bank closures, however, the study revealed, that Bank of Zambia allowed the closures of its branches due to its retail strategy of digitalizing the banking platforms, such as online banking , mobile banking , deposit-taking, automotive Teller Machines (ATMs) , which the bank had invested substantially(BOZ,2020) currently the bank has remained with three 3 of its branches, two in Lusaka and one on the Copperbelt respectively, however, the cliental based has not been reduced, which has posed the challenge.

In the same venue, the Speaker of the National Assembly informed Parliament, that the Bank had informed the Bank of Zambia of its intention to close a number of selected branches as required under section, 19(3) of the Banking and Financial Services Act of 2017 (BFSA). That the Banking and Services Act required that the Bank, which intends to close a branch, must notify the Bank of Zambia within 60 days of carrying out its intention, and Parliament had no intention to interfere with such reasonable Justification.

The products and services offered by the Bank to many individuals and companies as advances and loans are indeed a source of income to the bank. The duty of the Bank is to accept deposits from the public and in return, it pays interest to the depositors after accepting deposits. The bank cannot keep the money idle collected. It deployed the funds in a profitable manner so that it could earn a profit. The Loans and advances given to its clients is the main sources of income for bankers. There are various advances and loans ranged from short term to long term, from small to large amounts. The Loans included, overdrafts and lease financing forms are the financial structure of banks. (Cartas, 2008). The bank has a strategy in place to help derived the income and profits that has been seen doubled in last few years. (Acemoglu, 2007). These unprecedented profits are as a result of the Bank`s internal environment which encompassed the tone at the top or control the costs consciousness and sets the basis for how risk was viewed and addressed. The bank value ethical standards and the corporate social responsibility in the environment in which it operates (Zelazna, 2020). The commitment was to its customers, therefore, the provision of debt finance (loanable funds) to the users of loanable funds is the principal activity of the Bank (Holmstrom, 2015) Furthermore, the bank operated a reverse account at Bank of Zambia for the purpose of bank supervision, and because of the problem in question the bank of rate has been facing challenges in the management of its client debts (BOZ, 2018). The essence of this study was to provide the possible solutions to the critical debt composition, especially the default activities that many banks have been experiencing in Zambia (Anderson, 2000).

The main financial stream of bank business in Zambia was to provide loans funds in the economy of Zambia and many companies and households have been using the loan portfolio offered by the Bank in the recent past years (BOZ, 2018). Some companies have made good use of the loans borrowed, while others because of poor loan management has led to most of them to wind up of their business organizations (Aniago, 2006).

The operational of efficiently and effectively of the loans from the banks to customers vary in sizes (Hughes, 2008), however, some loans are provided for personal while others are for institutional use (Nguyen, 2020). In both cases, it has been observed by banks that loan default in any case has had a negative effect on the performance of financial institutions and economies generally (Barua, 2021), however, does not necessitate that all the lending on the part of the Banks have been bad (McGovern, 1998) The non-payment as illustrated earlier arises when its users of loanable funds failed to pay the principle and interest the result is a default in an economy and ultimately spurs what was called credit risk (Mphaka, 2017).

Furthermore, at the height of the credit crunch and the ultimate global economic failure, credit risks were the main caused, as the population at the 90th percentile failed to liquidate their debt as housing price failed significantly. Financial institutions who were the providers of housing loans where the recipients of harsh conditions by then. (Baily, 2016). The Washington post (2008) and predicted that the United States (US) economy would suffer significantly from the default coming from the housing sector but little did the policy makers from both the isles of house recognized that as financial institutions continued to extend loan facilities to borrowers it was significant that financial surveillance took a precedent step. However, the financial institutions did not provide unprotected loan portfolio and Bank regulations were not tightened up. Additionally, to was discovered that subprime risk was experienced as the result of carelessness of banks due to customer due diligence was not applied. However, to avoid such occurrence, the Central Banks like, Bank of Zambia, here in Zambia, should put in place measures that could stop banks from extending loans that are dysfunctional to the entire economy (BOZ, 2018).

Not only bad management of loans has emphasized by Mwiya, 2005), however, studies have shown that there is a very bad credit culture in Zambia (Strischek, 2002). This, may give an explanation why a number of loans in Zambia have not been settled as per agreement between the lenders and borrowers (Kalikeka, 2019). There are many major challenges of individual lending and the tradeoff between risks and costs (Cummings, 2001). There was a balance between taking too many risks that might pushed the banks towards bankruptcy and too few risks that would determine their profitability (Manove,2001) Most of financial contracts are subject to a high degree of uncertainty, as today`s cash flows are traded in the cash flows of the future. Credit risk is a direct result of uncertainty, whether the cash flows in the future will actually take place (IFRS 9).

1.2 Statement of problem

A well-functioning of digital enablement of credit risk strategy is essential for customer experience sounder decision making and rapidly delivery (Bahillo, 2016). The bank has employed Supervisors and Loan officers who spends 40 hours per month monitoring the loan schedule. Despite, all the efforts and reactions from concerned stakeholders, the bank continued to experienced, Credit risks reflected on a number of defaults among its clients. The mandate of the bank was to offer wide-range of products and services that include household loans, Mortgage and Small Medium and Corporate Credit facilities, however, the Bank is still experiencing the problem of client defaults in loan schedules. Therefore, this study evaluates the implementation of automated credit risk management strategy on loan recovery Standard bank clients in Lusaka, district, Zambia.

1.3 Research Objectives

The aim was to analysed the effectiveness of the automated credit risk management strategy to mitigate high debt default rate among Standard bank customers.

i) To determine the default rate between manual and automated credit system of Standard Bank

ii) To establish the factors that can contribute to default rate among Standard Bank clients in Lusaka

iii) To assess best policy strategies of implementing automated credit risk management at Standard Bank Zambia in Lusaka.

1.4 Research questions

This section attempts to examine the importance of automated credit management risk. It has several research questions below:

i) What is the default rate between manual and automated credit systems?

ii) What factors contribute to high debt default rate in the banking sector?

iii) How can we assess the best policy strategies implemented on automated credit risk management?

1.5 Significant of the study

The study was to investigate the effects of the automated credit risk strategy and the challenges faced by Financial Institutions in Lusaka province Zambia and bring to the attention of financial policymakers to come up with strategies in addressing them. The overall debt default on loan recovery has an effect on poor functioning of the economy. The regulation policies should be adopted by all Financial Institutions in Zambia in order to assist them, develop methodological systems that could recover the debt obligations (interest and principal payments) based on the client's net cash flow. Furthermore, the undertaking of this study was vital to bank, financial government agencies, other public organisation, and ministries, because the findings of the study would benefit other financial institutions in Zambia to strategize on how to efficiently and effectively come up with improved Automated monitory tools systems to customer portfolio, daily tracked loan repayments and eventually add to the GDP of the country. This study would contribute to the financial sector, by producing specific recommendations to Relationship Managers/Loan Officers with the client repayment performance on ways to improve the sustainability of the financial sector in Zambia and the value of the current information. Additionally, the findings of this study will be availed to the Bank decision makers or other relevant authority to come up with strategic decisions. Furthermore, the study was the requirement of the University of Zambia for the award of the Master of Administration.

1.6 Scope of the Study

The scope of this research is limited to identifying major factors effects of the automated credit risk strategy and providing measures in addressing the impact. The study will be limited to financial institutions in Lusaka Province, Zambia for the researcher to easily have access to the information. The target population for the study would be project participate such as the client, the supervising loan officers and the banking sectors

1.7 Limitations of the Study

The study will concentrate on Banking sector and implementing agencies in Lusaka Province region. The study does not consider the whole country due to,

- Limited time in which the study will be undertaken given academic and occupation pressure.
- Inadequate financial resources to support all the vital activities under the study.
- The lack of cooperation from some of the respondents who may perceive this study to be sensitive.

1.8 Theoretical Framework

1.8.1 Theories of Credit risk and credit risk strategy

The conceptual framework (Ahmed & Malik, 2015), could be illustrated by different variables that are interacted, and interrelated, such as client appraisal, credit terms and collection policy, therefore, loans are the largest and most noticeable source of credit risk; however, other sources of credit risk include receipts, trade financing, foreign exchange transactions, inter-bank transactions, financial futures, options, bonds, equities, swaps and other extension of commitments and guarantees (Mukonda,2011).

Credit policy was consequential and directly from borrowing of the loan. Credit and debt symbolized the two sides of the coin, however, a loan was what banks provided, while a debt was what was owed (Finley, 2008). Credit risk is therefore, is defined as the potential that an institution borrower will fail to meet its obligations in accordance with agreed terms, this is according to Basel committee on banking supervision (1999). In other words, credit risk in this context of banks refers to a risk that a borrower will default on a loan obligation to the bank or the issuer of the security holding by the bank will default on its obligation. Debt default means a total or partial loss of any amount lent to the borrower. Huge loss generated by default of borrowers or issuers of securities can lead to the insolvency and possibly even to bankruptcy of a bank. The risk which are faced by financial institutions, can be generally classified into eight categories: credit risk, market risk, interest risk, liquidity risk, operational risk, legislative risk and reputational risk (Basel committee, 1999). Steinwand, 2000) categorizes three major risks faced by microfinance institutions as financial, operational, and strategic risks. Financial risks result in deviations in financial environment whereby there is volatility in exchange rates, interest and pricing (Morina, 2020). Operation risk, another concern of risk relates to inadequate failure of systems, to unable handle transactions due to insufficient human resources. Strategic is the risk associated with poor governance issues, relating to sources of capital and earning which affect selling of products. In the context of this study the risks may not be relevant in evaluating the implementation of automated credit risk management strategy on loan recovery, however, seeks to contribute to credit risk theoretical framework and literature.

Table 1.0 Major risks faced by microfinance institutions

Financial Risks	Operational Risks	Strategic Risks
Credit risk	Transactional risk	Governance risk
Portfolio risk	Human resources	Ineffective oversight & poor governance structure
Transactional risk	Information technology risk	Reputation risk
Liquidity risk	fraud risk	External business risk
Market risk	Legal & Compliance risk	Events risk
Interest rate risk		
Foreign exchange risk		
Investment Portfolio risk		

(**Source: Steinwand, 2000**)

Among these risks, credit risk is the most superior one as it depends on customers and the most important one for financial institutions. The 2008 global crunch is the typical example of the result of banks credit risk. Therefore, the knowledge and usage of suitable methods to monitor, measure, manage, control and moderate credit risk are indispensable for every commercial bank.

1.8.2 Main sources of credit risk

Credit risk can be caused by diversity of reasons of both internal and external sources literature (Saunders and Allen, 2002). The main sources of credit risk documented include, poor governance and management control, inappropriate laws, unsuitable credit policies, unstable interest rates, poor loan underwriting, negligent lending, poor credit assessment, carelessness in credit appraisal, non-effectiveness of automated credit risk strategy systems and lastly the government and the ministry of finance meddling and insufficient supervision by central bank of Zambia. The study has recognized some of the reasons that could lead to potential credit risk.

1.8.3 The importance of credit risk

The literature has revealed that the most common cause that led to bank bankruptcy is credit risk. According to the Basel committee on banking supervision (2001) documented, that many banks used, loans has the largest and most tangible sources of credit risk, nevertheless, other sources of credit risk existed during the activities of a bank, include banking and trading and both on and off the balance sheet, currency uncertainty and foreign exchange. Credit risk certainly could lead to financial crisis so it is important to adhere to all inadequacies of the existed credit risk strategy system and other negative selected and moral hazards in the credit market.

1.8.4 Regulatory compliance requirement

Although, the debt impairment turned out to be one of the key objectives of all financial institutions in Zambia as well as globally. The main objective of automated credit risk management tools is to exhaust the possibilities of bank`s risks familiar rate of return by upholding credit risk disclosure within satisfactory parameters in accordance with Basel Committee on Banking Supervision, 1999), because of the risk regulatory rules based on the Basel Capital Accord II initiated, suggested that the overall customer capital adequacy measured as: regulatory total capital =credit risk capital requirement + market risk capital requirement + operational risk capital requirement. Banks needed to manage the credit risk inherent in the entire portfolio as well as the risk in individual credits or transactions. Banks should also consider to enhance know your customer relationships and link it into credit risk and other risks. It has been widely recognized that the effectiveness of automated credit risk management is indispensable to the long-lasting success of any financial institutions. There a number of studies that have scrutinized the impact and effectiveness of New

Basel Capital Accord II on risk management and credit risk management, it is accepted as true that the new Basel Capital, promoted the standards for measurement of financial and operational risk in the banking industry. However, the approach of measurement has been criticized concerning its effectiveness. Therefore, Banks needed to implement simple, but effective automated system that can be used by banks to authenticate credit risk modelling application.

1.8.5 Loan Provisions

In Zambia the bank nonperforming loans to total gross loans was at level of 8.9 % in 2019, down from 11 % previous year. Bank nonperforming loans to total gross loans are the value of nonperforming loans divided by the total value of the loan portfolio (including nonperforming loans before the deduction of specific loan-loss provisions (Maimbo, 2002) The loan amount recorded as nonperforming should be the gross value of the loan as recorded on the balance sheet, not just the amount that is overdue. The total provision for loan losses on Nketani, 2007 study case was about K573 million losses to the bank compared to this total of the investor`s capital and government loss on tax revenue. In trying to address the high default rate in banks, the government of the Republic of Zambia and Ministry of Finance (MOF) through the Central Bank of Zambia have put in place various policies laws, regulations and strategies to retrain on high default rates. However, it is not known how effective these policies, laws, regulations and automated credit risk management strategies are in addressing the high default rate among commercial banks customers.

The main objective of this study endeavors to examine the importance of automated credit risk management strategy for Standard Chartered Bank that has been ignored by other financial institutions and to develop an improved automated credit risk management to find the possible solutions that would assist the banks overcome some of the default rate in loaning business. This study will mainly focus on the factors that affect the credit risk issued confronted by many banks by observing at the environmental, operational, and financial controls and other facet affecting the failures of Small Medium Enterprises (SME) and individuals who are the principal customers of the bank.

1.9 Definition of Terms

Loan Recovery: refers to a means in which a Bank/ Creditor attempts to recover the owed debt, either regularly through a third party known as a debt collection service or through a credit risk strategy tool (Sharma, 2016).

Automated Credit Strategy refers to the new applications, procedures, products or plans of action in the financial administrations industry, made out of at least one reciprocal money related administrations and it is given as a start to finish process through web (Ryu, 2018**).**

Credit risk strategy according to Basel II regulations, which was incorporated into national law by several countries, required that banks to develop and implement effective risk-management strategies and processes. Credit risk strategy, therefore, is the practice of mitigating the losses by understanding the acceptability of both a bank's capital and loan loss reserves at any given time. (Oviatt & McDougall, 2005). The formulation of consistent strategies and the implementation of efficient control processes are ultimately part of a bank's management responsibility (Karanja, 2015)

Chapter 2 Literature Review

2.0 Overview

This chapter discusses other Literature materials or studies done by other researchers on Credit Risk Management strategy. Additionally, the chapter makes comparative analysis between the automated and manual credit risk strategy systems methodology employed by the bank in Lusaka Province. The study further attempts to analyses the effectiveness on the automated credit risk strategy system on Standard Bank in Lusaka Province. The literature covered globally, internationally and locally reviews. This literature review is very important because it helps to answer the research objective questions. The effectiveness of the automated credit risk strategy would be evaluated to determine whether it could help minimize debt default rates in Lusaka Province.

Global Reviews

2.2.1 A Review in Europe

The introduction during the last decade had several emerging market economies (EME) which lifted restrictions on foreign direct investment (FDI) in various financial systems. As the result, foreign ownership of domestic institutions had been growing rapidly. Today, Central and Eastern European countries foreign banks controlled more than 50 percent of their banking system's assets. Some impacted most of foreign bank entry have been thoroughly studied (Clarke et al ,2001), while others are seldom mentioned, however, the aim of this study was to highlight some policy-oriented issues that had arisen with the entry of foreign banks in emerging market economies from the point of view of a host country. The first part of this study introduced the empirical studies on foreign banks' entry and its implications for local financial systems and economies; the second, dealt with effects on the soundness of local entities and the third, discussed possible adverse effects on market discipline. Finally, the conclusions were drawn in the last section. The Impacts of FDI in host countries financial systems and economies. The entry of foreign banks brought large benefits to host countries' financial systems and economies at large. Benefits stem from efficiency gains brought about by new technologies, products and management techniques as well as from increased competition stimulated by new entrants. Moreover, as foreign banks may have greater access to resources from abroad, they have more stable funding and lending patterns than domestic banks. They also hold a more geographically diversified credit portfolio and hence would not be as affected during periods of stress in the host country. Another important issue for EME is related to impacts on connected lending practices by banks. In EME where wealth is highly concentrated it is common that banks' board members, stockholders and large borrowers are closely related. Foreign banks do not get involved in connected lending both because they do not have related parties in the host country and their widely held equity structure does not encourage this kind of behavior (Goldberg et al, 2000), Hanousek,2001), IMF The study was prepared for the CGFS Working Group on FDI in the financial sector. Members of the Working Group contributed with useful comments. The authors work at the Financial System Analysis Division of Banco de México. The views expressed in this paper are the authors' and do not necessarily reflect those of Banco de México. José A. Diaz, Ricardo Dueñas, Jorge L García, Carla Trigueros and Maria Vera provided excellent research assistance, for example, Argentina, Brazil, Bulgaria, Chile, Slovak Republic, Estonia, Hungary, Latvia, Lithuania, Mexico, New Zealand, Poland, Czech Republic and Romania (Thiman et al ,2002), La Porta et al ,2001) and Levine (1996). It was also worth mentioned that foreign banks brought new capital to many EME which experienced severe financial crises and that they also import supervision from their home country authorities. At the same time, foreign investment in the financial sector rises some concerns. The greater participation of foreign institutions might expose host economies to events taking place in other countries where their foreign banks operate. On one hand, international banks have access to more investment alternatives and thus are more prone to “cut and run” than domestically owned banks when their investments are not performing as expected. On the other hand, local stockholders in EME face greater transactions costs and usually have vested interest that prevent them from unloading their financial investments. Furthermore, concerns arose because modern technologies used by large foreign banks rely mainly on hard data not always available in EME especially for small and medium enterprises; therefore, banks could end up rationing credit to this type of firms or increasing risks borne by domestic institutions attempting to serve more opaque customers as a result of greater competition. International banks might also engage in regulatory arbitrage seizing differences in regulations around the world. Host country regulators may be overwhelmed by the complexities associated with the supervision of large and complex financial institutions, understanding new products and operations and by difficulties to achieve effective coordination with their counterparts located in home or other host countries. Conflicts of interests among parent companies and their subsidiaries may arise from management actions –on the host country-seeking to pursue solely the interests of the former. Lastly, foreign banks may also negatively affect the depth, liquidity and information available to market participants when they de-list shares of acquired institutions.

(Claessens et al (2001) found differences in the impact from the foreign banks can also move your funds with greater ease and freedom online. These credit decisions have a pivotal role in firms’ profitability. The decision to over-extend credit to high-risk customers may increase short-term profitability for individual banks, though in aggregate, this lending behavior was seen to become a major challenge to the risk management structures of the economy as a whole.

Although, the automated credit risk strategy management systems, and self-driving vehicles - artificial intelligence (AI) along with Machine Learning (ML) made things possible (Davenport, 2020), however, some researchers proposed that AI "refers to programs, algorithms, systems and machines that demonstrate intelligence (Tom Funk · 2008), is "manifested by machines that exhibit aspects of human intelligence" (Huang and Rust 2018), and involves machines mimicking "intelligent human behavior" (Syam and Sharma 2018). Utilizing them in online credit scoring, users can examine various data points on borrowers, including their payment history and economic behavior Hurley, 2017). Not revealing the fact that such software improves the accuracy of banking operations and shortens the decision-making process (B Chae, 2014). AI, relies on numerous key technologies, such as machine learning, natural language processing, rule-based expert systems, neural networks, deep learning, physical robots, and robotic process automation (Davenport 2018). By engaging these tools, AI provides a means to "deduce external data appropriately, learn from such data, and exhibit flexible version" (Kaplan and Haenlein 2019). Another way to describe AI depends not on its underlying technology but rather its marketing and business applications, such as automating business processes, gaining insights from data, or engaging customers and employees (Davenport and Ronanki 2018). Credit Risk Management (CRM) system is a risk management tool that has conveyed achievement to most financial institutions who are able to implement it in their day to day undertakings (Masheta, 2019). In the study, Santomero (1997) highlighted some of the benefits of credit risk management. He articulated that the best practice of credit risk management involved helping to reduce the chances of characteristic losses from standard banking activity by eliminating risks that are avoidable to the institution's business purpose. Furthermore, Santomero in his study, argued that credit risk management has led to standardized ratings across borrowers and a credit portfolio report which presented meaningful information on the overall quality of the credit portfolio. According to Wenner et al (2007) spelled out that CRM enabled financial institutions to become viable and attain sustainable growth, that directed to solvency and reduced costs and improve profitability margins. In the book Credit Risk Management, Gestel et al (2009), also identified reduced the earnings of volatility, avoidance of losses, it acted as a decision aid to bankers, better risk return, avoidance of pitfalls like credit concentrations, lack of credit discipline, aggressive underwriting to high-risk counterparts and products at inadequate prices. The most important benefits of automated credit risk strategy are (Huang 2002).

Automated process. Handles big data and produced reports on each application, banks hire a qualified team of employees, in order to reduce staff costs by automating the whole credit risk management process. Additionally, it allows distributing money more effectively setting free workers in order to do other tasks. (Giudici, 2018)

Reduction in loan management time. Financial organizations and banks take up to three weeks to physically verify each application. Scoring software powered with AI cut the time to minutes. For instance, modern solutions like GiniMachine verify 1,000 applications in ten seconds (Ryzhkova, 2020).

Error-free. Traditional methods do not guarantee a low percentage of scoring errors. While AI can process enormous amount of information and detect patterns as much error-free as possible.

Decline in credit losses. Prediction of delinquencies before they actually occur is one of the main goals of risk management software. As was mentioned above, traditional solutions can make predictions for several months. While AI credit score software significantly increases the prediction time for a year in advance.

Accuracy in predictions. Traditional risk management software functions under clearly defined parameters. Utilizing AI and ML, a user gets an intuitive solution that can analyze more databases and learn during the process. Eventually, AI software comes up with more accurate predictions and declines scoring mistakes.

Strong fraud-detection. Modern software is equipped with tech-savvy solutions strengthening fraud detection mechanisms. This allows protecting banking operations and draws a more reliable picture of a bank for liable borrowers.

Many previous studies have investigated the techniques that Banks have used and/or employed in order to manage the loan repayment default. The study revealed the attention of the techniques used by banks concentrated on a number of secular forces like deregulation, which stimulated financial innovation and enabled new entrants to provided services like in the case of (Caouette, Altman and Narayanan 2008). The study was only restricted on major players that affected the rating agencies the boarding of the credit markets encompassed new borrowing sectors both domestically and internationally, introduced some of the most effective credit risk management tools, techniques, and vehicles currently available, however, the gap this study intended to fill was to effectively identified the major factors that affected the automated credit risk strategy in Zambia and provided by the trends abstracted of the studies carried out. Even though, Dev.Strischek (2002) on the study focused on credit culture, there were many reasons why it was needed. Like in July 2002, Fed Chairman, Alan Greenspan spoke of the "*Infectious greed* "that absorbed much of American Business, however, this study agreed that greediness, pushed such companies as

Enron, Global Crossing and WorldCom into bankruptcy. In the reporting on Mr. Greenspan`s latest addition to the American business lexicon, The *Economist* (July 27, 2002) observed that infections are spread by an organization`s culture-the set of rites and rituals, symbols, and signals that gave the unique character. Culture according to Strischek 2002) was the "way things were done around here" Although many business leaders had difficulty with a concept, they considered too soft to be managed, a corporation`s culture determined, however, the study agreed that people behaved when they were not being observed. The same observation should not have been lost on the bankers who put great trust in and decision –making powers on people who are often beyond immediate observation. In America according to Strischek in 2002, it was greed that culture was identified, and the Zambian Government through the Financial Development Plan (FSDP) also recognized that poor credit culture was one of the issues that needed to urgently tackled in order to promote development of the banks in the country, however, this study discovered and pointed out that "Zambia had a weak credit culture. Therefore, it was possible for the borrowers to default on the loans without affecting their credit ratings with other Banks. There was also tendency among borrowers to have their assets as collateral. The cultural attitude toward risk was the most important criteria for banks to offer credit to institutions.

Strischek, (2002) defined that credit culture as a credit behavior that has its own cycle, ranging from a unique combination of policies, practices, experience, and management attitudes that influenced the culture on individual lending behavior (Brealey et al, 1996).

In 2008, across the world, the credit crisis began as a result of mass issuing of sub-prime mortgages to individuals in the United States leading to defaults, which caused outwardly-rippling problems for financial institutions all across the world. Sub-prime mortgages and other loans with less restrictions can generate remarkable losses including corporate failure and bankruptcy for financial institution (Brown and Moles, 2014).

Managing risk is the most important element of a bank's operations. This phenomenon is equally applicable to banks across the globe, including banks in Pakistan, however, due to unstable and volatile nature of the political and financial environment in Pakistan, banks are affected by many types of risk, including risks to foreign exchange rates, liquidity, operations, credit and interest rates. Pakistan's financial institutions are generally risk-averse, especially towards car financing and mortgage loans in which chances of huge losses are higher (Shafiq and Nasr, 2010). Balochistan is the least developed part with largest geographical area in Pakistan.

In Pakistan, despite the Financial Crisis in 2008 which put question marks on the management resolutions in financial institutions. The organizations comprehended that there may be incompetence to assess the risk experience and, in that way, however, the area of risk management became important anxiety for assessing and managing risks around the globe. On the other hand, different organizations had their own well defined and unique culture, and perceived risks according to their own culture and got different results. Ariffin and Kassim, (2009) argued that efficient risk management in a firm is import to increase its earnings and can be used as long term competitive tools against competitors Therefore, the study showed that the influence of organizational culture on the risk management had an effect in Pakistani commercial banks. Hassan (2009) studied risk management practices of Islamic banks and concluded that Islamic banks in Brunei Darussalam faced foreign-exchange risk, credit risk and operating risk as main risk. The study took 19 banks as sample. Primary data was collected through questionnaire by targeting 225 managers around various departments of selected banks. Arfat et al., (2017) investigated how the leadership effected work engagement with the different kinds of organizational culture as moderating role in private and public Pakistani banks, however, the study concluded that it was necessary for the banks in Pakistan to be guided more properly by risk management practices better than, improvement and tackling risk exposures more efficiently. The study revealed the unearthed new understanding about the risk management practices in commercial banks. The study covered a wide area of banks and examined the impact of culture in the risk management techniques practicing the targeted banks and results provide better perception for banking industry operating in Pakistan as whole. In addition, the available literature recognized its constraint and revealed that the study results cover the services sector only (Danish, Munir and Butt, 2012). However, this study intended to effectively identify major factors that affects the automated credit risk strategy in Zambia. There are limited opportunities for small businesses and majority of businesses are run in informal form with poor documentation. Majority of commercial banks faced problems like loan documents verification and loan processing. Therefore, the adoption of proper risk management strategies can help understood and mitigate the credit risk faced by commercial banks of Balochistan.

Credit risk management was very essential model for any financial institution, since most of the financial decisions revolved around the corporate cost of holding risk. According to the Casu et al (2006), authors of Introduction to Banking, credit risk management is explained as a management tool which enables to maximize a bank's risk-adjusted rate of return by maintaining credit risk exposure within acceptable parameters. Furthermore, Kalapodas et al (2005) described credit risk management as a management tool which attempts to eradicate, reduce and manage risks, increase the benefits and avoid harm from taking risks. This management practice is particularly important to banks since credit risk constitutes their core business processes. The banking industry in Ghana though had thrived profitably; the industry suffered the problem of credit risk. The results of the study revealed that credit risk management was a very effective and efficient management tool that helps to reduce credit default rate, non-performing loans, and increase in cash flows as well as portfolio growth amongst financial institutions. However, the study concluded that the methods and procedures used by financial institutions to manage credit risk are credit assessment, purpose of the credit, track records of applicant, monitoring of credit, controlling of credit, evaluating collateral provided by the customer, and proposing of terms and conditions in relation to the loan requested. Further, the study also revealed that both external and internal factors of environment affected the operations of credit risk management. The study was only restricted to factors such as interest rates, currency exchange rates, efficient management of government fiscal policies and political stability of the country, however, this study intended to effectively assess the automated credit risk strategy.

In Kenya, the study by Kipsang, (2020), revealed that the use of fines was an effective way to discourage borrowers from delaying payments or defaulting, placing penalties on late payments often reduced repayment rates and could be because penalties made current debts incurred expensive to pay. The study did not emphasise on the use of automated credit risk strategy. The objectives were to determine the effects of fines, adverse credit listing and loan limit reduction on loan performance in fintech companies in Kenya, however, did not talk about the methods used to recover debt. This study agreed with Ngondo (2018) who argued that the use of penalties had no effect on delayed debt payments and Chava (2014), who revealed that penalties when considered has a pro-active strategy for the borrower to be aware of the consequences of not paying the debts, however, did not emphasis on investigating the effects of automated credit risk strategies. This study agreed that the use of waiver on penalties and interests could indeed motivate clients to pay debts, but cannot control debt default. According to Kamar and Ayuma (2016), the technique an institution could use significantly depend on the relationship with the borrower, however, Katz (2015), argued that the relationship with the borrower does not matter the borrower's present money was related to the condition and paying limit, on the current worth and unwavering quality of guarantee, however, did not discussed the effects of automated credit strategies. The recovery of debt was especially expensive in that the lender incurred extra costs. The study by Kipsang, (2020), concluded that the use of fines was effective to discourage borrowers from delaying payments or defaulting and default or the inability of customers to service their debts was as the result of partial or total loss of the sum lent to the counterparty and thus ultimately to the profitability of the institution agreed by (Walraven and Barry, 2015). The authors only looked at the concept of risk management but not the need for strategies employed in debt recovery. Although the study recommended the use of digital lending to imposed penalties on late payments to the borrowers, and enabled firms to meet profitability as sales targets and essential for business sustainability. Additionally, the digital lenders are able to formulate loan policies to enhance compliance by the borrowers to the agreement put in place. This study agreed to the use adverse credit listing to ensure compliance from borrowers in repaying loans, however, the study was conducted in Kenya, the findings may not be the same if applied in the Zambian environment and the debt recovery strategies used was manual not automated and was not done in commercial banks but microfinance institutions.

2.2.6 A Review of Literature Locally

In Nketani, (2007) it was reviewed that the principal substance in banking in general and lending in particular was the capability of the lending officer to boldly lend out money and be guaranteed that the funds will be recovered from the borrower without to retaliatory action, however, the problem of credit default was factual one that has cost many banks assortment cash in bad debts.

Because of lack of information on credit defaulters, many credit officers are likely to still lend out funds that may in no way be recovered. The study wanted to identify factors that lenders could look out for the foresight they would need to have in order to evade default to credit, however, in this study the findings were that the education background of borrowers was vital factor that they all needed to weary of as they make decision to lend. It was also brought to the fore that it was vital to equip credit officers with adequate knowledge and skills in the field of lending for them to be analyst of credit assessment.

In Mwiya, (2002) it was also reviewed that in Zambia the credit by the private sector has been difficult. This was so because the lenders perceived great credit risk when lending to private sector and the creation of a credit reference Bureau to mitigate credit default in the banking sector, due to the established of the Credit Reference Bureau (CRB) defaulting in the banking sector was decreasing. The study also reviewed that has the credit to government increased, credit to the private sector reduced. This confirmed the concept that government borrowing crowds out the private productive sector from access to credit. Even though Mwiya, in his study, recommended the established of a CRB as would result in efficient credit decision-making and impacted positively on economic growth, however, the default was still eminent.

2.3 The 5Cs of Client Appraisal strategies

As already discussed in the literature review, the 5Cs stand for Character, Capacity, Capital, Collateral and Conditions these are key variable quantity in determining loan appraisal and they are highlighted hereunder

2.3.1 Character

Character referred to the moral standing of an individual. That distinguished them from other people. Character dealt with the likelihood that a credit customer will make an effort to pay back the loan. Bankers that have dealt with a lot of lending related cases have come to the conclusion that the character of the borrower is one very important issue in the credit evaluation. An insight into the moral character of the potential borrowers needed to be obtained if that factor was to be mitigated against. That revealed the integrity of the borrower and the possibility that they would pay back what they borrowed. If there was history of such a one being a bad debtor before, then the decision will be too rejected for such an application. That applied to both individual and institutional lending respectively.

2.3.2 Capital

Capital looked at the net worth of a potential borrower. How much was going to be lent out depends on how much the borrower intended to put in as well. There was no point in asking other people`s funds if one was not willing to risk own funds. The capital that a borrowing entity obtained from the financial statements that were provided by the borrower. An analysis of ratios was normally carried out to see whether there was any adverse variation in the capital of entity`s ability to pay back the credit sort for. These include the debt/equity ratio, current and quick ratios.

2.3.3 Capacity

Capacity referred to the ability that a borrower`s debts and expenses met all obligations that come with the loan as a result of it been granted. That was analyzed on the source of the cash flow projection that the entity had furnished the lender with. It also took a look at the past performance to resolve whether or not the projected loans are realistic for the size of the operation that is being well thought-out. Capacity dealt with issues of capability and continuity of the management team of a company. The borrower was evaluated based on the debt-to-income ratio, which was how much the borrower owed compared to how much they earned. The lower the debt ratio, the more the confident lenders would be in the capacity to repay the on loan.

2.3.4 Conditions

Conditions in that scenario referred to both the general fiscal trends and the exceptional developments in the definite geographic regions or sectors of the economy that usually affected the borrower`s ability to meet the obligations. A condition in other ways referred to the economic environment or business, particular supply, production and distribution factors that influenced the firm's course of action. Repayment sources of cash often varied with the business cycle or customer demand. In short these are judgmental factors which theoretically banks used to evaluate the quality of a personal or business loan application. These include

i) Good reputation and track record (character) that indicated a willingness to meet one`s obligations.
ii) Stable and adequate capital base
iii) The capacity to generate cash flows adequate to cover debt-servicing
iv) Lastly more than adequate valuable assets for pledging as collateral.

2.3.5 Collateral

When the bank is processing a big loan, they asked for security. Collateral in that case was referred to as the pledged of the property to a bank to secure the repayment of the loan. Security or collateral served as the declaration for the lender against a borrower`s default- that it could be used to offset the loan to when the borrower failed to pay the principal and the interest under the terms of a loan obligation. If in the event that the borrowers defaulted on a loan (due to insolvency or other event), in that case the borrower forfeited or gave up the property pledged as collateral, the lender becomes the owner of the property. In the typical mortgage loan transaction, for instance, the real estate being acquired with the help of the loan served as collateral. Should the borrower failed to pay the loan under the mortgage loan agreement, the ownership in the process is transferred to the bank.

2.3.5 Credit appraisal and Monitoring

After credit was approved, lenders needed the information to control the actions taken by the borrower until the debt is totally repaid. The borrower may slow down their hard work which could lead to default or may conceal the earnings of their business to evade repayment on the amount outstanding or may go to other lenders to solicit for more credit without the understood the first lender. (Copeland et al 1988)

Lenders are constantly faced with the danger of giving out finances to borrowers who are potentially bad debtors for the financial institutions. Consequently, lenders have a tendency to be twisted in their lending decisions, with a preconceived notion towards sectors that are well thought-out comparatively risk free.

To measure credit risk has the key to manage credit risks. Credit rating assessment form the integer part of credit risk assessment, that involved risks parameters such as financial, business industry and management (Jade et al. 2003). The following are the subsections provided as the introduction of the main assessment methods proposed in the literature.

2.3.6 Credit Rating

Credit rating provided the customer`s creditworthiness that reflected the borrower`s ability to pay back the loans and interests. In additional, to standard ratings provided by credit rating agencies, banks often also make use of their internal ratings and calculated. Each commercial bank in Zambia has its own method for calculating internal ratings. A banks can have the internal ratings for several of their customers. The internal credit risk rating systems have become an increasingly important in all commercial banks in Zambia. One of the oldest rating systems for loans was developed by the U.S office of the comptroller of the currency (OCC). That rating systems can be used to operate both internally by banks and other independent rating agencies and authorities.

Insurance companies' internal ratings were examined by Carey (2001) for private placements, are highly consistent with the external regulatory ratings. However, Carey (2001) finds less consistency across insurance company internal ratings. This discrepancy was theoretically detrimental to the use of internal ratings models in banks.

2.3.7 Credit Scoring

Credit scoring systems could be initiated fundamentally in all kinds of credit analysis, which ranged from individual consumer to commercial loans. The idea across different categories is literally the same pre-defined certain factors that determined the probability of the customer default and combine them into quantitative score. The score can be interpreted as a probability of default and others can be used as a classification system.

Beaver (1967) first utilized several financial ratios to investigate corporate default.

2.8. Personal Critique of Literature

In my personal observation on credit default rate in banks, few would have disagreed, when Banks announced closure of Branches in a move intended to completely exploit its digital platforms, led many asked whether financial systems are safe to serve depositors money? The answer to this question is NO, however according to Bank of Zambia annual supervision report of 2020, this study agreed, that today, banks are mostly heavily monitored by Central Bank of Zambia, representing non-performing loans from all commercial banks at 12.4%, and this was attributed largely due to eased liquidity conditions. In spite of the rise in non-performing loans the overall performance of financial institutions, from 2014 to date, was satisfactory strong in capital adequacy. BOZ Annual Supervision Report (2020), recorded incidence of credit risks, revealed in high bad debts written off and low on profitability due to poor loan recovery system tools. Besides, banks implemented enhanced credit risk management strategies, however, Politicians and regulators delayed the changed landscape brought by the new technologies of financial products and global approached to reduced default rates. A decade ago banks risk management activities were limited to a definite market, however, for credit risk in an attempt to minimize financial loss caused by market fluctuations or poor lending banks have started investing in automated Technology systems which played significant role in curbing debt default, however, manual controls are still prone to failure than automated controls. Manual credit risk methodology detects rather than preventative and identifying problems only after they have occurred and are ad hoc meaning only a portion of all transactions is evaluated and tested, however, optimized automated controls are system based on preventative and credit risk management. Banks can now allow self-assessment, process level monitoring and automated system testing. In addition, automated testing is more accurately and covered larger universe than manual testing. Because of large number of transactions, there is inherently greater assurance provided by automated controls. However, the role of technology in regulatory compliance has been compromised and broken down into two parallel tracks. The first track is by automation of the credit risk management, whereby moving compliance was like a self-determination that represented a trait of entrepreneurial free enterprise system as a two-edged sword. While the second track was that borrowers used the credit facilities with integrity, represented a wonderful system done in business to create wealth, however, borrowers who used these credit facilities with dishonesty, or allows corporations and individuals to act fraudulently and negligently resulted in greed, it produced business failures, individual bankruptcy and personal shame.

Therefore, loan provision the system that banks viewed as the supreme of economic system to advocated national and international business activities within the framework of a very low regulatory mechanism (Claessens, 2014). The over –arching and controlling automated methodology was the freedom to make decisions, the freedom chosen and the freedom for competition (Moretti, 2020). This was based on the strength of the market economy, whereby buyers and sellers of goods and services operated within an environment of demand and supply, however, choices are made and transactions, to create wealth for nations, businesses and individuals respectively (Neven, 2014). In my own opinion, the benefit of free enterprise is based on the law of comparative advantage, whereby every country invested in production and exporting and does what is best (in terms of products and services, quality, cost and uniqueness, and importing goods and services that other countries can produced more efficiently.

In conclusion, banks can manage to control loan repayment default almost entirely by adopting general principles of automated lending credit analysis and process of investigation prior to making the decision before to lending. This automated credit risk strategy is focused on two distinct but interrelated issues, whereby, the borrower`s eagerness and capacity is to repay a loan. Analyzing the enthusiasm to pay is essentially to investigate the borrower`s economic outlook. Both cases of analysis involved information and generally principles which should be applied in all the cases, the more information was available the greater its accuracy and timeliness, the better the lending decision would be present (Graybeal, 2018). Whilst both types of analysis are significant to credit analysis, the financially viable issues are on equilibrium, the more important was of the two (Ziegel et al, 2015). It was factual that banks had lost huge sums of money due to borrowers un willing and were not capable to pay (Werner, 2016). Banks in additional should develop automated techniques for credit analysis, they should assist on how to manage risk from end to end such as alleviating strategies as condition of down payment and security that increases the probability of repayment. It was as a result, of following the borrower who was faced, in the event of intricate, with the loss of a residence, farm or factory is highly provoked to make a repayment and apparently in full. It was tough to sketched the line between the philosophical for lending and the methodical approach to appraisal as many of the ideas of philosophical models are

Chapter 3- Research Methodology

3.0 Overview

This chapter discusses the methodological framework which was used in the study. It outlines the research approach, research design, sources of data, epistemology, ontological, target population, sampling method, data collection tools, data analysis methods, validity, reliability and research ethical consideration. The strategy used was with the view to identify the appropriate method to be applied in the study development. The study paid emphasis on the effectiveness of the automated credit risk management among standard Chartered Bank customers. The explanation of the credit risk management and all the methodological framework proposed by the study, was used so that the research objectives are obtained.

3.1 Research Approach

According to Mugenda (2003), there are three approaches to research, explicitly the qualitative, the quantitative and the mixed approaches respectively. Qualitative research is the methodology for exploring the meaning of the individuals or groups attributed to a social or human problem. The process includes, emergent questions and procedures, data collected in participatory situation, data analysis inductively from particulars to general themes, and whereby the researcher is making interpretations of the meaning of the data. Conversely, the quantitative research is an approach for testing objective theories by analyzing numerical data. These variables, in turn, can be measured, using instruments, so that dependent and independent variables are evaluated using statistical procedures, and its associated issues, such as error, reliability and validity, are explored (Watson, 2015). Lastly, it is the mixed methods research which is an approach to an inquiry involving collecting both quantitative and qualitative data, integrating the two forms of data, and using distinct designs that may involve philosophical assumptions and theoretical frameworks (Bulsara, 2015). For the purpose of this study, the mixed methods approach was employed.

3.2 Research design

Research design is the arrangement, outline, or plan that is used to create answers to research problems. This research problem was studied through the use of descriptive research design. According to Gregar (2014), a descriptive survey research design is a type of research exploited to find data that can assist establish the exact character of a cluster. A descriptive survey involves getting answers to questions often in the form of a questionnaire from a large cluster of persons either by mail, telephone, or in person.

The study adopted descriptive research design, for two main reasons, firstly, to identify characteristic of frequencies, trends and categories in order to manage the data (Loeb, 2017). The second approach, is flexible, accuracy and systematic to describe, population, situation or phenomenon in order to investigate various risk factors affecting failures of clients (Taherdoost, 2016). At the same time taken into account the risk factors comprised of four groups: environmental, financial operational and system quantity risk (Kim, 2017). Questionnaires are sometimes answered by the personality addressed to (Basheer, 2019). Nevertheless, it was considered to be very important to get in contact to those persons in the bank that are involved in making credit evaluation and assessment decisions and that have closet contacts with customers (Tsai, 2016). Therefore, a qualitative interview method was similarly chosen attained is socially raised rather than empirically determined (Carson et al., 2001).

3.3 Target Population

The target population for this research was Standard Chartered Bank Plc whose headquarters are in Lusaka District. Currently there are 7 branches and most of them have staff around these branches. Due to the limited time the researcher distributed questionnaires to 4 purposively selected branches which include the following: Staff comprises of senior Managers Branch Managers, Supervisors and clerical staff in various departments and especially the loan Centre. The population was sampled and interviewed in order to collect the relevant and adequate information for the successful completion of the study the target population was estimated to be 30. This population was big in enough to draw a successive conclusion on the study under observation and yield representative results.

3.4 Sample size

The researcher worked with a target population of 50 and a sample size of 40 which represent of 80%. This sample translated in the following breakdowns: four (6) Senior Managers Two Branch Mangers (5) two supervisors and forty (40) customers. The population was sampled and interviewed in order to collect the relevant and adequate information for the fruitful completion of the study.

3.5 Integrated multiple Data sources

There are diversity of approaches that was used in the collection of data from respondents. Miller (2017) also acknowledges that data gathering methods ranged from ordinary observations, one to one interviews, and questionnaires and group discussions. However, this study used both secondary and primary data. The secondary data collected was the information from publications, reports, journals and published books and other prior case studies.

The primary data was the foundation of this study and was collected through field work using questionnaires to the staff and customers involved. The main advantage of using this kind of data was to help the researcher sharpen and broaden the non-judgmental of the issues under study.

3.6 Philosophy

According to Cazeaux (2017), research philosophy is defined as a matching of principles or beliefs and anticipations about knowledge growth. In short, it is basically what the researcher does when embarking on a study which is developing knowledge in a given area. Awodele (2020) states that philosophical assumptions touch the way that dues are made about the knowledge that is projected to be upheld or generated. Therefore, it is imperative to begin by establishing how dues are made about what knowledge is or what the nature of authenticity is (ontology), how it is known or what the relationship is between the researcher and that being researched (epistemology). Cleveland and Bartsch (2019) indicated that the model nominated by a researcher sets on how one views and deduces 'what definite world reality is' (ontology) and 'how they acknowledge it to be real truth' (epistemology).

In short, the ontological and epistemological assumptions which one holds as a researcher are important because they substantiate one's choice of the methodology of the research (choice of data collection, data analysis and data explanation). As Feilzer (2010) put it, "pragmatism paradigm works as the philosophical base for mixed methods research design.

3.7 Ontology

Ontology is defined by (Turk, 2006) as "the study of existence". It is concerned with "what kind of world we are exploring, with the nature of being, with the structure of reality as such". According to Barry Smith (2003), ontology is "the science of what is, of the kinds and structures of objects, properties, events, processes and relations in every area of reality." Typically, ontology supports expert systems to solve different problems because it is a form of a knowledge base representation (Lin, 2015). According to hacking (2002), he explained that ontology concerned with "What there is, or ontology" It acts as the foundation of the methodological research question and range from positivist bearings to interpretivist bearings. According to Scott (2005) stated that this ontology assumption helps in research because a researcher can be looking at what is the case or what has happened. By so doing, a researcher predicts what happens in the future or what would happen if there were certain interventions.

Consequently, this study adopted the interpretivism perspective, therefore according to the position of interpretivism concerning ontology the researcher believed the reality is multiple (Thornhill, 2012). This means that the interpretivism approach will appreciate differences between people to reflect different concerns. According to Willis (2007), interpretivism pursues to comprehend a specific framework and the core belief of the interpretive pattern.

The researcher remains open to new knowledge throughout the study and develops with the support of informants. The knowledge

3.7.1 Sample Methodology

The researcher used simple random sampling and purposive sampling methods during the process of data collection from this set of respondents. Sampling is essentially a technical device used to select, in an appropriate way, a small and restricted set of persons from which the actual information was drawn in order to make the necessary inferences about the whole population. Simple random sampling in which the sample is selected in such a way as to afford every element in the population an equal opportunity of being selected for the study. Purposive sampling is one in which the researcher uses his judgment to choose the elements that are required in particular sample or that which would from a representative sample. Simple random sampling was used in order to avoid bias in selecting the respondents to be included in the study. The randomness is important in eliminating bias destroys the validity of the study. In terms of purposive sampling, the researcher chose the main characteristics to be considered in the study beforehand. These techniques of sampling allowed the researcher did not want to waste time screening all the people, but went straight to those who were relevant to the study.

3.7.2 Research Instruments

The study opted to use questionnaires and face to face interviews. The questionnaire comprised of closed and open-ended questions. Questionnaire was either administered or handed out to respondents depending on each staff work schedule. Those who could not fill them during working hours were allowed to go with questionnaire for a day or two, but those who managed answered right there and then. The instruments of research were pre-tested on a small sample of 4 senior Managers from Loan center to determine the reliability and validity of the questionnaire. After being satisfied, then data collection started.

3.7.3 Data analysis Tools

Data that was collected for the study was analyzed using both qualitative and quantitative methods. Qualitative data was analyzed using attributes while qualitative data was analyzed using variables which are measurable. The data analysis methods used in this study includes excel sheets resulting into tables and bar charts.

3.7.4 Pre-testing of Research Instruments.

The instruments of the research were pre-tested on a small sample of 4 senior Managers from Loan Centre to determine the reliability and validity of the questionnaire. After being satisfied, then data collection started. Pre-testing was done within two days.

3.7.5 Ethics and confidentiality

The research was not to probe people`s private lives nor collect private information for Banks or its agencies. Therefore, data collected was treated with confidentiality it deserves.

3.7.6 Interviews

There were variety of choices available for gathering research information. However, due to the fact that there was little pre-existing theory on the topical being studied and as the researcher needed to focus on a qualitative methodology, the data gathering methods technique needs to "highlight implications and experiences related to the occurrences" under investigation (Collis and Hussey, 2003). To obtain a more essential to learn from expert about the bank`s use and motivation for the use of existing automated credit risk management methods and factors that they considered when they assessed credit of a customer. This can best be done by conducting some interviews. This is underlined by Saunders, Lewis & Thornhill (2009, p.234) "Where it is necessary for you to understand the reasons for the decision that your research participants have taken, or to understand the reasons for their attitudes and opinions, you are likely to need to conduct a qualitative interview"

Semi-structured interviews are non-standardized and permit to directly respond to answers given. Even if a recommendation with the subjects and questions asked, referred to a subject again, and added or left out questions depending on the interview situation (Saunders ET al.2009; Bryman & bell 2007). The interviews were cautiously prepared. After an appointment was secured, every participant received a short list of the main interview subjects as well as a short description of the research aim. This was something most participants expressly asked for when they were invited for an interview. The short description gave the participants the opportunity to prepare for the interview and collect useful information in advance if necessary (McGrath, 2019). An interview guide was prepared to enable the interview for the interviewer and to reduce the risk of unable to call to mind subjects. The interview guide followed a logical order beginning with general questions that were considered to be easy to answer. Nevertheless, it was not considered as obligatory order to ask these questions. The order of subjects discussed with the participant varies according to the individual process of every interview.

To set aside the interviewee`s time and cost to the bank, the interviews are conducted in their own offices. This is where they were mostly comfortable and where they were able to access every data needed. A central aim within the first few minutes was to establish the researcher's reliability and to gained the interviewee`s confidence (Saunders et al.2009; Bryman and Bell 2007). Therefore, every interview started with a short explanation of the research aim and an introduction of the interviewer. This was intended to signal the existing knowledge of the researcher and his background including the current study at University of Zambia, to ensure the interviewees understood the technical terms used by the researcher. It also illustrated the researcher`s awareness of the sensibility of information given and the existence of the banking security. It was obviously emphasized that all information would be treated categorically confidentially (Saunders et al.2009; Daniel and Sam, 2012. The significant of the participant`s knowledge for the research was also underlined by finishing every interview with asking the interviewee other important issues. This was aimed to make sure that no explanations conducted only through subsequent email and telephone conversations because the researcher was based in Lusaka Zambia.

According to semi-structured interviews data quality was an important issue. Data quality on qualitative research especially related to reliability and validity Reliability in semi-structured interviews was the chance to react flexible on special circumstances and interview situations, the attempt to ensure reliability was not really feasible. In semi-structured interviews reliability is always related to issues of bias. The interviewer might make bias in the way of interpreting responses of interviewees as well as in the way of asking questions. To reduce this type of bias, the interviewer always tried to avoid enforcing his own beliefs and thought about the research topic when asking questions. Moreover, it was considered to be important to prevent manipulating answers by the sound of the voice, comments or non-verbal behavior. As opposed to interviewer bias, response bias is not necessarily related to interviewer. Interviewees may govern their response (Saunders et al. 2009). They might attempt to throw a positive light on their bank and loan department, their automated credit risk management practices, and therefore depict their risk management and risk management method in a more positive way. Due to the bank secrecy, they also might withhold some information considered as being sensitive. To reduces this risk to a minimum, the creation of an affiliation of trust between the interviewer and the participants as well as the proof of the interviewer`s credibility and the assurance of confidentiality was considered as essential in the present research. Nevertheless, response bias cannot be eliminated with absolute certainty.

Following Saunders et al (2009) in qualitative research, validity refers to the extent to which the researcher gains access to their interviewees` knowledge and experience, and was able to infer a meaning that the interviewee intended from the language that was used by that person. The opportunity to probe questions, discussed and clarified responses in semi-structured interviews lead to a high degree of validity of the type of research. Therefore, validity of semi-structured interviews was not really an issue when they are conducted carefully.

The researcher approached the department and interviewed 11 individuals in sales and loan section and asked individuals with experience and information in credit risk management. Due to time constraint and closure of some department due to the pandemic, only seven individuals were interviewed over a period of two days.

The study results showed that there was even dissemination of experience in the bank. It showed that two out of four managers had knowledge of between one to four years. The other had experience ranging from five to twenty years as portrayed in the table below:

Chapter 4- Presentation and Analysis of Findings

4.0 Overview

This chapter presents the findings on the data collected during the research study which was conducted within Standard Bank and outside on customers within, Lusaka District, Zambia. The coding has been included on analysis the effectiveness of automated credit risk management strategy. Tables and horizontal bar charts have been used to analyse and interpret the data for easy understanding of the reader.

4.1 Data coding and organisation

The responses were grouped according to categories and result summarized using tables. From tables major findings were made and the data collected in the field was purified and coded. In order for the collected data to be understood, all information.

4.2 Findings

This section presents the findings of the research and the findings pertaining to the study were presented together. A total of 50 questionnaires were distributed out of which 40 responded representing 80% response rate. This was to the satisfactory of the researcher. The findings have been presented according to the research questions and using Stata and Excel 2010 the following is the actual presentation and analysis of the data collected.

4.1 Data Analysis and Interpretation of Findings

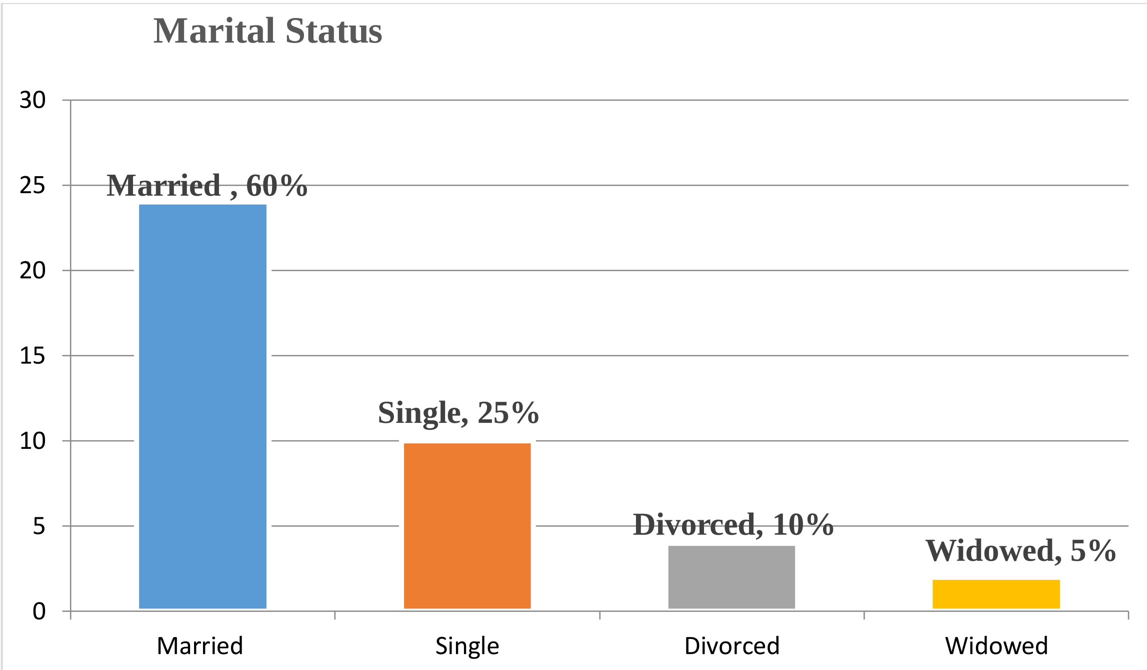
Table 4.1 indicate the gender distribution of respondents in percentages of 55% and 45% for males and females respectively. It suggested that the analysis had various gender representation. Indicates the age distribution of respondents. It was clear from the distribution that the Bank was dominated by clients who are above the age of 40 years which represents 40%, whilst the rest of the age groups are represented by 19-25 years, 20%, 26-30 years and 31-34 years 15% and 35-39 years 10% respectively. This denoted that the researcher mostly interacted with mature clients who had adequate data in regards to relationship with the bank. Table indicated the level of education distribution among the respondents. The survey clearly showed that the researcher interacted with respondents who have attained Diploma education that presents 30% considering the nature of the study and sample from respondents were picked which comprises of client from standard Chartered Bank for other categories of high school and No education. It also meant that Bank has clients who are qualified, even though the results showed the same percentage of post-graduate with those who had no formal education.

Table 3.0 Demography

Demographics			
Gender	Frequency	Percentage	P-value
Male	22	55	0.55
Female	18	45	
Total	40	100	
Age Catergory			
19-25 Years	8	20	
26-30 Years	6	15	
31-34 Years	6	15	
35-39 Years	4	10	
40 Years and Above	16	40	0.40
Total	40	100	
Education catergory			
No education	8	20	
High School	6	15	
Diploma	12	30	0.30
Undergraduate	8	20	
Post-Graduate	6	15	
Total	40	100	0.0001

Source: field data Survey (2021)

Figure 4.1 Marital status

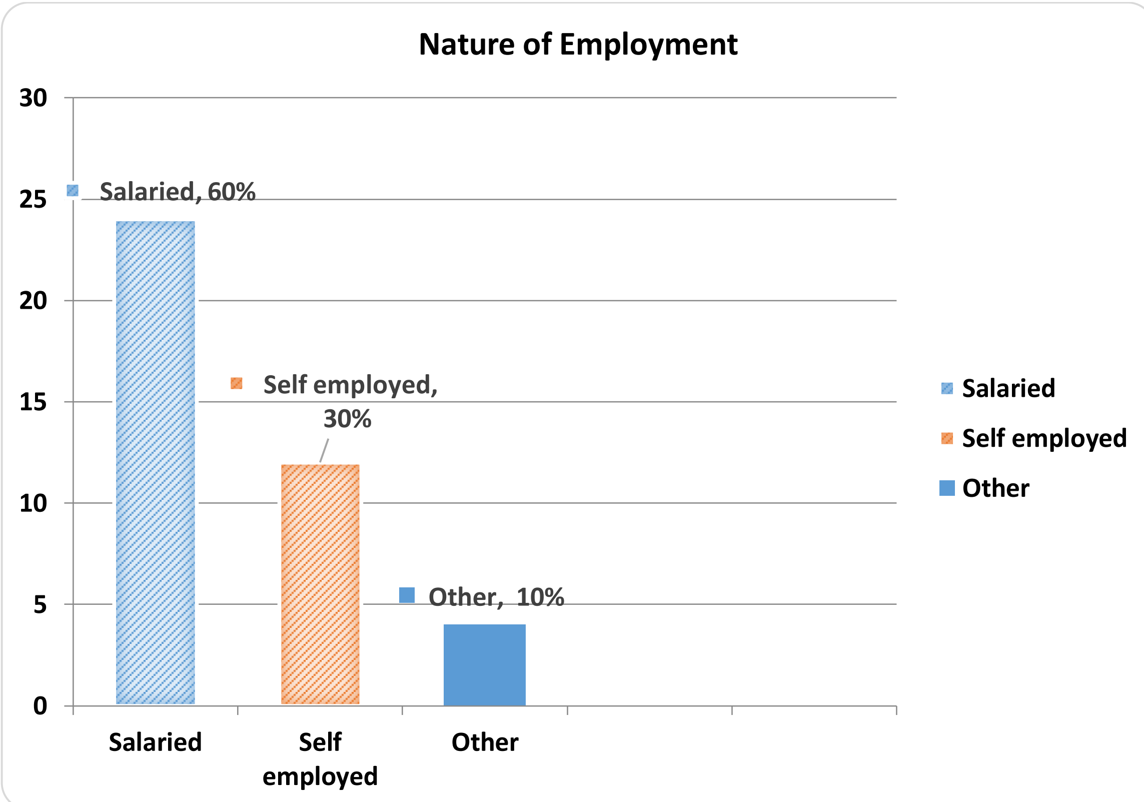


Source: field data Survey (2021)

Figure, 4.1 Marital status was classified as, married, single, while divorced and widowed (include separation, divorce, and bereavement).

The description of data shows percentage of the number and credit risk tolerance levels. Married status considered the source financial security (60%) are significantly more, however, do not likely take high risks levels. While unmarried (25%) were twice than divorced (10%) and five times more than widowed (5%) are likely to take high risks.

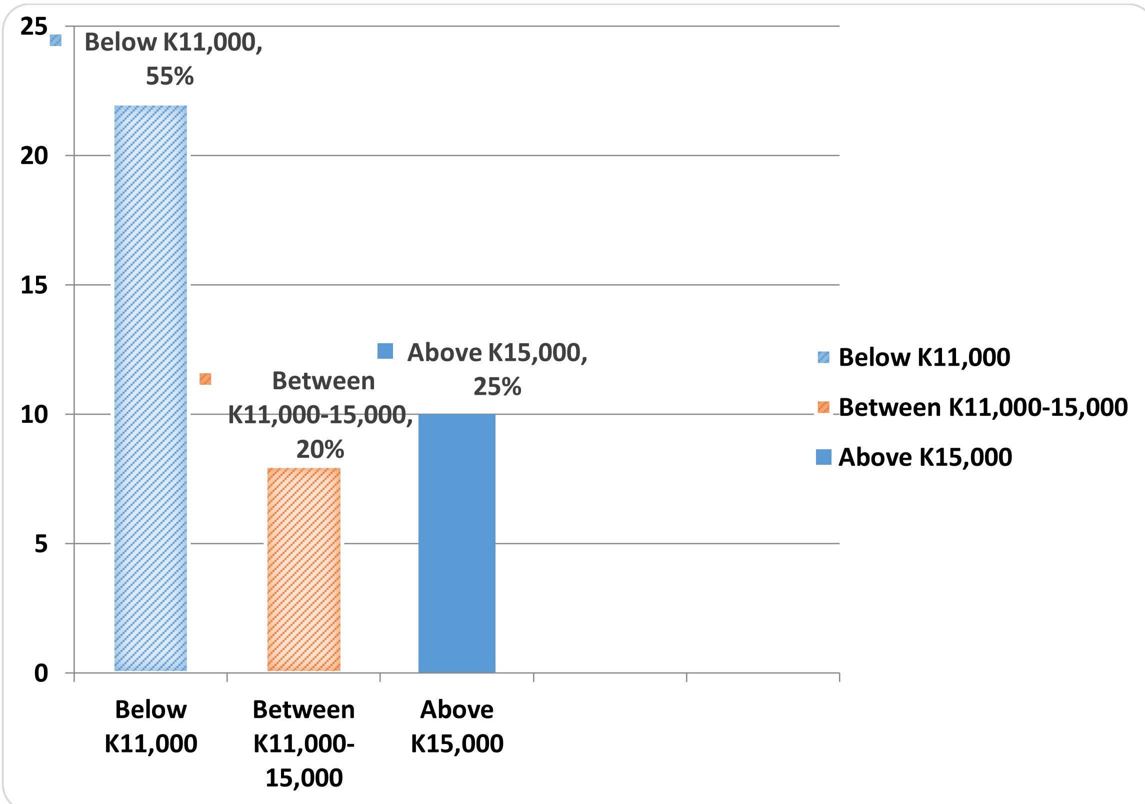
Figure 4.2 showed that 60% of clients are on salaried.



Source: field data Survey (2021)

Figure 4.2 represent nature of employment, the results shows that 60% of the respondents were on a salary while 30% were self-employed and 10% others.

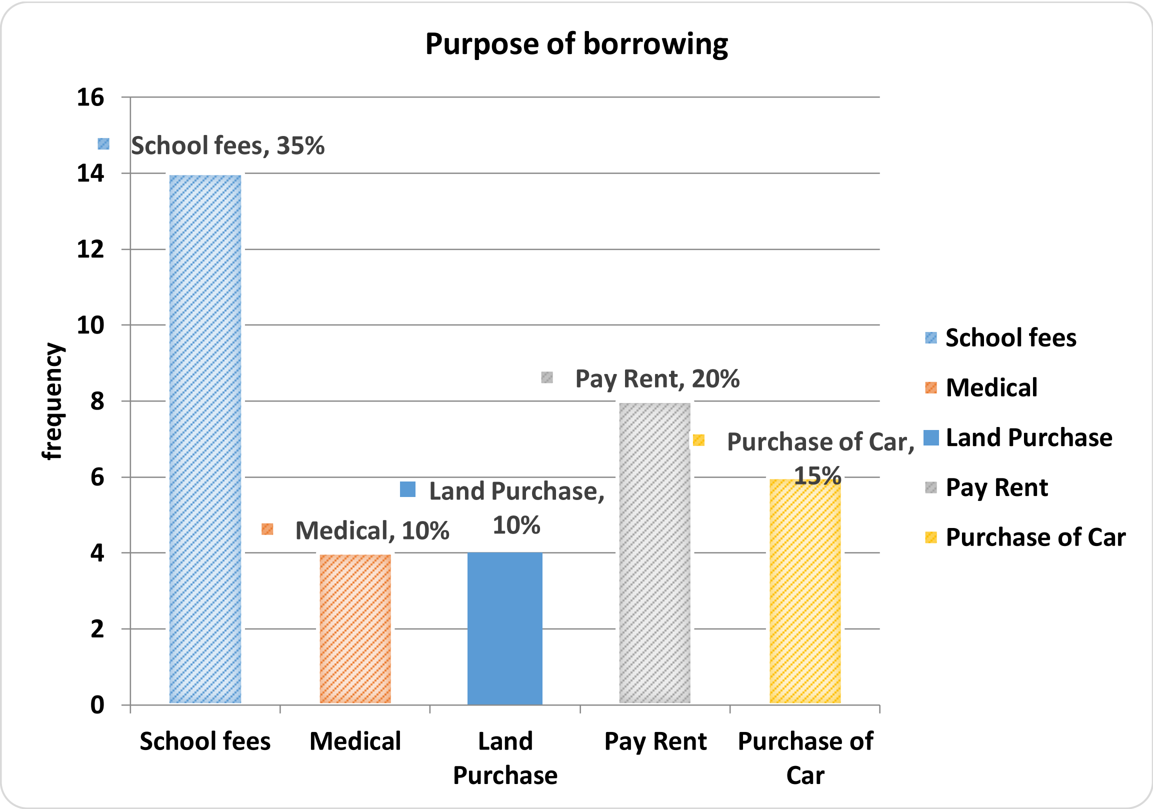
Figure 4.3 showed the salary ranges of clients



Source: field data Survey (2021)

Figure 4. 3 suggested that the clients were on a salary which was below K11, 000, and 4.2 above showed 50% of the clients were on permanent employment.

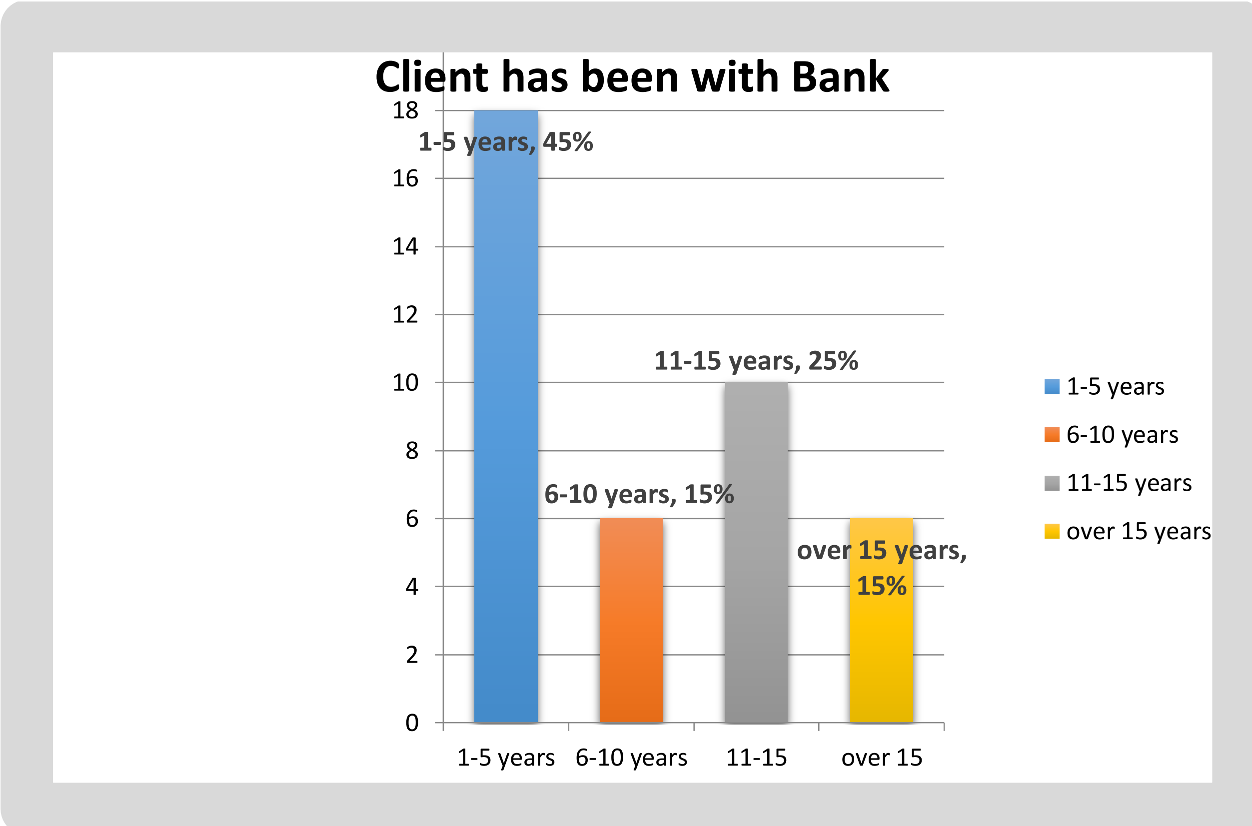
Figure 4.4 showed clients purpose of borrowing



Source: field data Survey (2021)

Figure 4.6: Showed the purpose clients borrowed the money, the results showed 35% borrowed foe school fees, 20% to pay Rent, 15% to purchase of Car, while 10% each for paying medicals and purchase of land purchase respectively.

Figure 4.5 shows the distribution of respondent's years' with the Bank

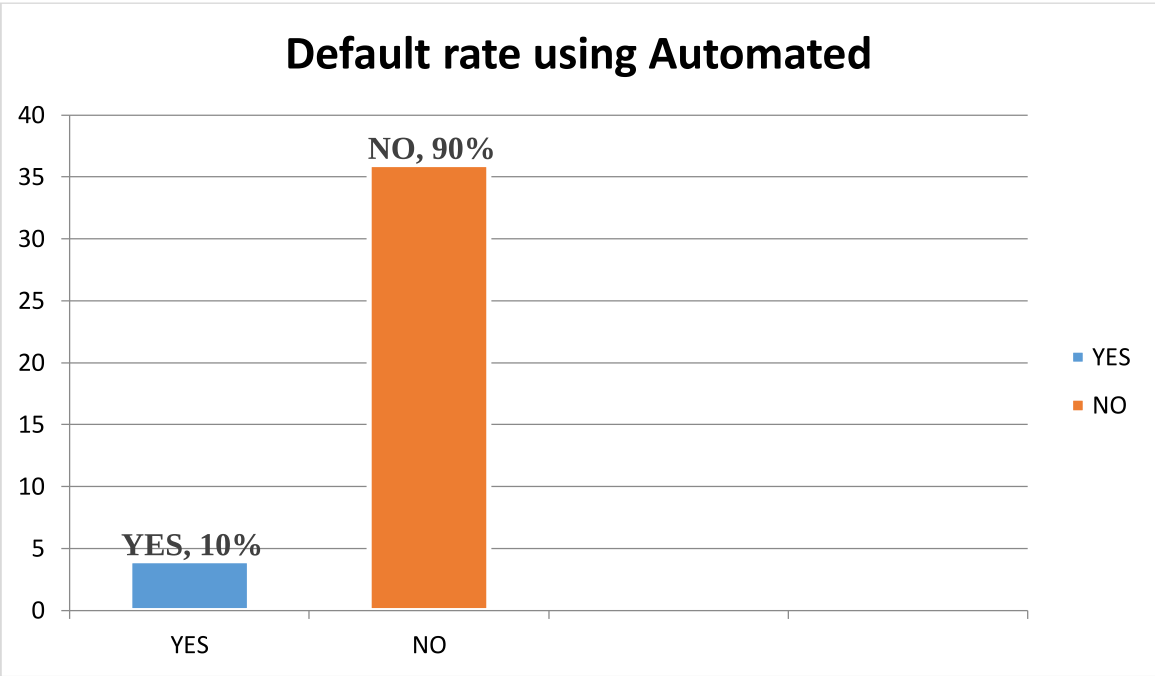


Source: field data Survey (2021)

Figure 4.7shows the distribution of respondent's years' client has been with the bank. From the conducted survey 45% of the respondents have been with Bank between 1-5 years, 25% have been with bank between 11 and 15 years whilst those clients who have been with the bank 6 to 10 and over 15 years represented 15 % respectively. This again showed that that the information gotten was mostly from the respondents who have been with between 1-5 years. The information gotten in that admiration must be of great value to the management decision makers.

SECTION B: Manual and Automated Credit Risk Default Rat

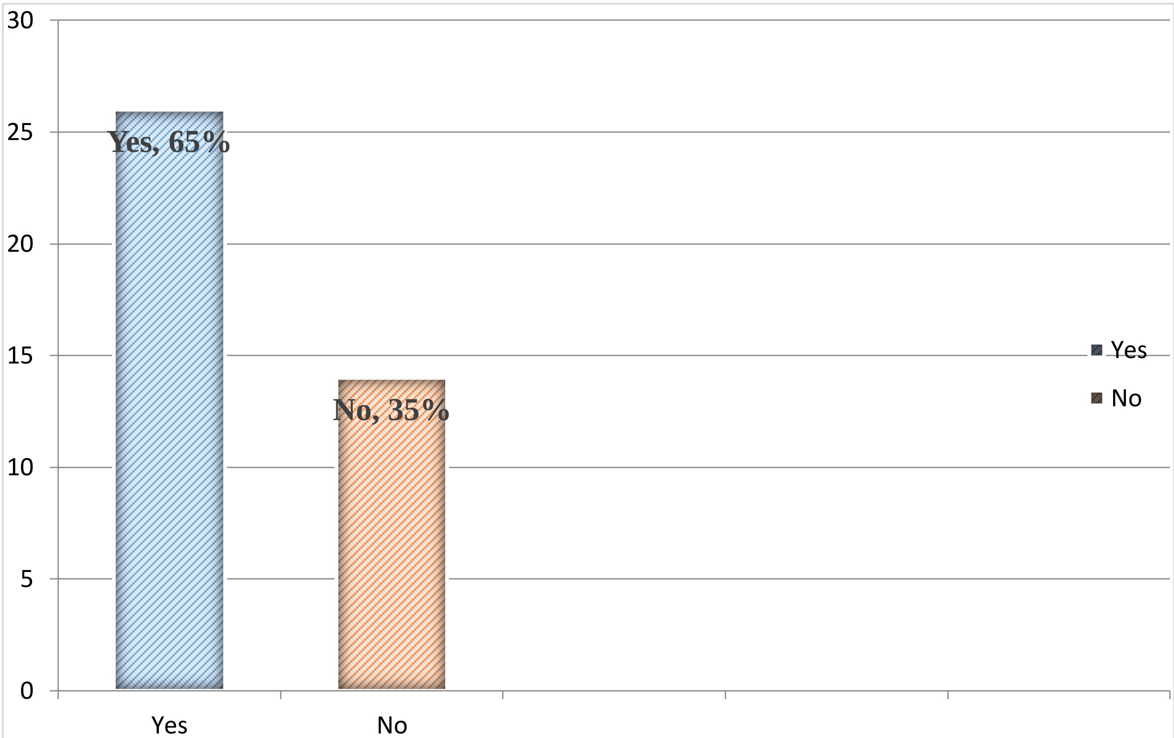
Figure 4.6 Responses on whether client has defaulted in an Automated methodology system.



Source: Field data Survey (2021)

Figure 4.6 shows the distribution of respondents who responded on the effectiveness on the use of the Automated and Manual methodology system, showed that 90% said they have NOT, defaulted in automated credit risk strategy and only 10% said they have defaulted.

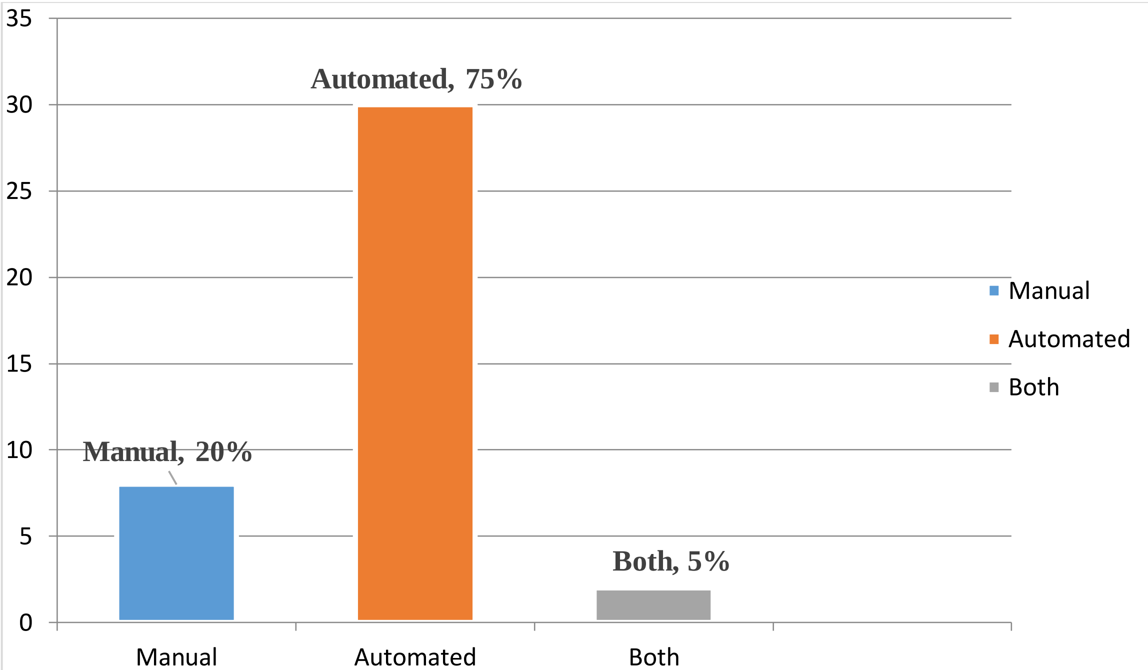
Figure 4.7 Respondents whether has defaulted in manual risk management strategy



Source: field data Survey (2021)

Figure 4.7 shows the distribution of respondent's showed whether client has defaulted in manual risk methodology. 65% of the respondents indicated that they defaulted in the manual credit risk management and 35% of the respondent indicated they did not default in the manual credit risk methodology that meant that the manual credit risk method was not effective.

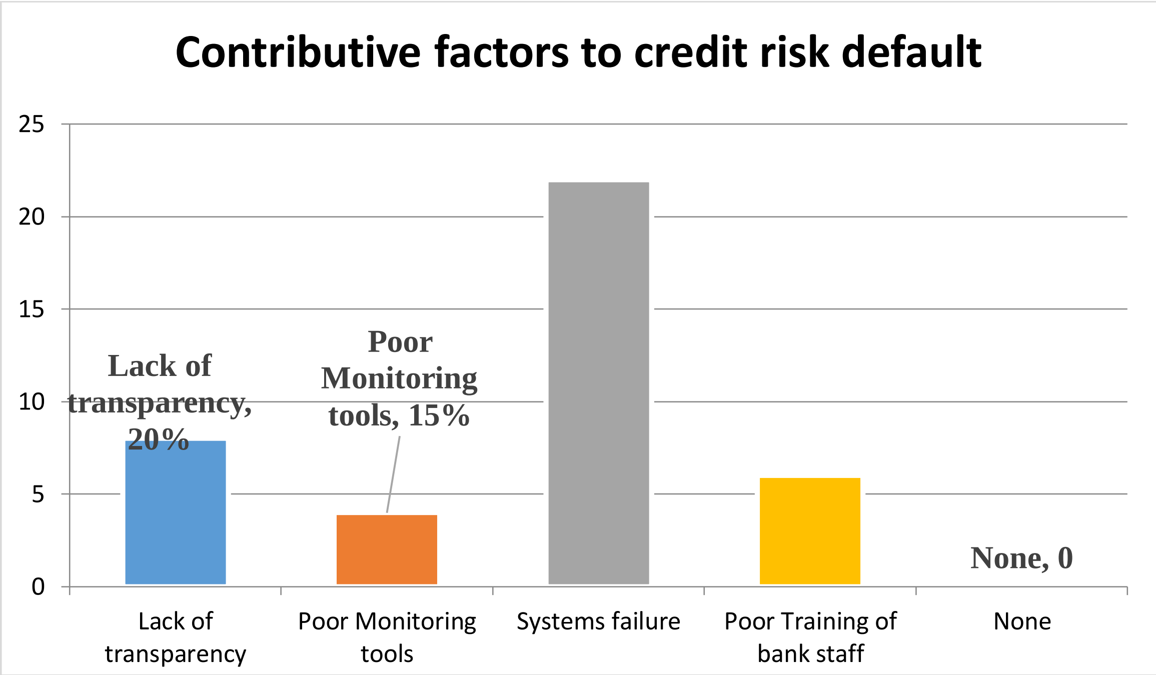
Figure 4.8 shows respondents prefer automated or Manual methodology systems or both.



Source: Field data Survey (2021)

Figure 4.8 shows the distribution of respondents of clients who preferred automated, manual and both respectively. 75% of the respondents indicated that they preferred automated methodology, while only 20% of the responded that they liked manual system. 5% respondent indicated that they liked both manual and automated systems. That meant that there was need to sensitize customers to enable them understand the effectiveness of the automated and the bank needed to invest more in the system.

Figure 4.9 shows the distribution of respondent's responses on the contributive factors to credit risk

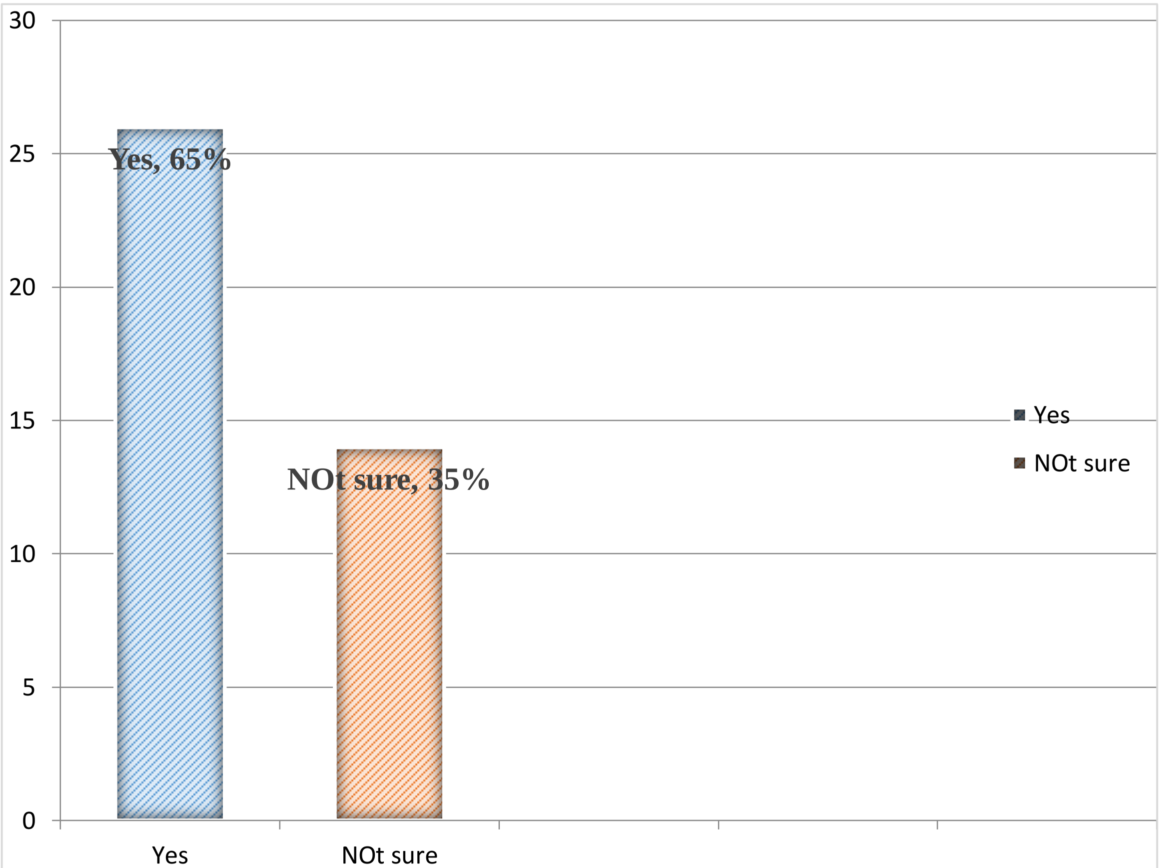


Source: Field data Survey (2021)

Figure 4.9 shows the distribution of respondent's responses on the contributive factors to credit risk default rate, knowledge of credit risk management to the customers. The analysis revealed that 55% of the responded that systems failures was the contributive factor on credit risk default, while 20% said that Bank lacked transparency, poor staff training, and 15% poor monitoring tools. This meant that the majority of the customers in the society are aware that contributive for automated credit risk management strategy is system failures, therefore the bank needed to invest more in the IT infrastructure.

4.11 The other factors that contributed to default rate between automated and manual credit risk strategy

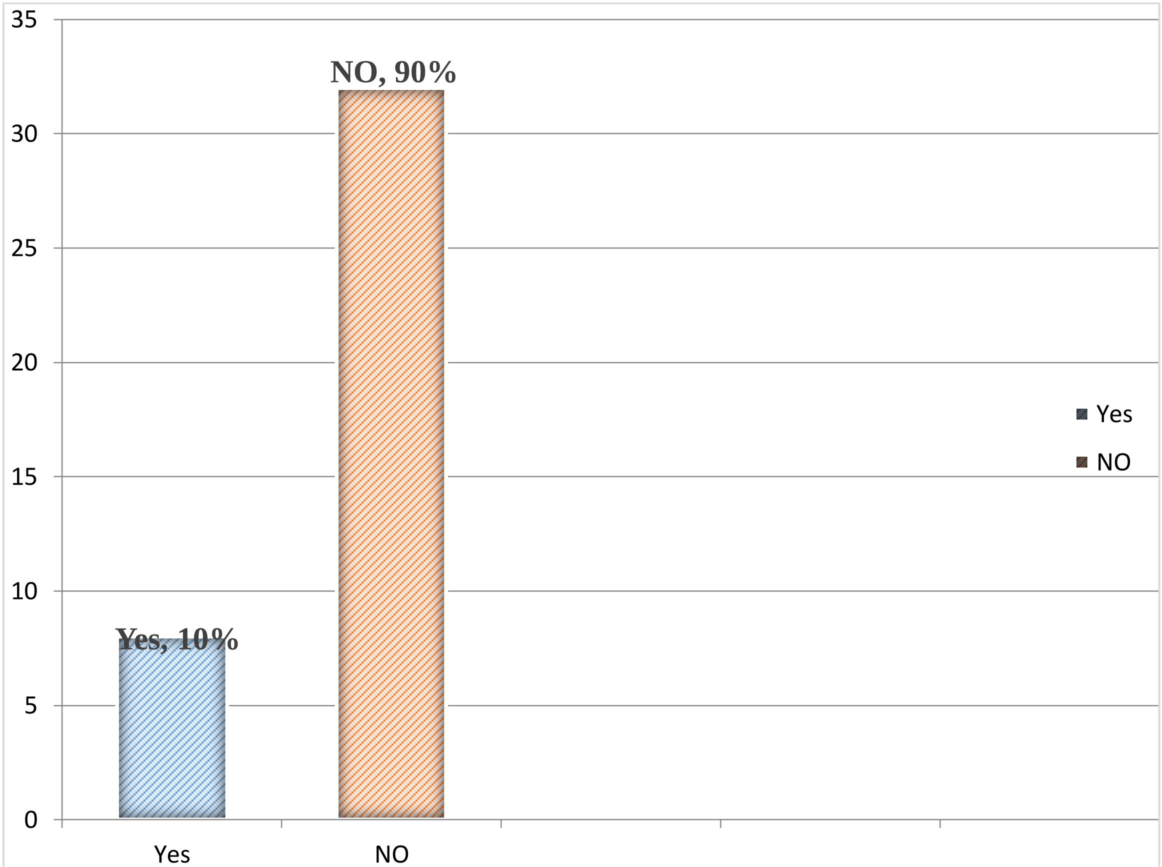
Figure 4.11: Responses as to whether Clients are aware that the bank has a credit policy for managing loan portfolio risks.



Source: Field data Survey (2021)

Figure 4.11 shows the distribution of respondents' who responded as to whether the Bank has a credit policy for managing loan portfolio risks, effectiveness of reading the credit policy could assist the bank to improve quality responsiveness reliability of Automated solutions and services. 65% of the respondents **strongly agreed** that they were aware that the bank has credit policy for managing loan portfolio risks, while 35% of the respondents were not sure. The positive response of the two categories of respondent's sums up to 100% and that confirmed most clients were aware, however, the Bank should do even more to sensitize its clients.

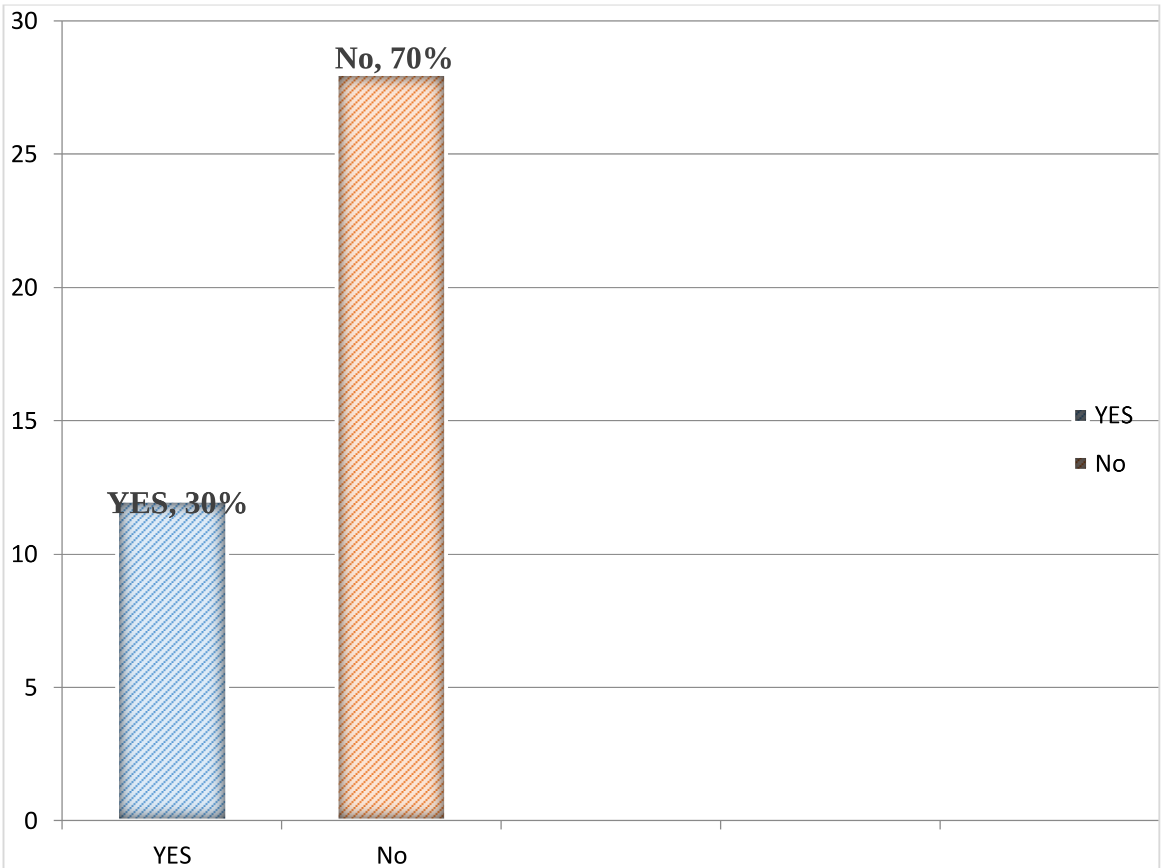
Figure 4.12, Responses as to whether clients have read the contents of the Bank`s Credit Policy.



Source: Field data Survey (2021)

Figure 4.12 shows the distribution of respondents' responses as to whether the clients have read the contents of the credit policy, to upheld the principles of good governance such as; Objectivity, Transparency, Integrity, Confidentiality and Fairness are being upheld by the customers as they conduct their day-to-day business. The analysis from table and figure 4.15 revealed that 90% of the respondents **disagreed** that they have read credit policy when it comes to credit risk management while 10% of the respondents **strongly agreed**. At the same time 90% of the respondents **disagreed strongly**. The results showed that more was needed to be done to sensitize those cliental on the principles that guided credit management portfolio. However, the result showed that customers do not pay attention to details on the loan form, unless the credited amount of loan which goes into the client`s account.

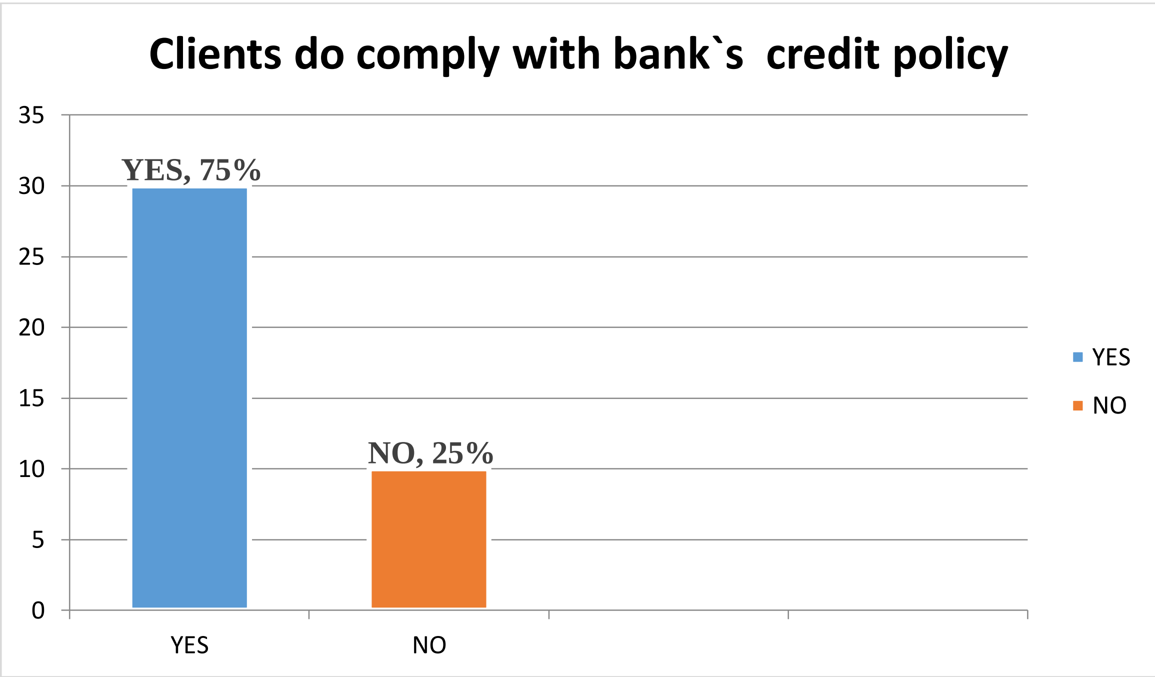
Figure 4.13; Responses as to whether clients are satisfied with the Bank`s Credit Policy managing loan portfolio risks.



Source: field data Survey (2021)

Figure 4.13 shows the distribution of respondents' responses as to whether clients were satisfied the principles of good governance such as; Objectivity, Transparency, Integrity, Confidentiality and Fairness being upheld by the customers as they conduct their day to day business. The analysis from figure 4.13 revealed that 70% of the respondents **disagreed** that the principles of good corporate governance stated above were not being upheld by Bank when it comes to credit risk management while 30% of the respondents **strongly agreed**. The results showed clients are not satisfied with the bank`s credit policy managing loan portfolio risks. However, the result was that customers do not follow.

Figure 4.14; Responses as to whether clients do comply with the Bank`s policy.



Source: Field data Survey (2021)

Figure 4.14 shows the distribution of respondents' responses as to whether the clients did comply with bank`s credit policy. 75% of the respondents agreed that they do comply with bank`s credit policy, while 25% of respondents said that they do not comply with bank`s credit policy. This means that bank needs to sensitize their clients.

4.2 Responses from clients on the benefit (s) derived from automated credit risk strategy.

Shows the distribution of responses on whether the current automated risk management are effective. The analysis discovered that 75% of the respondents specified that the banks automated risk management are effective and while 25% of the respondents said no. This means that the current bank` automated risk management are not really a big problem, but banks should invest infrastructure and education of their customers in order to capture the whole 100% support.

4.2.1 Suggestions from clients to could assist the bank to overcome the problem of default.

Figure 4.16 shows the distribution of responses on whether IT governance initiatives can best help to monitor and improve business value and reduce risk in the banking sector. The analysis revealed that 75% of the respondents agreed that the IT governance can reduce credit risk, 15% of the respondents felt that IT governance cannot reduce credit risk, whilst 10% of the respondents were not sure. This means the best IT governance practices can help to monitor and improve business value and reduce credit risk.

This outlook could be due to the fact that the bank is trying to train and have a succession plan in place for key positions so that there was no void left, should any officer decided to leave employment in the bank.

4.2.2 Formal credit training

Formal training in credit evaluation has a direct bearing on the ability of the Relationship Managers to identify and control possible bad debts before they go bad. It was quite likely that a well-trained Relationship manager/loan officer who has reasonable experienced in loan management would be able to make better decisions than one who was lacking that kind of training. It should be pointed out though, that training needed adequate experience for it to be effective. Table 3.2 below shows how many staff have received formal credit training.

4.2.3 Formal credit training

The study showed that 5 out of 7 interviewed in credit skills had undergone formal credit evaluation training. This shows a strong and deliberate training program on the part of the bank. The 2 out of the seven untrained staff could be one of the recently engaged by the bank. Staff engaged to work in credit evaluation were normally those who had done business related courses.

Thus, even as they were engaged, they already have skills of how a sound business will perform. It would be a bit difficult though, even for trained Relationship Managers to tell a possible defaulter in a personal borrower.

4.2.4 Job on Training

In spite of the bank emphasis on training that staff would go through it has to be coupled with job training before it can be really cemented into anything of use. It was therefore vital that as much as possible all Relationship Managers should undergo on the job training.

The results showed that there was 4 out of seven staff who were satisfied with the adequacy of on-the job training. It was however, worrying to note that 3 out of seven staff felt that the training was not adequate. This could be a source of many mistakes in credit evaluation. The more staff felt that they are well groomed internally; the more confident they would be in making sound lending decisions. This could lead to poor decision making on the part of relationship Managers or to a situation where they just refrained from attempting to look at work objectively. Every credit evaluation must always be looked at with great caution such that they would ultimately end-up rejecting potentially good business for the bank.

4.2.5 Compliance of loan lending policy

The perception of the adequacy of the credit policy a financial institution will help inspire the confidence of staff that are involved in credit evaluation and vice versa. The more they feel that the policy is good and helps to resolve grey areas in lending, the more they are likely to make good decisions as they recommend lending. This will also be a critical tool in assessing all approved facilities for monitoring purposes to ensure that they are performing according to covenants of the facility. The results showed adequacy of bank lending procedure. 6 out of seven of the credit Relationship Managers felt that credit procedure was not adequate. However, a significant portion of 1 out of seven felt exact opposite. This is again a source of concern that such a number should feel this way. It is quite likely that most staff either do not understand the compliance of the loan Lending policy.

Chapter 5-Discussions and Interpretation of the results

5.0 Overview

This chapter focused on discussing the research findings presented in chapter 4 with the help of relevant literature review from chapter 2, the chapter comprises of three (3) main sections, in line with the 3 main research objectives as outlined in chapter 1. This chapter, therefore, gives understanding into the statement of the problem. The study carried out the analysis of the effectiveness of the automated credit risk management strategy on loan recovery rate among Standard Bank Zambia clients, in Lusaka Province. Furthermore, the chapter observed at the identification of questions pertaining to future research studies.

According to a combined report by the World Bank and the SME Finance Forum, annual Micro, Small and Medium Enterprise (MSME) finance gap in developing countries was estimated to be \$5.2 trillion - 1.4 times more than the MSME credit available (BOZ,2018). This confirmed from the number of Loans the team had disbursed during the study to the clients, which was less than 1million Kwacha. This gap may continue to widen if alternative methods are not found (BOZ, 2018). Notwithstanding, the problem of non-performing loans, which affected the overall performance of the financial system in Zambia, particularly the banking sector, banks should find better credit risk methods in order to curb high default rates and remained satisfactory on the Market.

Banks often opt new strategies of disbursement efficiency that could integrate digital payment platform that guaranteed new revenue streams. This funding gap therefore, could represents a threat to economic growth around the world (Boz, 2018). The study also revealed that all the staff had received credit risk training from the Bank and majority of them were degree holders, while others had other qualifications that includes, economics, business administration and Banking and Finance. In principle this signaled that the bank was a good place to work and the more staff were experienced and specialized in operations of the bank system, the more they could give advice to management based of their experiences. This could work to the advantage of the bank sector as whole. Though, on the other hand, this type of staff may resist to change of management systems in that they would want to stick to the long-standing systems which they appreciate better. This condition may work to disadvantaged the bank considering that technology has kept on improving and therefore new systems keep on sprouting out every day, however, the researcher felt that there was no serious skill gap that could affect high default rates among clients as staff in the department had acquired credit risk management skills.

5.1 The default rate between manual and automated credit systems

High debt default rates in the Bank, remained the critical challenge affecting the performance of most banks in both developed and developing countries (Simpasa, 2016). This explain that high default rates on loan recovery was contributed by using manual credit risk methodology which affect the ability to monitor and administer loans (Kinyera, 2012). Although in developing countries where manual credit methods were used Banks were confronted with many challenges. The local Banks in Zambia and Lusaka Province in particular could not be spared of with these challenges. A similar study was done by T Davenport in 2020, which only focused on automated Marketing strategies and customer behaviors and policy questions, however did not addressed the challenges faced by many banks in Zambia. This study, analyses the effectiveness of the automated credit risk on loan recovery among clients, by comparing to the manual credit risk methods systems in Lusaka Province. The study discovered that the manual credit risk method used by many banks in Zambia, was not effective based on the available literature reviewed. The Credit risk is therefore, regarded as the likelihood of a borrower failing to meet the loan obligation in accordance with the agreed terms contained in a facility letter. (BOZ.2017). The challenges faced by many defaulters in regard to failure to meet a loan payment by a due date, was mostly contributed by the use of manual credit risk methods.

In general, the study indicated the aged distribution of respondents, 19-25 years ,20%, 26-30 years and 31-34 years 15% and 35-39 years 10% respectively. It showed that the researcher mostly interacted with mature clients who were dominated by clients who were above the age of 40 years, represented by 40%, whilst the youth aged group of 19-25 years was presented by 20%, while 26-30 years and 31-34 years were represented by 15% and 35-39 years was represented by 10% respectively. This showed that the researcher interacted with all the aged groups, especially those who had been with bank for long time.

Table and figure 4.4 indicated the level of education distribution among the respondents. The survey clearly showed that the researcher interacted with respondents who had attained Diploma education, presented by 30%, considering the nature of the study and sample from respondents which were picked comprises of client from the Bank with other categories of certificates for high school and others had no education. The study revealed that the Bank had clients who were qualified, although the and even though the results indicated was the same percentage of post-graduate with those who had no formal education, however, the study revealed that one of the requirements to debt, education for clients who obtained credits. Even it showed that the default rate was still high.

Table and Figure 4.11shows the distribution of respondent's years been with the bank, from the survey conducted, 45% of the respondents indicated between 1-5 years, while 25% have been with bank between 11 to 15 years, whilst 6 to 10 and over 15 years represented 15 % respectively. This again shows that the highest information gotten was mostly from the respondents who had been with the bank between 1-5 years. Even though the information gotten was admiration and great value to the management decision makers, however, the years of clients been with the bank could not guarantee high default rates. Therefore, the years one has been banking with a particular bank does not matter, however, it was the use of effective automated credit risk strategy that usually matters.

5.2 Factors that contributes to high debt default rate in the banking sector in Lusaka Province

According to Yeboah, (2018), the factors that contributes to high default rate in the banking sector include; lack of willingness to pay loans coupled with diversion of funds by borrowers, wilful negligence and improper appraisal by credit officers. The researcher was able to agree with Hurt and Fesolvalyi (1998), cited by Kwakwa, (2009) and found that, corporate loan default increases as real gross domestic product declined, and that the exchange rate depreciation directly affects the repayment ability of borrowers.

The study revealed that most these factors was as the result of knowledge of credit risk management by customers, however, the cause was lack of effective credit risk methodological tools to curb high defaults. Furthermore, the analysis revealed that 55% of the respondents indicated, system failures on top of the list, while 20% cited lack of transparency, 10% Poor staff training, and 15% poor monitoring tools respectively. The majority of customers in the society were aware that the contributing factor to high default rate in Lusaka was lack of automated credit risk methods. This made the researcher confident that the findings were reliable.

5.3 The policy strategies implemented on automated credit risk management

The results shows that the bank should sensitize all its cliental on the principles that guided credit management portfolio, because the results shows that customers did not pay attention to details on the loan their form, unless the credited amount of loan which goes into the client`s account was different from what the client had indicated on the form, that was when the client was going to complain. Based on the distribution of respondent’s responses, on whether clients do read the contents of the credit policy, and upheld the principles of good governance such as; Objectivity, Transparency, Integrity, Confidentiality and Fairness, the analysis revealed that most respondents do not read and indicated that they have not seen the credit policy on the loan application form and only few of the respondents agreed. That shows that there was a gap on policy strategy implementation. This also shows that customers do not pay attention to details on the loan application form, unless the credited amount of loan which goes into the client`s account was different from what was applied, that was when the client may complain.

The analysis from table and figure 4.18, revealed that 70% of the respondents indicated that the bank does not uphold the principles of good corporate governance when it comes to credit risk management, while 30% of the respondents strongly agreed. The results showed that most clients were not satisfied with the bank`s credit policy managing loan portfolio credit risks.

Table and Figure 4.19 shows the distribution of respondents on compliance to credit policy, the results showed that clients responded do comply with bank`s credit policy, indicating 75% of the respondents agreed, that they did comply with bank`s credit policy, while 25% of respondents did not comply with bank`s credit policy.

5.4 Responses from clients on the benefit (s) derived from automated credit risk strategy.

The distribution of responses on whether the current automated risk management were effective, the results revealed that 75% of the respondents indicated that the automated risk management were effective and only 25% of the respondents indicated they did not. That meant the current bank` automated risk strategy was not really a big problem, however, lack of infrastructure and education of that could assist the bank attained the whole 100% support.

5.5 Formal credit training

The Formal training in credit evaluation has a direct bearing on the ability of the Relationship Managers to identify and control possible bad debts before they go bad. It was quite likely that a well-trained Relationship manager/loan officer who has reasonable experienced in loan management would be able to make better decisions than one who was lacking that kind of training. It should be pointed out though, that training needed adequate experience for it to be effective. The results shows that many staff received formal credit training.

The study showed that 5 out of 7 interviewed in credit skills had undergone formal credit evaluation training. This shows a strong and deliberate training program on the part of the bank. The 2 out of the seven untrained staff could be one of the recently engaged by the bank. Staff engaged to work in credit evaluation were normally those who had done business related courses. Thus, even as they were engaged, they already have skills of how a sound business will perform. It would be a bit difficult though, even for trained Relationship Managers to tell a possible defaulter in a personal borrower.

5.6 Job on Training

In spite of the bank emphasis on training that staff would go through it has to be coupled with job training before it can be really cemented into anything of use. It was therefore, vital that as much as possible all Relationship Managers should undergo on the job training.

The results showed that there was 4 out of seven staff who were satisfied with the adequacy of on-the job training. It was however, worrying to note that 3 out of seven staff felt that the training was not adequate. This could be a source of many mistakes in credit evaluation. The more staff felt that they are well groomed internally; the more confident they would be in making sound lending decisions. This could lead to poor decision making on the part of relationship Managers or to a situation where they just refrained from attempting to look at work objectively. Every credit evaluation must always be looked at with great caution such that they would ultimately end-up rejecting potentially good business for the bank.

5.7 Compliance of loan lending policy

The perception of the adequacy of the credit policy a financial institution will help inspire the confidence of staff that are involved in credit evaluation and vice versa. The more they feel that the policy is good and helps to resolve grey areas in lending, the more they are likely to make good decisions as they recommend lending. This will also be a critical tool in assessing all approved facilities for monitoring purposes to ensure that they are performing according to covenants of the facility. Table 3.4 below shows the results of the adequacy of bank lending procedure.

5.8 Improved level of communication

Improved level of communication among respondents was the factor issue raised by project participants. This study revealed that good communication would positively affect the performance of banking sector in Lusaka Province. The result was in line with another research study “Assessing the effectiveness of credit risk management tools utilised by financial institutions in Ghana: case study of Bayport Micro, Sunyani Branch” (Asomaning, 2015).

5.9 summary

The chapter prudently looked at a summary of the findings based on chapter four presentations. Thereafter, deliberations based on study objectives were made in line with previous research findings. As suggested in this chapter, the 8 major factors under study were found to be acceptable. In chapter 6, conclusions and recommendations about the study were made with respect to findings already investigated.

CHAPTER 6- CONCLUSION AND RECOMMENDATIONS

6.1 Overview

Chapter six presents the conclusion drawn from the findings of the study on analysing the effectiveness of the automated credit risk strategy on loan recovery rate among Standard Bank's clients in Lusaka Province, and recommendations made thereafter. The said conclusion and recommendations on this study concentrated on addressing the main objective of the study. The conclusion was attained by answering the definite research questions which were centered on finding out the effectiveness of the automated credit risk management strategy on loan recovery rate among standard bank clients. The study was a case study taken in the Lusaka Province.

6.2 Conclusion

The study was aimed at analysing the effectiveness on automated credit risk management strategy on loan recovery among standard bank clients in Lusaka Province. The objectives were to determine the default rate between manual and automated credit system, to establish the major factors that contribute to default and lastly to assess the best policy strategies to be implementing to mitigate credit risk management at Standard Bank, and thereafter formulate suitable recommendations. In preparation for answers to the objectives of the research, questionnaires were used to gain perceptions.

Findings disclosed that the clientele of the Standard Bank in Lusaka Province was generally male-dominated as shown by dissimilarities in gender representation. The Banking industry in Lusaka Province has shown that most of the employees were technical staff and that generally showed that the staff were competent, that was supported by the qualification of most of the relationship Managers and clients. The study also revealed that most clients of the Bank were holders of diplomas while some had no educational qualifications at all. The researcher felt that there was a serious knowledge gap in as far as understanding and interpreting the credit policy of the bank was concerned.

Table and Figure 4.11 shows that the distribution of respondents who responded on the effectiveness of the use of the Automated and Manual methodology system, revealed that there were more people who defaulted in manual credit risk systems, than automated credit risk strategy. This showed that the automated credit risk management was more effective than the manual one. However, it ought to be noted that when a borrower applies for a loan, the Bank should assess the client's ability to make future monthly payments. The borrower's current financial condition, the level of income and payment history, and the past behaviors and current debts should determine the how likelihood of the client's qualification for an additional loan. Additionally, when requesting for personal information, the Bank should take into consideration the size of the loan and its envisaged recoverable period. Once the Bank understands all the factors that could affect the borrower, then will it be able to ascertain the risk level of a particular loan. However, the bank should desist from using the traditional credit risk management processes, and manual system, but be vigilant to the internal and external factors that could affect the risk of a loan.

The findings and discussion of the results are supported by the background and explanations concerning the effects of automated credit risk strategy in Lusaka Province. They confirmed that factors observed are purported to have a major effect on high default rates in the banks in Lusaka Province. Likewise, it was observed that these factors are being experienced by both small and medium firms, and individual clients in Lusaka Province.

The specific concerns are quality of a loan which is measured by using non-performance loan loss provisions and loans and advances ratio as suggested by Rasiah (2010) and Vong et al 2009 respectively. Source of revenue was the major contributing factor to the earnings. According to Vong et al, (2009), education, loan diversion, monitoring, marital status and income are significant factors that influence loan default. However, Banks should encourage financial education in order to strengthen financial literacy in their clients, while financial marketing for banks should be to create value for clients and building strong relationships with a view to capturing value from its clients. Furthermore, automated loan appraisal systems should be robust with the application and development of credit scoring systems that could factor the key variables of loan default (Memel,20120), and Lack of communication. Even though the study perceived other factors that affected loan defaults, the major contributor of loan default/delinquency was the use of manual methodological systems.

The study revealed that client's challenges which were related to policy strategies ranked at the very top of the list. It is the responsibility of the Executive Management of the bank to employ the credit risk strategies with the approval of the board of directors. That also includes ensuring that the bank's credit-granting activities followed by the established strategy and written procedures are developed and implemented. They also ensure that loan approvals and review tasks are clearly and appropriately assigned. Senior management must also ensure that there is a periodic self-regulating internal valuation of the bank's credit risk strategy. The study, however, discovered that many clients do not read the credit policy, the reason being that the credit policy was written in small writings. In view of the aforesaid, there is a great need for the bank to not only improve the level of communication among its clients but also to address the challenges faced by its clients in Lusaka Province. The findings matched what was prevailing on the national, regional and global scene which gave the researcher confidence that the findings were reliable.

6.3 Recommendations to Decision Makers

The study recommends that:

- In line with the objective the bank should promote financial inclusion, and continue to undertake financial education campaigns in collaboration with other stakeholders aimed at empowering clients of financial services with the necessary information and to encourage the adoption of digital financial services. Finally, the Bank should continue to discharge its mandate in a way that ensures that digital systems are efficient, reliable, safe and secure

- The Bank should constantly monitor all cyber risk posture and any changes that may affect the organization's risk exposure.
- The bank should introduce pre-built integration adaptors in order to eliminate manual data gathering by automatically enriching an application with required information such as customer details, credit bureau reports, financial information, and document verification.

- The Bank Should Strictly scrutiny partner solutions such as mobile money and payment gateways that assimilate with ecosystem to manage the risk of compromise. Continuing conservation and monitoring of interfaces in order to plan execute accordingly

- The Bank should encourage more clients to sign up online banking to increase social distancing especially during this COVID -19 pandemic. This will keep the customers connected with the bank while enjoying easy, day to day services from the bank and being safe at the same time.

6.4 Limitations to the research

There were a number of restrictions encountered in this study and they are listed below;

6.5 Future research areas

Arising from this study, the use of manual credit risk strategy was found to be the contributor of most defaults on loan recovery among Standard Bank clients in Lusaka Province. However, the research did not concentrate on finding out other related factors within the credit risk strategy and access to credit. Therefore, future research should look at other related factors that affect loan default/delinquency. The research had concentrated on the effectiveness of the automated credit risk strategy on loan recovery among standard Bank clients in Lusaka Province. Other researchers are encouraged to conduct other comparable studies in other Provinces.

In this study, the use of manual credit risk strategy was the contributor to loan delinquency/ default in Lusaka Province. Results such as lack of automated equipment, inadequate technical skills, insufficient underwrite skills and lack of communication were among the causes of high loan default/delinquency. However, high loan default rates remained uncontrollable and unacceptable without the government, Bank of Zambia and other financial stakeholders' involvement.

In preparation to address some of these challenges faced by Banks in Zambia and Lusaka Province in particular, it is important for Banks to regularly review their credit policies, monitor and supervise loan default/delinquency to ensure safety of client's deposits and customer confidence. The banks should develop automated credit risk programs in order to stay on top of the worsening credit conditions, and ensure it reduces the risk of fraud, cybersecurity threats to financial information of other clients, and protect the treasury from untrustworthy borrowers.

This is because Banking is continuously changing with emerging technologies, new business models with key trends of cyber risk and financial crime, data integrity and analytics, digital and enterprise agility in the banking industry. The use of manual credit risk strategy measures that worked in the past may not be essentially realistic today. It is hoped that revelations of these factors affecting the debt default rates among clients on loan recovery in the Banking sector in Lusaka Province can be taken with keen interest and assist stakeholders to reasonably attend to them more accurately and instructively.

APPENDIX 1

RESEARCH QUESTIONNAIRE

Dear Respondent,

This questionnaire is intended for collection of data for academic purposes to be submitted in contentment of the requirement of the Degree of Masters of Business Administration (MBA), University of Zambia, under the research title, "*An analysis of the effectiveness of the automated credit Risk strategy on loan recovery rate among Standard Bank Zambia Clients, Lusaka.*" The data will be treated with the confidentiality it deserves. There is therefore, no need of writing your name.

Yours faithfully,

RESEARCHER

SOCIAL ECONOMIC STATISTICS OF RESPONDENTS

DEMOGRAPHIC INFORMATION

PLEASE Tell us about yourself

1. Gender
   a) Male ☐
   b) Female ☐

2. Age

a) 19 – 25 years

b) 26 –0 30 years

c) 31 – 34 years

d) 35 – 39 years

e) 40 years and above

3. Marital Status

a) Married

b) Single

c) Divorced

d) Widowed

e) No of children

f) No of dependents

4. What is your Education?

a) No formal Education

b) High School

c) Diploma

d) undergraduate

e) Post-graduate

SOURCES OF FUNDS

5. Nature of employment
    a. salaried
    b. Self employed
    c. Other
6. Level of Income (per annum)
    a. Below K11,000
    b. Between K11,000-15,000
    c. Above K15,000
7. Employment terms
    a. Permanent
    b. Contract
    c. Other
8. Type of Loan applied for
    a. Personal Loan
    b. Auto Loan
    c. Mortgage
9. What is the purpose of borrowing
    a. School fees
    b. Medical
    c. Land Purchase
    g) Home Improvement
    h) Pay Rent
    i) Purchase the Car

10. Tick what you think are the factors that can contribute to high default rate in automated credit risk strategy?

   a) Lack of transparency

   b) Poor Monitoring tools

   c) Systems failure

   d) Poor training of bank Staff

   e) None

11. Have you ever defaulted in an automated methodology system?

   a.) Yes

   b.) No

12. Have you ever defaulted in the manual methodology system?

   a.) Yes

   b.) No

13. Which loan automation recovery payment do you use?

   a.) Standing order payment

b.) Sport payment

c.) Monthly Payment

14. How does the loan automated recovery work?

a) Monthly

b) A week after

c) As and when money is there

14 How long have you been with the Bank?

a) 1-5 Years

b) 6-10 Years

c) 11-15 Years

d) 15 Years and Above

LEVEL OF SATISFACTION

15. How satisfied are you with the automated system?

From a scale of 1 to 4

1) "Not at all Satisfied," ☐

2) Partly Satisfied ☐

3) Satisfied ☐

4) Very Satisfied ☐

LEVEL O F EFFECTIVENESS

16. How effective is the automated loan recovery system?

From a scale of 1 to 4

1) "Not effective" ☐

2) Partly effective ☐

3) Effective ☐

4) Very Effective ☐

CREDIT OFFICERS HANDLING THE SYSTEM

16. In Past one, or 6 months have been contacted by any Credit Officer from the bank?

a) Yes ☐

b) No ☐

RECOMMENDATION

17. On a scale of 1 to 4 how likely are you able to recommend automated loan recovery system to family and friends?

1) "Not at all likely,"

2) Partly likely

3) Likely

4) Extremely likely

16. Do you comply with this policy?

a) Yes

b) No

9. What benefit (s) do you derive from automated credit risk strategy?

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20. What suggestions if any do you have to assist the bank overcome this problem of default?

…………………………………………………………………………………………

Thank you

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