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Credit Risk and Lending Performance of Commercial Banks in Kenya

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CREDIT RISK AND LENDING PERFORMANCE OF COMMERCIAL BANKS IN KENYA

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN BUSINESS ADMINISTRATION AND MANAGEMENT (FINANCE) OF KENYA METHODIST UNIVERSITY

AUGUST 2019

DECLARATION

This thesis is my original work and has not been presented for a degree or any other award in any other University.

JOHN GAKUU KARANJA

BUS-4-0268-1/2016

Signature ……..... Date …….…….....

We confirm that the work reported in this thesis was carried out by the candidate under our supervision

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DEDICATION

This thesis is dedicated to my wife Muthoni Karanja, my sons Ephraim and Caleb for their love and support. I also dedicate this thesis to my mother Margaret and my late father Isaac for their sacrifice in educating me. To my brother Simon and my sisters Ruth, Jane and Loise, God bless you and your families for your support.

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ABBREVIATIONS

AFC	Agriculture Finance Corporation
AMA	Advanced Measurement Approach
ANN	Artificial Neural Networks
BEICFs	Business Environment and Internal Control Factors
BIA	Basic Indicator Approach
BMA	Bayesian Model Averaging
BNN	Back Propagation Neural Networks
BR	Based Reasoning
C&I	Commercial and Industrial
CAPM	Capital Asset Pricing Model
CAR	Capital Adequacy Ratio
CART	Classification and Regression Tree
CBK	Central Bank of Kenya
CDS	Credit Default Swap
CR	Credit Risk
CR-AE	Credit Risk Allocative Efficiency
CR-CE	Credit Risk Cost Efficiency
DEA	Data Envelopment Analysis
DEA	Data Envelopment Analysis
DFI	Development Finance Institution
DT	Decision Tree
DV	Dependent Variable

EACB	East Africa Community Board
EAD	Exposure at Default
FI	Financial
FIRB	Foreign Investment Review Board
GATS	General Agreement on Trade in Services
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GoK	Government of Kenya
IAIS	International Association of Insurance Supervisors
ICT	Information and Communications Technology
IMF	International Monetary Fund
IRB	Internal Rating Based
IRR	Internal Rate of Return
IV	Independent Variable
KBA	Kenya Bankers Association
KRI	Key Risk Indicator
KSH	Kenya Shilling
LDA	Linear Discriminant Analysis
LGD	Loss Given Default
LLP	Limited Liability Partnership
LRA	Logistic Regression Analysis
M	Maturity
MARS	Multivariate Adaptive Regression Splines
MCDM	Multiple Criteria Decision Making
MDA	Multiple Discriminant Analysis

MIS	Management Information System
MLP	Multi-Layer Perception
MTP	Modern Portfolio Theory
NACOSTI	National Commission for Science, Technology & Innovation
NBFIs	Non-Bank Financial Intermediaries
NFI	Non-Financial
NPAS	Non-Performing Assets
NPL	Non- Performing Loans
NPV	Net Present Value
OLS	Ordinary Least Square
ORM	Operational Risk Management
OTC	Over the Counter
PD	Probability of Default
PD	Probability of Default
PFTs	Project Financing Techniques
R&D	Research and Development
RAROC	Risk-Adjusted Return on Capital
RBF	Radial Basis Functioning
RBFN	Radial Basis Functioning Network
RCSA	Risk Control Self-Assessment
ROA	Return on Assets
ROE	Return On Equity And
RWA	Risk Weighted Assets
SA	Standardized Approach
SAP	Structural Adjustment Program

SCB	Scheduled Commercial Bank
SMEs	Small and Medium-sized Enterprises
SPSS	Scientific Package of Social Sciences
SVM	Support Vector Machine
UAE	United Arab Emirates
VaR	Value at Risk
VIF	Variance Inflation Factor

DEFINITION OF OPERATIONAL TERMS

Credit risk identification; this refers to the formalities that a customer will be subjected to before the credit is obtained from the commercial bank since variety of loans that are offered to the client have different lending procedures to be followed (Marshal and Onyekachi, 2014).

Credit risk measurement; this includes all that a banks needs to evaluate and find out in order to establish if the client is able to repay the credit given out or how it will be refunded back by an insurance in case the client dies or becomes bankrupt (Onaolapo, 2012).

Credit risk monitoring; this refers to the regulations in the banking systems which offer multi-credit products and services and it is important to have activities such as tracking of borrowers, identifying signs of irregularity and timely repayments (Ogboi and Unuafe, 2013).

Credit risk control; this entails how commercial banks offer credit based on approved decisions that are well examined, with policies in place to minimize on the negative effects for better lending practices in line with the global lending standards (Ahmed, 2015).

Credit risk; this is the probability that customers cannot pay their loans back to banks which leads to significant losses to the financial institutions and affects their cash balance negatively (Subrahmanyam, Tang & Wang, 2016).

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ABSTRACT

Credit risk poses substantial exposure both to the banks and the economy; a scenario evident in East Africa financial crises; this in part owing to the fact that the banking sector is vital in any economy. The decline of profitability within the banking industry and financial losses can be attributed to credit exposures that went awry. This underscores the significance of management of credit risk within the banking sector. While lending is profitable for the banks especially on account of the interest paid on the amount borrowed, it also has disadvantages which results from delays or default in loan repayments. This study was purposed to evaluate the credit risk on lending performance of commercial banks in Kenya. Descriptive survey research design was employed whilst the target population for this study was employees of the 42 commercial banks in Kenya as at 1st January, 2018. Purposive sampling was used to pick 42 credit managers and simple random sampling invoked to determine the other 301 respondents from the target population of 1260 employees. Both structured and unstructured questions were used to collect primary data. Thereafter, the data was analyzed using descriptive statistics including frequency distribution tables, measures of central tendency and standard deviations. In addition, advance statistical techniques including logistic regression analysis and Pearson correlation were used to establish relationships among variables and provide description of the data. The results were then presented in tabular representations supplemented by relevant explanations. The results of the study revealed that the combined effect of credit risks positively influenced the lending performance of banks. The study concluded that credit risk activities significantly influenced the lending performance of commercial banks; and as a result the operating capital of commercial banks had gone down to very low levels since lending is a source of income for the commercial banks and this has affected the performance of the entire banking sector. The study recommended that Government of Kenya through the National Treasury and in collaboration with Central Bank of Kenya and Kenya Bankers' Association should formulate policies that will help the commercial banks reduce the level of credit risks and improve the lending performance which was currently affected to a great extent.

CHAPTER ONE

INTRODUCTION

1.1 Background Information

Lending is the main function of commercial banks which is evidenced by the volume of loans that constitute banks' assets and the annual considerable raise of loan which is granted to borrowers both to private and public sectors of the economy. This makes lending to be the principal business for most commercial banks. Consequently, loan portfolio is the largest asset and source of revenue for banks (Lai, 2015). In view of the significant contribution of loans to the financial health of banks through interest income earnings, these assets are considered the most valuable assets of banks (Sujeewa, 2015).

In the past 10 years, from 2008 to 2018, there has been a dramatic loss in the banking industry with entities that had previously been performing well announcing hefty losses due to credit risk (Mukhtarov, Yuksel, & Mammadov, 2018). The exposures to credit risk in banking industry has turned the lending sour, interest rate positions adopted, or derivative exposures that may or may not have been assumed to cushion balance sheet risk (Olusanya, Oyebo & Ohadebere, 2012). To counter this, commercial banks have embarked upon improving their credit risk identification methods and risk control systems in order to cushion themselves from the risk of default by borrowers (Zhong, 2013).

In the United States of America, every banking institution aims to operate profitably, maintain its stability and improve in growth and expansion. In the last two decades however, the banking sector has faced various challenges including non-performing loans (NPL), political interference and fluctuations of interest rates which have threatened the banks' stability (Santomero, 2010). Shubhasis (2009) posits that banks are "risk

machines" that take risks, transform them and embed them in banking products and services making risk management important to bank management. He further defines rrisks as uncertainties occasioning adversative variations of profitability or resulting in losses with the risks so faced by commercial institutions including credit, market, interest rates, liquidity, and operational risks.

In Russia, the banks' credit policies outline how the credit risk monitoring should be conducted in order to minimize credit risk of debtors, measure the managers' position to optimally invest in its borrowers and be able to trade profitably with increased revenue (Van Horne, 2011). Pandley (2009) pointed out that credit policy defines a firms' performance and supports its financial positioning and performance and therefore making high financial performance positively related to a good credit policy decision.

In India, the financial sector has noted that the health of the lending system plays a fundamental role in the country because of the economic development disruption that can ensue resultant of its failure. Financial performance has been defined as a company's ability to generate new resources away from day-to-day operation over a stipulated period of time while financial performance measures can be classified either under traditional measures or market-based measures which together with the financial and banking crises experienced worldwide dduring the 1980's and 1990's led to the emergence ofnew risk management banking techniques (Boland, 2012).

In South Africa, risk management in bank lending has the connotations of the human activity integrating recognition of credit risk, credit risk measurements and development of strategies to manage the risk including its mitigation using managerial resources while credit risk underpins the risk of loss due to debtor's non-payment of a loan or other line of

credit (Campbell, 2007). Default rate is the possibility that a borrower will default, by failing to repay principal and interest in a timely manner.

In East African countries as is around the world credit is the primary source of revenue for commercial banks (Altunbas, 2009). The probability of default by borrowers has however increased the effect of which has been increasing concern for banks and most especially for unsecured bank loans. Credit risk continues to pose significant exposure both to the banks and economy. Banking is vital an industry of any economy especially developing countries and this reinforces the significance of managing credit risks within the banking sector. Since banks grant loans to customers with an expectation of receiving interest in addition to the capital, loan facilities are considered to be performing if payment of both are paid in line with agreed repayment terms (Harcourt, 2017).

Banks in Uganda are upgrading their credit risk control and projecting abilities to assess risk in stressed lending markets. Regulators have also been encouraging banks to closely monitor their credit risks with the Central Bank of Uganda for example enacting a number of regulations and Acts (Ciborra, 2012). The Uganda Banking Act for instance has provisions focused on maximum limitations on accommodation of credit enacted to help banks manage their credit risks better and diversify their risk. Krestlow (2013) in his study on the impact of credit risk management on capital adequacy and banks financial performance observed that banks, when they grant loans, expect borrowers to repay the principal and interest on the agreed date with NPLs representing credits perceived by the banks as likely to cause possible loss of funds due to defaults.

In Kenya, commercial banks are rebranding as a way of mitigating risk and to regain the lost credit market share which has been occasioned by credit risk issues (Gathigia, 2016). In his research study on the link between credit risk management and profitability in

commercial banks in Kenya, Haneef (2012) established that banks are struggling to survive by rebranding in terms of structures, products design and services delivery.

1.1.1 History of Banking in Kenya -Colonial Era (Origins 1896 - 1950)

The establishment of the Imperial British East Africa Company (IBEAC) incorporated in United Kingdom in 1888 sought to inherit the long-distance trade that linked the African interior to the African coast, and then the Indian sub-continent through the Indian Ocean with colonial rule formally taking effect with the declaration of the East African Protectorate in 1895 under the sovereignty of the Sultan of Zanzibar (Engberg, 1965).

Commercial banking in Kenya draws root from these commercial connections between British East Africa and British India at the close of the 19th century. The National Bank of India established in 1896, later to be known as National and Grindlays Bank and the Standard Bank of South Africa established in 1910 later Standard Bank were the first British banks to be established. The National Bank of South Africa established in 1916 was later merged with Colonial Bank and Anglo-Egyptian Bank to form Barclays Bank (Dominion, Colonial and Overseas) in 1926 which was also based in London (CBK, 2007).

It is important note is that while commercial banking became relatively well established in Kenya during this period, the banks exhibited negligible interest in the native African population. As branches of metropolitan banks, their focus was settling accounts of the colonial economy with little interest in promoting savings amongst Africans or credit lending because they (natives) lacked the ability to repay and this would lead to risk of bank losing the money (CBK, 1999). This laxity by the banks extended even to their main customer base comprising the white settler community dominated by farmers. However, those that were considered less risky to obtain credit

received credit at interest rates of eight to ten per cent considering the default risk of famers. The post First World War crisis necessitated the operation of their traditional policy of shut down on credit citing the risk of issuing credit at that particular time and this they did when credit was most required by the farmers remaining prosperous amidst the rampant mortgaging of European and the halving of wages of Africans.

The commercial banks were offering a good deal of loans for property to European farmers. Amusingly, the credit restrictions due to risk by the banks heaped pressure on the government to relieve the indebted white farmers through lobbying for reduction of interest rates and establishment of lands bank from 1931 as alternative credit sources with lower interest rates (Aaronovitch & Aaronovitch, 1947). Even so, the private banks still benefited more than farmers with 39% of the funds from the Land Bank channeled toward discharge of existing mortgages with the private banks and thereby decreasing the total availability of credit (Aisen and Franken, 2010). Furthermore, much as the land bank's mandate included providing credit to native farms, the communal land tenure system under which most of the African land was held made it impossible to lend to native farms with only one African farmer having benefited from the land bank by 1945 due to nature of credit risk portrayed by African borrowers to the commercial banks (Aaronovitch & Aaronovitch, 1947).

1.1.2 Pre-Independence Growth of Banking in Kenya – (1950 – 1963)

From 1950's other banks began to be established with willingness to offer credit despite the credit risk that dominated the banking environment. These were mainly single branch banks, headquartered in Nairobi and focused on lending (Central Bank of Kenya, 1976). During this time, lending performance was highly affected by credit risk because there was no central bank performing the function of lender of last recourse with the East African Currency Board (EACB) performing the limited function of maintaining some

parity between the East African shilling and the British Pound with no policies in place for credit risk management. The supply of credit was thus fully determined by the commercial banks and this increased credit risk due to lack of risk identification guidelines, risk control policies, risk monitoring policies and the measurement of risk guidelines while lending.

At the time, lending by commercial banks primarily consisted of resources and funds borrowed from their parent banks which moved freely from parent bank to the branches as there were no capital account restrictions or statutory liquidity or cash requirement ratios which further increased the risk of commercial bank having capital inadequacy that would lead to closure and collapse of the entire bank (CBK, 1976). The effort amongst the banks to compete for lending was minimal because interest rates which would otherwise be used to mitigate risk on loans were determined by cartel-type(collective) bank practices decided by the major banks, and ascribed to by the other banks (Engberg, 1965).

Banks were hesitant in applying credit standards set by their head offices as these standards were unrealistic since they exposed them to risk due to the nature of clients and borrowers especially in the extremely underdeveloped nations where they operated (Sebastian & Uremadu, 2009). This unwillingness to extend credit led to a situation in the 1950s where capital was exported from the underdeveloped periphery to the developed metropolitan (Maxon, 1992). The safety of the loans held by the branches of the main banks were majorly linked to the capital and reserves of the parent banks overseas and did not depend on the quality of assets of these banks in East Africa and therefore when large borrowings took place in 1955, 1960 and 1963, the banks were exposed to credit risk

relying on inter-bank borrowing facilities of their London head office to avoid closure (Abdi, 1977).

Table 1: Banks Operating in Kenya in 1963

Nationality (Place of Incorporation)	Date of Incorporation	Number of Offices in East Africa
Britain	1896	70
Britain	1910	65
Britain	1916	119
Netherlands	1951	4
India	1953	5
Pakistan	1956	1
Turkey	1958	8
Tanzania	1958	3

Source: Engberg (1965) and CBK (1986)

At independence, the banks established in Kenya continued dominating the banking sector controlling nearly 85% of the total branch network (Yannis & Aristotelis, 2013). All banks were foreign-owned. Furthermore, all non-bank financial institutions save for Diamond Jubilee Investment Trust whose ownership can be termed as local were British-owned. After independence, the foreign ownership of these banks increased risk and lending ceased immediately forcing the financial institutions to focus on trade finance.

1.1.3 Creation of Government Owned Commercial Banks Harambee (1963 – 1980)

The post-independence development of banks took off upon the establishment of the Central Bank of Kenya (CBK) in 1966 following the dissolution of the EACB. This was with an aim of developing policies that would minimize the risk of commercial banks when carrying on their business. This also paved way for Kenya's first national currency

the Kenya Shilling (KShs.) introduced on 14th September 1966 at the rate of KShs. 20 to the pound (Central Bank of Kenya, 1976). At independence, the dominant understanding was that development entailed massive resource mobilization with banks seen as key instruments in creating wealth.

In Kenya, there was no wholesale nationalization of banks as was the case in most African countries strategically engineered by Kenyan leaders at independence to accommodate colonial interests and avert wholesale migration of foreign capital with the then president, Jomo Kenyatta assuring the white settler community that the Government of independent Kenya would not be a gangster Government to deprive them of their property rights of ownership (Leys, 1975).

As a consequence, foreign owned banks, including Barclays D.C.O. and Standard Bank, continued to operate in Kenya with the National & Grindlays Bank being bought out by the Government of Kenya (GoK) to become the Kenya Commercial Bank (KCB) (Central Bank of Kenya, 1986). In 1974, two American banks; the First National Bank of Chicago and the First National City Bank of New York were also established –(Nasibi, 1992). In the 1960s, Kenya experienced impressive economic growth mainly driven largely by commercialization of African smallholder agriculture.

In the first 10 years of independence, GDP grew at an annual rate of 7.1% (Hazlewood, 1979) with the GDP ratio increasing by 11% between1963 and 1970 (Central Bank of Kenya, 1986). Nevertheless, the government was dissatisfied with the pace of adjustment and particularly the low loans to deposit ratio of 64.6% in 1969 (Republic of Kenya, 1969). The argument was that the borrowers were very risky and that the urgency of development was so great such that the need for specialized institutions for the collection of savings and investment could not be left to the process of slow evolution.

It became apparent that economic development required massive resource mobilization some of which resources could be raised through banks. Further, the political reality-the need for visible ownership in the Kenyan economy by African Kenyans needed to be addressed therefore necessitating the government's stated policy of Africanization also pursued through the financial system (Republic of Kenya, 1968). In 1968, the Cooperative Bank and National Bank of Kenya were also established by the government. Specialized credit institutions or Development Finance Institutions (DFIs) including the Agricultural Finance Corporation (AFC), the Development Finance Corporation of Kenya (DFCK), the Industrial Development Bank (IDB), and the Industrial & Commercial Development Corporation (ICDC) were set up to give loans to Kenyans who could not access the others banks due to risk and non-qualification based on the requirements and also purchase shares in public corporations (Grosh, 1991).

Between 1971 and 1980, there was also growth of indigenous financial institutions or banks as one local private bank and nine local Non-Bank Financial Intermediaries (NBFIs) were established (Kariuki, 1993). These institutions were predominantly owned by African (Kikuyu) businessmen who had built up capital during the Coffee Boom of 1976 – 1979 and also had close links to President Kenyatta who was also from the Kikuyu ethnic group (Throup, 1987). Save for stipulation of lending and deposit interest rates, these commercial banks and NBFIs were chiefly free from regulatory controls (Brownbridge, 1998). There was also a condition that banks should extend 17% of their deposits as credit to agriculture but a requirement seldom enforced (Kariuki, 1993).

1.1.4 Nyayo Era – The Upsurge of Indigenous and Political Banks – (1980 –2000)

Upon his death in 1978, President Kenyatta was succeeded by President Moi who hailed from the Kalenjin community whose watchword for this Presidency was '*Nyayo*', or footsteps; that somehow emphasized continuity of the economic policies of the Harambee era by remaining committed to a capitalist economy focused on attracting foreign investment and maintaining of Africanization policies (Maxon & Ndege, 1995). The 1980s witnessed the growth of NBFIs which increased from 20 in 1980 to 53 in 1990 with banks increasing by 17% from 17 to 20 majority of which were owned by local entrepreneurs (Kariuki, 1993). These local banks fulfilled the vital function of catering for small and medium sized enterprises, often from their own communities, which were not served by the foreign-owned and the government-owned banks (Nasibi, 1992).

Political and regulatory factors also facilitated the proliferation of local banks and NBFIs as barriers such as minimum capital requirements and reserve ratios were very low compared to banks (Brownbridge, 1998). In particular, the minimum capital requirements for NBFIs were extremely low albeit the fact that they took deposits. Soon, the regulatory 'arbitrage' between banks and NBFIs enticed the other banks to NBFIs as subsidiaries in order to take advantage of this regulatory loophole. Political interference also subverted prudential criteria in the licensing arena as Section 53 of the Banking Act empowered the Finance Minister to grant exemptions under the Act (Brownbridge, 1998).

Prominent politicians were board members in many banks and would use their networks to cheaply obtain public sector deposits (Ndii, 1994). The CBK had limited capacity at the time to supervise the growth of financial institutions (World Bank, 1989). These factors, as will be evident below, sowed the seeds of weakness in the banking system from the inception of these NBFIs. Moreover, due to internal and external economic

factors during the first decade of the *Nyayo* era, the country experienced severe reduction in GDP growth and macroeconomic disproportions, including declining terms of trade and budget deficits, forcing recourse to structural adjustment policies recommended by the IMF and the World Bank (Ngugi, 2000).

The McKinnon-Shaw context repression underscored the banking system as interest rates were low and negative in real terms up to the early 1980s (Mwega, Ngola, & Mwangi, 1990). A 'low interest rate policy', it was acknowledged, had been the official policy in Kenya since independence to encourage investment and to protect the small borrower (Central Bank of Kenya, 1986) with the main structural adjustment policy being a gradual increase in interest rates and real lending rates of banks from 2.5% in 1980 to 9% in 1990 (Brownbridge, 1998).

The hasty rise of financial institutions between 1984 and 1989, coupled with poor regulation, ever-changing political economy trends and declining economic growth resulted in the failure of twelve banks. In December 1989, nine of these banks were taken over by the government and amalgamated into the Consolidated Bank (Ngugi, 2000). Through an amendment of the Banking and the Central Bank of Kenya Acts in 1989, stricter guidelines for licensing of institutions and establishing single borrower limits were introduced (Nasibi, 1992). The Deposit Protection Fund Board was also established to compensate small depositors in case of risk on bank failures. The Board also assumed responsibility for liquidating failed banks (Nasibi, 1992). Ngugi (2000) noted that in spite of the increase in the number of financial institutions to 94 in 1990, the GDP ratio and loans to deposit ratio of banks remained constant throughout the 1980s at about 30% and 80% respectively. Furthermore, the total financial institutions assets to GDP ratio rose only marginally by 1.6% between 1982 and 1989 (Ngugi, 2000).

1.1.5 Kenya Banking Sector in 21st Century from year 2001

By June 30, 2015, the Kenyan banking sector comprised 43 commercial banks, one mortgage finance company, 6 deposit taking microfinance institutions, 2 credit reference bureaus, 3 representative offices and 124 foreign exchange bureaus (CBK, 2015). The sector has undergone remarkable changes in the last two decades (1990-2010). Misati, Njoroge, Kamau & Ouma (2010) found that financial products have increased while activities and organizational forms have also improved and the risk elements of the commercial banks has increased (Central Bank of Kenya, 2010).

The branch network of commercial banks has grown from 530 in 1999 to 1,102 branches by end of June 2011, number of deposit accounts also increasing from approximately 1 million with 16,673 staff to 12.8million with 28,846 staff over the same period while ATMs increased from 262 to 2,021, (CBK, 2011) with the banking sector productivity score continuing to improve where the staff to customers' ratio was 1:444 in June 2011 compared to 1:60 in1999. Total assets increased from Ksh. 387,371 million in December 1999 to Ksh. 1.9 trillion in June 2011 while customer deposits increased from Ksh. 235 billion to Ksh. 1.4 trillion in June 2011 (CBK, 2011)

Through direct instruments of monetary policies such as interest rate controls, exchange rate controls and allocation of credit to priority sectors, the government has played a key role in facilitating commercial bank credit allocation to investors (Misati et al., 2010). Today, the banking industry in Kenya is governed by among others the Companies Act, 2015, the Banking Act, the Central Bank of Kenya Act and other guidelines issued by the Central Bank of Kenya (CBK) centered towards putting measures and control that will reduce the risk of commercial banks when fulfilling their obligations (Misati et al., 2010).

1.2 Statement of the Problem

While lending is profitable an activity for banks since interest is paid on the money borrowed, it also has challenges which arise as a result of delay or default in loan repayments. For a bank to be successful and profitable, there must be sound credit risk measures in place which will reduce borrowers' default. Every commercial bank has put in place very good credit risk identification, credit risk measurement, credit risk monitoring and credit risk control system which should ensure that the borrower will be able to pay back the credit borrowed and so on time. To strengthen these measures, the Central bank introduced credit information sharing platform which has, through reduced risk, enabled banks extend more credit to productive sectors thus creating employment and boosting wealth. Through the credit reference bureau, information sharing was meant to support monitoring of all potential borrowers in order to reduce credit risk and the develop information capital as a new collateral technology and to reduce the costs associated with information searches and hence reduce the risks in lending by commercial banks (Gathigia, 2016).

In Kenya however, credit risk constitute more than 50% of total risk elements in commercial banks. This has necessitated risk management strategies for efficient lending performance which has progressively become the most crucial undertaking in commercial banks. There have been steady series of failures and scandals in the banking services which have served as a catalyst for anxiety about credit risk and this has affected the lending performance (Moti, Masinde & Galo, 2012).

In the year 2016, the commercial banks in Kenya experienced credit risks challenges where 3 commercial banks were put under statutory receivership. This has led to a lot of loss to the depositors and the shareholders have been left to lose their investment. Due to this the CBK has introduced a new directive on the treatment of non-performing credits

which has increased pressure and has affected the banks' lending performance. The introduction of interest capping has worsened the credit risk situation which has exposed commercial banks to more credit risks. This has affected the lending performance of commercial banks in the country by hindering access to credit by large number of borrowers from the Small Medium Enterprises and private sectors resulting to slow growth of the country's economy (CBK, 2016).

Previous studies on risk management such as Mumbi (2017) on the impact of credit risk on financial performance of commercial banks in Kenya, and Kithinji (2010) on credit risk management on profitability of commercial banks in Kenya. Mwaura (2010) also conducted a study on determinants of credit risk in commercial bank in Kenya but no previous study has been done on credit risk and lending performance and taking into consideration that lending is the core business of every commercial bank, there is need to fill this gap that has been left out by other studies. Specifically, how the credit risk influences the lending performance of commercial banks in Kenya.

1.3 General Objective

The study purposed to evaluate the credit risk and lending performance of commercial banks in Kenya.

1.4 Specific Objectives

The study aimed to achieve the following specific objectives:

i. To establish the influence of risk identification on lending performance of commercial banks in Kenya.
ii. To examine the influence of risk measurement on lending performance of commercial banks in Kenya.
iii. To establish the influence of risk monitoring on lending performance of commercial banks in Kenya.

iv. To determine the influence of risk control on lending performance of commercial banks in Kenya.

1.5 Research Hypothesis

This study was guided by the following null hypothesis;

H_{01}: There is no significant relationship between risk identification and lending performance of commercial banks in Kenya.

H_{02}: There is no significant relationship between risk measurements and lending performance of commercial banks in Kenya.

H_{03}: There is no significant relationship between risk monitoring and lending performance of commercial banks in Kenya.

H_{04}: There is no significant relationship between risk control and lending performance of commercial banks in Kenya.

1.6 Justification of the Study

As the government of Kenya seeks to leverage on credit capping in order to grow the financial services sector and enhance financial access and inclusion, this study highlights the impact of such policies on banking performance. Affordability of credit is one of the key drivers of change for economic growth. Through the results of the study, the government of Kenya is able to appreciate the ways in which it can support the banking sector by either through tax breaks, waivers or other non-monetary incentives and through supportive policies. The study results on the link between credit risk and lending performance can also help commercial banks in evaluating the ways of managing credit risk on their loan products.

Other commercial banks in Africa can also tap into the findings of this study and understand how they can manage credit risks in order to improve on their respective lending performances. The study results are meant to inform them on which ways they

can reduce the credit risks which can help them have better link to lending performance and hence save on the costs that would otherwise be expended conducting cost benefit research in their institutions. To the scholars, the study is a value-added to the existing body of knowledge as it has recommended ways for improvement in credit risks and lending performance. Nevertheless, this study is also a stepping stone for subsequent research on credit risk management.

1.7 Scope of the Study

The study covered all the 42 commercial banks registered by Central Bank of Kenya focusing on branches within Nairobi County (Central Bank of Kenya, 2018). The focus was on the banks located in Nairobi because major banks have their busiest and main branches in Nairobi and most of their headquarters are in Nairobi. The credit risk parameters used in the study were how evaluation of borrowers is done, accurate borrower's data, repayment capacity of the borrower, measuring tools, level of credit exposure, approval criteria, tracking of borrowers, signs of irregularity, periodic valuation. The other parameters included the how to monitor repayment patterns, periodic valuation, timely repayments, reviews of loans and regular financial reports. The lending performance measures were growth in lending, decline of borrower's and rate of defaulting. Data collection was conducted in the year 2018.

1.8 Limitation of the Study

The study focused on commercial banks in Kenya and also evaluated only four variables on credit risk which affects lending performance of commercial banks whereas there could be credit risk parameters that affects lending. Also, the study was not able to carry out a census of all the bank employees but instead sampling was used. Due to the limitations of using samples, care was taken to ensure that the sampled respondents are representative of the population in order to arrive at reliable generalizations. The study

also considered only the credit risk, whereas, there could be other types of risks that affects lending in the banking industry. Those filling the study also feared that the findings of the study could be availed to their competitors; however, I assured them that the data was used for academic purposes only.

1.9 Summary of the Chapter

This first chapter of thesis introduced the background of the study which was credit risk and lending performance in commercial banks from global perspective, regionally and finally in Kenya. It further described the history of banking in Kenya and how credit risk affected lending during pre-colonial, colonial times and in 21st century. This was followed by the statement of the problem, research objectives, and research hypothesis, justification of the study, scope and limitations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter examines the concepts pertaining the relationship between credit risk and lending performance of commercial banks. Within it, various empirical studies are discussed. Thoughts and ideas from different sources were linked together to formulate a meaningful material. Theories about credit risk and lending performance were discussed in this chapter and finally, the summary of the literature review was drawn.

2.2 Theoretical Literature Review

A theory is a reasoned statement or group thereof supported by evidence and meant to explain phenomena. It is a systematic explanation of relationship among phenomena. They provide generalized explanation to an occurrence. A researcher should therefore be conversant with the theories applicable to their area of research (Kombo and Tromp, 2009). According to Tormo (2006), a theoretical framework guides research, determining what variables to measure, and what statistical relationships to look for in the context of the problems under study. The theoretical literature thus helps the researcher deduce the variables of the study; provides a framework for data analysis; and helps in the selection of applicable research design. Once reviewed, the theories inform the source of the variables of the study and the interactions between the dependent and independent variables. Issues on the different theories of credit risk management have also been critically reviewed.

2.2.1 Modern Portfolio Theory

This theory traces root in the work of Harry Markowitz (1927) through a sequence of articles published in the late 1950s. It was extended and refined by William Sharpe (1934), John Lintner (1983), James Tobin (1918), and others in the subsequent decades.

Portfolio theory incorporates the process of efficient portfolio formation to the pricing of individual assets by explaining that some sources of risk associated with individual assets can be eliminated, or diversified away, by holding a proper combination of assets (Bodie et al, 1999). Modern Portfolio Theory (MPT) is among several other significant and pivotal economics theories that are applied to finance as well as investments (Markowitz, 1990). Formulated by Harry Markowitz (1952), and subsequently published in the journal of finance titled 'Portfolio Selection'. Additionally, he advanced MPT in a book; 'Portfolio Selection: Efficient Diversification of Investments' that was published in 1959 (Brealey and Myers, 2003).

According to Bodie et al, (1999) the work begun by Harry Markowitz in the 1960s was carried on through the subsequent formulation of the capital market theory whose ultimate outcome was the capital asset pricing model (CAPM). Further, they assert that this resulted to a Markowitz efficient investor to approximate the mandatory rate of return for a single risky asset (Bodie et al, 1999). MPT asserts that, it is not sufficient to consider only one specific asset's risk and return under consideration but rather preferable to invest in diverse assets with low correlations with respect to each other. This will give the portfolio advantages of diversification. Hence, the relevant objective in the MPT concept is to choose the right combination of these assets to the optimal portfolios (Freeman, 2006).

The theory of modern portfolio management describes the resulting risk and return of a combination of individual assets with its primary objective being identification of asset combinations that are efficient where efficiency denotes the highest expected rate of return on an investment for a specific level of risk (Grinold, 1999). The theory's starting point requires an assumption that investors are risk averse and will not consider a

portfolio with more risk unless it is accompanied by a higher expected rate of return (Greg, 2009).

The theory assesses risk and return relationships for combinations of securities and in addition to expected return of a portfolio which comprises the simple weighted average of the expected returns of its component securities, portfolio risk must also consider the connection among the returns of individual securities as the price fluctuations each security held is unique thereby allowing the investor to diversify, or eliminate, a portion of each security's risk (Michaud, 1998). Additional analysis enables identification of the highest expected return for a given risk level within a subset of portfolios. Through a unique combination of risky securities for example, investors can achieve superior returns for a given risk level. Models such as the capital asset pricing model can use these results to surmise the risk-return relationship for individual securities which though imprecise at times, provide a useful way to evaluate and improve a variety of investment strategies (Thygerson, 1995).

Loans in banking constitute the largest and profitable assets. The theory can be used to expound on the need of commercial banks to form portfolios that traverse different industries and businesses (Greg, 2009). These portfolios can be formed including on the basis of industry, purpose and time period. In developing this theory, Markowitz initially intended to address the importance of investment portfolio for investors to spread risk when investing and not management of loan portfolio in banks. How banks can form a portfolio of loans that minimizes risk and maximizes return It does or ways of determining a risk free portfolio or the various risks that are faced by banks when managing a loan portfolio constitute some of the issues not addressed by the theory

include;. Therefore the theory cannot apply holistically when managing credit risk in banks.

This theory was used by Margrabe (2007) and opined that the practice of applying modern portfolio theory to credit risk has lagged even though credit risk remains the chief risk facing most commercial banks, Kairu (2009) also used this theory and found that companies appreciate how credit concentrations can bring unfavourable impact to lending performances leading to several institutions being engaged in quantitative strategies to credit risk assessment or evaluation. Additionally, the industry is making notable advancement toward carving out tools that evaluate credit risk in a portfolio frame of reference. It has also been established that the industry is making use of credit derivatives to commit risk efficiently at the same time maintaining customer relations. Portfolio quality ratios as well as productivity measures have been espoused. The amalgamation of these developments has considerably expedited advancements in managing credit risk in a portfolio framework.

The conventional strategy employed by financial institutions to moderate credit risk entailed an asset-by-asset technique. It is however worthy to note that while different financial institutions have dissimilar approaches, principally this strategy entails periodic assessment of the quality of credit vulnerabilities, utility of credit risk ratings, and a summation of the results of this evaluation to verify a portfolio's anticipated losses. The basis of asset-by-asset strategy is a reliable credit audit and internal credit risk rating methodology (Epure and Lafuente, 2012); a system that allows management identify variations in individual credits, or portfolio trends in a timely manner and make necessary modifications to portfolio strategies or increase the supervision of credits timeously based on identified changes, credit identification, credit review, and credit risk rating. The asset-

by-asset approach, albeit critical a component to credit risk management, does not provide a complete view of portfolio credit risk, where the term risk refers to the possibility that actual losses exceed expected losses (Felix and Claudine, 2008).

Therefore in this study, the theory was intended t to bring greater insight into credit risk by attempting to address the ability of the asset-by-asset approach to measure unexpected credit risk by adequately pursuing a portfolio approach of loan products and improve commercial banks' lending in Kenya.

2.2.2 Arbitrage Pricing Theory (APT)

Ross's APT approach steered away from the CAPM's relationship between risk and return and focused on pricing by arbitrage to its fullest possible extent. As Stephen Ross noted, arbitrage-theoretic reasoning is in fact the underlying logic and methodology of virtually all of finance theory and not unique to his particular theory. This theory posits that an estimate of the benefits of diversification would require that practitioners calculate the covariance of returns between every pair of assets.

It was noted by Heffernan (2009) that equity portfolios are diverse and large for separate component assessment, and the correlation existing between the elements would make a calculation as such untrue making it rarely successful to analyze portfolio risks by assessing the weighted sum of its components proposing that the portfolio's risk should be viewed as a single product's innate risk. The Arbitrage Pricing Theory represents portfolio risk by a factor model that is linear, and returns are a sum of risk factor returns which factors may range from macroeconomic to fundamental market indices weighted by sensitivities to changes in each factor.

This theory was used by Bikker and Van Leuvensteijn (2008) and noted that macroeconomic market components possibly economic constituents (for instance

inflation, interest rates, Gross Domestic Product (GDP)) financial constituents (exchange rates, market indices, yield curves,) principles (such as dividend yields and price/earnings ratios), or statistical (for instance principal component analysis, factor analysis). APT model determines asset pricing by employing the dissimilar constituents and presumes where market pricing differs from the price premised by the model, arbitrageurs will utilize the disparities and deviate pricing back to equilibrium standards. At its uncomplicated framework, the arbitrage pricing model can be made of one component only, the market portfolio component and this framework will give comparable results to those of the CAPM.

In this particular study, the theory is meant to assist the commercial banks appreciate that when lending, there is need to consider credit risk identification, risk measurement, risk monitoring and risk controlling as important element. This is because the theory stipulates that there is a linear association between forecasted returns on loan and risk-factors; an amount or volume of securities is close to incalculable; anticipations of shareholders are uniform; Stock markets are perfect (transactions costs do not exist and competition is perfect); and ultimately, arbitrage openings are non-existent in the market among well-expanded portfolios. This will assist the commercial banks study the risk involved in lending to every particular borrower and this will improve the lending performance.

2.2.3 Credit Scoring Models

A study by Hock (2007) on inherent risk in commercial banks established that credit and market risks, the regulatory challenge' and concluded that credit risk, is the customer's inability or unwillingness to serve their debts is the most important of all risks and constitutes a major source of loss not only on bank's profitability but also on the initial asset. Securities firms are faced with credit risk whenever they enter into a loan agreement, an OTC contract, or extend credit. The real risk from credit is the deviation of

portfolio performance from its expected value. Consequently, credit risk is diversifiable, but difficult to eliminate completely and since it depends on a number of borrower-specific factors and of systemic risk outlined above, it is not easily transferred, and accurate estimates of loss are difficult to obtain.

The study of Iqbal and Mirakhor (2007) on why firms purchase properties insurance found that credit risk declines in the credit standing of an obligor of the issuer of a bond or stock yet such possibility does not mean default but rather that the probability of default increases because an upward move is needed of the required market yield to compensate the higher risk which brings a value decline. The decision making process of accepting or rejecting a client's credit by banks is commonly executed through judgmental techniques or credit scoring models. Most of the banks that employ the judgmental approach base their decisions on 3c's, 4c's or 5C's which comprise character (reputation), capital (leverage), collateral, capacity (volatility of earnings) and condition. Credit scoring model on the other hand is a system creditors use to assign scores to credit applicants either as a good credit applicant; one likely to repay financial obligations or a bad credit applicant; one bearing a high probability of defaulting on financial obligation (Aunon-Nerin, & Ehling, 2008).

Das, Kapadia and Saita, (2007) conducted a study on common failings: how corporate defaults are correlated and found that credit Scoring was used for other purposes such as aiding decision in approving personal applications and could also be used in other organizations such as real estate, telecommunication, insurance and recreational clubs to predict late payments. Credit scoring was originally instituted in the 1940s and has over the years improved and advanced with its merits in the credit granting procedures prominent with the invention of credit cards and banks during the 1960s.

Beaver (1967) and Altman (1968), formulated univariate and multivariate models to forecast the collapse of businesses by employing a cluster of financial ratios. Beaver (1967) applied a dichotomous classification test to verify the error rates a promising creditor would encounter or undergo if they categorized firms guided by independent and or distinct financial ratios as underperforming or performing. He employed a matched sample comprising 158 firms (79 underperforming and 79 performing) and thereafter evaluated financial ratios.

Altman (1968) employed a multiple discriminant analysis strategy (MDA) to figure out the variance problem associated with the Beaver‘s univariate analysis and to evaluate a more comprehensive or integral financial profile of enterprises. His evaluation made use of a matched sample constituting 66 manufacturing firms (33 underperforming and 33 performing) that registered a bankruptcy petition throughout 1946-1965. Altman audited or reviewed 22 likely facilitative financial ratios and in his eventual analysis adopted five as providing in consolidation the optimum general forecasting of corporate bankruptcy. The variables were codified into five average ratios classifications, encompassing profitability, liquidity, solvency, leverage and activity ratios. During the 1980s, credit scoring was applied for additional functions for instance aiding decision in granting personal loan applications.

Geske (1977) enhances the initial single debt maturity acquisition to diverse debt maturities by employing compound option modeling. Merton (1974) premised that the default materializes entirely at the date of maturity; an alternative set of structural models is formulated by Black and Cox (1976) and generally described as first-passage-time model. In these set of models, default can precede the debt’s maturity date e, as long as the firm‘s asset value dwindles or declines to the pre-specified drawback (particularly

default trigger value). Accordingly, the model is not limited to enabling costing of debt with a limitless maturity, but, more significantly, permits for the default to materialize during the entire span of the quoted debt or entity. Prior works on credit risk modeling were focused on credit scoring and static assessment of default probabilities, (Altman and Saunders, 1998). This however does not apply in recent articles on credit risk as the subject matter or theme on the studies has currently reviewed or altered its focal point from individual status to the loan-portfolio status and from static model to the dynamic model.

Piramuthu (1997) analyzed the benefits of using both neuro fuzzy systems as well as neural networks for credit-risk evaluation decisions. David (2000) further probed the credit scoring accuracy of five neural network models: multilayer perceptron, radial basis function, mixture of experts, learning vector quantization, and fuzzy adaptive resonance. The neural network credit scoring models were tested using 10-fold cross validation with two real world data sets with the results benchmarked against more traditional methods including linear discriminant analysis, radial basis function, logistic regression and decision trees. The results revealed that the multilayer perceptron may not be the most accurate neural network model, and that both the mixture-of-experts and radial basis function neural network models should be considered for credit scoring applications. Logistic regression was found to be the most accurate of the traditional methods.

William et.al., (2000) authored a research paper which elucidates the internal rating methodologies currently employed at the 50 sizeable US banking institutions: since internal credit risk rating structures and techniques are becoming a progressively substantial component of large commercial banks' assessment and management of the credit risk of individual vulnerabilities in addition to portfolios. They employed the

assortment of prevalent practice to demystify or interpret the associations between applicability of ratings, diverse preferences or alternatives for rating structure design, and the efficacy of internal rating techniques. They established that expanding stresses on rating structures leads to an appreciation of such associations substantial for banks along with regulators.

Huang and Huang (2003) assessed the asset risk premium which was a stochastic process with a negative correlation and concluded that risk premiums of a security tend to move reversely against the returns of stock index in it. Credit scoring has also been employed for small business loans, home loans insurance applications along with their extensions (Koh, Tan et al., 2004; Thomas, 2000).

Hsieh (2005) proposed a model which demonstrates two real world credit data sets including the hybrid mining approach which is used to build effective credit scoring models. A credit scoring model accommodates an approximation of a borrower‘s credit risk, particularly the probability that the borrower will pay back the loan as per their commitment, guided by several of quantifiable borrower traits or attributes (Dinh &Kleimeier, 2007).

Lean et al., (2007) employed a multiphase neural network aggregate learning model to assess credit risk at the evaluation standard. They advanced six models comprised of six phases. The initial phase, a bagging sampling strategy was employed to generate dissimilar training data subsets exclusively for data inadequacy. In the second phase, the diverse neural network models are formulated with dissimilar training subsets drawn from the preceding stage. The third phase involves training the created or produced neural network models with manifold training datasets and consequently the ranking or codification score and reliability value of neural classifier can be realized. In the fourth

phase, a de-association maximization algorithm was employed to select the suitable aggregate members. In the fifth phase, the reliability values of the adopted neural network models (i.e., aggregate members) were scaled into a unit range making use of logistic conversion or adjustment. During the final phase, the selected neural network aggregate members are integrated to obtain final codification outcome by way of reliability evaluation or assessment. Frydman and Schuermann (2008) found out two types of databases applied in building and assessing credit risk model. They codified them as, CreditPro database, Standard and Poor (S and P) and Moody‘s KMV Credit Monitor database. These databases have extensive time series (S and P‘s developed or instituted from the year 1981 and Moody‘s as early as the 1990s) and substantial number of inspections or monitoring. Their inference was that the data applied was linked to North American approach to banking and the loan referred to was acquired by large companies.

Hand and Henley (1997) note that discriminant analysis and linear regression have historically been the commonly used techniques for building scorecards while logistic regression, probit analysis, nonparametric smoothing methods especially k-nearest neighbors, mathematical programming, Markov chain models, recursive partitioning, expert systems, genetic algorithms and neural networks are other possible techniques that can be employed. Artificial Neural Networks (ANNs) have been criticized for their black box’s approach and interpretative difficulties. Multivariate adaptive regression splines (MARS), classification and regression tree (CART), case based reasoning (BR), and support vector machine (SVM) constitute part of recent techniques developed for building credit scoring models.

Huang et al., (2004) investigated the performance of the SVM approach in credit rating prediction in comparison with back propagation neural networks (BNN) with, only slight

improvement of SVM over BNN observed. Lin (2009) used Bank Scope database to target 37 listed banks in Taiwan between 2002 and2004. Huang, Chen, and Wang (2007) reported that genetic programming and decision tree classifiers and the SVM classifier achieved identical classification accuracy with relatively few input variables when compared with neural networks.

The effectiveness of credit scoring using CART and MARS was demonstrated by Lee et al. (2010) whose findings revealed that, CART and MARS outperform traditional discriminant analysis, logistic regression, neural networks, and support vector machine (SVM) approaches in terms of credit scoring accuracy. The recent development of the data mining software has made credit scoring much easier for credit analysts. Credit scorecards, logistic regression and decision trees remain the popular techniques for banking and business enterprises despite development of novel techniques as they as it is relatively easy to identify the important input variables, interpret the results and deploy the models.

Evelyn et al., (2009) used standard stepwise model selection methods, and average models obtained by Bayesian model averaging (BMA) to evaluate the relative performance of logistic credit risk models with their bootstrap analysis showing that BMA should be considered as an alternative to stepwise model selection procedures. Xiaolin et al., (2009) used mixed logit model to predict credit risk of listed companies in China introducing factor analysis to the mixed logit equation thereby creating a factor analysis mixed logit model. In order to reduce the difficulty in dealing with the facts of correlation and multi dimension of the financial indexes of listed companies and to ensure that the data was not lost, fifteen factors were extracted from original financial indexes, and four main factors were selected to substitute the original financial indexes as

explanatory variables. Their results showed that the new approach is reliable, and general prediction accuracy is higher than 80%.

Amir et al., (2010) constructed nonlinear nonparametric forecasting models of consumer credit risk by using machine-learning techniques where by combining customer transactions and credit bureau data from January 2005 to April 2009 for a sample of a major commercial bank's customers, they were able to construct out-of-sample forecasts that significantly improve the classification rates of credit-card-holder delinquencies and defaults, with linear regression R^2 of forecasted/realized delinquencies of 85%. Using conservative assumptions for the costs and benefits of cutting credit lines based on machine-learning forecasts, they estimated the cost savings to range from 6% to 25% of total losses. Moreover, the time-series patterns of estimated delinquency rates from this model over the course of the recent financial crisis suggest that aggregated consumer-credit risk analytics may have important applications in forecasting systemic risk.

Ming et al., (2010) proposed a model of discrimination for non-performing loans recovery based on support vector machines (SVM) and wavelet transform integrated according to the complexity of financial system, in order to improve the accuracy and reliability of risk assessment. They did this by first performing model input optimization using the wavelet transform, and then selected the radial basis function (RBF) as the kernel function of wavelet-SVM after which they compared with the original SVM, and the experimental results showed that the method is a feasible and effective recognition method with higher generalization performance.

To evaluate classification algorithms for financial risk prediction, Yi et al., (2010) developed a two-step approach where a performance score to measure the performance of classification algorithms was constructed and introduces three multiple criteria decision

making (MCDM) methods to provide a final ranking of classifiers. Using an empirical study designed to assess various classification algorithms over seven real-life credit risk and fraud risk datasets from six countries they were able to show, through their findings that linear logistic, Bayesian Network, and ensemble methods are ranked as the top-three classifiers. They further discussed the construction of a knowledge-rich financial risk management process to increase the usefulness of classification results in financial risk detection.

Bee et al., (2011) used data mining to identify a model to improve assessment of credit worthiness using credit scoring models for a recreational club which had been experiencing rising numbers of defaulters in their subscription payments. Due to privacy concerns and unavailability of real financial data from banks they used data of payment history of members. Comparing the classification performance of credit scorecard model, logistic regression model and decision tree model, the error rates were 27.9%, 28.8% and 28.1%, respectively supporting the conclusion that although no model outperforms the other, scorecards are relatively much easier to deploy in practical applications.

Wang and Macwe (2011) also proposed an integrated approach, RS-Boosting, based on two popular strategies, boosting and random subspace, for corporate credit risk prediction leveraging on two different factors encouraging diversity to get better performance therefore selecting two corporate credit datasets to demonstrate the effectiveness and feasibility of the proposed method. In using the RS-Boosting method, experimental results show that the best performance is witnessed among the methods; logistic regression analysis (LRA), decision tree (DT), artificial neural network (ANN), bagging, boosting and random subspace. They also concluded that RS-Boosting can be used as an alternative method for corporate credit risk prediction.

Ping and Yongheng (2011) developed a model focused on applicants' input features by constructing a hybrid SVM-based credit scoring model to evaluate the applicant's credit score by using neighborhood rough set to select input features, grid search to optimize RBF kernel parameters, the hybrid optimal input features and model parameters to solve the credit scoring problem with 10-fold cross validation and comparing the accuracy of the proposed method with other methods. Their results demonstrate that the neighborhood rough set and SVM based hybrid classifier has the best credit scoring capability compared with other hybrid classifiers and also outperforms linear discriminant analysis, logistic regression and neural networks.

Mileris (2011), focused on a credit rating model development related to credit ratings for Lithuanian companies describing the steps of model's development and improvement processes. He explained that model's development begins with the selection of initial variables (financial ratios) and characterizing default and non-default companies. Financial ratios of twenty banks for 5 years were calculated according to annual financial reports. Thereafter, a discriminant analysis, logistic regression and artificial neural networks (multilayer perceptron) were applied and the conclusion was that the model is valid a tool for the estimation of credit risk.

Jian et al,.(2011) used the Decision tree (DT) and proposed two dual strategy ensemble trees: RS-Bagging DT and Bagging-RS DT, which are based on two ensemble strategies: bagging and random subspace, to reduce the influences of the noise data and the redundant attributes of data and to get the relatively higher classification accuracy. Two real world credit datasets were then selected to demonstrate the effectiveness and feasibility of proposed methods with results revealing that single DT gets the lowest

average accuracy among five single classifiers, i.e., Logistic Regression Analysis (LRA), Linear Discriminant Analysis (LDA), Multi-layer Perceptron (MLP) and Radial Basis Function Network (RBFN). They further established that RS-Bagging DT and Bagging-RS DT posted the better results than five single classifiers and four popular ensemble classifiers, i.e., Bagging DT, Random Subspace DT, Random Forest and Rotation Forest concluding that RS-Bagging DT and Bagging-RS DT can be used as alternative techniques for credit scoring.

Chuang and Huang (2011) in a research proposal suggested a hybrid system which combines fuzzy clustering and MARS noting that both models are suitable for the bankruptcy prediction problem, due to their theoretical advantages when the information used for the forecasting is drawn from company financial statements. They tested the accuracy of their approach in a real setting consisting of a database made up of 59,336 non-bankrupt Spanish companies and 138 distressed firms which went bankrupt in 2007 using discriminant analysis, MARS and a feed-forward neural network as benchmarking techniques.

Using Logistic Regression, Meng- lung et al, and (1999) took samples of about 300 normal card users and 300 abnormal card users from one local credit card center and concluded that the hybrid model outperforms the other systems, both in terms of the percentage of correct classifications and in terms of the profit generated by the lending decisions. The key considerations during the study were: gender, education degree, type of job, number of years in the company, number of cards owned during application for a new card, and whether of the applicant is one of the clients asking for house loans in the bank.

Mei-hui Lu (2000) with the use of Logistic Regression found that some vital elements including. marital status, academic degree, financial history, the length of the loan, the relationship between a debtor and a guarantor, and the comparative relationship between mail address of the debtor and the location of his collateral stood out if the factor of debtor's corresponding areas is not taken into account. Besides, one can use the final mode to get a probability of turning into a bad debt. This last measure can be used as another criterion of examination.

On issuance of credit cards, Rock (1984) observed that organizations focused more on the relationship between other creditors, the ratio of debt to income, income, vocation, ownership of the house, period working in the same company, and whether the debtor has a check account or deposit account while Updegrave (1987) held the view that the organizations issuing credit cards valued eight variables including income, age employment, , the number of creditors and the period worked in the same company, whether he has a check account or deposit account, having been declared bankrupt before, and the record of past payment by credit cards.

Steenacker and Goovaerts (1989) employed logistic regression and concluded that the variables influencing credit loans are: age, owning a telephone, period lived in the current residence, how long he has worked in the company, the standard of the debtor's living area, job, employer; if the debtor is a civil servant, monthly income, ownership of the house, the number of past loans, and the length of loans.

Ang et al., (1979) investigated the profiles of late-paying consumer loan borrowers based on variables including gross amount of loan, age, sex, marital status, number of dependants, years lived at residence, monthly take home pay, monthly take home pay of spouse, own or rent residence, other monthly income, total monthly payments on all

debts, type of bank accounts, number of credit references listed, years on job, total family monthly income per month, debt to income ratio, total number of payments on the loan, and annual percentage interest on the loan. Koh et al., (2004) used age, annual income, gender, marital status, number of children, number of other credit cards held and whether the applicant has an outstanding mortgage loan to construct a credit scoring model to predict credit risk of credit card applicants as bad loss, bad profit and good risk.

Abdou et al., (2008) used twenty variables some of which were loan amount, loan duration, sex, marital status, age, monthly salary, additional income, house owned or rent, and education level for building credit scoring models to evaluate credit risk (paid or default) for personal loan whereas Gschwind (2007) concluded that mining basic tenant data, accounts receivable data, and government-published data can generate predictions of late payments of rental. Mavri et al, (2008) used variables such as gender, age, education, marital status and monthly income to estimate the risk level of credit card applicants. Vojtek and Kocenda (2006) provided a table of indicators that are typically important in retail credit scoring models. They classify the indicators as demographic, financial, employment and behavioural indicators.

2.2.4 Philosophical and Operational Approach of Credit Risk

According to Angelopoulos and Mourdoukoutas et.al, (2001) risk management can either be approached philosophically or operationally. The philosophical approach deals with the e-risk-return profile, focusing on the relationship that exists between risk and payoff while the operational approach involves the identification and classification of banking risks, methods and procedures to measure, monitor, and control them. Once you know how much risk you are available to take, there is the corresponding method and process to manage and counteract it.

Frank (2009) in assessing what factors are reliably important on capital structure decisions notes that, the magnitude of risk the risk-takers are prepared to take are mainly divided into three categories: risk lovers, risk-neutrals and risk-averse. The e risk-return profile characterizes the transactions and portfolios underpinning the entire system and processes. All risk models and measures converge to provide these profiles at the transaction, the business lines and the global portfolio levels. As a consequence, the diversity in decision-maker's attitudes toward risks creates diverse strategies toward risk-management influenced by factors including the financial situation, time horizon and even the nature of its organization.

The philosophical approach supports, the direct relationship that exists between risks and rewards and creates diverse options for decision makers toward risks whilst the operational approach to risk management is referred to the identification of key risks, to the obtaining of consistent, understandable, operational risk measures, to the choice of which risks to reduce and which to increase and by what means and to the establishment of procedures to monitor the resulting risk position (Frank, 2009).

Janina and Gregor (2015) in their study on consolidation and systemic risk found that in the evolving organizational structure, top-management were no longer engaged in the day-to-day management of the business units but were dependent upon formal reporting mechanisms for operating information to identify and aggregate risks across multiple independent lines of business (Kimball 1997). Both approaches are connected and are indispensable for an effective risk management strategy. Not independent from one another means that the attitudes toward risk define and shape up the guidelines for risk measurement, monitoring and control.

2.2.5 The Model of Risk Management Process

The risk management concept involves the combination of some basic steps which evolve with the gradual emergence of new risk measures while the model of risk management process embraces all the factors that are needed for an effective and successful risk management approach.

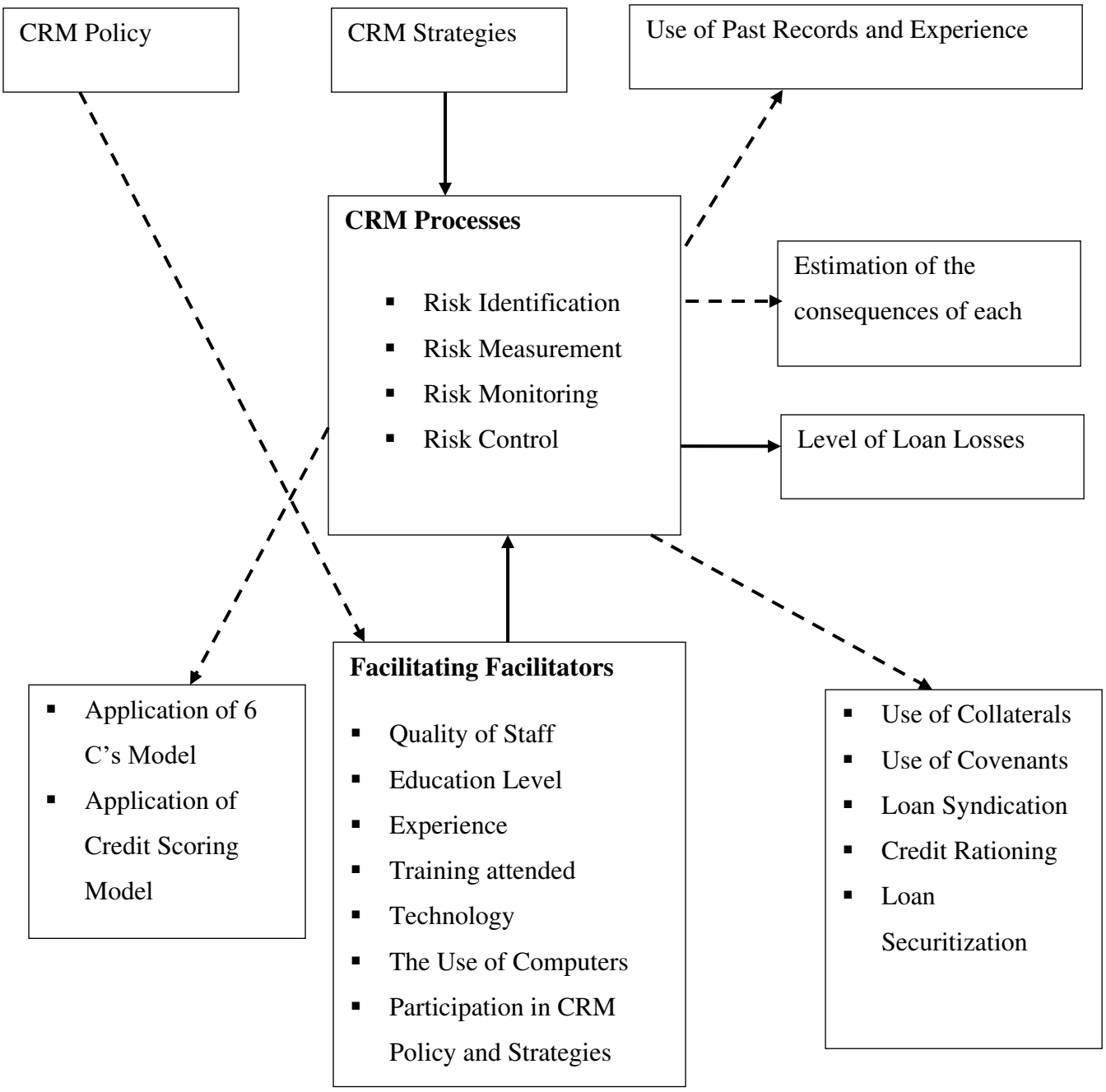


Figure 2.1: Research Model for the CRM System of Commercial Bank

Source: Berger and Udell (2002)

Figure 2.1 illustrates a succinct of the CRM system as elucidated in the literature. As stated by Basel (2004), the handling of Credit Risk (CR) in banking industry is guided by the procedures of identifying the risk, evaluation, analysis, monitoring and regulation. It entails identification of possible risk elements, approximation of their repercussions or outcomes, observing activities exposed to the determined risk elements and putting in place delimiting procedures to forestall or reduce the unfavourable effects. This practice is employed as an integral part of the strategic and functional system tools such as collateral, covenants, loan securitization, credit rationing and loan syndication which have been employed by banks in advancing the world in delimiting credit losses (Hugh, 2001). Marphatia and Tiwari (2004) assert that handling risk is principally about individuals – their thought process as well as how they interrelate with each other.

Technology is simply a medium; in the inapt or improper hands it is unproductive or ineffective. This additionally accentuates the critical significance of competent staff in handling credit risk. It is substantiated in the financial economics literature that the CRM system of commercial banks encompasses credit policy and techniques that provide comprehensive and elaborate functional procedures. It also includes the enabling elements for instance quality of personnel along with technology. Various risk-adjusted performance strategies have been advanced (Heffernan, 2009; Kealhofer, 2003). The procedures, nonetheless, are centered on risk-return trade-off, which include evaluating the risk existent in individual activities or product and subsequently charge it for the requisite capital needed to sustain it. This does not work out or decipher the problems associated with recovering loanable aggregate. Effective CRM entails instituting or setting up a felicitous CR environment; functioning within a reliable credit granting procedure; retaining a suitable credit administration that entails monitoring strategies as well as sufficient controls over CR (Basel, 2004; Greuning and Bratanovic, 2003; IAIS,

2003). It demands that top-level management to guarantee that there are apposite and comprehensible recommendations in handling CR, in particular, all proposals are suitably communicated in all departments within the organization; and that everyone involved in CRM appreciate them.

Determinants that form the groundwork for a reliable CRM system comprise: policy and strategies that comprehensibly outline the domain or extent and appropriation of a bank credit facilities and the approach with which a credit portfolio is handled, specifically, how loans are actualized, evaluated, regulated and collected (Basel, 2004; Greuning and Bratanovic, 2003; Price Waterhouse, 2001). Vetting or scrutinizing borrowers is an exercise that has widely been advocated by, among others (Derban, Binner and Mullineux, 2005). The proposal has been extensively employed in the banking industry within the structure of credit evaluation. The scrutinizing of borrowers can be conducted by employing qualitative along with quantitative approaches. A distinct consequential drawback of employing qualitative models is their prejudicial nature (Bryant, 2001; Chijoriga, 2000).

Nevertheless, borrowers' attributes evaluated or analyzed making use of qualitative models can be allocated numbers with the sum of the values contrasted to a margin. This approach is referred to as "credit scoring" (Heffernan, 2009; Uyemura and Deventer, 2000). The approach or strategy assists in reducing processing costs and prejudicial judgments as well as potential preconceptions (Kraft, 2000; Bluhm, Overbeck and Wagner, 2003; Derban et al., 2005). The rating frameworks if consequential should communicate variations in anticipated volumes of loan loss (Santomero, 2010). Chijoriga (2000) found that quantitative models make it feasible to, including other several, numerically determine which elements are substantial in elucidating risk of default, assess

the considerable degree of significance of the elements and enhance the pricing of default risk, be in a better position to vet out unreliable loan applicants and improve capacity to compute any reserve demanded to satisfy anticipated impending loan losses. Conceivably instituted procedures for granting new credits and extending the present credits has been discovered to be very consequential while handling credit risk (Heffernan, 2009). Further, screening of borrowers has become critical as ongoing and possible vulnerabilities variation with both the passage of time and the trends in the essential variables (Donaldson, 2000; Mwisho, 2001), and are also very consequential in addressing ethical hazard drawbacks (Derban et. al., 2005).

Scanning entails, in addition to others, continual correspondence with borrowers, developing an environment where the bank can be perceived as a solution to challenges and trusted consultant; cultivate the culture of being helpful to borrowers whenever they are perceived to be in predicaments and are struggling to address the circumstance; supervising the course of borrower's enterprise by way of the bank's account; frequent audit of the borrower's statement or account as well as a field visit; revising borrowers credit files along with constantly reassessing the borrowers rating allocated within the period which the credit was granted (Treacy and Carey, 2004).

Mediums such as collateral, credit rationing, covenants, loan syndication as well as loan securitization have been employed by banks in advancing the world in regulating credit losses (Berger and Udell, 2002). Additionally, it has been established that highly qualified CRM personnel are pivotal or crucial to guarantee that the depth of knowledge and appraisal required is always accessible, hence successfully handling the CR in the Commercial Banks (Koford & Tschoegl: 2001, Wyman, 2002).

Duffie and Wang (2007) while using stochastic covariates to analyze multi-period corporate default prediction found that without risk models, the approaches of identifying risks and the strategies for handling them so as to intensify the risk-return profile along with the formulation of unaccustomed organizational procedures for better executing of these advances would remain limited. They noted that estimation of risk helps in ensuring models have a more balanced view of income and risks and enable better control of the adverse expecting consequences before they materialize into losses further observing that connecting the activities with the risk makes risk management tools, models and processes more effective paving way for development on new risk management levels by feeding risk processes with adequate risk-return measures.

2.2.6 Asymmetric Information on Credit Risk

Effective lending system ensures that repayment of loans by borrowers is constant by addressing asymmetric information drawbacks and in diminishing the volume of loan losses, hence the long-term prosperity of every banking organization (Basel, 2004; IAIS, 2003). Loans that make up a relative amount of the assets in the majority of banks' portfolios are moderately illiquid and demonstrate the highest CR (Koch & MacDonald, 2000). The theory of asymmetric information asserts that it may be inconceivable to determine beneficial borrowers from bad borrowers (Auronen, 2003), which may lead to unfavourable choosing and ethical risks drawbacks. Adverse choosing and ethical peril have led to consequential escalation of non-performing accounts in banking institutions (Bester, 2001; Bofondi & Gobbi, 2003). The very existence of banking institution is repeatedly interpreted with regard to its superior capacity to weather three fundamental challenges of information asymmetry, specifically; *ex ante*, interim and *ex post* (Uyemura & Deventer, 2000).

A particular component that widely alters the risk-likelihood of credit in a bank is information asymmetry or the asymmetric information. It is referred to as the condition in which the one segment of a transaction is not privy to similar or even has greater degree or superior information than the other and this may be a contributor to transaction failure. Adverse choosing in the banking industry is defined as a circumstance where persons in a selection procedure have hidden economically unacceptable attributes and the ultimate selection causes default and ethical hazard elucidates the circumstance where a specific party to a contract assumes a covert action that favours them albeit harming the other party Uyemura & Deventer, 2000).

Drehman and Juselius (2014) conducted a study on assessing early warning indicators of banking crises and found that work out asymmetric information challenges in banking constitute a mode of handling credit risk. The most common strategies include auditing, specialization (knowledge of specific credit markets and distinct promising borrowers), auditing the activities of the borrower, executing the commitments in the loan agreement, embracing protracted relationships, compensating and balances collaterals (for instance mortgages in which home is collateral) and ultimately credit or loan rationing (turndown or denial of lending to borrowers albeit they are inclined to borrow).

Harrington (2009) found that carrying on with credit risk management mechanisms, credit scoring and risk-adjusted return on capital (RAROC) aids in determining whether a facility should be approved, turned down or demands more consideration. Credit scoring is a preferred, and is a technical approach of allocating a score that categorizes promising borrowers into risk type or category guided by their economic, or other, attributes and RAROC is a strategy or approach that is employed universally as a management performance tool to calculate the economic profit generated predominantly from a loan.

RAROC is equated with a benchmark rate as a way of arriving at the ultimate decision. In addition to Credit metrics model (JP Morgans Credit metrics TM, 1997) which is pivoted on a conversion matrix of probabilities that assesses prospect that the credit rating of a loan will vary over the duration of the loan or maturity of credit mechanism, is extensively employed.

According to the International Underwriting Association (2015) on London company market statistics report, an alternative strategy to credit risk management is by credit risk reduction or moderation mechanisms. Securitization is among other more notable types and it entails trading registered as well as rated stocks in the money or stock markets. The overall goal is to spread the credit risk which is involved in a particular loan portfolio to the organizational investors and insurance companies at the same time the bank is accruing liquidity (loans reduce with a uniform amount). An option to the procedure of securitization is to insure the bank asset making use of a Credit Default Swap (CDS). The individual purchasing credit protection compensates a recurrent fee to another person/group who accepts to pay back the purchaser of credit protection in the eventuality of default to either repay the capital value of the debt or accompanying interest within a particular duration. Commensurate, counterparty risk occurs. Preferably, each bank ought to establish a credit risk management department as a way of auditing and executing all the suitable functions that shield the institution from day to day and inevitable risk such as the credit risk.

2.2.7 Basel II Criteria on Commercial Banks Lending

Banking institutions are learning to reevaluate their risk portfolios making use of the standards established and prescribed by Basel II. Greenspan has suggested that Basel's predominant objective is to prompt and or motivate bankers to enhance their risk management capacity, encompassing how these financial organizations cost their

products, reserve for loss, and manage their operations (Rehm, 2002). This scholarly investigation is guided by the principles of Basel II, particularly, to moderate a bank's operational risk in the course of the lending procedure by employing an advanced supervision of the personnel in the lending office.

The Basel II recommendations institute conditions or requisites for capital adequacy along with supervisory benchmarks or yardsticks for banks to be executed prior to 2007. The predominant aim of Basel II is: to establish or institute a framework that intensifies further, the reliability and dependability of the international banking structure, at the same time retaining appropriate coherence that capital adequacy procedures will not be a substantial source of cut-throat competition disparities between internationally active banking institutions. The Committee asserts that the modified framework will advocate or champion for the embracing of sound risk management methods by the banking industry, and observes this to be among several other significant benefits (Basel Committee on Banking Supervision, 2006).

Ferguson (2003) asserted that Basel II Accord stipulates a blueprint for the amended guidelines and oversight of global banking that will provide substantial impetus for banking institutions to continue intensifying their internal risk-management capacities along with the mechanisms for supervisors to concentrate on emerging drawbacks and concerns more promptly than in prior attempts. Basel II is intended to sequence capital adequacy measurement more distinctly with the primary components of banking risks and to provide motivations for banks to intensify their risk assessment.

The risk reconciled backing of credit vulnerabilities with alternative equity (regulatory capital) is among several fundamental concerns in the New Basel Capital Accord, Basel II intentioned to uniformly affect banking institutions and their clientele. Consequential

variations encompassed the institutionalizing of ratings as the premise for risk evaluation and computing of regulatory capital; and the evaluation of credit costs pivoted on the level of risk. The Basel II Accord among others advances more comprehensive standards to be employed in the treatment of credit risk, and for the first time established benchmarks to be used in the regulatory treatment of operational risk. Beyond exclusively assessing the requisites of capital for the risk classifications, it places substantial emphasis on benchmarks for supervisory re-evaluation along with expanded or growth in public disclosure (Rowe, Jovic& Reeves, 2004).

Lastra (2004) in a study on risk-based capital demands deduced that Basel II has substantial economic and structural repercussions that cannot be undervalued as it contributes to a considerable or sizeable re-allocation of capital necessities. Additionally, she asserts that capital guidelines have become a pronounced feature of banking regulation as well as a significant tactical subject for bank management. However, Lastra accentuates that banks ought to absorb themselves to some vital or critical concerns. Among the concerns, the initial one is cost given that Basel II is expensive to carry out or execute, complex to appreciate and instructive in its several recommendations. The second concern is functional risk, instituted for the first time in Basel II: resulting to a capital levy against this sort of risk. The third concern is bank merging, where Basel II appears to experience the advantage of larger and more complex banking institutions. Small or uncomplicated banks experiencing an escalation in their capital levies are more likely to be acquired by more complex banks (Mignola and Ugoccioni, 2006).

Several banks all over the world are evaluating the possible consequences or ramifications of the advanced Basel capital adequacy system (Basel II). Conformity to these unconventional guidelines, as soon as they are adapted as national legislation, is an

essential condition for the banking industry. In this regard, individual banks will have to arrive at an option from the Basel II menu for credit along with functional risk capital demands -choosing either the less complex fundamental or average strategies or adopting the more complex strategies pivoted on internal risk standards (Currie, 2005). Additionally, it should be taken into account that by way of a more laborious and elaborate supervisory re-evaluation (Pillar II) the advanced Basel II system demands from banks that they intensify their risk management system and evaluate all risks in a coherent and exhaustive manner (Leippold & Vanini, 2003). In readiness for the anticipated variations additional banks are now also in pursuit of instituting economic capital systems, to execute risk-adjusted return on capital (RAROC) along with acquiring the gains of risk-based business practices and efficient credit procedures.

Critical success factors for the banking institutions are the identification of risk, quantitative risk assessment, risk reduction and the lowest or least capital appropriation. However, banking institutions find conformity to Basel II standards in the afore-mentioned areas complicated, due to a rise in the number of their client base, deficiency of risk management solutions and insufficiency of framework connections between the functioning and stand-alone applications of the banking institutions (Dutta & Perry, 2006). Basel capital adequacy system is the re-evaluated capital contract or agreement of Basel I. Basel II accord stipulates the least regulatory capital which is to be appropriated by individual banks guided by its risk review of assets. Banking institutions are required to sustain the capital adequacy ratio (CAR) at the lowest 9 %. According to RBI, banking institutions which accrue more than 20% of their profits or revenue from businesses operations abroad are required to execute Basel II. However, several banks are in the present times interested in executing Basel II. Basel II employs a “three pillar” hypothesis to advocate for a more reliable stability within the financial structure stability: Pillar I:

Minimum capital requirement; Pillar II: Supervisory review process; and Pillar III: Market discipline requirements (Basel Committee on Banking Supervision, 2004).

The first pillar discusses the least capital demands. The exhaustive model of the Basel II Contract provides enhanced risk responsiveness in the manner capital demands are evaluated for three main elements of risk experienced by a bank; operational risk, credit risk and market risk. The capital ratio is calculated making use of the description of risk-weighted assets (RWA) and regulatory capital (Basel Committee on Banking Supervision, 2006). It is a requirement that the total capital ratio is not lower than 8 per cent. Tier 2 capitals are restricted to 100 per cent within the limits of Tier 1 capital. While market risk evaluation has remained the same – a standardized technique or value at risk (VaR) is maintained – credit risk evaluation has undergone variations and for the first time operational risk has been instituted. In the case of credit risk, Basel II makes available three strategies to calculate credit risk-based capital (Leippold & Vanini, 2003).

The first strategy is the standardized strategy, which is dependent upon external ratings. Guided by this technique, banks' operations are distributed into eight business lines: commercial banking, agency services, retail banking, retail brokerage corporate finance, trading and sales, payment and settlement and asset management. In order to estimate capital for functional risk, these individual brands or products are a percentage of the bank's gross revenue from that distinct line of the enterprise.

The succeeding strategy is the basis of internal ratings-based (IRB) technique which enables banking institutions to approximate their credit risk-based capital guided by their internal evaluation of the likelihood that the coequal will default (Basel Committee on Banking Supervision, 2006). The third also considered immensely complex technique is the advanced IRB approach, which allows banks to use their own internal assessment

both for the probability of default (PD) and the percentage loss suffered if the counterparty defaults and the quantification of the exposure to the counterparty where four parameters are considered VaR; loss function, PD of a borrower; loss given default (LGD), the estimate of loss severity; exposure at default, the amount at risk in the event of default and the facility's remaining maturity (M) (Kealhofer, 2003) the calculation of which components requires advanced data collection and sophisticated risk management techniques (Allen, 2004).

The second pillar discusses supervisory review process in the banks emphasizing the need for financial institutions to fulfill their self-responsibility for appropriately assessing and managing the various risks they face, and maintaining sufficient capital according to such risks including those not covered within the first pillar (minimum capital requirements). It further invites supervisors, upon their own initiative, to review and evaluate risk management methods adopted by individual financial institutions, and take appropriate supervisory actions as necessary. For this to be implemented, the Accord sets four key principles of supervisory review which include a process for assessing the banks' overall capital adequacy in relation to their risk profile and a strategy for maintaining their capital levels; that supervisors should review and evaluate banks' internal capital adequacy assessments and strategies, including their ability to monitor and ensure their compliance with regulatory capital ratios. Supervisors should take appropriate supervisory action if they are not satisfied with the results of this process; that supervisors should expect banks to operate above the minimum regulatory capital ratios and should have the ability to require banks to hold capital in excess of the minimum; that supervisors should strive to intervene early to prevent capital from falling below the minimum levels required to support the risk characteristics of a particular bank and should require rapid remedial action if capital is not maintained or restored (Dutta and Perry, 2006).

The third anchor examines the market conduct. The predominant objective of this anchor is to bolster or intensify market conduct making use of increased disclosure. Market constraints and castigation exacts strong inducements on banking institutions to carry out their trade in a secure, reliable and efficient approach, consisting of a motivation to sustain a sound capital base as a safeguard against possible future losses emanating from vulnerabilities related to risk (Fatemi & Glaum, 2000). The market regulation proposed considerably multiplies the disclosures that individual banking institutions ought to report. This is tailored or formulated to enable the market to have an advanced idea or abstraction of the extensive risk status of the bank along with facilitating the counterparties of the banking institution to cost as well as trade suitably (Allen, 2004). The Basel II intimates on this point: Managers are exposed to diverse standards or benchmarks that they can employ to demand from banking institutions to report such disclosures. Some of these disclosures will be validating measures for the application of specific approaches or the approval of precise instruments along with the transactions (Basel Committee on Banking Supervision, 2006).

As stated by Leippold and Vanini (2003), presently three kinds of substantial risks are handled in Basel II: Credit Risk elucidated as default by the borrower to reimburse the loans; Market Risk described as volatility in the banks' portfolio resultant of variations in market aspects; Operational risk: elucidated as risk emanating from banking institutions' unprofitable internal techniques, practices, personnel or external occurrences such as natural disasters as well as burglary or theft. Basel II is tailored or designed to align capital adequacy evaluations as closely with the core components of banking risks and to provide inducements for banking institutions to intensify their risk evaluations (Banerjee & Banipal, 2005). Specifically, the risk adjusted backing of credit exposures with

expedient equity (regulatory capital) is among other vital concerns within the current Basel Capital Accord.

It is extensively appreciated that Basel II is a consequential advancement in speculative and functional world of the banking industry as well as a dynamic system capable of adapting to continual innovations and variations. To begin with, while the current Accord establishes the level of capital adequacy demands at 8% (Tier 2 capital is restricted to 100% of Tier 1 capital) coherent to Basel I, it has relocated significance from regulatory to economic capital systems, at the same time according appreciation to currently discovered risk mitigation strategies (default protection) and elucidating up-to-date trading book capital disputes (Banerjee & Banipal, 2005). The Accord also has severity and scope in its framework and it amalgamates and incorporates better, with a component of mathematical accuracy, all crucial economical and supervision standards; regardless the rules guided technique facilitates considerable national discretion which has its merits and demerits (Monfort & Mulder, 2000). Basel II at the very fundamental level is made up of the Standardized Approach (SA) which identifies and elucidates diverse asset quantities and proportions them risk weights guided by the category and essence of corporate concern and alternative transactions and entrusting its qualitative evaluation to external raters. The matrix of risk quantities and consequences is regarded to have brought with them extra inordinate complications for less complex banking institutions. The association and commissioning of quality evaluation to external ratings, while reasonable, advances extreme confidence on the impartiality and firmness of rating agencies which, has only up until now rated a relative percentage of corporate and concerns in developing countries (Huber, 2003).

Regardless of this, the Pillar 1 proposes an option or alternative to recourse to either a Standardized Approach (SA) which possess pre-specified consequences or to turn to Internal Rating Based (IRB) technique which entails a foundation along with a sophisticated IRB alternative. These strategies are distinguished based on the accessible internal risk evaluation skills or expertise, the extent and product mix of the individual banking institution and general financial finesse. There are substantial national policies for regulators to determine, within the framework or guidelines bound under the Accord, on consequences of risk for dissimilar categories of finances, handling of collateral and risk reduction (Blunden, 2005).

The central anchor is enriched by two alternative anchors; and all three anchors are interconnected and entwined as well as mutually bolster each other. Pillar II (Supervisory Re-evaluation) augments need for reinforcing the banks' internal capital evaluation procedures to capture risks which persist un-addressed under Pillar I and hence earmark capital in compliance with the banking institution's risk account and regulatory context. The supervisory re-evaluation procedure authorizes the bank's internal evaluations by making certain that the comprehensive cluster of risks has been dealt with. Pillar 3 (Market Conduct) supplements the alternative two anchors by demanding disclosures and openness in financial reporting to champion for market conduct (Banerjee & Banipal, 2005).

Third, the Accord promotes banking institutions to comprehend all categories of risk and executes suitable measures to reduce these risks, at the same providing for sufficient capital. In addition to the credit risk, it acknowledges the operational risk, though, the level of guidance and sophistication in assessment provided within the guidelines for these risks differs. The Credit Risk is addressed exhaustively in the Basel II in conformity

with legacy of the initial Accord along with the banking institution's traditional advantage or dominance and capacity in credit risk evaluations (Leippold & Vanini, 2003).

As stated by Banerjee and Banipal (2005), the introduction of Operational Risk, an essential advancement over Basel I, captures risks linked to the banking institution's internal control systems and procedures along with corporate governance guidelines and methods. Operational risk estimation categorically demands capital for 'the risk of loss emanating from insufficient or inappropriate internal procedures, personnel and practices or from external occurrences' risk. This description encompasses legal risk but leaves out reputational and strategic risk. Three strategies underlie evaluation of capital in comparison to operational risk. These are Basic Indicator Approach (BIA) –capital intended operational risk ought to be equivalent to the average throughout the preceding three years of a fixed percentage (denoted alpha=15%) of positive yearly gross revenue; Standardized Approach capital levy for individual business product is computed by multiplying gross revenue by a factor (denoted beta) allocated to that business product or brand. Beta (extends or varies between 12-18%) works as a factor for the industry-wide association between the operational risk deficit incidents for a particular business product and the accumulated degree of gross revenue for that distinct business product; and Advanced Measurement Approach (AMA) where the regulatory capital demand is an equivalent of the risk evaluation created by the banking institution's internal functional risk assessment procedure by employing the quantitative along with the qualitative yardstick for the AMA. Generally the strategies for operational risk evaluation are not as delicate as for credit risk, though the AMA technique does facilitate for more suitable regulation. Certainly the banking institutions with superior risk evaluation would elect the advance strategies (Leippold & Vanini, 2003).

Market Discipline anchor re-emphasizes the requirement for openness and disclosure of technicalities and information. The assessment of individual banking institutions' risks and its processes and capital adequacy by the industry will aid ascertain integrity as well as validation of alternative anchors. To function, this anchor needs to be backed by appropriate accounting guidelines. Comprehensive or exhaustive disclosure of banking institutions' techniques and strategies should also be embraced as should risk profile and capital technique employing economic and credit cycle, data of the stress checks or analysis along with PD/LGD data (Currie, 2005). Fourth, , the Accord proposes a variety of alternatives and inducements for banking institutions to shift from vanilla SA which proportions high risk quantum and capital standards to embracing IRB and within it additionally having the alternative to select either the Foundation in comparison to Advanced IRB. Fifth, the IRB strategy is being chosen or favoured by big global banking institutions, which before now competitively cost credit risk.

The pivotal guidelines within the IRB technique are PD, LGD, M (Maturity) and EAD (Exposure At default). Under the FIRB, the banking institutions compute PD of their portfolio, at the same time the alternative guidelines that is LGD and EAD are laid down by the controller. Lowest PD is 0.03% for banking institutions as well as corporates; no floor has been stipulated for self-governed financial institutions. The LGD for senior exposure is 45% and the subordinated exposure draws a minimal recovery of 75%. These rates ought to be reviewed by the controllers considering the ground facts of their distinctive scopes (Currie, 2005).

Taking into account the aims as well as the scope of Basel II and its framework, the Mckinsey investigation demonstrates that Basel II makes business sense as the accord could affect profits and produce benefits accrued from diminished capital levies which are

certainly essentially captured from reserve costs (Kevin, Buehler, D'Silva & Pritsch, 2004). For some banking institutions, taking into account the risk vulnerability essence of Basel II, the regulatory capital could be significantly diminished by up to 50 percent in sectors for instance residential mortgages, which would be converted into savings on funding expenses. Notwithstanding, such savings would be dependent on requirements: for instance demands that regulatory capital ought to be higher than economic capital along with the existence of guidelines like control ratios which could hinder banks from mitigating their regulatory capital substantially.

The McKinsey's scholarly investigation demonstrates four consequential Basel II-associated risk handling efficiencies which could collectively amplify pretax earnings within the ranges of three to six percent. These comprise of: Reduced charge-offs by employing superior default-prediction and collection procedures; enhanced costing controls on loans and risk choosing making use of risk-based costing to and mitigated risk from uncharted business occasions; decreased functional costs through the rationalization or restructuring of loans as well as underwriting procedures; along with diminished functional loss expenses by employing appropriate reduction strategies (Kevin, et.al. 2004).

2.3 Empirical Literature Review

Empirical literature review is a guided scrutiny of published writings, consisting of books and periodicals such as journals and reviews that explore theory and provides empirical findings that are pertinent to the topic under investigation (Zikmund et al., 2010). This is a review of an exhaustive sample of preceding research that have an association with a research question. Albeit possibly being generally extensive in sphere, transcending decades, conceivably even centuries of information or evidence, it ought to be intently

tailored; predominantly focusing on the scholarship that has a direct association to the research question (Kaifeng and Miller, 2008). By employing a systematic technique or strategy to antecedent scholarship, literature review enables a scholarly investigator to position his or her study into an intellectual and historical background. This means that empirical literature review aids the authors assert why their research is substantive (Kaifeng and Miller, 2008).

2.3.1 Credit Risk Identification

Commercial banks services are the advancement of financial resources for consumption, production or investment to be redeemed at a future date. In a vibrant economy, credit is an important instrument for improving the people's welfare, reducing vulnerability to short term income deficits and for enhancing productive capacity through financing investments. Financial performance refers to acquiring or obtaining financial credit with the aim of servicing the loan together with interest. A loan involves the exchange of current resources for future resources (Rosman, 2011).

A study done by Rose et.al (2008), on credit risk identification of Grameen Bank established that commercial banks have systems put in to enhance credit risk identification when clients are borrowing and this reduced the rate of risk exposure in lending. Apart from successful group- lending schemes such as the Grameen Bank, the performance of group lending has been mixed. Whereas it has worked very well in Asia, the same has not properly taken off in Kenya, as there is a need to have indigenous organizations. They study concluded that formal providers of credit which include Commercial banks and other licensed institutions follow a rigid system of lending. This study by Rose et.al (2008) also found that the commercial banks have internal guidelines where they provide to the borrowers a list of conditions that must be fulfilled before

credit is availed. This usually includes; financial statements for the last three years, bank statements for the last six months, cash flow projections, suitable collateral to secure the loan, previous credit reference and a host of other conditionality.

According to a study by Kamau (2010) on strategies adopted by commercial banks on credit risk identification, there were new entry strategies which were implemented without proper market scanning and these have exposed commercial banks to risk of lending to a clique of borrowers who may not be in need of credit. These have increased risks in lending despite the fact that in the financial industry, the formal lending sector is basically ethical and open as the terms and conditions for their loan are explained up-front and in theory cannot give a loan one cannot service. Many people fear the formalities associated with commercial banks. Kamau (2010) argued that commercial banks only lend to a special clique of people who must be members and have been active members for a certain period of time. Such people gravitate towards the other financial lenders who they find more accommodating. The study concluded that turnaround time with commercial banks lenders is longer than with banks or other informal lenders and less intimidating. Thus, commercial banks' lending decreases due to their inflexible terms, borrowers' social capital earned over time, faster turnaround of loans and information asymmetries in the financial market.

In commercial banks, financial access and credit risk management are shaped by the banks themselves through lending policies including prescribed minimum loan amounts, procedures of application and limitations on credit-specific purposes (Agarway & Hauswald 2010). Where the needs of the client are inhibited by terms of payment, credit duration, requirement for collateral and the provision of supplementary services, potential borrowers will seldom apply for credit where it exists and when they do, they will be

denied access. Credit market in Africa is underpinned by inability to satisfy demand for credit whereas the main reason for commercial banks sector inability is the small size of resources it controls that make their lending procedures more complicated with the consequence of shunning away most potential credit clients.

According to a study conducted by Zahra (2008) on credit risk identification and financial performance, it was found that due to competition among the industry, commercial banks' lending procedures are affected and the process of vetting credit worthiness of a client has been affected. This was found to expose the banks to more credit risk due to stiff market competition for a big market share especially where the needs of borrowers cannot be met by lending entities thereby creating a resultant gap capturing borrowers whose needs cannot be obtained from the commercial banks market yet they cannot gain access to the mainstream commercial bank sources including businesses intending to expand beyond the bounds of self–finance but lack access to commercial banks credit and demand external finance to other financial institutions.

In a study by Lore (2007) on credit risk identification factors that can enhance financial performance, it was found that commercial banks' lending business is modelled on social networks, connections and goodwill and that commercial banks have several ways analyzing other sources of borrowers' income. This study found that social capital is a great asset to borrowers. Social capital is the process by which, for mutual benefit, people establish linkages, norms, social trust and facilitate co-ordination and co-operation. Trust, which is vital in business relationships, is nurtured within social settings and networks as it creates social collateral for use in accessing finance. The person who introduces a borrower to a financial institution, or who guarantees a loan is key a factor as to whether a borrower will access credit. Credit therefore revolves around groups with mutual interests

from whom borrowers do not easily part, be it family, business or professional affiliations as friends and family are presumed to have good information concerning the characteristics of the potential borrower.

Mpuga (2008) conducted a study on credit risk identification and demand for credit and found that commercial banks generally attach more importance on amount of loan borrowed rather than screening the selection of applicants and monitoring the loan as it is used. This attitude has made commercial banks to engage in quicker lending decisions which has led banks to be exposed to credit risk. The criteria for selection are the individual's character and some lenders themselves are short of capital. They also exercise credit rationing so as to spread the lending risks to as many borrowers as possible. This way, they create a pool of loyal customers who also act as contacts for new business and guarantors of a kind. A strong selling aspect for this kind of lenders is the turnaround time or timeliness of credit availability. Due to lack of stringent lending rules and quick decision making, borrowers can access credit within a short time after applying. Hence, the lending is primarily driven by emergency financial needs, non-availability of credit from other cheaper lenders and timely availability of finances.

According to the results of a study by Nazir, Adeel and Nawaz (2012), on practices for managing risk in sample Pakistani Banks, the commercial banks were slightly satisfied with how the credit risk identification was used to get information of the borrower in order to minimize credit risk. In some cases, commercial banks' lending networks function based on trust and customer's obligation is reinforced by social bonds that exists among them. Borrowing from such lenders has the advantage of having immediate approval and less cumbersome and intimidating procedures unlike informal moneylenders

who only lend to borrowers who have been introduced by a past borrowers or a contact that can be easily traced.

Camara and Paulo (2009) in their study on financial crises found that the majority financial institutions have broken-down or encountered financial drawbacks emanating from inappropriate credit risk management approaches or procedures characterized by extreme or acute levels of staff member loans, unpredictable lending, and extreme accumulation of loans in determinate spheres or divisions as part of other concerns. However, the study concluded that risk identification in commercial banks was not poorly done though there was substandard credit quality which remains to be a leading source of bank collapses along with banking crunch globally. The magnitudes to which banking institutions handle credit risk have an effect on their overall financial performance or very existence. The origins of acute non-performing loans emanate from substandard credit risk management procedures and this could impact on or influence profitability. Subsequently, neglect of appropriately managed credit risk substantially results to banking institutions financial crunches.

Berry and Robertson (2006) in their study on marketing lending decisions found that substandard corporate governance, defective or substandard risk management procedures, insufficiently planned growth initiatives, severe liquidity drawbacks, foreign currency scarcity or crunch along with departure from primary business to unpredictable non-banking ventures are part of the elements that could contribute to the extreme numbers of non-performing loans. Adept or effectual credit risk management methods minimize the risk of clients' default. Non-performing loans result to banking institutions' collapse as the downfall of a banking institution is translated predominantly emanating from mismanagement due to substandard lending determinations arrived at guided by

inaccurate or deficient evaluations of credit status or the reimbursements of non-performing loans and extreme concentration on advancing loans to specific clients.

Goodhart (1998) asserts that substandard credit risk management which leads to unnecessary vulnerabilities of credit leads to banking institutions' collapse a position supported by Chimerine (1998). This leads to bankruptcy of banking institutions and diminishes their financial resources accessible for new advances, which ultimately results to their collapse. Goodhart et al. (1998) associated lending to the genesis of bank substandard credit risk management which contributes to extreme credit vulnerabilities generating banking institution's collapse. Inconsistent gatherings of loan committees, fraudulent loans, acute treasury losses, exaggerated sums of unlisted deposits along with money laundering in huge quantities, lead to banking institution's collapse.

Swaranjeet (2013) carried out a scholarly investigation on the elements that result to evaluation of credit risk in Indian banking institutions and to equate Credit Risk evaluation routines espoused by Indian public as well as private sector banking institutions, where the empirical investigation was carried out and views of personnel of dissimilar banking institutions tested employing statistical instruments. The investigation focusing on dissimilar perspectives and revealed that Credit Worthiness analysis and Collateral demands are the two substantive elements for analyzing Credit Risk. Guided by the descriptive and analytical findings, it determined that Indian banking institutions adeptly manage credit risk. The scholarly investigation's findings additionally demonstrate that there is substantial difference between the private sector and the Indian Public banking institutions in evaluating of credit risk.

Veerabhadra (2011) in his investigation evaluated the risk management and Regulation of the financial division comprehensively and established that the Banking sphere expressly

is of principal or dominant concern for the systematized progression of the economy. The current research wass undertaken to evaluate the influence of similar Risk Management as well as Risk Based Supervision actions or procedures instituted by the Reserve Bank of India (RBI) during the post amendment duration. The predominant aim of the research was to assess the gains of these expedients on the comprehensive or extensive functioning of the Scheduled Commercial Banks (SCBs) belonging to the three divisions or branches categorized as; Private Sector, Public Division and Foreign Banking institutions.

The investigation also carried out inter-sector cross correlations to verify whether the effect is unvarying among these divisions and whether they are not and to establish which division has performed more effectively as a result these variations. It established that the effect of the variations was advantageous on the part of the sample SCBs as a whole. It asserted that the Public Division Banking institutions exhibited exemplary performance demonstrating substantive dissimilarity. In their functioning the findings of the Analysis of Variance and Post Hoc Tests in addition showed that the dissimilarity or variation was substantial in the case of Public Division Banking institution as compared to Private Sector along with Foreign Banking Institutions. It deduced that in terms of the sectors, the Public Division Banking institutions demonstrated substantive variations in their operations. Banking institutions exclusively found in the three branches werein addition categorized guided by their performance on single entity yardsticks. Composite Ranking was provided anchored on the findings of the entire benchmarks. Guided by this evaluation, Development Bank of Singapore in Foreign Sector obtained the 1st Status, at the same time the succeeding rank was secured by Corporation Bank Ltd. HDFC Bank Ltd while grading Private Sector secured 4th in the general categorizing. It suggested that Banking institutions ought to embrace Risk Based Audit which should be anchored more on IT. Additionally, on the Human Resources Development aspect, it is advisable that

Banking institutions ought to formulate properly conceived training facilities in categories such as; Credit Risk Management, Treasury Management as well as Operations Risk Management. Besides, it is proposed that promotions ought to be guided by merit as opposed to prevailing seniority (Veerabhadra, 2011).

Krishn (2010) tried to comprehensively examine the value or significance of risk management procedure and illustrated the bottlenecks and possibilities with respect to execution of Basel-II within the Indian Banking Industry finding that the rapid fluctuating or unstable financial environment makes the banking institutions vulnerable to diverse kinds of risk. The idea or abstraction of risk and management are central or at the heart of financial firms or ventures. The financial sphere, particularly the banking industry, in majority of emerging economies inclusive of India is experiencing advancement or development. Growing or expanding global competition, escalating deregulation, establishment of novel products as well as delivery avenues have shifted risk management to the prominence of present day financial landscape.

The capacity to evaluate or calculate the risks and adopt suitable decisions will be paramount to success as they constitute an opening and a peril and have dissimilar implications for diverse users. The banking industry is exposed to dissimilar risks including; variable interest rate risk, operational risks, forex volatility risk, market play risk, and credit risk. These have been reported to negatively affect both its profitability as well as its overall financial health. Risk management has hence cropped out as a current as well as demanding field in banking. Basel II proposed to advance safety and reliability of the financial sector by laying substantial emphasis on a banking institution's internal control along with risk management procedures and standards (Krishn, 2010).

Certainly, to facilitate the calculation of capital demands under the current accord needs, from a banking institution, exhaustive or thorough risk management architecture. Within a specific duration, the risk management advancements that are the proposed or planned outcome may be compensated by reduced capital demands. Notwithstanding, these fluctuations will additionally present far-reaching effects on a banking institutions' information technology architecture, procedure, individuals and enterprise, past regulatory conformity, risk management and finance operations (Krishn, 2010).

Yogieta (2010) analyzed the effect of size and ownership of banking institutions on the scope or extent of operational risk management routines or methods employed by the banking institutions making use of a survey constituting the administering of a questionnaire to predominantly examine the methods employed by Indian Banking institutions in handling of operational risk necessary for the realization of Advanced Measurement Approach (subsequently defined as AMA) for a cross–section of Indian Banking institutions and globally undertake a relative or approximate evaluation guided by AMA conforming banking institutions.

The evaluation was carried out to obtain or select the most substantive variables which single out or distinguish performance of a particular banking institution from others. The investigation presents a determinable evidence of intensified awareness as well as deserved or fitting significance granted to operational risk by Indian banking institutions. Size was found to be an impediment to; the gathering of external loss data, intensive level of association of operational risk functionaries and the gathering and analysis of subsequent data. The routines or customs of average and small sized public division and long-standing or established private sector banking institutions were found to be dragging behind or trailing those of upcoming private sector banking institutions in employment of

BEICFs (RCSA, KRIs), application of scenarios, streamlining of these indicators along with gathering as well as the application of external loss data. Gaps were also evident in the scope of routines or methods pursued by Indian Banking institutions and the AMA conforming banking institutions worldwide (Yogieta, 2010).

Bodla, Verma, Richa (2009) undertook a scholarly investigation on execution of the credit risk management architecture by commercial banking institutions in India. Findings of this investigation demonstrate that the prerogative for approbation of credit risk vests with board of directors in 94.4% of banks in the public division and 62.5% in private sector banking institutions. In the remaining banking institutions, this prerogative nevertheless, rests with the credit policy committee. In terms of credit risk management, majority of banking institutions are found performing diverse activities including; annual re-evaluation of accounts, industry survey, recurrent plant visits, formulating MIS, recurrent credit calls and risk tallying. Notwithstanding, the banking institutions in India are ceasing or refraining from application of derivatives products as risk safeguarding instrument. This investigation has emphasized that regardless of sector as well as size of bank, credit risk management architecture in India is progressing very well and it is wholly guided by the RBI's recommendations issued on this matter.

Usha, Janakiramani (2008) comprehensively evaluated developments in operational risk management within the banking system in India with reference to Basel II. The scheduled or anticipated scope or range of banking assets along with the strategy espoused for operational risk capital estimation or calculation was compared extensively with the status of the banking structure in the Middle East, Africa and Asia. A scholarly investigation carried out on twenty two (22) Indian banks demonstrated inadequate or incomplete internal data, complexities in gathering of external loss data as well as

modeling complications as substantial hindrances in the execution of operational risk management architecture in banking institutions in India. This investigation accentuates the necessity of assign more resources and time in case banking institutions desire to execute the progressive or sophisticated strategy under Basel II. Findings of this scholarly investigation distinctively demonstrate that the procedure of designing the architecture for operational risk is at the commencement stages for Indian banking institutions. Basel II /regulatory conformity and aspiration to institute as well as execute reliable controls came up as two crucial drivers of operational risk management in banking institutions. The favourable differentia are that all banking institutions boast thoroughly and properly determinate institutional framework and Board accredited or authorized procedures guiding operational risk management; a better part of the banking institutions were making use of some sort of self-evaluation- a qualitative component, as a substantive instrument in their operational risk architecture; several banking institutions had commenced on the operational risk loss data gathering task for shifting to the progressive techniques albeit these were still in the developmental or constructive phases. Nevertheless, it additionally became apparent that several banking institutions did not have a distinct abstraction with respect to the elements needed for shifting to the advanced measurement approach (AMA). Incomplete data, complexities in collecting exterior data along with complications in modeling were mentioned or substantiated as very substantial impediments in the execution of the operational risk management (ORM) architecture in banking institutions. Most of the banking institutions have also alluded to inadequateness of regulatory perspicuity as a relatively substantial impediment in shifting to the progressive strategies. Banking institutions anticipate regulatory guidance specifically on the quantification dimensions. With respect to the possible strategy for regulatory capital under Basel II, every single banking institution anticipates to espouse

the Basic Indicator Approach prior to 2008-09. Most banking institutions had a longing or yearning to shift to the progressive or sophisticated strategies, albeit no definitive scheme, Board consent for shifting over to progressive strategies was apparent. The integral commercial banking network in India, at 100% of the commercial banking assets is anticipated to be Basel II conformable prior to 2009, notwithstanding embracing the manageable strategies at the formative phase. This ranking or standing equates favourably to the scope or ambit of Asia (70% of banks assets), Middle East (89% of banks assets) as well as the Africa (65% of banks assets).

Asim, Abdullah, et.al (2012) assessed the banking institutions' level of risk identification factors including those that present more effect on the credit risk managing of local or national as well as foreign banking institutions in Pakistan. Secondary data for the duration between 2001 and 2010 was employed, obtained from diverse or dissimilar data sources. Aggrandized Dickey Fuller test was then applied for examining stationary data while Johansson's Co integration test was applied for long run association applied. Linear regression model is applied for coefficients evaluation accompanied by OLS approaches. The conclusion demonstrated that the model is the most suitable or appropriate for local as well as foreign banking institutions. Banking institution's size presented a positive and substantial association with credit risk in local or national banking institutions and positive and insubstantial in foreign banking institutions. Liquid assets and credit risk presented a positive along with an unsubstantial association in local or national banking institutions and negative as well as a substantial in foreign banking institutions. The scholarly investigator has proposed that credit risk could be diminished or reduced provided size of the banking institutions are sustained within a prescribed limit and grow liquidity of the banking institutions.

Ahmed et.al (2011) carried out an investigation targeting banking institutions in Pakistan guided by final sampled subjects of 6 banking institutions for the duration 2006 to 2009 on risk identification. Data for their research was gathered making use of secondary sources. Additionally, they employed Pearson correlation to determine the association between variables and also applied regression to establish the coefficients. The findings demonstrated that magnitude of banking institutions directly linked or connected with credit risk; at the same time, its relationship with operational risk was established to be negative and statistically insignificant. The asset handling generates a positive connection with liquidity as well as functional risk. The gearing ratio and Non-Performing Loans ratio have a negative and substantial relationship with both liquidity and functional risk at the same time are directly connected with credit risk. The capital adequacy presents a negative and substantive association with credit and functional risk, at the same time it presents positive relationship with liquidity risk.

Fatemi and Fooladi (2006) researched on the prevailing procedures of credit risk identification employed by the biggest financial establishments founded in the US. On account of the growing range of counterparties along with expanding descriptions in the constructs of obligations, credit risk identification has moved to the prominence of risk management operations undertaken by enterprises in the banking industry. This research was conceived to elucidate or clarify the prevailing risk identification procedures of these banking institutions. A concise questionnaire, comprising seven items, was mailed to individual banking institutions ranked among the top 100 banks that have their headquarters in the United States the results of which revealed that recognizing counterparty default risk is the individual paramount function achieved by the credit risk standards applied. Approximately 50% of the responding banks employ standards that are have additional capacity of addressing counterparty migration exposure. Surprisingly,

hardly a minority of banking institutions in the present employ either a vendor-marketed model or a proprietary to guide their credit risk identification while those using their own in-house models also make use of a vendor-marketed model. Unsurprisingly, such models are widely used for the identification of non-traded credit loan portfolios risk compared to how they are utilized for the management of traded bonds risks.

2.3.2 Credit Risk Measurement

Kolap (2012) conducted a study on credit risk and performance of commercial banks in Nigeria and found that banks have tools in place to measure credit risk. Kolap (2012) found that that majority of banks used the distribution of loans into insurance products through banking networks; where insurance products are distributed to bank customers.

A study conducted by Al-Khouri, (2011) on the specific risk characteristics for banks, and the overall banking environment on the performance of 43 commercial banks operative in 6 of the Gulf Cooperation Council (GCC) countries found that banks practice credit overriding and this contributed to credit risk concluding that profitability is affected by this practice when measured by return on assets. However, when profitability measured by return on equity the only risk affecting it is the liquidity risk. They also found that the size of the bank and the ownership status are important determinants of the profitability of banks as revealed by the negative and significant coefficient on government ownership implying inefficiency in banks with high government ownership. When Macro and institutional features were added the results revealed that the only factor that affects profitability is market capitalization. This might imply that capital markets complement banks as a source of liquidity (Al-Khouri, 2011).

A study by Kaaya and Pastory (2013) on credit risk and commercial banks performance in Tanzania found that commercial banks use consultants in matters of credit risk.

However, this study further found that despite the use of consultants there was increase in credit risk which tends to lower firm performance. This study concluded that credit risk is related to bank return and that the higher the risk the higher the bank return due to the bank ability to increase portfolio, but the bank need to balance and foresee the return. With these, the banks need to maintain significant capital reserves to absorb credit risk in event of failure. Furthermore, the banks must enhance lending criteria, portfolio grading and credit mitigation techniques to reduce chance of default while adopting sound management practices and corporate governance could also reduce credit risk,

Poudel (2012) conducted a study on credit risk management in bank performance of Nepal between 2001 and 2011 sampling 31 banks and found that banks were introducing products without proper information of the market. The results also showed that credit risk management is affected by lack of proper market survey by the banks when rolling out new products. Using panel data estimation of time series data Gurdmundssoa, Ngok-Kisingula and Odongo (2013) assessed the task of regulatory capital obligation on bank control and competition in Kenya from 2001 to2011 and found that regulatory competence enhanced the competition in banking sectors leading to introduction of new products for completion purposes.

Greene and Segal (2014) in their study on influence of efficiency on profitability or the relationship between lending performance and market structure found that policy makers aim to facilitate a banking system that best promotes economic efficiency and stability. Their results indicated that due to competitive environment, banks have promoted a culture of subjective lending in order to encourage the greatest supply of credit at the lowest price which puts banks into credit risk. However, a banking system that exhibits some form of market power may improve credit availability by lending to customers

more than what they qualify for which is harmful to the banks though it aids in efficiently allocating of resources in terms of concentration and competition.

Felix and Claudine (2008) investigated the relationship between bank performance and credit risk management and the results revealed that when return on equity (ROE) and return on assets (ROA) were used to measure profitability, an inference that they were inversely related to the ratio of non-performing loan to total loan of financial institutions thereby leading to a decline in profitability could be drawn. Their findings also showed that there was declining profitability due to the risk that commercial banks grant loans without taking into consideration the business cycles when issuing business loans.

Khan and Ahmad (2001) studied risk management practices and found that on average, measurement and mitigating risk raked the lowest percentage at 69% score which was rated as slight satisfaction with credit risk measurement. Al-Tamimi and Al-Mazrooei (2007) found that there is significant difference between UAE national and foreign banks in risk measuring though the difference was slightly satisfying. Also, the UAE commercial banks have an efficient risk measuring system which also have a positive influence on risk management practices.

Sobhy (2013) found that banks incur significant costs in controlling overdue loans and this can naturally affect profitability levels since inappropriate credit policies,, low capital and liquidity, unstable interest rate, direct lending, poor loan underwriting, poor loan lending, government intervention and improper supervision from the central bank constituted a major source of credit risk an increase of which risk, it leads to bank solvency and liquidity problems. This study concluded that if the bank lends and the borrower defaults, the bank has to cease interest accrual on the doubtful loan, so there is an immediate earnings loss or the bank has to maintain provision for non-performing

assets from the net interest income that implies the profit will be decreased. Therefore, increase in credit risk will cause loss and elevate the marginal expenditure of bank equity and debt to get funds from alternative sources to cover the losses.

Paradi and Zhu (2013) examined bank branch efficiency and performance with data envelopment analysis in Canada and found that the standard technique used by regulators, industry analysts and management to examine performance at all levels has been the measure of credit risk but it has not been able to achieve its objective. It was found that ratios measure the relationship between two variables chosen to provide insights into different aspects of the branch's operations, such as, capital adequacy, profitability and risk management asset quality among others. This study concluded that depending on the objective of analysis, ratios can be to include return on total assets; return on investment; loans per employee; deposits per employee; cost to income and others.

Kumar and Singh (2012) found that there have been many methodological problems and limitations that have failed the measurement of credit risk practice in commercial banks the main weakness being that each of the ratios examines only a fragment of the unit's activities and thereby falls short of reflecting the multidimensional nature of a bank's branch and, hence, fails to return enough lending performance information. Moreover expansive range of ratios obtainable from financial statements can lead to contradictory and confusing results, and thus ineffective for the assessment of the overall performance of branch.

Hahm (2004) conducted a study on credit risk and found that a bank's ability to clearly measure credit risk has the potential of improving risk management capabilities. Once a forecasted credit loss distribution is available, the user can then decide how best to manage the credit risk within a portfolio. This study by Hahm (2004) found that the use

of credit risk models would to a greater degree enable the banking institutions embark on portfolio management, which takes due account of the varying impact of business cycles on lending. The models would moreover allow assessment of risk and earnings and thereby for each loan, ensuring an appropriate equilibrium between yield and the risk assumed by the bank, not only for the individual loans, but also in relation to the rest of the loan portfolio.

Hahm (2004) concluded that banks will continue being dependent on assessments of actual risk with the attendant exposure details in the process of granting credit. The basis for credit models, as is the case in traditional assessment of credit is to determine the risk and earnings on each credit exposure. In a credit model it is however, insufficient to estimate earnings and risk on the basis of qualitative groupings, exact measures must be set for each individual exposure.

Derban, Binner and Mullineux (2005) conducted a study on credit risk measurement and found that the use of a credit data model for the assessment of risk assessment for each credit exposure implies that the correlation can be quantified in terms of exact correlation data. It thus is not enough to just to have a general overview of the correlations between the various types of loans but an exact statistical measure of the links to all other types of loans in the credit portfolio concluding that the main variables affecting the credit risk of a financial asset are the probability of default (PD), the loss-given default (LGD), and the exposure at default (EAD).

Wetmore (2004) found that there exists an assembly of borrowers possessing similar characteristics with the attaching ability of predicting the number of borrowers likely to default over a specific time horizon, for example 12 months. This study concluded that when calculating the PD as the estimate of the possibility of the borrower defaulting on

its obligations within a given horizon, each client who has a loan (for wholesale banking) or for a portfolio of clients with similar attributes (for retail banking) should be considered and the credit history of the counterparty/portfolio and nature of the investment should also be employed to calculate the Probability of Default.

Shafiq and Nasr (2010) explored the current risk measurement practices followed and exercised by the commercial banks in Pakistan where the results revealed a significant difference in the application of risk management aspects among the local private banks and public sector commercial banks. For each type of CB, the financial soundness indicators also differed in value. The need for commercial banks to tailor training courses to the needs of banking personnel in risk management is still vital even amidst the general understanding, amongst staff, about risk and risk management. The study was conducted to estimate the average returns on investment portfolio and risk involved in the return on investment of portfolio in each of selected insurance companies prior to and after GATS membership and concludes that there is a significance difference between the average return of investment of each of the Pakistani insurance companies before and after GATS further revealing that albeit recording better performance, existence of intensive increase in the risk involved in investment after GATS membership.

2.3.3 Credit Risk Monitoring

Credit monitoring is a grave or substantial imperil to the lending performance of banking institutions; subsequently, numerous researchers have studied the impact of credit risk management on banking institutions making use of dissimilar aspects or ambits. Ahmed, Takeda and Shawn (2011) for example found that banks use monitoring of borrowers financial activities after credit is issued in order to ensure that loan is put in proper use which allows the borrower to be in a position to repay the principal and interest therefore

accrued. This activity was found to reduce loan loss provision and has a significant positive influence on non-performing loans. A decrease in loan loss provision thus indicates less credit risk and deterioration in the quality of loans and consequently adversely affects bank performance.

Furthermore a study by Ahmad and Ariff (2007) found that compared to developed economies, credit monitoring constitutes a key determinant of credit risk of commercial banks within banking systems in emerging economies further finding regulation important for banking systems that offer multi-products and services noting that the quality of management is critical in the cases of loan-dominant banks in emerging economies. They also established that a significant determinant of potential risk is the increase in loan loss provision and further highlighting that credit risk is higher in emerging economy banks than in developed economies.

Additionally, Ngare (2008) found that banks use qualitative loan assessment in credit monitoring to make credit granting decisions while further noting that among the banks in Kenya, credit risk was resultant of liquidity runs on the borrowers' credit concentration and adverse trading by the borrowers. Most banks were in addition as mitigation against credit risk, found to use loan diversification; banks guarantee and bank covenants.

Juanjuann (2009) using regression model for the empirical analysis of data on a sample commercial banks in Sweden based on annual reports between 2000 and 2008 highlighted that commercial banks bank management regularly receives accurate and timely credit reports as internal method of credit monitoring and this has positive effect on lending performance of the institution. The analysis further showed that among the four commercial banks sampled, the impact of timely credit reports on the financial performance was not the same).

Kithinji (2010) in assessing the effects of credit monitoring on profitability of commercial banks in Kenya between 2004 and 2008 found that the bulk of the profits in commercial banks are not influenced by the amount of credit and non-performing loans, therefore suggesting that other variables other than credit and non-performing loans impact on profits. Chen and Pan (2012) using financial ratio and data envelopment analysis (DEA) examined the credit risk efficiency of 34 Taiwanese commercial banks between the period 2005 and 2008 and found that banks remind the borrowers when the next pay falls due and this communication is released early enough before the due date for timely payments. The results indicated that this reduces credit risks in bank and it was very efficient over the evaluated loan period.

Kargi (2011) evaluated the effect of credit monitoring on the profitability of Nigerian banks where data was collected from the annual reports and accounts of sampled banks from 2004-2008 and thereafter subjected to descriptive, correlation and regression analysis. The findings showed that credit risk management has a significant impact on the profitability of Nigerian banks concluding that the levels of loans and advances, non-performing loans and deposits inversely influence the profitability of banks thereby exposing them to great risk of illiquidity and distress.

Epure and Lafuente (2012) studied bank performance on credit monitoring in Costa-Rican banking industry for the period 1998-2007 and found that there was continuous assessment of the new and existing credit borrowers during the life cycle of the loan and this resulted to lending performance improvements which positively influenced the net interest margin. Using fixed effect regression analysis, Al-Khouri (2011) evaluated the performance of 43 commercial banks operating in 6 of the Gulf Cooperation Council (GCC) countries based on the banks' specific risk characteristics, and the overall banking

environment on and found that credit risk, liquidity risk and capital risk are the major factors that affect bank performance when profitability is measured by return on assets while liquidity risk is the only risk that affects profitability when measured by return on equity.

Koziol and Lawrenz (2009) in assessing bankruptcy and the failure of the risk where a manager is required to make a financial decision opined that regulation of banking affairs matters for the efficient implementation of risk management criteria especially where monitoring of loans by regulators post issuance was dissatisfactory. They also noted that banks introduce continuous time models where they choose deposit volumes whose premium-earning benefits them then trade-off against the costs that would arise as a result of future capital structure adjustments. The results further suggested that through internal financing decisions that are dynamic, an important self-regulation mechanism becomes available due to the challenge with the monitoring of credit risk where credit borrowers do not submits report regularly to the bank on changes in the value of collateral used to secure the credit (Koziol & Lawrenz, 2009).

Provision of consulting and assurance services during risk management implementation process in addition to internal audit was found to help senior management and board of directors identify, assess and respond to risk (Bujerami, 2011). The study which examined the role of internal audit in credit risk management at the banking sector also established that among Syrian Public Banks, there was no effective contribution to the internal audit function in the process of credit risk management while in the private banks internal audit function contributed effectively in the process of risk management including to the identify, evaluation, and risk response processes of risk management.

The responses from the public and private sectors were significantly different on the role of internal audit in the identification assessment risks and response to risks. The researcher nevertheless recommended activation of the internal audit functions in the process of risk management in the Syrian public banks to help them in the face of future financial crises further echoing the need for the public and private banks to conduct internal and external training, and maintain internal audit and risk management for their survival (Bujerami, 2011).

Veli (2007) has studied the credit risk monitoring process for the banking sector of the Northern Cyprus, and found that this practice is significant for the banking sector noting that credit risk monitoring, when examined retrospectively, had a determining effect on the banking crisis previously experienced in the country. He observed that until the starting point of the crisis based on the fundamental ratios, there were consistent increases in credit risk. However, the risk dropped, following the crisis, based on the administrative, legal and financial measures taken. He also noted that during the regulatory and supervisory stage of credits, no provision for loan losses had previously been allocated save for the increasingly apparent strengthening of banks through equity capital. He recommends attendant monitoring preparations of technological, administrative, know-how and qualified personnel be made in accordance with Basel II framework.

Othman (2016) analyzed the effect of using principles of good lending, market segmentation, credit portfolio diversification, credit insurance, monitoring credit strategies as parameters of monitoring credit risk focusing on awareness of Jordanian banks of credit portfolio risk that lead to credit default in payment of obligations and effect thereof on the market value of the bank through returns to owners and stockholders.

He used Tobin's equation to assess the bank lending value of 11 Jordanian commercial banks operating between 2001 and2006. Othman (2016), focusing on finding the relationships between the dependent and independent employed multiple linear regressions, a questionnaire and the financial indicators depending on the financial statements of the banks and established that there existed a positive effect between the bank lending value and credit risk monitoring. He also studied the importance of maintaining the quality and components of the credit portfolio and containing its risks within accepted levels to establish the bank's lending value and echoed the need for Jordanian commercial banks to use credit risk monitoring to decrease portfolio credit risk and default risk in order to ensure acceptable returns for owners and stockholders further recommending that reliance on the principles of good lending when awarding credit, in addition to the work of monitoring and periodic review.

2.3.4 Credit Risk Control

Kithinji (2010) found that credit control in commercial banks is meant to control approved decisions that are not well examined and result to cases of default in loan repayments and non-performing loans, considerable extension of credit and directed lending. In order to minimize the negative effects, policies have focused on banks' officers assessing and reviewing all loans applications that are brought to the banks before lending is approved leading to reduced interest income for the commercial banks and by extension reduction in profits even though the banks have also tended to highly concentrate on collateral as the main security for loans which at times makes the banks assume other forms of mitigating risk.

Donald (2010) found that credit control fails result from borrowers' or counterparts' failure to meet their obligations in accordance with agreed terms. Credit risk management

aims to maximize a bank's risk- adjusted rate of return by maintaining within acceptable parameters, the credit risk exposure. The effective management of credit risk is therefore a critical component of a comprehensive approach to risk management and essential to the long-term success of any banking organization and hence requires banks to manage risks inherent in their entire portfolios as well as those in individual transactions or credits.

Nelson and Schwedt (2006) found that credit control management has gained prominence within the banking industry with banks now classifying into categories, all loans issued to enhance control. Moreover, banks are moving away from the old book and hold lending practice t and adopting more active strategy, buoyed by development of new technologies that leverage on the best mix of assets in light of the prevailing credit environment, market conditions, and business opportunities. Much more so today than in the past, banks can manage and control obligor and portfolio concentrations, maturities, and loan sizes, and address or even eliminate problem assets before they create losses many of which also stress test their portfolios on business line bases to inform their overall management.

Derban (2010) conducted a study and found that credit controls in commercial banks have been improved by having policies that allow the commercial banks absorb any anticipated loss from the clients who default in payments. This was in line with Basel II Accord which strengthens market discipline through increased disclosure. It was found to strong incentivize banks to conduct their business in a safe, sound and efficient manner, including maintaining strong capital base as a cushion against potential future losses arising from risk exposures. This study concluded that this market discipline increases the disclosures that the bank must make as supervisors have an array of measures that they

can use to require banks to make such disclosures such as anticipated loss from default by the borrower to repay the borrowings (Basel Committee on Banking Supervision, 2006).

Heffernan (2009) results indicated that when managing credit risk, clear established credit control, new credit approval and credit extension processes are very important for setting credit line appropriate to borrowers in the commercial banks. Importantly, current and potential exposures change both with passage of time and dynamism of variables making Further, controlling of borrowers crucial while the processes involved including approvals by credit authorities on new credits, renewals, and alteration of terms such as credit restructuring must be fully documented and recorded (Mwisho 2011).

The persons vested with the credit approval authority should possess the expertise necessary for execution of their functions and should not also have the customer relationship responsibility for prudence in credit practice. A credit score is a number that is based on a statistical analysis of a borrowers' credit report and is used to represent the creditworthiness of that person. A credit score is primarily based on credit report information. Lenders, such as banks use credit scores to evaluate the potential risk posed by giving loans to consumers and to mitigate losses due to bad debt (Mwisho (2011).

Aveny, Robert, Brevoort, Kenneth and Canner (2009) in their study on credit scoring found that borrowers do not submit financial reports for evaluation of their business. This was in contrast with the fact that the banks granted credit without conditions requiring the borrower to submit regular reports on how the financed business is performing. Aveny, et.al (2009) while noting that banks would, absent of current financial reports that show exposure details, continue to depend on assessments of actual risk opined that it is insufficient to have a general overview of the correlations between the various types of

loans instead proposing use of exact statistical measures of the links to all other types of loans in the credit portfolio.

A non-performing loan has been defined by the IMF (2010) as any loan in which: interest and principal payments are more than 90 days overdue; or more than 90 days' worth of interest has been refinanced, capitalized, or delayed by agreement; or payments are less than 90 days overdue but are no longer anticipated or one whose maturity date has passed but at least part of it is still outstanding. The specific definition is dependent upon the loan's particular terms.

Park (2002) concluded that non-performing loans affect how banks set rates and this constitutes a problem for those who pay their loans as they have to pay for those who default. His study revealed that nearly 69 trillion Yen resulting from non-performing loans from 1992 had been extinguished from the books. He also noted that interest rates charged by banks in unstable economic environments are rapidly outdone by inflation that makes it uphill for borrowers to repay their loans owing to income decreases, increase in insider loans and over concentration in certain portfolios resulting to credit risk.

Berger, Allen and Bouwman, Christa (2009) in their study on bank liquidity creation found that sustainable profitability is essential in maintaining the stability of the banking system noting that poor profitability weakens the capacity of banks to absorb negative shocks, which eventually affect the bank's affluence. They also opine that through profitability, the quality of a bank's management and shareholder behavior, constituting its competitive strategies can be deduced.

Niinimaki (2004) in a study on the effects of competition on banks' assumption of risk found that commercial banks were not fully satisfied with the magnitude of risk control

and the market structure within which competition takes place. He further posited that deposit insurance does not affect risk taking where a bank competes solely within a loan market or where such bank is a monopoly noting that albeit taking risks during such situations, extreme risk taking is nevertheless avoided by banks. On the converse, where banks compete for deposits introducing deposit insurance increases risk taking making, deposit rates and thereby forcing banks to take extreme risks. Several risk-adjusted performance measures focusing on risk-return trade-offs have been proposed but still do not solve the challenge of recovery of loaned amounts (Kealhofer, 2003).

The long term success of banking organizations is dependent on systems that ensure loans repayment and reduction of loan losses (IAIS, 2003). Bratanovic (2003) defines effective Credit Risk Management as one characterized by an appropriate credit risk environment; operating under a sound credit granting process; maintaining an appropriate credit administration involving both monitoring process and adequate controls over credit risk including clearly communicated risk management guidelines .

A sound Credit Management System can be characterized by guidelines that overtly outline conditions of credit facilities and the management of the portfolio thereof including origination, appraisal, supervision and collection of loans. Screening borrowers is an activity that has widely been recommended by, among others. The recommendation has been widely put to use in the banking sector in the form of credit assessment. According to the asymmetric information theory, a collection of reliable information from prospective borrowers becomes critical in accomplishing effective screening (Bodie, 1999).

In assessing borrowers, both qualitative and quantitative techniques can be employed although the latter is somewhat subjective. (Bryant, 1999). The attributes deduced by dint

of qualitative models can however be coded where after the sum of the values is compared to a threshold; credit scoring. Whereas credit scoring minimizes processing costs, it also reduces subjective judgments and possible biases. The rating systems if meaningful should signal changes in expected level of loan loss (Santomero, 1997). Chijoriga (1997) concluded that quantitative models make it possible to, among others, numerically establish critical elements of explaining risk of default,, assess the significance of the elements, improve the pricing of default risk, allow identification of risky loan applicants and possess capabilities to calculate reserves needed to meet expected future loan losses.

Aghjelou (2007) investigated risk analysis and risk management in selected co-op banks in Pune and found that 20.2 percent of risk factors are not applied to cooperative banks and showing that risk reduction in commercial banks in Pune was characterized by gaps between theory and practice. Further, the study revealed that sufficient and usable data should be as simple as can be and must be documented properly.. The study recommended development of other kinds of risk assessment methods.

Rekha and Koteshwar (2006) opined that the nature of banks makes credit risk the oldest and biggest risk faced by banks and constitutes the main component in capital allocation.. They estimate that nearly 70% of risks within risk management apparatus comprise credit risk concluding that within a banking institution, concentration risk is important apart of overall credit risk profiles.

To avoid concentrations within an industry, they posit that credit risk management be premised on the principle of diversified portfolio. They also noted that the risk profile in public banks was low compared to the moderate profile in private sector banks. Public sector banks were found, using the concentration-index method, to have a strong

occupation-wise concentration risk profile and NPAS level with a coefficient value of 0.64 compared to 0.45 for private banks The same was so on (Rekha & Koteshwar, 2006). They concluded that in the public sector banks, declining trends in non-performing assets (NPAS) during the post-liberalization era was resultant of improved credit portfolio diversification further observing that concentration risk profile of credit portfolio of private sector banks is higher than that of public sector banks thereby negatively affecting the NPAS level of private sector banks compared public sector banks (Rekha & Koteshwar, 2006).

Almaidama (2012) examined the role of the central bank in credit risk control at Islamic commercial in Yemen highlighting the important role of the Yemeni Central Bank in controlling credit risk through monitoring, evaluation and correction of credit processes. And suggesting elements of control including inspection plans designed to mitigate credit risk, requiring the banks to improve credit risk management processes, measurement and control of and responding to credit risk and oversight of operations in accordance with the Central Bank guidelines (Almaidama, 2012).

Alnasani (2011) pointed out that the evaluation the lending performance of banks, a high level of importance in light of developments in the banking sector, because the financial statements are no longer able to give a clear picture of how the bank's success in achieving the highest returns, banking, therefore, considered the financial analysis of the most important methods of performance evaluation because it provides the financial indicators that serve the process of planning and evaluation and oversight, and lay the foundations for sound thinking in the formulation of future plans in light of banking risks, as these risks can lead to increase in bank failures and financial crises.

The study by Alnasani (2011) came to several conclusions and proposals for the most important to rely on standards to measure and evaluate performance allows to manage the bank the possibility of identifying deviations causes and how to address them and policy-making appropriate to the high and improving level of performance, the data is contained in the financial statements give good results for the performance of the bank but not enough to show the true performance of the bank where the needs the matter to the standards for measuring bank returns. Strengthen the oversight role of the banking risks in order to adequate protection to the bank money, especially in light of the global financial crisis, which led to the bankruptcy of many global banks.

Al-Maktary (2010) assessed the use of non-financial (NFI) & financial (FI) information to assess credit risk within the banking industry in Russia focusing on respondents drawn fromcredit departments. Using inferential methods and descriptive analysis the results revealed that the use of NFI (capacity, collateral and character) and FI (liquidity, efficiency, comparative analysis and solvency) by banks to assess credit risk of customers considered washigher than the moderate extent of usage.

Al-Mojahid (2010) noted that lack of risk assessment and mitigation plans contributed resulted in considerable reduction of revenue in banks and consequently to bankruptcy. Al-Mojahid (2010) also established that there was moderate utility of project financing techniques (PFTS) by banks. Further, the results showed no significant relationship between all factors (demographic factors, bank size, bank nationality and bank type) and the extent of using NFI and FI save for FI and age. The study recommended that capital, conditions, long term debt and profitability should receive paramount consideration of banks during evaluation of customers' credit risks. Additionally, he noted that net present value (NPV) and internal rate of return (IRR)) must supplement other techniques.

The study by Al-Mojahid (2010) concluded that there is much direct impact between the banks risks and returns which have reached the most important results of that over the years the bank. High risk is in 2004 and 2005, where and in this period occurred miss the proportion of financial and analytical results largely have been the reason in the main administration changes the banks and the chairman of the board, which has worked to change policy and strategy of the bank largely and focus on profit over the long term, and to engage in market to competition, where it has become world bank loan specialist agricultural bank to the concept of nearly universal.

Al-Mojahid (2010) recommends that in order to maintain acceptable liquidity levels, bank deposits should be properly invested to guarantee profit, safety follow balanced policies to invest in assets sensitive to interest rate and liabilities attendant and strive to increase capital in order to suit increases in external funding sources and reduce the degree of risk.

Abdullah and Mohammed (2010) in their study, on the credit risk faced by banks and the responses thereto including the effectiveness of these methods concluded) that the credit risks is an integral part of the banking activity and associated with the emergence of new types of risks associated with the nature of the banks. The impact of the risks on banks including beyond the bounds of the Banking business have generated global interest necessitating creation of standards including those contained in the Basel Committee I and Basel II principles and foundations premised on evaluating banks' performance in terms of their ability to withstand risks. They also note that the positive developments have been overshadowed by challenges such as inability of banks to meet minimum capital requirements set by the Yemeni Central Bank and ensure capital adequacy in these banks, in addition to focusing assets in a limited number of banks, which limits the possibility of competition between Yemen banks.

Al-Hamid (2009), using financial ratios and the idle method studied the credit risk and lending performance of organization and demonstrated the significance of using the financial ratios in measuring the credit risk faced by the banks, though analyzing the factors of internal and external environment, as well as analyzing the lending performance indicators including profitability and the banking risk), and its impact on the strategic threat . One conclusion was that where the points of weakness exceeded the points of strength in other banks, they could be termed as having achievedbanks have achieved weak strategic position and building also noting that the relationship between strategic risk and profit indicators had a morally impacting relationship while that between banking risk indicators and the strategic risk had no moral impact relationship.

Al-Mikhlafi (2004) examined the effect of capital adequacy indexes of banking on both credit risk and return of banking and reflect that on the value of bank, on a sample 5 commercial banks covering the period between 1998 and 2002 where nine indices from capital adequacy of banking including capital to: deposits, assets, risk assets, loans, contingent liabilities, investment and capital to risk weighted assets were used to elaborate their role on maximization of value to bank. The findings echoed the recommendations relating to credit procedures, precautions and principles related to credit adequacy.

2.4 Lending Performance

Koch and Macdonald (2000) suggested that commercial and industrial (C&I) loan processes follow 8 steps which are application, credit analysis, decision, document preparation, closing, recording, servicing and administration and collection. Menkhoff, Neuberger and Suwanaporn (2006), the 6Cs of Character, Capacity, Capital, Collateral, Conditions and Control constitute the general evaluation factors used during the loan

process and also constitute important reference indexes for banks when determining the credit worthiness of a borrower. The completeness and accuracy of information collected pursuant to the 6C principles provide the avenue for determining value or quality of the output. (Haider & Birley, 2001). Capacity and condition constitute the toughest challenge for loan officers applying the principles especially occasioned by the need to determine how future changes may affect the fiscal positioning and loan repayment ability of an enterprise. A high visiting report would therefore occasion as a result of accurate and complete data collection in capacity and condition by a loan officer. (Koch & Macdonald, 2000).

Banga (2013) conducted a study on lending performance and found that banks, regardless of size, are considered to be the most important institutions impacting greatly on the economy of any country. This study also found that the more loan is approved, the more the economy grows since lending is considered the soul of economy since banks performing well avail potential benefits for other sectors of the economy to thrive and post steady growth rates. Akinlo and Oni (2015) observed that there has been tremendous reduction of lending approvals within commercial banks and this has affected the level of lending recommending this as an area for academic inquiry especially addressing differences in the identification of which factors impacted lending decisions as there is no consensus in many studies on the direction of those impacts, if any.

Malede (2014) conducted a study centered on Jordanian banks and found that banks generally aim to provide facilities, which facilities constitute the primary source of revenue for the banks, to the various sectors in order to exploit all the money resources available in pursuit of profits that eventually maximize the value of the bank. This study found that Jordanian banks Jordan, have experienced loan defaulting from the clients

contributing to slow national economic growth. Acharya et al. (2009) also highlighted that many reviews have pointed out the fact that there is high level inconsistency in loans repayment and some result in non-performing loans and affect the lending performance which is the major role of commercial banks.

Moussa & Chedia (2016) studied 18 Tunisian banks to identify the impact of some internal and external factors on bank credit and found that commercial banks were issuing more credit than the borrowers qualified for and this impacted on loans more than return on assets, net interest margin, and liquidity further noting that internal factors have had a significant impact on the volume of loans. The study also explored the impact of lagging the variables by a year to establish the influence of such delay on credit and found that, Return on Assets does not affect credit growth, whereas its lag lowers credit growth with lag on limited liability partnerships (LLP) posting the counter effect where the impact of a change in money supply increases considerably after one year; and in conclusion, the negative impact of remittances diminishes after one year.

Ayieyo (2016) used multiple regression analysis, to examine how deposit size and interest rates affected total loans over a ten year period the sample of which comprised 9 commercial banks and found that interest rates were negatively correlated and significantly affected the total loans applications. In addition, the total loans provided were also impacted significantly by the volume of deposits and recommended that fees and commissions be embraced by banks as alternative revenue sources in the wake of dwindling interest rate yields.

Akinlo & Oni (2015) examined factors influencing private sector credits in Nigeria using error correlation and found that credit was likely increased by the effect of broad money, cyclical risk premium and liquidity ratio further observing credit reduction where prime

lending rate and reserve ratio were considered.. They also found that private credit rises with inflation which inflation tends to reduce real bank credit.

Malede (2014) used Ordinary Least Square (OLS) to study 8 Ethiopian, commercial banks between 2005 and 2011and found that the significant reduction in lending over the period had affected the capital and liquidity of these banks and ultimately resulted in their closure. Hanh (2014) studied financial data from 146 countries covering a 24-year period in an effort to establish the elements of bank credit and found that bank lending and availability of credit is affected by a country's economic growth further noting that the progress of a bank hinges on the strength of the banking system available and that reliance on foreign capital exposes the banking industry to the whims of external challenges.

Prudential bank regulation became prominent after the introduction of structural adjustment programmed (SAP) in 1986 which relaxed the rules governing banking processes which were there before strictly regulated by bank supervisory bodies. To avert distress and achieve optimum profitability, banks resorted thence to these prudential guidelines which were influenced by factors such as type of bank, the capital base, deposit base and density, the period credit guidelines issued by regulatory authorities, the internal policies of the subject banks and advances accounts for the highest percentage of the total assets of the bank (Malede, 2014).

2.5 Credit Risk

Gregoriou and Hoppe (2009) define bank loan as a debt entailing the redistribution of the financial assets between the lender and the borrower and comprises the principal which they define as the amount of money advanced to the borrower by the bank which the former is under obligation to pay back and interest which they define as the additional

fee charged by the bank for the debt. The also define credit risk as that risk associated with loans. Loans constitute a significant source of income for financial entities and also enable increased supply of money within the economy (Waymond, 2007).

Non-performing Loans have been defined by the Central Bank of Kenya defines as those facilities that are not being serviced as per loan agreements and expose the financial institutions to potential losses (CBK, 1997). These loans are further encompass accounts whose principal or interest remain unpaid for 90 days or more after due date. The Central Bank of Kenya Supervision Report (CBK, 1999), revealed that the level of non-performing loans between 1997 and 1999 has been steadily increasing from KShs. 56 billion in 1997, to KShs. 83 billion in 1998 to KShs. 97 billion in 1999 and continues to constitute a major regulatory concern Amidst financial crises suggesting NPLs as a strong indicator of potential insolvency and failure, it has been suggested that financial markets with high NPLs have to diversify their risk and create portfolios with NPLs along with Performing Loans, which are widely traded in the financial markets (Ernst & Young, 2006).

Omuodo (2003) recommended that banks should strategically focus on alternative revenue sources as over reliance by banks on interest income mounts increasing pressure the industry's profitability. which diversification, as was highlighted in National Industrial Credit (NIC) Bank's strategy could include by expanding the scope of its activities by offering more general commercial banking facilities and other products noting that to some degree, interest income over reliance has been reduced by premium financing and provision of custodial services.

The CBK (2002), established that loans advanced by public sector banks without proper documentation proved difficult to recover Forcing banks to steer away They have now

shifted away from collateral based lending to the credit worthiness of borrowers with banks now enjoying the fruits of prudent risk management practices. The Cooperative Bank of Kenya for example posted a rise of 70 per cent in its pre-tax profitability for year 2003 and declared its first dividend in six years. The bank's chief executive officer attributing the results to aggressive cost management, focus on non-funded income, debt recovery and prudent liquidity management contributed significantly to the bank's performance in the year (Wahome, 2004).

The Basel accord identifies three types of risk comprising credit, market and operational risks. It defines market risk as the risk of losses in on and off-balance sheet positions arising from movements in market prices where the chief remedy addresses the interest rate risk and equity risk pertaining to financial instruments, and the foreign exchange risk in the trading and banking books. The accord defines the risk of direct or indirect loss resultant of inadequate or failed internal processes, people and systems or from external factors as operational risk (Basel 1999). A sound risk management framework is an comprises strategy, process, infrastructure and environment which helps institutions make informed risk taking decisions prior to committing limited resources and thereafter helps to monitor the outcome of these decisions (Venkat, 2000). This integration approach to managing risks ensures full risks identification, risk awareness, risk assessment, measurement and control and finally evaluation.

Recent corporate and financial disasters have prompted regulators to increase their examination and enforcement standards. The Basel II established a direct linkage between minimum regulatory capital and underlying credit risk, market risk and corporate risk exposure of banks highlighting the importance of capital management in risk mitigation and management making comprehensive capital management frameworks imperative for

better risk based product pricing and resource allocation that eventually improve profitability of banks (Basel 2004).

Comprehensive evaluation, by credit managers, of credit risk covering the credit portfolio management, lending function and operations, credit risk management policies, non-performing loans portfolio, asset classification and loan provisioning policy is today vital and must, at least, be conducted annually (Basel 11 2004). As the process of evaluating risk in an investment, credit risk management facilitates identification and making of investment decisions where the risk vis-a-vis return balance are considered from a better position. This risk can be reduced by monitoring the behaviour of clients, who may be natural or juristic persons, who intend to apply for credit in the business (Altman 2002).

Credit assessment is equally important a consideration in credit risk management making it vital for banks to have proper capacity to assess, administer, supervise, control, enforce and recover loans, advances, guarantees and other credit instruments in order to avert the dangers attaching to credit risk; a function that management should set up and staff to ensure proper maintenance and administration of credit once granted (Kabiru, 2002).

High default rates and provisioning have made credit risk management imperative requiring banks to have adequate credit risk measurement procedures and internal rating systems and concentrate on risk management function especially in banks where independent risk management structures do not exist which should set up these structures with sufficient operational autonomy based on competence and clear reporting structures to ensure independence and prudence in credit risk management (Basel, 1999).

At the close of the benign credit cycle in 1999, banks, regulators and financial market specialists spent substantial time on CRM due to increased emphasis on sophisticated risk management techniques in a challenging environment, refinements in credit scoring

techniques, establishment of relatively large database of defaults, recoveries and credit mitigations, including development of offensive credit risk mitigation techniques such as credit insurance products, , credit derivatives and securitizations (Altman, 2002).

Financial institutions now use various risk mitigation methods to mitigate credit risk including guarantees, letters of credit, surety bonds, credit insurance, collateral, factoring, debt collection and netting off of loans against deposits of the same counter-party where payment is netted off against the receipts and the balance is paid thus reducing the credit risk among others. It is important to note that other risks such as legal, operational, liquidity and market risks may arise (Stutz, 1985).

In finance, the dictum is "the greater the risk, the higher the return" and this risk cannot be eliminated as it constitutes both an opportunity with the potential of high profitability and a threat with the possibility of losing part or the whole of your investment with most business managers positing that it is neither possible nor desirable to completely eliminate risk from the business proposition noting that is required is an understanding of all risks that arises from a particular business and managing those risks effectively (Venal 2000).

Basel II thus purposed to create an international standard outlining how much reserve capital banks should keep to guard against the types of risk they face by recommending meticulous risk and capital management requirements aimed at ensuring that banks hold capital reserves appropriate to the risks the bank exposes itself to implying that the greater risk which bank is exposed to, the greater the amount of capital a bank needs to hold to safeguard its solvency (Basel, 2006).

2.6 Summary of Literature Review

The theoretical and empirical analysis confirm that credit risk is an important component in the management of commercial lending not only in Kenya but world over. All studies that focused on credit risk and lending performance from the empirical review were biased towards various methods and techniques of credit risk management used by various institutions outlining that credit risk can contribute to the overall lending performance of banks but stopping short of analyzing a clear effect between credit risk and the lending performance only stating credit risk as a factor influencing lending performance.

The theories considered have introduced the very important elements of risk and return and holding portfolio of assets to diversify risk in banks. The theorists' intentioned to address investors of stocks in an equity market on how to maximize return while minimizing risks. The theories used have thus clearly explained how banks can reduce the risk that is associated with lending.

2.7 Conceptual Framework

Concepts comprise of abstract or general ideas inferred or derived from specific instances (Kombo & Tromp, 2009). They need not be discussed to be understood (Smyth, 2004). A conceptual framework is made up of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation (Kombo and Tromp, 2009). It is a research tool intended to assist a researcher to develop awareness and understanding of the situation under scrutiny and to communicate it. Clearly articulated, a conceptual framework has potential usefulness as a tool to assist a researcher make meaning of subsequent results. It forms part of the agenda for negotiation to be scrutinized, tested,

reviewed and reformed as a result of investigation and it explains the possible connections between the variables (Smyth, 2004).

For the present study, the conceptual framework shows the relationship of credit risks on lending performance of commercial banks in Kenya and has been depicted in Figure 1 below. It conceptualizes that credit risks (credit assessment, source of repayment, repayment capacity of the borrower, credit selection, amount of exposure, tenure and price of facility, tracking of borrowers, signs of irregularity, periodic valuation of collateral, timely repayments, terms and conditions, approval by authority and credit insurance influence lending performance of the commercial banks ascertained through the growth/decline in borrowers ratio and repayment ratio.



Figure 1: Conceptual Framework

2.7.1 Explanation of Variables

Credit risk identification refers to the formalities that a customer will be subjected to before the credit is obtained from the commercial bank since variety of loans that are offered to the client have different lending procedures to be followed. Credit risk

measurement in this study includes the actions that bank needs to take in order to evaluate and find out if the client is able to repay the credit given out or how it will be refunded back by insurance in case the client dies or becomes bankrupt. Credit risk monitoring refers to the regulations in the banking systems which offers multi-credit products and services and it is important to have activities such as tracking of borrowers, identifying signs of irregularity and timely repayments. Credit risk control entails how commercial banks offers credit based on approved decisions that are well examined, with policies in place to minimize on the negative effects for better lending practices in line with the global lending standards.

2.8 Research Gap

The preceding review of relevant literature reveals research undertaken in the credit risk area but not conclusively. All the literature reviewed reveals concentration by previous researchers on a few variables of credit risk while this study covers additional important variables that were omitted by previous studies such as identification, measurement, monitoring and control. The survey of relevant literature, also established that few studies specific to Kenya on the link of credit risk on commercial banks and lending performance in commercial banks have been conducted. This study therefore aims to fill these gaps in literature by studying the evaluation of credit risk on lending performance on selected key credit risks indicators of commercial banks in Kenya and fill the existing contextual and conceptual gaps.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter contained the research design which was used. The study target population, sampling techniques and sample size, data collection instruments and procedures were also examined. Zikmund, Babin, Carr and Griffin (2010) define research methodology as a component that must elucidate technical strategies in an approach suitable for the audience which it accomplishes by addressing the research and sample designs employed for the study, the data collection and the analysis carried out on the data gathered. Dawson (2009) defined it as the viewpoint on which the research is anchored. Kombo and Tromp (2009) agree with Zikmund et al. (2010) that research methodology entails the portrayal or account of the approaches engaged in undertaking the scholarly investigation.

3.2 Research Design

Dawson (2002) depicts the predominant goal of this segment as setting out a portrayal of, and ground for the adopted or selected methodology including approaches to research. Polit and Beck (2003) portray research design as the comprehensive plan for obtaining responses to the questions under investigation as well as for handling some of the complexities or problems experienced in the course of the process of the study. Miller and Yang (2008) and Kothari (2009) elucidate it as the master plan of circumstances necessary for collection as well as the analysis of data in an approach whose objective is to integrate pertinence or applicability to the research purpose with economy in scholarly investigation process. Kombo and Tromp (2009) define it as the assessment of the general research goal, the literature and adopted research methods. Kothari (2009) observed that the research design enables the effortless undertaking of the dissimilar research study processes, hence making scholarly investigations as efficient as possible, resulting to maximal data with least expenditure of time, effort and money.

Lavrakas (2008) contends that adopting a suitable research design revolves around; the essence of the variables, research questions and or hypotheses, the sample of participants, the study's settings, the methods or approaches employed in the collection of data and the data analysis techniques. Hence, it comprises the framework, or the research scheme on which the process of research is pivoted from the development or articulation of the research hypotheses and questions to presenting of findings of the scholarly investigation or research. In designing any scholarly investigation, the researcher ought to be conversant with the fundamental steps of the procedure of carrying out research and specifically processes on which all sorts of research designs are anchored. Additionally, the researcher ought to be conversant with diverse or dissimilar research designs in order to select or single out the most suitable design to respond to the research questions and hypotheses of under investigation.

The research design adopted for this scholarly investigation was descriptive survey. Lavrakas (2008) elucidated a descriptive survey research design as a methodical research technique for gathering data from a representative sample of individuals making use of instruments whose constituents are open-ended and/or closed-ended questions, observations as well as interviews. Orodho (2003) and Kothari (2009) elucidate this design as an outline that pursues to depict precisely the attributes of a specific individual, distinct circumstance and or a group. Further, Polit and Beck (2003) assert in a descriptive study, those undertaking the research count, perceive, depict and codify or categorize. They additionally portray such studies as investigations that have, as their predominant objective, the precise illustration of the attributes of individuals, scenarios, or groups, and/or the periodicity with which particular phenomena take place.

Descriptive survey research design has been employed in other scholarly investigations. For instance, Clarence (2010) in her study of sociological evaluation of youth inactivity in the Philippines, Saeed (2010) who employed it to carry out a scholarly investigation on supply chain and risk management abstractions in the oil industry and Moodley (2007) also employed it to research on the impact of employee satisfaction levels on customer service in the service utility at Telkom South Africa. With respect to the definitions, explanations and strengths provided above, descriptive survey is the most suitable design for this scholarly investigation.

3.3 Target Population

Lavrakas (2008) defines a population as any finite or infinite collection of individual elements while Hyndman (2008) describes a population as the entire collection of 'things' in which we are interested. According to Zikmund et.al. (2010) and Kothari (2009), a population refers to all items in any field of inquiry and is also known as the 'universe'. Polit and Beck (2003) refer to population as the aggregate or totality of those conforming to a set of specifications. For this study, the target population was at two levels. The institutional level that targeted the 42 licensed commercial banks in Kenya while the second level comprised employees of the 42 commercial banks in operation in Kenya as at 1st January, 2018. The predominant justification for selecting all the personnel is guided by the fact that according to Kenya Bankers Association (2018), in present financial market dynamics all the employees are charged with the responsibility of enabling lending in the banking institutions they are employed and possess an extensive understanding on how credit risks influences lending performance. These banks consisted of all the banks located in Nairobi where the main and busiest bank branches are premised and headquartered. The target population was 1260 employees (KBA, 2018).

Table 3.1: Target Population

Cadres	No. of. Employees
Credit Managers	42
Other Levels	1218
Total	**1260**

Source: Kenya Bankers Association, (January, 2018)

3.4 Sampling Frame

For this study, the sampling frame consisted of all licensed commercial banks in Kenya and operational as at January 2018. The data on the grouped number of employees within the banking sector in Kenya as at 31st December 2017 was obtained from the Central Bank of Kenya supervision report of 2017. The report also contained the list, physical address and contact details of all the commercial banks in Kenya.

Lavrakas (2008) defines a sampling frame as a list of the target population from which the sample is selected and usually consists of a finite population for descriptive survey designs. Gill and Johnson (2002) define it as a list of members of the research population from which a random sample may be drawn while Mugenda and Mugenda (2008) and Kothari (2009) define it as a list that contains the names of all the elements in a universe. Polit and Beck (2003) refer to a sampling frame as the technical name for the list of the elements from which the sample is chosen.

3.5 Sampling Technique and Sample Size

Lavrakas (2008) describes a sample as a subset of elements drawn from a larger population. Kombo and Tromp (2009) and Kothari (2009) define it as a collection of units chosen from the universe to represent it whereas Gerstman (2003) observes that a sample is needed because a study that is insufficiently precise lacks the power to reject a false

null hypothesis and is a waste of time and money thereby justifying determination of a sample before commencement of data collection..

Polit and Beck (2003) strongly recommend collection of data from a sample compared to an entire population noting that the former is more practical and less costly. This, they however note, tags with the risk that the sample may not reflect the population's behaviours, traits, or beliefs adequately. They further observe that the methods of obtaining samples are vast and will depend on a range of factors such as cost, effort, and skills required, but their adequacy is assessed by the same criterion of the representativeness of the selected sample further noting that the quality of the sample for quantitative studies depends on how typical, or representative, the sample is of the population with respect to the variables of concern in the study.

A sample comprises the finite part of a statistical population the properties of which are studied to gain information about the whole (Orodho & Kombo, 2002). In this study, the 42 commercial banks in Nairobi with the population of 1260 employees participated. The sample consisted of credit managers and other bankers working in Nairobi where purposive sampling was used to pick 42 credit managers and simple random sampling to select the other respondents from the target population of 1260 employees. The study focused on all the employees in banks in Nairobi since they are representative of other branches and the policies, made at the banks' headquarters, are applicable to all other branches in the country.

The sample size was determined by use of the following Slovin's formula;

n = N / (1 + Ne^2)

n = Number of samples N = Total population e = Error tolerance

This was done with a confidence level of 95% and at 0.05 level of significance. In this case the target population being 1260 less the 42 credit managers who were purposively selected.

The sample size was:

$$n = \frac{N}{1+Ne^2}$$

$$= \frac{1218}{1+ (1218x\ 0.05^{2)}}$$

~301 respondents

Table 3.2: Sample Size

Cadres	No. of. Employees
Credit Managers	42
Other Levels	301
Total	**343**

Source: Author (2018)

3.6 Data Collection Instruments

Questionnaires were used to collect primary data. They contained Likert scale types of questions where the respondents were required to indicate their level of agreement with statements expressing either favourable or unfavourable attitude towards the concept being measured. A five ordered response levels scale of strongly disagree, disagree, neutral, agree and strongly agree was used. According to Cooper and Schindler (2011), Likert scales are the most reliable and provide greater volume of data compared to other scales and give better approximation of the normal response curve hence the justification for their use in this study.

The questionnaire also contained general questions on lending performance and addressed each stated research questions. The questionnaires were hand delivered to the respondents in their work stations. They, respondents, were then requested to complete the questionnaires and there was an agreement on when they would be picked by the researcher. The purpose of the questionnaires was to collect information on the most critical factors related to credit risks and lending performance. Secondary data was collected from research reports, previous studies and online journals in as far as they provided relevant and up-to-date information.

3.7 Data Collection Procedure

Questionnaires were self-administered by the researcher where three qualified research assistants were recruited to assist in data collection. The target participants were employees who filled in the questionnaires possessing adequate knowledge on account of having been under the employment of their respective banks for some time and providing insights into the business, considering their crucial roles in the banks. The banks were visited by the research assistants who tagged with the introductory letter from the university and NACOSTI and explained the intention of dropping the questionnaires and the request was also explained to the branch managers of the banks. The questionnaires were delivered to the respondents and in some cases the research assistants would wait for them to be filled especially where the respondents were willing to complete them instantaneously. Where the questionnaires were not filled immediately, the research assistants agree with respondents on collecting the filled questionnaires after 3 days.

3.8 Pilot Test Study

Before being administered, the questionnaire were pretested to ensure clarity and content validity. Cronbach's alpha was then used to conduct the reliability analysis for testing reliability and the internal consistency of the data items. The questionnaire was then pilot

tested to 30 employees from 5 banks in Nairobi town and employees in the credit department filled the questionnaires. They represented 10% of the accessible population which is generally recommended by social researchers including Mugenda and Mugenda (2008). In choosing the 5 banks for pilot testing, the researcher used simple random sampling.

Orodho (2009) observed that simple random sampling ensures that each unit has an equal probability of being chosen, and the random sample is the most representative of the entire population and least likely to result in bias as it contains statistical properties which allow researchers make inferences about the population based on the results obtained from the sample. After pilot testing, the questions which were ambiguous, repeated, and long were adjusted and revised to incorporate the feedback which were provided and ensured they were clearly understood by the respondents.

3.8.1 Reliability of Research Instrument

Reliability ensures that there is consistency in the production of the results such that the researcher or another researcher can be able to collect the same desired information as the original instrument intended to use in the same target population (Oson & Onen 2005). To achieve reliability, the sample population was clearly defined and questionnaires strictly filled by the respondents from the banks and administered the same way to all respondents. Cronbach's alpha was employed for testing questionnaire reliability and the internal consistency of the data items whose reliability was measured using Cronbach's alpha coefficient and an average coefficient of 0.80 was obtained. According to Kothari (2009), a scale of 0.70 or above is acceptable.

3.8.2 Validity Research Instrument

Validity refers to the extent to which an instrument truly measures that which it is intended to measure or otherwise defined, how truthful the research instruments are

(Cable & DeRue, 2002). Since the selection of a variable in a research is based on extensive review of theoretical and empirical literature, it is considered to be content validity. Criterion validity is concerned with the extent to which a particular variable predicts or relate to other variables (Golafshani, 2003). Criterion related validity of the conceptual framework is determined by examining the multiple correlation coefficients of all the independent variables and the measure of dependent variable. To ensure clarity and content validity, the questionnaires were pretested before being administered. To achieve validity, pilot test was done on 5 selected banks in Nairobi town to ascertain validity.

3.8.3 Common Method Variances

Method bias constitutes a main source of measurement error which threatens the validity of the conclusions about the association between measures and is widely recognized to have both a random and a systematic component (Bagozzi & Yi, 1991). A research study is prone to systematic measurement error, which is a serious problem, because it provides an alternative explanation for the observed relationships between measures of different constructs that is independent of the one hypothesized. Bagozzi and Yi (1991) noted that one of the main sources of systematic measurement error is method variance that may arise from a range of sources including the content of specific items, scale type, response format, and the general context (Fiske, 1982).

In this study, the potential sources of common variance method were from the items ambiguity, question context, the scale size obtaining the measures of both predictor and criterion variables from the same source. In order to control the common variance method which may have ended up having a serious confounding influence on empirical results and yielding potentially misleading conclusions, the study used procedural remedies such as to avoid asking confidential items and rather developing surrogate items which be easy and direct to answer and still achieve the objective of the study. The study also avoided

collecting information from one source only instead collecting the measures of these variables from different sources including the management employees and other lower cadres.

3.9 Data Analysis and Presentation

The data analysis consisted of examining the data in order to address the initial propositions of the study. The data was processed using Microsoft Excel before importing the data into Statistical Package for Social Sciences software Version 22. This processing was important in correcting problems identified in the raw data. After correction, the researcher formulated a coding scheme which was then summarized and analyzed in various ways. After coding data, the researcher made a decision about the short and long-term storage of the information generated and this was stored in paper form by writing on paper the coded data and also using electronic storage. Data was analyzed using descriptive statistics which included frequency distribution tables, percentages and measures of central tendency and measures of variations. In addition, advance statistical techniques, and particularly measures of variations such as logistic regression analysis (binary), were used to establish relationships among variables and to provide a detailed description of the data and also to classify features and construct statistical models in an attempt to explain what was achieved. The results were presented in tables and they were accompanied by relevant explanations.

3.9.1 Statistical Model

According to Gujarati (2004), the logistic regression model is selected due to the nature of the dependent variable where the model is applicable if the dependent variable is a categorical variable with only two categories (Credit Risk Influence on Lending Performance or Credit Risk does not Influence Lending Performance), hence binary logistic regression is appropriate. The decision criteria was that for credit risk to influence

lending performance, the P-values should be < 0.05 while if credit risk does not influence lending, the p-values should be >0.05. Logistic regression was also used by Tesfaye, Sahlu and Kiros (2014) in the study of determinants of group loan repayment performance of SME's in Ethiopia where their dependent variable was binary (default or non-default) and the model was significant. While the logit and the probit yield similar parameter estimates, the cumulative logistic regression model is preferred because of its comparative mathematical simplicity and more meaningful interpretation of odds ratio.

Thus, the logit model was specified as follows;

$$Log\left[\frac{P_i}{1 - P_i}\right](Y_i) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \mu$$

Where

Pi / (1 − Pi) is simply the odds ratio -the ratio of the probability that a credit risk will influence lending to the probability that it will not influence lending.

Y_i	Lending Performance
B_0	Constant
X_1	Identification
X_2	Measurement
X_3	Monitoring
X_4	Control
μ	Stochastic term (error)

β_1, β_2, β_3, and β_4 represent units change in the dependent variable as a result of a unit change in the respective independent variable and it is the proportion of positive effect.

Decision criteria; Credit risk Influence on Lending = p-value< 0.05

No Credit risk Influence on Lending = p-value> 0.05

3.11 Research Ethical Issues

Prior to the commencement of this study, the researcher obtained permission from the commercial banks headquarters and sought permission of the head of human resources in all the banks involved. The purpose of the research was also explained to the respondents and their consent sought before their participation in the study. With only those consenting included in the actual data collection. There was a cover letter from the National Council of Science & Technology (NACOSTI) to accompany the questionnaires requesting cooperation from the respondents, and a copy of a letter from the university indicating the study was purely for academic purposes and all ethical practices were to be respected.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter focuses on presenting the results and discussions of the study by detailing the general characteristics of the study sample, descriptive study, the aggregates of the variables and the correlation analysis of the dependent and independent variables. The chapter details the research results and discussions on the strength of the model; test of hypothesis and the summary. The chapter also analyses the findings of the study as set out in the research methodology. The data was gathered exclusively from the semi-structured questionnaires. This instrument was designed in line with the objectives of the study. The Likert results from the questions in the 'agree ' and 'disagree ' format were interpreted based on three levels of agreement where strongly disagree and disagree meant ‘disagree’; and uncertain or neutral remained the same for interpretation and agree and strongly agree were taken as ‘agree’ for the purposes of interpretation. The results here were presented in frequency tables and discussions.

4.2 Response Rate

343 questionnaires were issued to the respondents of which only 272 were returned accounting for 79% return rate. Part of this rate was attributed to incomplete, unreturned and non-filled questionnaires. The response rate was nevertheless adequate given the recommendations by Saunders, Lewis and Thornhill (2007) who suggested a 30-40% response is adequate, Sekaran (2010) who document 30%, and Hager, et.al, (2008) recommend 50%. Based on these assertions, this implies that the response rate for this study was adequate and the resultant high response rate can be attributed to the data collection procedures, including pre-notification the self-administration, where the respondents were allowed to complete the questionnaires within an agreed time frame

where after the instruments could be collected and use of follow up calls to clarify queries as well as prompt the respondents to fill the questionnaires. The researcher also engaged the services of three research assistants.

4.3 Reliability Analysis

Bagozzi (1994) explains that reliability can be viewed either as: reliability (the extent of accuracy) and unreliability (the extent of inaccuracy). The Cronbach's alpha is the most common reliability coefficient and estimates internal consistency by determining how all items on a test relate to all other items and to the total test - internal coherence of data. The reliability is expressed as a coefficient between 0 and 1.00. The higher the coefficient, the more reliable is the test. To ensure reliability of the instruments in this study, Cronbach's Alpha was used the results of which constructs are shown in table 4.1 below.

Table 4.1: Reliability of Research Instruments

Variable	Cronbach's Alpha	Number of Items
Identification	0.829	6
Measurement	0.7812	8
Monitoring	0.7894	7
Control	0.8163	6

Source: Survey Data (2018)

The results indicated that risk identification had a coefficient of 0.829; risk measurement had a coefficient of 0.7812, risk monitoring of 0.7894 and risk control of 0.8163 with all the constructs depicting Cronbach's Alpha values above the recommended value of 0.70 thus confirming the study as reliable.

4.3. Demographic Information

The basic characteristics of the sample of the study for the purpose of understanding the financial institutions work force are presented in this section.

4.3.1 Respondent's Gender

The study investigated the gender of employees working in the commercial banks to understand whether the commercial banks are upholding the constitutional requirements on gender. Their responses were as indicated in table 4. 2

Table 4.2 Respondent's Gender

Responses	Frequency	Percent
Male	180	66.2
Female	92	33.8
Total	272	100.0

Source: Survey Data (2018)

The results indicated that 66.2% of the respondents were male while 33.8% were female. This reveals that there is more male than female employees in the banking industry. This findings are supported by those of Marchin, Bertazzoni, Polimeni and Torre (2015) who established that there is gender differences in reaching top roles in banking industry.

4.3.2 Respondent's Age

In order to establish the age dynamics of the respondents, the respondents were asked to indicate their age with their responses as indicated in table 4.3

Table 4.3 Respondent's Age

Responses	Frequency	Percent
Below 25 Years	18	6.6
25-30 Years	63	23.2
31-35 Years	103	37.9
36-40 Years	59	21.7
41-45 Years	11	4.0
46-50 Years	18	6.6
Total	272	100.0

Source: Survey Data (2018)

From the table above, majority of the respondents 37.9% were between age brackets of 31-35, followed by age bracket of 25-30 where the respondents were 23.2%. It was also noted that the age bracket of 36-40 was represented by 21.7% of respondents. Respondents above 40 years were represented by 10.6% while those below 25 years were only 6.6%. This indicates that commercial banks work force is constituted by a majority of youth and a few old people which is a good combination for dynamic organization like banks. This is supported the by study of Kumar & Singh (2017) who found that there is more and more young employees are also entering into the banking sector. The conclusion of that study was that there was a positive relationship between age and performance of employees of commercial banks. A study by Gellner and Veen (2013 found that age diversity has positively influenced the company's productivity only if company participates in brainstorming tasks or decision problems rather than routine work.

4.3.4 Respondent's Level of Education

The study also sought to establish the respondents' level of education. This was to decipher whether the banks workforce is competent enough to handle the rapid changes that happening in the banking industry. Their responses were as indicated in table 4.4

Table 4.4: Respondents Level of Education

Responses	Frequency	Percent
Diploma	18	6.6
Degree	162	59.6
Masters and Above	92	33.8
Total	272	100.0

Source: Survey Data (2018)

The results showed that majority of respondents, 59.6% had bachelor degrees while 33.8% of the respondents indicated that they had master's degree and above with 6.6% holding diplomas thereby revealing that majority of the employees have the required education level that can help them make decisions to better their lending performance. This findings are supported by those of Mutimba & Kanyua (2017) who established that level of education leads to improved productivity by ensuring the employees in various departments are subjected to different training programs for both the organizations overall performance as well as their performance.

4.3.5 Years worked with banking sector

The study investigated the number of years that respondents have worked in banking industry. This was to establish the wealth of knowledge that employees have in banking matters especially lending. Their responses were as indicated in table 4.5

Table 4.5 Years worked with banking sector

Response	Frequency	Percent
Below 5 Years	43	15.8
5-10 Years	152	55.9
11-15 Years	70	25.7
16-20 Years	7	2.6
Total	272	100.0

Source: Survey Data (2018)

The results illustrated that majority of the respondents, 55.9% had worked between 5-10 years while 25.7% of the respondents had worked for 11-15 years. It was noted from the data that there were some bank staff, 2.6%, who had worked for over 16 years in the banking sector. Only 15.8% of the respondents had worked for a period of below 5 years. Kotur & Anbazhagan (2014) who established that the performance of the employees gradually increases with their experience and after an experience of 20 years the performance is again getting lower. With growing experience in a job, the employees learn almost all the knacks concerned with the job and nothing much remains to the learned. In the early stages of doing a job, there are many things to learn and individuals are curious to things and they will show interest on the job. But, when everything has been explored, repeating the same job again and again, gives the sense of boredom in the minds of the employees and this might affect their performance negatively.

4.3.6 Respondent's Position in Bank

The study investigated the position of respondents in the banking sector. This was important to establish whether the information the data collected involved part of the management who have critical information on lending performance. Their responses were as indicated in table 4.6

Table 4.6: Respondent's Position in Bank

Responses	Frequency	Percent
Credit Manager	42	15.4
Others	230	84.6
Total	272	100.0

Source: Survey Data (2018)

The results indicated that 15.4% of the respondents were credit managers whereas the remaining 84.6% constituted other members of staff. This shows that the data collected was inclusive of both levels of cadres and this shows inclusiveness. This is supported by the findings of Lakshmi & Sireesha (2019), who established that employee position was significant on affective trust and that affective trust for superiors was higher among both junior and middle cadre employees who rated their superior‘s leadership quality as high.

4.4 Study variables

The results and discussion of the study variables are presented in this section where frequencies and descriptive statistics are first presented and thereafter followed by the inferential statistics. The questionnaire responses were based on a Likert scale which was coded with numerical values for ease of data analysis. The values assigned to the Likert were 1=strongly disagree, 2=disagree, 3=neutral, 4=agree and 5=strongly agree.

4.5 Credit Risk Identification

This study sought to investigate the influence of credit risk identification on the lending performance of the commercial banks. This was important since if the sources of risk in lending are not proper identified using the proper methods of risk identification, the banks expose themselves to potential loss and eventually closure of the business.

4.5.1 Effective Systems in Place to Enhance Risk Identification

The study was interested in finding out whether commercial banks have effective systems in place to enhance credit risk identification especially when clients are borrowing credit. This was important since the availability of effective systems in place will help the banks to be in a position to identify potential risks that are associated with lending. The responses were as in table 4.7 below

Table 4.7 Effective Systems in Place to Enhance Risk Identification

Responses	Frequency	Percent
Disagree	2	.7
Neutral	29	10.7
Agree	158	58.1
Strongly Agree	83	30.5
Total	272	100.0

Source: Survey Data (2018)

Based on the results, 88.6% of the respondents agreed that there was effective systems in commercial banks to enhance credit risk identification especially when clients are borrowing credit. Its only 0.7% of the respondents whose banks had not been able to put effective systems to enhance credit risk identification especially when clients are borrowing credit. From this finding, it is clear that majority of commercial banks have taken the issues of credit risk identification with concern and put in place effective systems especially when a client is borrowing credit. This finding is in agreement with those of Rose et.al (2008), on credit risk identification of Grameen Bank in Bangladesh who found that commercial banks have systems that enhances credit risk identification when advancing credit to borrowers and this reduce the rate of risk exposure in lending.

4.5.2 Competitive Pressure Makes It Impossible to Get Accurate Client Data

Commercial banks operate in a very competitive environment amongst themselves and other financial services providers. Due to this competitive pressure, the study sought to establish whether this has led the banks to offer credit without getting accurate data on borrowers' credit worthiness to avoid losing the client. This was meant to ascertain whether the competition within the banking industry have penetrated even in credit lending and exposed the banks to poor lending performance. The findings were as illustrated in table 4.8 below.

Table 4.8 Competitive Pressure Makes It Impossible to Get Accurate Client Data

Responses	Frequency	Percent
Strongly Disagree	96	35.3
Disagree	114	41.9
Neutral	9	3.3
Agree	52	19.1
Strongly Agree	1	.4
Total	272	100.0

Source: Survey Data (2018)

The results revealed that 77.2% disagreed that competitive pressure on lending have made it impossible for them to get accurate data on borrowers' credit worthiness. Only 19.5% who agreed that competitive pressure on lending makes have affected their lending performance and it had made it impossible to get accurate data on borrowers' credit worthiness. This shows that despite the competition among the commercial banks in lending, banks have not allowed this competition to interfere with the way they get information about credit worthiness of a borrower. This finding differs with those of Zahra (2008), on credit risk identification and financial performance, where it was found that due to competition among the industry, commercial banks' lending procedures are affected and banks' process of vetting credit worthiness of a client has been affected. This

was found to expose the banks to more credit risk due to stiff market competition for a big market share.

4.5.3 Entry into New Market Tempts the Management to Lend Without Sufficient Financial Analysis of the Borrowers

The study aimed to find out whether entry to new markets by commercial banks in pursuit of expanding their operations could have tempted the management to lend without sufficient financial analysis of the borrowers and without proper risk identification and as a result affect the lending performance. This is important because almost every commercial bank has opened branches in all major towns and some banks have gone even beyond the borders in countries like South Sudan, Rwanda and Burundi. The responses of this construct are illustrated below in table 4.9.

Table 4.9: Entry to New market tempts the management to lend without sufficient financial analysis of the borrowers

Responses	Frequency	Percent
Strongly Disagree	13	4.8
Disagree	6	2.2
Neutral	16	5.9
Agree	131	48.2
Strongly Agree	106	39.0
Total	272	100.0

Source: Survey Data (2018)

From the results, 87.2% agreed that entry into new market had tempted the banks management to lend without sufficient financial analysis of the borrowers. Only 4% disagreed that entry to new market had not influenced them to lend without having sufficient financial analysis of the borrowers. This finding means that management were

enticed by the entry of a new market and they were quick to lend to borrowers in the new markets without sufficient financial analysis of the borrowers which in turn compromised credit risk identification and lending performance. The findings agreed with those of Kamau (2010), on strategies adopted by commercial banks on credit risk identification established that there were new entry strategies which were implemented without proper market scanning and these have exposed commercial banks to risk of lending to a clique of borrowers who may not be in need of credit. This have increased risks in lending despite that in the financial industry lending is open as the terms and conditions for their loan are explained up-front and in theory bank cannot give a loan one cannot service.

4.5.4 Banks have Developed Internal Guidelines of Evaluating Borrowers

The study investigated whether commercial banks have developed internal guidelines of evaluating borrowers apart from those laid down by the CBK. This was important in order to ascertain how cautious the commercial banks are in risks identification. The findings are as below in table 4.10.

Table 4.10 Banks have Developed Internal Guidelines of Evaluating Borrowers

Responses	Frequency	Percent
Strongly Disagree	5	1.8
Disagree	10	3.7
Neutral	5	1.8
Agree	138	50.7
Strongly Agree	114	41.9
Total	272	100.0

Source: Survey Data (2018)

The data revealed that 92.6% agreed that commercial banks had developed internal guidelines of evaluating borrowers apart from those of CBK while only 5.5% stated that

their banks had not adopted other internal guidelines apart from those stipulated by the CBK. This shows that commercial banks had their internal methods of evaluating borrowers other than those laid out by the central bank. However, these internal guidelines needs to be audited to find out whether they are working or not and how effective they are. This finding is in mirror with those of Rose et.al (2008) who also found that the commercial banks have internal guidelines where they provide to the borrowers a list of conditions that must be fulfilled before credit is availed. This usually includes; financial statements for the preceding three years, bank statements for the last six months, cash flow projections, suitable collateral to secure the loan, previous credit reference and a host of other conditionality.

4.5.5 Quicker Lending Decisions has led banks to be exposed to credit risk

The study sought to establish whether quicker lending decisions exposed banks to credit risk. This was important in order to understand whether due process is followed when granting credit or there are times when quick lending decisions had to be made. This is because if quicker decisions are made, they may end up compromising the risk identification process. Their findings were as illustrated below in in table 4.11

Table 4.11: Quicker Lending Decisions Exposed Banks to Credit Risk

Responses	Frequency	Percent
Strongly Disagree	28	10.3
Disagree	19	7.0
Neutral	12	4.4
Agree	123	45.2
Strongly Agree	90	33.1
Total	272	100.0

Source: Survey Data (2018)

The results revealed that 78.3% agreed that quicker lending decisions had exposed banks to credit risk while only 17.3% disagreed that there is quicker lending decisions in commercial banks. This means that majority of commercial banks had witnessed quicker lending decisions and this had exposed commercial banks to risks. This resulted to short cuts in the lending process and exposed the lending facility to credit risks especially if some material information was left out and the credit was granted to the borrower. In such a case, there was likelihood of loan default or non-consistence payment. This finding was supported by that of Mpuga (2008) on credit risk identification and demand for credit which found that commercial banks generally attach more importance to the amount of loan borrowed rather than screening, and selection of applicants. According to this finding, quicker lending decisions had exposed commercial banks to high level of credit risk.

4.5.6 Methods of analyzing other sources of money for borrower to repay credit

The study wanted to establish whether commercial banks have methods of analyzing other sources of money for borrower to repay the credit. This was important since the ability of borrowers to repay credit and their sources of funds should be determined before credit is granted to minimize credit risks. Their responses were as shown in table 4.12.

Table 4.12 Methods of analyzing other sources of money for borrower

Response	Frequency	Percent
Disagree	6	2.2
Neutral	17	6.3
Agree	135	49.6
Strongly Agree	114	41.9
Total	272	100.0

Source: Survey Data (2018)

The results revealed from 91.5% of the respondents that banks have methods of analyzing other sources of money for borrower to repay the credit while only 2.22% stated that they do not have methods of analyzing other sources of money for borrower to repay the credit. This shows that commercial banks have in place methods of analyzing other sources of money for borrower to repay the credit. This finding agrees with that of Lore (2007) on credit risk identification factors that can enhance financial performance, where it was found that commercial bank lending business is modeled on social networks, connections and goodwill and that commercial banks have several ways analyzing other sources of borrowers income. The Lore (2007) study found that social capital is a great asset to borrowers.

4.5.6 Satisfaction of Credit Risk Identification

The study investigated whether the respondents were satisfied with the current credit risk identification and at what level they were satisfied. This was important since it would help understand how the respondents view their credit risk identification in relation to lending performance.

Table 4.13 Satisfaction of Credit Risk Identification

Responses	Frequency	Percent
Highly Satisfied	30	11.0
Slightly Satisfied	169	62.1
Neutral	20	7.4
Slightly Dissatisfied	42	15.4
Highly Dissatisfied	11	4.0
Total	272	100.0

Source: Survey Data (2018)

The results revealed that 62.1% of the respondents were slightly satisfied with the risk identification in their commercial banks. It was only 11% who were highly satisfied while 19.4% were dissatisfied with risk identification in their commercial banks. This means that despite the challenges the commercial banks experience in risk identification, they were not fully satisfied with the systems which shows there is more that needs to be done in credit risk identification. This finding is in agreement with those of Nazir, Adeel and Nawaz (2012) on risk management practices in banks in Pakistan which indicated that the commercial banks were slightly satisfied with how the credit risk identification was used to get information of the borrower in order to minimize credit risk.

4.5.7 Mean and Standard Deviations Results of Credit Risk Identification

To examine the influence of credit risk identification on lending performance of commercial banks in Nairobi County, the respondents were requested to rate their everyday experience at the bank on a scale of 1 – 5 where 1= 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree and 5=Strongly Agree, and results presented as shown in Table 4.14.

Table 4.14: Mean and Standard Deviations Results of Credit Risk Identification

Credit Risk Identification	N	Min	Max	Mean	Std. Dev.
There are effective systems in place to enhance credit risk identification when clients are borrowing credit	272	2	5	2.62	.639
There is competitive pressure on credit lending which makes it impossible to get accurate data on borrowers credit worthiness	272	1	5	2.57	1.088
Entry into new markets can lure the management to lend without sufficient financial analysis of the borrowers	272	1	5	3.14	.975
The bank has developed internal guidelines apart from those stipulated by CBK on methodology to evaluate borrowers when issuing credit	272	1	5	2.78	.824

Quicker lending decision based on borrowers' characteristics & expected value of collateral has led to bank exposed to credit risk	272	1	5	2.84	1.249
The banks have methods of analyzing other sources money for the borrower to pay the credit	272	2	5	2.51	.688
Satisfaction of credit risk identification	272	1	5	2.79	1.007
Aggregate score				**2.75**	**0.92429**

Source: Survey Data (2018)

According to the results, the aggregate score for credit risk identification was 2.75 with a standard deviation of 0.924 which shows that majority of the respondents feel that credit risk identification was above average. This was in agreement with the results of Camara and Paulo (2009) who, in their study on financial crises, found that most inefficient credit risk management systems that cause financial problems resulting to collapse of financial are characterized by, among others, high levels of insider loans, speculative lending, and high credit concentration certain sectors. Their study also concluded that risk identification in commercial banks was not poorly done though there was poor credit quality which continues to be dominant a cause of bank failures and banking crises worldwide. Those respondents who felt that there were effective systems in place to enhance credit risk identification when clients are borrowing credit rated high M=5, mean=2.62 and SD=0.639. On the other hand, those of the view that there was competitive pressure on credit lending which makes it impossible to get accurate data on borrowers credit worthiness rated high M=5, mean=2.75 and SD=1.088 while those of the view that the banks had methods of analyzing other sources of money for the borrower to pay the credit rated high M=5, mean=2.51 and SD=0.688.

4.6 Credit Risk Measurement

The study sought to investigate the how credit risk measurement influenced the lending performance of the commercial banks. This was important since if the lending risk is not

properly measured using the proper methods of risk measurement, there is likelihood that credit will not be paid back by borrowers.

4.6.1 Banks Have Tools in Place to Enhance Credit Risk Measurement

The study was interested in finding out whether commercial banks have in place effective systems to enhance credit risk measurement especially when clients are borrowing credit. This is important since the availability of effective risk measurement systems are in place, the banks will be in a position to measure potential risks that are associated with lending. Their responses were as indicated below in table 4.15

Table 4.15: Banks Have Tools in Place to Enhance Credit Risk Measurement

Responses	Frequency	Percent
Neutral	15	5.5
Agree	116	42.6
Strongly Agree	141	51.8
Total	272	100.0

Source: Survey Data (2018)

The results revealed that 94.4% agreed that banks have tools in place to enhance credit risk measurement. This shows that almost all the commercial banks have tools for measuring credit risks. This finding agrees with those of Kolap, (2012) whose study on credit risk and performance of commercial banks in Nigeria found that banks have tools in place to measurement credit risk further finding that majority of banks used the distribution of loans into insurance products through banking networks.

4.6.2 Banks Practices Credit Overriding Contributing

The study was also investigating whether there are banks practicing credit overriding contributing to credit risks. This was important since it amounts violation of policies and

regulations and could result to affect the lending performance. The results were as illustrated in table 4.16

Table 4.16 Banks practices credit overriding

Responses	Frequency	Percent
Disagree	37	13.6
Neutral	10	3.7
Agree	152	55.9
Strongly Agree	73	26.8
Total	272	100.0

Source: Survey Data (2018)

The study found that 82.7% agreed that there were some banks which practice credit overriding and this had contributed to credit risk. Only 13.6% disagreed that some banks practice credit overriding. This shows that majority of the banks violate the credit policy and this puts the lending performance as well as banks performance at a major risk which may lead to closure. This finding agrees with those of Al-Khouri (2011) who conducted a study on bank's specific risk characteristics, and the overall banking environment on the performance of 43 commercial banks operating in the 6 of the Gulf Cooperation Council (GCC) countries and found that banks practice credit overriding and this contributed to credit risk.

4.6.3 Banks Hire Consultant to Help in Measuring Credit Risk

The study investigated whether the banks hire consultant to measure credit risks. This was aimed at establishing if the banks consults experts in matters of credit risk as a way of reducing exposure to risks that can affect their lending performance. Their responses were as follows in table 4.17

Table 4.17 Banks Hires Consultant to Help in Measuring Credit Risk

Responses	Frequency	Percent
Disagree	13	4.8
Neutral	9	3.3
Agree	136	50.0
Strongly Agree	114	41.9
Total	272	100.0

Source: Survey Data (2018)

The results revealed that 91.9% of the respondents agreed that commercial banks hire consultants to help in measuring the credit risks. Only 4.8% indicated that they do not hire consultants to assist in measuring credit risks. This shows that banks utilize the experts in the area of risk measurement and incorporates experts in measuring of risk. This finding agrees with those of Kaaya and Pastory (2013) on credit risk and commercial banks performance in Tanzania who found that commercial banks use consultants in matters of credit risk. However, this study also found that despite the use of consultants, there was increase in credit risk which tends to lower lending performance.

4.6.4 Introduction of New Loans Products without proper risk measurement

The study investigated whether there was introduction of new loans products by commercial banks without proper risk measurement. The responses were in table 4.18

Table 4.18 Introduction of New Loans Products without proper risk measurement

Responses	Frequency	Percent
Strongly Disagree	31	11.4
Disagree	79	29.0
Neutral	13	4.8
Agree	107	39.3
Strongly Agree	42	15.4
Total	272	100.0

Source: Survey Data (2018)

The study results revealed that 54.7% of the respondents agreed that there was introduction of new loans products by commercial banks without proper risk measurement while 40.4% disagreed that there was introduction of new loans products by commercial banks without proper risk measurement. This means that there were some banks that introduced new loans products without proper risk measurement which exposed the banks to credit risk and this affected the lending performance. This finding was supported by Poudel (2012) who conducted a study on credit risk management in bank performance of Nepal and found that banks were introducing products without proper information of the market. The results also showed that credit risk management is affected by lack of proper market survey by the banks when rolling out new products.

4.6.5 Subjective decision making by management on borrower

The study investigated whether the commercial banks management makes subjective decisions on borrowers which might increase the credit risk and affect the lending performance. The responses were as illustrated in table 4.19;

Table 4.19 Subjective decision making by management on borrower

Responses	Frequency	Percent
Strongly Disagree	9	3.3
Disagree	15	5.5
Neutral	9	3.3
Agree	167	61.4
Strongly Agree	72	26.5
Total	272	100.0

Source: Survey Data (2018)

The results revealed that 87.9% of the respondents agreed that banks management were making subjective decisions on borrowers and this increased credit risk while only 8.8% disagreed that banks management were making subjective decisions on borrowers. This finding shows that management were making subjective decisions on borrowers which has affected the lending performance of commercial banks. This finding was supported by Greene and Segal (2014) who in their study on influence of efficiency on profitability or the relationship between lending performance and market structure; found that a goal of policy-makers is to facilitate a banking system that best promotes economic efficiency and stability. Their results indicated that due to competitive environment, banks have promoted a culture of subjective lending in order to encourage the greatest supply of credit at the lowest price which puts banks into credit risk.

4.6.6 Credit Approval over the Limit

The study investigated whether there was credit approval by the commercial banks over the limit which might have exposed the banks to credit risk affecting the lending performance. This was important since granting credit over the limits approved might to bank losing its money to clients. The responses were as in table 4.20 below.

Table 4.20: Credit Approval over the Limit

Responses	Frequency	Percent
Strongly Disagree	10	3.7
Disagree	41	15.1
Neutral	13	4.8
Agree	140	51.5
Strongly Agree	68	25.0
Total	272	100.0

Source: Survey Data (2018)

The results revealed that 76.5% of the respondents agreed that there was credit approval by the commercial banks which exceeded the credit limit of that client and this exposed the banks to credit risk and consequently the lending performance was affected while 18.8% did not agree that there was credit approval over the limit. This means that there was a likelihood of borrower being given more credit than they qualify for. This finding was supported by Greene and Segal (2014) whose study on influence of efficiency on profitability or the relationship between lending performance and market structure indicated that due to competitive environment, banks have promoted a culture of lending to customers more than what they qualify which is harmful to the banks though it aids efficient allocation of resources in terms of concentration and competition.

4.6.7 Credit granted without taking into account the business cycle

The study investigated whether commercial banks were granting credit without taking into account the business cycle and as a result increasing credit risk.

Table 4.21: Credit granted without taking into account the business cycle

Response	Frequency	Percent
Strongly Disagree	20	7.4
Disagree	24	8.8
Neutral	1	.4
Agree	166	61.0
Strongly Agree	61	22.4
Total	272	100.0

Source: Survey Data (2018)

The results indicated that 83.4% of the respondents agreed that commercial banks were granting loans without taking into consideration the business cycles while 16.2% disagreed that there were commercial banks that granted loans without taking into consideration the business cycles. This means that majority of commercial banks did not consider the business cycles when granting credit to borrowers. This finding was supported by Felix and Claudine (2008) who in investigating the relationship between bank performance and credit risk management found that return on equity (ROE) and return on assets (ROA) both measuring profitability were inversely related to the ratio of non-performing loan to total loan of financial institutions thereby leading to a decline in profitability. This study also found that there was declining profitability due to the risk that commercial banks grant loans without taking into consideration the business cycles when issuing business loans.

4.6.8 Banks have trained all credit officers on how to measure credit risk

The study investigated whether commercial banks have trained all credit officers on how to measure credit risk. This was important since it shows how banks are prepared in handling credit risks and lending performance.

Table 4.22: Banks have trained all credit officers on how to measure credit risk

Responses	Frequency	Percent
Strongly Disagree	20	7.4
Disagree	28	10.3
Neutral	12	4.4
Agree	154	56.6
Strongly Agree	58	21.3
Total	272	100.0

Source: Survey Data (2018)

The results indicated from 77.9% of the respondents that commercial banks had trained all credit officers on how to measure credit risk while only 17.7% of the respondents disagreed that not all the credit officers are trained on how to measure credit risk. This means that majority of commercial banks have trained all their credit officers on how to measure credit risk. This finding was in agreement with those of Sobhy (2013) who found that banks incur significant costs in controlling overdue loans and this can naturally affect profitability levels. It was inferred from this study that employees were trained in credit risks since the major source of credit risk arose from low capital and liquidity, inappropriate credit policies, rate, direct lending, volatile interest poor loan underwriting, poor loan lending, government intervention and improper supervision from the central bank.

4.6.9 Satisfaction of credit risk Measurement

The study also examined the level of satisfaction of credit risk measurement by the commercial banks. This was to find out how the banks are satisfied with their credit risk Measurement in relation to their lending performance. Their responses were as indicated in table 4.23 below

Table 4.23: Satisfaction of credit risk Measurement

Responses	Frequency	Percent
Highly Satisfied	23	8.5
Slightly Satisfied	212	77.9
Neutral	11	4.0
Slightly Dissatisfied	20	7.4
Highly Dissatisfied	6	2.2
Total	272	100.0

Source: Survey Data (2018)

The results indicated from 77.9% of the respondents that they were slightly satisfied with the credit risk measurement in commercial banks while 9.6% were dissatisfied with credit risk measurement in commercial banks. This means that majority of the respondents were not fully satisfied with how risk measurement was done by the commercial banks. This finding was in agreement with those of Khan and Ahmad (2001) whose study on of risk management practices established that on average the lowest percentage is on the measuring and mitigating risk. Also, the results of Al-Tamimi and Al-Mazrooei (2007) also found a significant difference between UAE national and foreign banks in risk measuring though the difference was slightly satisfying.

4.6.10 Means and Standard Deviations Results of Credit Risk Measurement

In order to examine the influence of credit risk measurement on lending performance of commercial banks, respondents were requested to rate risk measurement on a scale of 1 – 5 where 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree and 5=Strongly Agree, and results presented as shown in table 4.24

Table 4.24: Means and Standard Deviations Results of Credit Risk Measurement

Credit Risk Measurement	N	Min	Max	Mean	Std. Dev.
The banks have in place tools that enhance credit risk measurement	272	3	5	2.09	0.6
There are banks that practice Credit overriding contributing to credit risks.	272	2	5	1.96	0.922
The bank hires consultants to help in measuring credit risks.	272	2	5	1.79	0.749
There is introduction of new loan products or services without proper risk measurement by banks	272	1	5	1.83	1.315
Subjective decision making by management when the borrower appears to have met the credit approval criteria has increased credit risks	272	1	5	2.03	0.905
Credit approval over the limit or overriding the policy contributes to credit risk	272	1	5	2.01	1.092
Credits granted without taking into account of business cycle increase credit risks	272	1	5	1.93	1.103
The bank has trained all credit officers on how to measure credit risk.	272	1	5	1.86	1.127
Aggregate score				**1.94**	**0.976625**

Source: Survey Data (2018)

The results indicate that on aggregate, credit risk measurement was 1.94 with a standard deviation of 0.977. This finding was in agreement with those of Paradi and Zhu (2013) who conducted a study on bank branch efficiency and performance in Canada and found that measure of credit risk has been the standard technique used by regulators, industry analysts and management to examine performance at all levels but it has not been able to achieve its objective. The findings were also supported by Kumar and Singh, (2012) who found that although the credit risk measures are attractive to analysts due to their

simplicity and ease of understanding, there have been many methodological problems and limitations that have failed the measurement of credit risk practice in commercial banks, the main weakness being that the ratios only measure part of the whole's activities and therefore do not reflect the multi-dimensional nature of a bank with branches and thence falls short of availing sufficient lending performance information.

Respondents of the view that bank have tools put in place to enhance credit risk measurement rated high M=5, mean=2.09 and SD=0.6. Those of the view that some branches practiced credit overriding contributing to credit risks rated high M=5, mean=1.96 and SD=0.922 while those who felt that there was introduction of new loan products or services without proper risk measurement by banks rated high M=5, mean=1.83 and SD=0.749.

Further results indicated that respondents who felt that subjective decision making by management when the borrower appears to have met the credit approval criteria increased credit risks rated high M=5, mean=2.03 and SD=0.905 while those of the view that credit approval over the limit or overriding the policy was a factor contributing to credit risk rated high M=5, mean=2.01, SD=1.092 and those of the opinion that credits granted without taking into account of business cycle increased credit risks rated high M=5, mean=1.93 and SD=1.103.

4.7 Credit Risk Monitoring

The study sought to investigate how credit risk monitoring influences lending performance of the commercial banks. This was important because some risks are inherent and they need to be monitored such that the commercial banks' lending is not affected.

4. 7.1 Bank Officials Supervise and Monitors the Borrower Activities

The study investigated whether banks' officials supervise and monitor the borrowers' activities after credit was granted to them. The responses are as indicated in table 4.25

Table 4.25: Banks Officials Supervises and Monitors the Borrowers Activities

Responses	Frequency	Percent
Strongly Disagree	64	23.5
Disagree	143	52.6
Neutral	8	2.9
Agree	53	19.5
Strongly Agree	4	1.5
Total	272	100.0

Source: Survey Data (2018)

The results indicated that 76.1% of the respondents disagreed that bank officials supervise and monitors the borrowers' activities after credit was granted to them while 21% of the respondents agreed that banks officials supervise and monitors the borrowers' activities after credit was granted to them. This shows that banks officials do not supervise and monitor borrowers' activities after they give them credit. This finding disagrees with those of Ahmed, Takeda and Shawn (2011) in their study found that banks monitor borrower's financial activities after credit was issued in order to ensure that loan was put in proper use which allows the borrower to be in a position to repay the principal and interest therefore accrued. This activity was found to reduce credit risk and has a significant positive influence on lending performance.

4.6.2 Banks Performs Re-Analysis of Borrowers Ability to Pay

The study investigated whether commercial banks perform re-analysis of its borrower's ability to pay from time to time. The responses were as indicated in table 4.26

Table 4.26 Banks Performs Re-Analysis of its Borrower's Ability to Pay

Responses	Frequency	Percent
Strongly Disagree	1	.4
Disagree	50	18.4
Neutral	14	5.1
Agree	112	41.2
Strongly Agree	95	34.9
Total	272	100.0

Source: Survey Data (2018)

The results indicated that 76.1% of the respondents agreed that commercial banks perform re-analysis of its borrowers' ability to pay from time to time while 18.8% disagreed that commercial banks perform re-analysis of its borrowers' ability to pay from time to time. This shows that commercial banks perform re-analysis of its borrowers' ability to pay from time to time. This finding agrees with those of Ahmed, Takeda and Shawn (2011) who found that banks use monitoring of borrowers financial activities after credit was issued in order to ensure that the loan was put in proper use which allows the borrower to be in a position to repay the principal and interest therefore accrued. This activity was found to reduce credit risk and has a significant positive influence on non-performing loans.

4.7.3 Management Regularly Receives Accurate and Timely Credit Reports

The study investigated whether bank management regularly receives accurate and timely credit reports. This was important because it shows whether management are aware of, on regular basis, how the loans granted are performing. This was presented in table 4.27

Table 4.27: Management Regularly Receives Accurate and Timely Credit Reports

Responses	Frequency	Percent
Disagree	1	.4
Neutral	26	9.6
Agree	164	60.3
Strongly Agree	81	29.8
Total	272	100.0

Source: Survey Data (2018)

The results indicated from 90.1% of the respondents agreed that bank management receives regular, accurate and timely credit reports while only 9.6% stated that were not sure whether the bank management receives regular, accurate and timely credit reports. This shows that commercial banks management are always aware of how the loans are performing since they receive credit information regularly and timely. This finding agreed with that of Juanjuann (2009) who found that commercial bank's management receives regular, accurate and timely credit reports as internal method of credit monitoring and this has positive effect on lending performance of the institution.

4.7.4 Banks Strictly Reminds the Customers before repayment date

The study investigated whether the banks strictly reminded the customers before repayment date by email or phone calling. This was important since it takes the care of borrowers forgetting to make payments especially on non-check off loans. The responses were as in table 4.28.

Table 4.28: Banks Strictly Reminds the Customers before repayment date

Responses	Frequency	Percent
Strongly Disagree	70	25.7
Disagree	108	39.7
Neutral	13	4.8
Agree	50	18.4
Strongly Agree	31	11.4
Total	272	100.0

Source: Survey Data (2018)

The results indicated from 65.4% of the respondents disagreed that banks strictly remind the customers by email or phone before repayment date while 29.4% of the respondents agreed that banks strictly reminds the customers before repayment date by email or phone calling. This shows that from the majority of the responses, commercial banks do not strictly remind the customers before repayment date by email or phone calling. This finding was in contrast with those of Chen and Pan (2012) who found that banks remind the borrowers when the next pay falls due and this communication is released early enough before the due date for timely payments. The findings of Chen and Pan (2012) established that reminding customers before repayment reduces credit risks.

4.7.5 Continuous Reassessment of Existing Borrowers

The study investigated whether commercial banks do a continuous reassessment of existing borrowers during the life cycle of the loan. Reassessing an existing borrower during the life cycle of the loan was important since the borrowers' capacity may change during the life cycle and this may affect the loan performance.

Table 4.29: Continuous Reassessment of Existing Borrowers

Responses	Frequency	Percent
Strongly Disagree	32	11.8
Disagree	75	27.6
Neutral	10	3.7
Agree	115	42.3
Strongly Agree	40	14.7
Total	272	100.0

Source: Survey Data (2018)

The study found from 57% of the respondents who agreed that commercial banks was conducting a continuous reassessment of existing borrowers during the life cycle of the loan while 39.4% of the respondents indicated that commercial banks do not conduct continuous reassessment of existing borrowers during the life cycle of the loan. This shows that there was continuous reassessment of existing borrowers during the life cycle of the loan. This finding agrees with those of Epure and Lafuente (2012) whose study established that there was continuous assessment and contact with the new and existing credit borrowers during the life cycle of the loan and this resulted to lending performance improvements with a positive impact on the net interest margin.

4.7.6 Borrower Submits changes in the value of collateral

The study investigated whether borrower submits reports regularly to the bank on changes in the value of collateral. This was important since the value of collateral may change with time due to depreciation and other factors and hence its regular valuation was important. The responses were as indicated in table 4.30.

Table 4.30: Borrower Submits changes in the value of collateral

Responses	Frequency	Percent
Strongly Disagree	87	32.0
Disagree	163	59.9
Neutral	5	1.8
Agree	16	5.9
Strongly Agree	1	.4
Total	272	100.0

Source: Survey Data (2018)

The results, from a majority of respondents 91.9%, indicated that borrowers do not submit reports regularly to the bank on changes in the value of collateral while only 6.3% agreed that borrower submits reports regularly to the bank on changes in the value of collateral. This means that borrowers do not regularly submit reports to the bank on changes in the value of collateral. This finding agrees with those of Koziol and Lawrenz (2009) who opined that dynamic endogenous financing decisions introduced an important self-regulation mechanism due to the challenge with the monitoring of credit risk where credit borrowers do not submit reports regularly to the bank on changes in the value of collateral which was used to secure the credit.

4.7.7: There is regular contact with borrower to update borrowers' profile

The study investigated whether the commercial banks have a regular contact with borrower to update borrowers' profile. This was important since the borrowers details may change when the loan was still active. The findings are presented in table 4.31

Table 4.31: There is regular contact with borrower to update borrowers' profile

Responses	Frequency	Percent
Strongly Disagree	59	21.7
Disagree	64	23.5
Neutral	9	3.3
Agree	74	27.2
Strongly Agree	66	24.3
Total	272	100.0

Source: Survey Data (2018)

The results indicated that 52% agreed there was regular contact with borrower to update borrowers' profile while 45% disagreed that there was regular contact with borrower to update borrowers' profile. This shows that majority of commercial banks regularly contact their borrowers to update borrowers' profile. This finding was in agreement with those of Epure and Lafuente (2012) whose results showed that there was continuous assessment and contact with the new and existing credit borrowers during the life cycle of the loan and this resulted to lending performance improvements with a positive impact on the net interest margin.

4.7.8 Satisfaction of Credit Risk Monitoring

The study investigated the level at which respondents were satisfied with credit risk monitoring. This was important since their level of satisfaction might reflect whether monitoring of risk was able to assist commercial banks when it comes to lending performance. The responses were as in table 4.32

Table 4.32: Satisfaction of Credit Risk Monitoring

Responses	Frequency	Percent
Highly Satisfied	24	8.8
Slightly Satisfied	166	61.0
Neutral	24	8.8
Slightly Dissatisfied	58	21.3
Total	272	100.0

Source: Survey Data (2018)

The results indicated that 61% of the respondents were slightly satisfied while 21% of the respondents were slightly dissatisfied with credit risk monitoring. This shows that majority were satisfied with the credit risk monitoring of their commercial banks. This finding contradicts those of Koziol and Lawrenz (2009) about the bankruptcy and the failure of commercial banks which found that there was dissatisfaction with the banks regulator on how monitoring of credit was done after issuing the loans.

4.7.9 Mean and Standard Deviations Results of Credit Risk Monitoring

To be able to establish the influence of credit risk monitoring on lending performance of commercial banks, respondents were requested to rate their everyday experience on credit monitoring on a scale of 1 – 5 where 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree and 5=Strongly Agree, and results presented as shown in Table 4.33

Table 4.33: Mean and Standard Deviations Results of Credit Monitoring

Credit Monitoring	N	Min	Max	Mean	Std. Dev.
The banks' officials supervise and monitor the borrowers' activities	272	1	5	1.93	1.062
The bank performs re-analysis of its borrowers' credit profile to ascertain ability to pay from time to time	272	1	5	2.17	1.08
Management regularly receives accurate and timely credit reports	272	2	5	2.06	0.609
The banks strictly remind the customers before repayment date by calling or emailing.	272	1	5	2.27	1.35
There is continuous re-assessment of existing customers during life cycle of the loan	272	1	5	2.13	1.312
The borrowers submit reports regularly to the bank on any changes in value of collateral	272	1	5	2.43	0.761
There is regular contact with the borrower to update borrowers' profile.	272	1	5	2.35	1.532
Aggregate score				**2.19**	**1.100857**

Source: Survey Data (2018)

From the results in the table above, the aggregate score on credit monitoring was 2.19 with a standard deviation of 1.100. This finding was in agreement with those of Koziol and Lawrenz (2009) who found that there was dissatisfaction with how the banks monitor credit after issuing the loans. This shows that credit risk monitoring was below average.

Respondents who were of the view that bank officials supervise and monitor the borrowers' activities rated high M=5, mean=1.93 and SD=1.062 while those who felt that banks perform re-analysis of their borrowers' credit profile to ascertain ability to pay from time to time rated high M=5, mean=2.17 and SD=1.08. It was also noted that respondents who felt that banks strictly remind their customers before repayment date by calling or emailing rated high M=5, mean=2.27, SD=1.35 while those who felt that there

is continuous re-assessment of existing customers during life cycle of the loan rated high M=5, mean=2.13, SD=1.312 and those of the view that borrowers submitted reports regularly to the bank on any changes in value of collateral rated high M=5, mean=2.43 and SD=0.761.

4.8 Credit Risk Control

The study sought to investigate how credit risk control influences lending performance of the commercial banks. This is important because some risks are inherent and they can only be managed through controlling them so that the banks' lending is not affected.

4.8.1 Banks Ensures that Loan is Used According to Loan Agreement

The study investigated whether the commercial banks follow borrowers to ensure that loan granted is used according to loan agreement. The responses were as indicated in table 4. 34.

Table 4.34: Banks Ensures that Loan is Used According to Loan Agreement

Responses	Frequency	Percent
Strongly Disagree	33	12.1
Disagree	177	65.1
Neutral	10	3.7
Agree	33	12.1
Strongly Agree	19	7.0
Total	272	100.0

Source: Survey Data (2018)

The results indicated from 77.2% of the respondents that banks do not follow borrowers to ensure that loan granted was used according to loan agreement while only 19.1% of the respondents agreed that banks follows borrowers to ensure that loan granted was used according to loan agreement. This shows that commercial banks do not follow borrowers

after granting them loans to ensure that loan was used according to loan agreement. This finding agrees with those of Donald et.al (2010) who found that credit control fails due to the potential that a bank borrower or counterpart will fail to meet its obligations in accordance with agreed terms.

4.8.2 Loans Officers Assess and Review All Loans Applications

The study investigated whether loans officers assess and review all loans applications that are brought to the banks before approvals. Loans assessment was important since it might help to detect anything that may affect the performance of loans. The findings are as illustrated in table 4.35

Table 4.35: Loans Officers Assesses and Reviews All Loans Applications

Responses	Frequency	Percent
Disagree	16	5.9
Neutral	9	3.3
Agree	133	48.9
Strongly Agree	114	41.9
Total	272	100.0

Source: Survey Data (2018)

The results revealed from 90.8% of the respondents that loans officers assesses and reviews all loans applications that are brought to the banks before approvals while 9.2% of the respondents disagreed that loans officers assesses and reviews all loans applications before approvals. This shows that loans officers assesses all the loan applications. This finding was in agreement with those of Kithinji (2010) who found that credit control in commercial banks is meant to control approved decisions that are not well examined which results into cases of loan defaults and non-performing loans, massive extension of

credit and directed lending noting that to minimize the adverse effects of credit, policies such as assessing and reviewing all loans applications before approval are imperative.

4.8.3 Loans Issued Are Classified into Several Classes for Control Purposes

The study investigated whether loans issued are classified into several classes for control purposes. This was important because classification of loans would affect the performance of lending within the commercial banks. The results are illustrated in table 4.36.

Table 4.36: Loans Issued Are Classified into Several Classes for Control Purposes

Responses	Frequency	Percent
Disagree	27	9.9
Neutral	32	11.8
Agree	122	44.9
Strongly Agree	91	33.5
Total	272	100.0

Source: Survey Data (2018)

The results indicated from a majority of 78.4% who agreed that loans issued are classified into several classes for control purposes while 9.9% disagreed that loans issued are classified into several classes for control purposes. This means that commercial banks classify the loans issued into several classes for the purpose of control. This finding was in agreement with those of Nelson and Schwedt (2006) who found that the banking industry has made strides in managing credit control including enhancing this by classification of all loans issued into categories .

4.8.4: There are policies on how to absorb anticipated loss when issuing credit

The study investigated whether there were policies on how to absorb anticipated loss when issuing credit. This was important in order to establish if the commercial banks are able to anticipate loss when issuing credit. Their findings are illustrated in table 4.37.

Table 4.37: There are policies on how to absorb anticipated loss when issuing credit

Responses	Frequency	Percent
Disagree	40	14.7
Neutral	28	10.3
Agree	151	55.5
Strongly Agree	53	19.5
Total	272	100.0

Source: Survey Data (2018)

The results indicated with a majority of 75% who agreed that there existed policies on how to absorb anticipated loss when issuing credit while only 14.7% disagreed that their banks had no policies on how to absorb anticipated loss when issuing credit to customers. This means that majority of commercial banks have policies in place that allow them to anticipate loss when issuing credit. This finding agreed with those of Derban (2010) who found that commercial banks' credit risk controls have been improved by having policies that allow the commercial banks to absorb any anticipated loss form the clients who default payments. This was in line with Basel II Accord which strengthens market discipline through increased disclosure.

4.8.5 Borrowers submits regular financial reports for evaluation of business

The study investigated whether borrowers strictly submit regular financial reports for evaluation of their business in case they used the business to acquire credit. The results were as illustrated in table 4.38.

Table 4.38: Borrowers submits regular financial reports for evaluation of business

Responses	Frequency	Percent
Strongly Disagree	93	34.2
Disagree	148	54.4
Neutral	6	2.2
Agree	24	8.8
Strongly Agree	1	.4
Total	272	100.0

Source: Survey Data (2018)

The results indicated that 88.6% of the respondents disagreed that borrowers strictly submit their regular financial reports for evaluation of their business while only 9.2% of the respondents agreed that borrowers strictly submit regular financial reports for evaluation of their business. This means that borrowers do not strictly submit regular financial reports for evaluation of their business performance and position when the loan is active. This finding agrees with those of Aveny, Robert, Brevoort, Kenneth and Canner (2009) who conducted a study on credit scoring and found that borrowers do not submit financial reports for evaluation of their business. This was in contrast with the fact that the banks granted credit and there was no condition that the borrower should submit regular reports on how the financed business is performing. Aveny, et.al (2009) argued that banks continued to depend on an assessment of the actual risk with no current financial reports that shows exposure details.

4.8.6 There are clear guidelines used for setting credit line appropriate to borrowers

The study investigated whether there was clear guidelines used for setting credit line appropriate to borrowers in the commercial banks. This was important since operating

with clear guidelines may help the commercial banks to know how to limit a particular borrower. The findings are presented in table 4.39.

Table 4.39: There is clear guidelines used for setting credit line

Responses	Frequency	Percent
Neutral	11	4.0
Agree	160	58.8
Strongly Agree	101	37.1
Total	272	100.0

Source: Survey Data (2018)

The data revealed that 95.9% of the respondents agreed that there was clear guidelines used for setting credit line appropriate to borrowers in the commercial banks. No respondents disagreed with this statement and this means that there was already in place some clear guidelines used for setting credit line appropriate to borrowers. This finding agrees with those of Heffernan (2009) which indicated that clear established process for credit control, new credit approvals and credit extensions has been observed to be very important while managing credit risks in banks by using guidelines for setting credit line appropriate to borrowers in commercial banks.

4.8.7 Satisfaction of Credit Risk Control

The study investigated the level at which the respondents were satisfied with credit risk control. This was important since their level of satisfaction determines how they have been able to benefit from the credit risk control that is in place. The findings are shown in table 4.40.

Table 4.40: Satisfaction of Credit Risk Control

Responses	Frequency	Percent
Highly Satisfied	47	17.3
Slightly Satisfied	178	65.4
Neutral	12	4.4
Slightly Dissatisfied	35	12.9
Total	272	100.0

Source: Survey Data (2018)

The results established from 65.7% which is a majority of the respondents that they were slightly satisfied with the current credit risk control in the commercial banks while only 12.9% of the respondents were dissatisfied with current credit risk control. This means that the respondents were slightly satisfied with the current credit risk control practiced by the commercial banks. This finding agrees with those of Niinimaki (2004) who found that commercial banks were not fully satisfied with the magnitude of risk control and the market structure in which competition took place.

4.8.8 Mean and Standard Deviations Results of Credit Risk Control

To determine the influence of credit risk control on lending performance of commercial banks, the respondents were requested to rate their everyday experience on credit control on a scale of 1 – 5 where 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree and 5=Strongly Agree, and results presented as shown in table 4.41 below.

Table 4.41: Mean and Standard Deviations Results of Credit Risk Control

Credit Risk Control	N	Min	Max	Mean	Std. Dev.
The banks strictly follow borrowers to ensure that loan granted is used according to the loan agreement.	272	1	5	2.43	1.068
The loan officer assesses and reviews all the loans applications	272	2	5	2.26	0.786
After Loans issued, they are then classified in several classes for the purpose of controlling	272	2	5	2.27	0.923
There are policies that help in making allowances on how to absorb anticipated loss when issuing credit	272	2	5	2.31	0.921
Borrowers strictly submit regular financial reports for evaluation of business.	272	1	5	2.27	0.857
There is clear guidelines that are used for setting credit line appropriate to borrowers	272	3	5	2.32	0.551
Satisfaction of credit risk control	272	1	4	2.38	0.847
Aggregate score				**2.32**	**0.850429**

Source: Survey Data (2018)

On aggregate credit risk control rated 2.32 with a standard deviation of 0.850. This was supported by the results of Niinimaki (2004) who found that commercial banks were not fully satisfied the magnitude of risk control and how the structure and side of the market in which competition takes place. Respondents who felt that banks strictly follow borrowers to ensure that loan granted was used according to the loan agreement rated high M=5, mean=2.43, SD=1.068, those who felt that loan officers assessed and reviewed all loan applications rated high M=5, mean=2.26, SD=0.786. In addition, respondents of the view that there were policies that helped in making allowances on how to absorb

anticipated loss when issuing credit rated high M=5, mean=2.31, SD=0.921, those who felt that borrowers strictly submitted regular financial reports for evaluation of business rated high M=5, mean=2.27, SD=0.857 while respondents who believed that there were clear guidelines that were used for setting credit line appropriate to borrowers rated high M=5, mean=2.32 and SD=0.551.

4.9 Lending Performance

The study investigated the current lending performance in order to ascertain whether there was growth or decline of the loans in the commercial banks as well as the number of loans applications and those successful. This was important since lending is the core activity of every commercial bank and it plays an important role in economy development.

4.9.1: Loan applications approved by bank have reduced

The study investigated whether or not loan applications approved by the commercial banks have reduced. This was to ascertain the current status of loan applications approvals within the commercial banks. The results are shown in table 4.42.

Table 4.42: Loan applications approved by bank have reduced

Responses	Frequency	Percent
Strongly Disagree	14	5.1
Disagree	25	9.2
Neutral	6	2.2
Agree	42	15.4
Strongly Agree	185	68.0
Total	272	100.0

Source: Survey Data (2018)

The results indicated from 83.4% of the respondents that loan application approvals within the commercial banks have reduced while only 14.3% disagreed that loan

applications approvals within the commercial banks have reduced. This means that from the majority of the respondents, loan applications approvals have reduced. This finding agrees with those of Akinlo and Oni (2015) who found that there was tremendous reduction of lending approvals within commercial banks and this issue had affected the level of lending.

4.9.2: There is Increased Rate of Loan Defaulting

The study investigated whether there was increased rate of loan defaulting in the commercial banks. This was important to help understand the performance of loans from the time they are issued up to their maturity. The findings are illustrated in table 4.43.

Table 4.43: There is Increased Rate of Loan Defaulting

Responses	Frequency	Percent
Strongly Disagree	20	7.4
Disagree	33	12.1
Neutral	9	3.3
Agree	174	64.0
Strongly Agree	36	13.2
Total	272	100.0

Source: Survey Data (2018)

The results indicated that 77.2% of the respondents were in agreement that there is increase in loans defaulting while 19.5% of the respondents disagreed stating that there is no increase in rate of loan defaulting within the commercial banks in Kenya. This shows that the rate of loan defaulting have increased in commercial banks. This finding agrees with those of Malede (2014) who conducted a study with Jordanian banks and found that banks had experienced loan defaulting from the clients contributing to slow economic growth of the country and loss of money by the bank.

4.9.3 There is big percentage of loans whose repayment is not consistent

The study investigated whether there was a big percentage of loans whose repayment was not consistent. This was important since it will show how borrowers have committed themselves to repay their loans in good time. The findings are shown in table 4.44.

Table 4.44: There is big percentage of loans whose repayment is not consistent

Responses	Frequency	Percent
Strongly Disagree	24	8.8
Disagree	19	7.0
Neutral	9	3.3
Agree	150	55.1
Strongly Agree	70	25.7
Total	272	100.0

Source: Survey Data (2018)

The results indicated that 80.8% of the respondents agreed that there was a big percentage of loans whose repayment was not consistent while only 15.8% of the respondents stated that there was consistency in loans repayment within the commercial banks. This finding means that there was no consistency in loans repayment in commercial banks in Kenya. This finding confirms that of Acharya et al. (2009) who found that there was high level of inconsistency in the loans repayment and some results into NPLs and this affected the lending performance.

4.9.4: Depending on borrower loan granted may sometimes exceed credit line

The study investigated whether depending on borrower, the loan granted sometimes eexceeded the credit line guidelines. This was important because it shows how banks are able to take precautions by adhering to the credit guidelines. The findings are illustrated in table 4.45.

Table 4.45: Depending on borrower loan granted may sometimes exceed credit line

Responses	Frequency	Percent
Strongly Disagree	26	9.6
Disagree	10	3.7
Neutral	11	4.0
Agree	147	54.0
Strongly Agree	78	28.7
Total	272	100.0

Source: Survey Data (2018)

The results indicated from majority of 82.7% of the respondents who agreed that depending on the borrower, loan granted sometimes exceeded the credit line for that customer while 13.3% of the respondents disagreed that depending on borrower, loan granted sometimes exceeded the credit line for that customer. This means that commercial banks sometimes exceeded the credit lines depending on the borrower. This finding agrees with those of Moussa and Chedia (2016) who found that commercial banks were issuing more credit than the borrowers had qualified for and this had a negative impact on loans which resulted to banks losing money.

4.9.5 Number of borrowers who qualify for loans have reduced

The study investigated whether the number of borrowers who qualify for loans had reduced or not. This was meant to understand the frequency at which people qualify or do not qualify for loans in the commercial banks. The results were as illustrated in table 4. 46.

Table 4.46 Number of borrowers who qualify for loans have reduced

Responses	Frequency	Percent
Strongly Disagree	2	.7
Disagree	11	4.0
Neutral	7	2.6
Agree	198	72.8
Strongly Agree	54	19.9
Total	272	100.0

Source: Survey Data (2018)

The results revealed that a majority of the respondents 92.7% agreed that the number of borrowers who qualify for loans had reduced while only 4.7 disagreed with this statement. This means that there was a decline of borrowers who qualified to obtain credit from the commercial banks. This finding agreed with that of Ayieyo (2016) who found that interest rates and deposit size were negatively correlated and significantly reduced the total loans applicants who qualified for the credit.

4.9.6 There is growth or decline of lending activity by commercial banks

The study investigated whether there was growth or decline of lending activity by commercial banks. This was to bring out how the respondents feel in terms of lending activity in their commercial banks. The findings are as illustrated in table 4. 47

Table 4.47: There is growth or decline of lending activity by commercial banks

Responses	Frequency	Percent
Lending has Grown	33	12.1
Lending has Declined	239	87.9
Total	272	100.0

Source: Survey Data (2018)

The study results revealed that 87.9% of the respondents agreed that lending have declined while only 12.1% indicated that lending have not declined. This finding shows that lending in commercial banks have declined. This finding agrees with those of Malede (2014) who found that lending had reduced significantly with no growth indications and resulted to closure of commercial banks in Ethiopia since it affected their capital and liquidity in commercial banks.

4.9.7 Mean and Standard Deviations Results of Lending Performance

In order to understand commercial banks' lending performance, the respondents were required to give their views on everyday lending performance of the banks on a scale of 1 to 5 where 1=Strongly Disagree; 2=Disagree; 3 =Neutral; 4=Agree and 5=Strongly Agree. The results of lending performance were then presented as shown in table 4.48 below.

Table 4.48: Mean and Standard Deviations Results of Lending Performance

Lending Performance	N	Min	Max	Mean	Std. Dev.
The number of loan applications approved by the commercial banks has reduced	272	1	5	2.25	1.198
There is increased rate of loan defaulting by the borrowers.	272	1	5	1.87	1.088
There is a big percentage of loans whose repayment pattern is not consistent	272	1	5	1.92	1.156
Depending on the borrower, loan granted may sometimes exceed credit line guidelines.	272	1	5	2.03	1.152
The number of borrowers who qualify for loans have reduced	272	1	5	1.87	0.67
There is growth or decline of lending activity by commercial banks	272	1	2	1.82	0.327
Aggregate score				**1.96**	**0.931833**

Source: Survey Data (2018)

Table 4.48 reveals that the aggregate lending performance was 1.96 with a standard deviation of 0.93. These results show that lending performance was below average. The results further indicated that the number of loan applications approved by commercial banks reduced and was rated at high M=5, SD=1.198 and mean=2.25. On the other hand, the view that the number of borrowers who qualify for loans have reduced was rated at M=5, SD=0.67 and mean=1.87 while the respondents who felt that there is growth or decline of lending activity by commercial banks rated M=2, SD=0.327 and mean=1.82.

4.10 Correlation Analysis

In order to get the linear relationship between the various independent and dependent variables, Pearson correlation coefficient (r) was used. According to Zikmund, Babin, Carr, & Griffin (2010) the correlation coefficient depicts the magnitude of the relationship between two variables. The bigger the r (absolute zero), the stronger the association between two variables. If the correlation coefficient is positive (+) it means that there is a positive relationship between the two variables. A negative relationship (-) means that as one variable decreases, the other variable increases and this is termed as an inverse relationship. A zero value of r indicates that there is no association between two variables. The coefficient assumes that there is a linear relationship or correlation between two variables and that the two variables are causally related; one of the variables is the independent and the other dependent variable.

In this study, the independent variables; risk identification, risk measurement, risk monitoring and risk control were each correlated with lending performance which was the dependent variable. The researcher used correlation technique to determine if there was any relationship, association or correlation between variables and establish the magnitude and direction (negative or positive). The results of the correlation analysis are illustrated in table 4.50.

Table 4.50: Correlation analysis between Credit Risk and Lending Performance

Correlations

		Lending performance	Risk identification	Risk measurement	Risk monitoring	Risk control
Lending performance	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	272				
Risk identification	Pearson Correlation	.562*	1			
	Sig. (2-tailed)	.000				
	N	272	272			
Risk measurement	Pearson Correlation	.683*	.553*	1		
	Sig. (2-tailed)	.000	.000			
	N	272	272	272		
Risk monitoring	Pearson Correlation	.673*	.253*	.478*	1	
	Sig. (2-tailed)	.000	.045	.000		
	N	272	272	272	272	
Risk control	Pearson Correlation	.576	.012	.185*	.548*	1
	Sig. (2-tailed)	.000	.811	.065	.000	
	N	272	272	272	272	272

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

Source: Survey Data (2018)

4.10.1 Correlation analysis results between Risk Identification and Lending Performance

The findings of the correlation analysis indicated that there was a significant and positive relationship between risk identification and lending performance (r=0.0.562, p<0.000). This implies that considering risk identification aspects such as credit assessment, source of repayment and repayment capacity of the borrower in the banking industry increases lending performance. This is supported by Nazir, Adeel and Nawaz (2012) who found that risk management practices in Banks in Pakistan indicated that the commercial banks were slightly satisfied with how the credit risk identification was used to get information of the borrower and in order to minimize credit risk. In some cases, it was found that commercial banks' lending networks function based on trust and customer's obligation is reinforced by social bonds that exists among them.

4.10.2 Correlation analysis results between Risk Measurement and Lending Performance

Correlation analysis between risk measurement and lending performance was also done. The results of the correlation analysis revealed that risk measurement was significantly and positively associated with lending performance r= 0.0.683, p<0.000). If risk measurement is practiced and considered as important by the banking industry, then this increases lending performance. This finding is supported by Hahm (2004) who conducted a study on credit risk and found that banks' ability clearly measure credit risk can greatly improve risk management capabilities further noting that with the forecasted credit loss distribution in hand, the user can decide how best to manage the credit risk in a portfolio.

4.10.3 Correlation Analysis Results between Risk Monitoring and Lending Performance.

Correlation analysis between risk monitoring and lending performance was done and their values were obtained. Pearson correlation coefficient computed and tested indicated that the relationship between risk monitoring and lending performance was found to be positively and statistically significant (r =0.0.673, p=0.000). This implies that if risk monitoring activities are considered and practiced, this will translate to increased lending performance. This finding agrees with Ahmed, Takeda and Shawn (2011) who found that banks use monitoring of borrowers financial activities after credit was issued in order to ensure that the loan was put in proper use which allows the borrower to be in a position to repay the principal and interest therefore accrued. This activity was found to reduce loan loss provision and has a significant positive influence on non-performing loans.

4.10.4 Correlation Analysis Results between Risk Control and Lending Performance.

The findings of the correlation analysis indicated that there was significant and positive relationship between risk control and lending performance (r=0.576, p=0. 000) implying that there was a positive relationship between risk control and lending performance. This suggests that lending performance was influenced by risk control and the commercial banks should take this activity with a lot of seriousness. This finding was supported by Heffernan (2009) and Mwisho (2011) who found that clear credit control, approval and extension processes are very important while managing credit risks in banks as this control borrowers especially in the wake of changes in exposures occasioned by time and the movements in the underlying variables.

4.11 Diagnostic Tests Normality of Data

Before applying the binary logistic regression model, a measure of model fit for binary logistic models was used to test for normality, linearity and multicollinearity (Dormann et al., 2013). These diagnostic tests enabled the study to select the appropriate model.

4.11.1 Normality Test

Statistical methods are based on various underlying assumptions. One common assumption is that a random variable is normally distributed (Dormann et al., 2013). When violated, the interpretation and inference of this assumption may not be reliable or valid. Statistical tests for normality are more precise since actual probabilities are calculated. The Kolmogorov-Smirnov and Shapiro-Wilks test for normality calculates the probability when the sample is drawn from a normal population.

The hypotheses used were as follows:

H_0: The data is normally distributed

H_1: The data is not normally distributed

This study used Shapiro-Wilks Test, which works best for residual from regression equation (Cameron, 2005). The Shapiro-Wilk is the ratio of the best estimator of the variance to the usual corrected sum of squares estimator of the variance (Shapiro & Wilk, 1965). When that test is conducted and the test and the statistic is positive and less than or equal to one or being close to one, this indicates there is normality. This test was run using SPSS Version 22 analytical program.

Table 4.51: Results of Normality Test

	Kolmogorov-Smirnov			Shapiro-Wilk		
Variable	**Statistic**	**Df**	**Sig**	**Statistic**	**Df**	**Sig**
Lending Performance	0.069	272	0.2	0.991	272	0.78
Identification	0.129	272	0.101	0.932	272	0.127
Measurement	0.134	272	0.08	0.871	272	0.378
Monitoring	0.0871	272	0.0793	0.928	272	0.064
Control	0.0638	272	0.074	0.74	272	0.082

Source: Survey Data (2018)

To test for normality of the data, both the Shapiro-Wilk and the Kolmogorov-Smirnov normality tests were performed and normality results presented in table 4.51 for comparison. The final decision however was based on the Shapiro-Wilk test since it has higher statistical power and hence greater ability to test whether the data came from a non-normal distribution.

Results from table 4.51 indicate a significance value (P>0.05) for both tests. Using a 95% level of confidence, any significance value that is greater than 0.05 is not statistically significant to reject the null hypothesis that observed data follows a random distribution. The decision therefore in this case is to accept the null hypothesis that the sampled data follows a normal random distribution. Normality test is important before undertaking any further analysis since the underlying assumption in regression model analysis is that the population from which the sample is drawn follows a random distribution. In case that the assumption of normality is violated, validity of the results will be in question owing to inflated statistics and underestimated standard errors. This test was also used by Kahuthia (2016) while conducting a study on drivers of competitive advantage and performance of commercial banks in Nairobi County, Kenya.

4.11.2 Linearity Test

Multiple regressions can only accurately estimate the relationship between dependent and independent variables if the relationships are linear in nature (Tabachnick & Fidell, 2001). Linearity occurs if the change or rate of change between scores on two variables is constant for the entire range of scores for the variables. Linearity can be evaluated using graphical or statistical methods. Graphical methods include the examination of scatter plots, often overlaid with a trend line. Statistical methods include linear correlation coefficient (Gupta, 2010).

If the relationship between independent variables (IV) and the dependent variable (DV) is not linear, the results of the regression analysis will underestimate the true relationship. This underestimation carries two risks: increased chance of a Type II error for that IV, and, in the case of multiple regression, an increased risk of Type I errors, that is, over estimation of other IVs that share variance with that IV (Field, 2009).

This study adopted a linear correlation coefficient to test for linearity in order to confirm the linear relationship using the positive direction plus the strength of the coefficients as well as the significant level of the relationship.

Table 4.52: Results of Linearity Test

Variable		Lending Performance
Identification	Pearson Correlation	0.562*
	Sig. (2-tailed)	0.000
	N	272
Measurement	Pearson Correlation	0.683*
	Sig. (2-tailed)	0.000
	N	272
Monitoring	Pearson Correlation	0.673*
	Sig. (2-tailed)	0.000
	N	272
Control	Pearson Correlation	0.576*
	Sig. (2-tailed)	0.000
	N	272

Correlation is significant at the 0.05 level of significance (2-tailed).

Source: Survey Data (2018)

In order to test for linearity of the observed data, correlation analysis was carried and the Pearson's correlation coefficient for each of the independent variables and the dependent variable recorded as shown in table 4.52. The results of the linearity test indicate that all the four variables exhibit a linear relationship with lending performance ($p<0.05$). It can be further noted from the results that credit risk measurement has the strongest linear relationship with lending performance ($r=0.683$) followed by risk monitoring ($r=0.673$), risk control ($r=0.576$) and risk identification ($r=0.562$) respectively. Linearity assumption is important in linear regression given an underlying requirement that the relationship between the dependent and the independent variables be linear and its sensitivity to outlier effects. This test was also used by Kahuthia (2016) while conducting a study on drivers of competitive advantage and performance of commercial banks in Nairobi County, Kenya.

4.11.3 Multicollinearity Test

Multicollinearity refers to a situation in which two or more explanatory variables in a multiple regression model are highly linearly related. A perfect multicollinearity occurs if the correlation between two independent variables is equal to 1 or -1 (O'Brien, 2007). Multicollinearity can be detected using tolerance or the variance inflation factor (VIF). According to Baum (2006), a tolerance of less than 0.20 or a VIF greater than 10 is viewed as evidence of harmful multicollinearity while if there is no factors which are correlated, the VIFs is 1. This diagnostic test enabled the study to select the appropriate model. According to Belsley (1991), existence of multicollinearity may lead to Type II error. This study used the SPSS to check for multicollinearity, with a threshold tolerance of 0.2 and VIF of 0.10

Table 4.54: Results of Multicollinearity Test

	Collinearity Statistics	
Variable	**Tolerance**	**VIF**
Identification	0.835	1.198
Measurement	0.817	1.223
Monitoring	0.957	1.045
Control	0.959	1.043
Mean	0.892	1.127

Dependent Variable: Lending Performance

Source: Survey Data (2018)

Tolerance values and Variance Inflated Factor (VIF) values criterion were used to test for multicollinearity between the independent variables. The tolerance criteria show the influence of one independent variable on another independent variable. According to

Hair, Black, Babin and Anderson (2010), a tolerance value > 5 is an indication of multicollinearity while a mean VIF > 2 certainly shows the presence of multicollinearity.

As it can be shown from Table 4.54, the mean VIF < 2 and the VIF for all the four independent variables was less than 5. The results therefore are a confirmation that there is no problem of multicollinearity in the observed data. Multicollinearity is a problem in linear regression because it undermines the statistical significance of an independent variable. This test was also used by Kahuthia (2016) while conducting a study on drivers of competitive advantage and performance of commercial banks in Nairobi County, Kenya.

4.11.4 Goodness of Fit Test

The goal of logistic regression models is to model the probability of the occurrence of an event depending on the value of covariates X, otherwise, to find a model that fits the observed data well. A model is said to fit poorly if the model's residual variation is large and systematic (Dreiseitl, 2005). This is usually the case when the estimated values produced by the logistic regression model do not accurately reflect the observed values and usually are caused by factors as noted by Dreiseitl (2005), such as, omission of higher order terms of covariates, or important covariates related to the response variables from the model. Influential observations and outliers can also lead to a poor fit. Goodness-of-fit or lack-of-fit tests are designed to determine formally the adequacy or inadequacy of the fitted logistic regression model. A poorly fitted model can give biased or invalid conclusions on the statistical inference based on the fitted model. Therefore, we must test the lack-of-fit of a model before we can use it to make statistic inferences.

Table 4.55: Results of Hosmer-Lemeshow Test of Goodness of Fit

HL stat	Df	p-value
12.68	4	0.3784

Source: Survey Data (2018)

The table above shows that the p-value ($p>0.05$) is not statistically significant to reject the null hypothesis at 0.05 level of significance. This therefore means that we fail to reject the null hypothesis that the model is not a good fit and conclude that the model is a good fit for the observed data. The goodness of fit of a statistical model is commonly assessed by describing how well the model fits the observed data. Many tests for goodness of fit evaluate the differences between the observed values, the actual data, and the expected values from the model. Goodness of fit is often used to assess how well a given probability distribution fits the data as well as how a statistical regression model fits the data. In this research the interest lies in evaluating translations of the Hosmer-Lemeshow goodness-of-fit test for logistic regression. Within prediction modeling the goodness of fit of a model is referred to as predictive performance. While goodness of fit and predictive performance use some of the same tests the main difference is that goodness of fit tests are done on the original data while predictive performance uses new data. The predictive performance of a model can be assessed by discrimination and calibration measures (Steyerberg, et al., 2010). In the setting of logistic regression, a discrimination statistic is used to determine how well the model can distinguish between patients having the outcome or not. Common discrimination statistics include the C statistic (LaValley, 2008) and the area under the receiver operating characteristic (ROC) curve (Kramer & Zimmerman, 2007). The calibration statistic measures how well the predicted probability from the model compares to the observed outcome.

4.12 Hypothesis Testing

Regression analysis on the hypotheses were subsequent to the successful running of the preliminary diagnostic tests and confirming that the data complied with the prerequisite assumptions, performed.

Table 4.56: Logistic Regression Estimation Results

Logistic regression		Number of obs = 272	
		LR chi2(4) = 64.17	
Prob >chi2 = 0.0000			
Log likelihood = -24.61436		Pseudo R2 = 0.6974	
			Marginal effects
Variables	**Odds Ratio**	**P>|z|**	**(dy/dx)**
Identification	1.8724	0.0348**	.2137
Measurement	3.8420	0.0231**	.4165
Monitoring	3.5247	0.0217**	.3735
Control	2.1825	0.0325**	.3585
Constant	0.1111	0.0001**	1.584

**significant at 0.05 level of significance
Source: Survey Data (2018)

Table 4.56 shows the estimated results for the binary logistic regression with the odds ratios, p-values and the marginal effects of the four explanatory variables. The Pseudo R^2 (0.6974) means that the model accounts for 69.74 percent of variations in the lending performance while the remaining 30.26 percent are accounted for by other factors that are not represented in the model. The overall significance of the model in predicting the relationship between the independent variables and lending performance is also confirmed by its goodness of fit as given by the p-value < 0.05.

The results further indicate that all the four variables are significant in predicting lending performance and that the most influential variable in improving lending performance is credit risk measurement (3.8420, p<0.05) followed by risk monitoring (3.5247, p<0.05),

risk control (2.1825, p<0.05) and risk identification (1.8724, p<0.05) in that order. This therefore means that holding all other factors affecting lending performance constant, an improvement in credit risk measurement will result to greater improvement in lending performance of commercial banks followed by an improvement in credit risk monitoring. The logistic regression analysis was used to derive the model below;

$$\text{Log} = \left(\frac{P_i}{1 - P_i} \right) \quad Y_i = 1.584 + 0.\ 2137X_1 + 0.4165X_2 + 0.\ .3735X_3 + 0\ .3585X_4$$

4.12.1 Testing Hypothesis One

$H_0$1: There is no significant relationship between risk identification and lending performance of commercial banks in Nairobi County, Kenya.

As it can be shown from table 4.56, the p-value of credit risk identification was statistically significant (p<0.05) meaning that the decision was to reject the null hypothesis and concluded that there was a significant relationship between risk identification and lending performance.

The odd ratio for risk identification (1.8724) indicates that holding all other factors affecting lending performance constant, commercial banks that undertake credit risk identification are 1.87 times more likely to record higher lending performance compared to those banks that do not undertake credit risk identification. The marginal effect (0.2137) indicates that holding all other factors affecting lending performance constant, credit risk identification will improve lending performance of commercial banks by 21.37 percent.

4.12.2 Testing of Hypothesis Two

$H_0$2: There is no significant relationship between risk measurements and lending performance of commercial banks in Nairobi County, Kenya.

The p-value for risk measurement was statistically significant at a 5% level of significance. We therefore reject the null hypothesis and concluded that there is a significant relationship between credit risk measurement and lending performance of commercial banks.

The odd ratio for credit risk measurement (3.8420) indicates that holding all other factors affecting lending performance constant, commercial banks that carry out credit risk measurement are 3.84 times more likely to record better lending performance compared to banks that do not undertake risk measurement. The marginal effect (0.4165) implies that lending performance will improve by 41.65 percent given an improvement in credit risk measurement by commercial banks.

4.12.3 Testing of Hypothesis Three

$H_0$3: There is no significant relationship between risk monitoring and lending performance of commercial banks in Nairobi County, Kenya.

It can be shown from table 4.56 that the p-value of risk monitoring was statistically significant ($p<0.05$). The decision therefore was to reject the null hypothesis and concluded that there is a statistically significant relationship between credit risk monitoring and lending performance of commercial banks.

On the other hand, the odd ratio (3.52) shows that all other factors affecting lending performance held constant, commercial banks that undertakes credit risk monitoring are 3.52 times more likely to perform better in terms of credit lending compared to banks which do not undertake credit risk monitoring. The marginal effect (0.3735) shows an improvement in credit risk monitoring would result to a 37.35 percent improvement in

lending performance of commercial banks, all other factors affecting lending performance held constant.

4.12.4 Testing of Hypothesis Four

$H_0$4: There is no significant relationship between risk control and lending performance of commercial banks in Nairobi County, Kenya.

It can be shown from table 4.56 the p-value for credit risk control was statistically significant at a 5% level of significance. The decision therefore was to reject the null hypothesis and concluded that there is a significant relationship between credit risk control and lending performance of commercial banks.

The odd ratio for credit risk control (2.1825) indicates that holding all other factors affecting lending performance constant, commercial banks that carry out credit risk control are 2.18 times more likely to record better lending performance compared to banks that do not undertake credit risk control. A marginal effect (0.3585) implies that lending performance will improve by 35.85 percent given an improvement in risk control by commercial banks, all other factors affecting lending performance held constant.

Table 4.57 Summary of Hypotheses Testing

S/No	Null Hypothesis	Results
$H_0$1	There is no significant relationship between risk identification and lending performance of commercial banks in Nairobi County, Kenya.	Null Hypothesis was rejected
$H_0$2	There is no significant relationship between risk measurement and lending performance of commercial banks in Nairobi County, Kenya.	Null Hypothesis was rejected
$H_0$3	There is no significant relationship between risk monitoring and lending performance of commercial banks in Nairobi County, Kenya.	Null Hypothesis was rejected
$H_0$4	There is no significant relationship between risk control and lending performance of commercial banks in Nairobi County, Kenya.	Null Hypothesis was rejected

Source: Survey Data, (2018)

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the results of the study and makes conclusions from which recommendations are drawn and suggestions for further study proffered.

5.2 Summary of Results

The Kenyan commercial banks sector has been changing rapidly, while the sector faces stiff competition. Despite this, the commercial bank sector performance is better than that of many other sectors. However, the majority of banks within the sector have poorer lending performance than others as shown by lending performance indicators. This called for investigation on the credit risk factors influencing lending performance in the sector.

The study was guided by four specific objectives as follows: to evaluate the influence of risk identification on lending performance of commercial banks in Nairobi County, Kenya, to examine the influence of risk measurement on lending performance of commercial banks in Nairobi County, to establish the influence of risk monitoring on lending performance of commercial banks in Nairobi County and to determine the influence of risk control on lending performance of commercial banks in Nairobi County, Kenya. To achieve this, the study used descriptive survey. A census of all the 42 commercial banks was carried out. Data was collected using semi-structured questionnaire and the collected data was analyzed using descriptive and inferential statistics.

Prior to the final data collection, a pilot study was conducted where the content validity and reliability of the questionnaires were tested. The validity was enhanced through piloting of questionnaires to five commercial banks that were randomly selected. The reliability was tested through statistical package for social sciences (SPSS) and Cronbach

alpha correlation coefficient was also used to satisfy the reliability tests. The study sample had 343 questionnaires distributed and 272 were duly filled and returned for analysis. This represented a response rate of 79% which according to Saundres, Lewis and Thornbill (2007), Sekaran (2010) and Mugenda and Mugenda (2008) was a good response rate.

5.2.1 Preliminary Results

The results of the study revealed that the combined effect of credit risks influenced bank lending performance positively. These results were both supported by the frequencies of the responses from the respondents which were presented in the form of percentages and mean scores.

The first objective of the study was to set to establish the influence of credit risk identification on lending performance of commercial banks in Nairobi County, Kenya. The results revealed that credit risk identification have a positive influence on the lending performance of commercial banks in Nairobi County. This finding is supported by the marginal effect which indicated that holding all other factors affecting lending performance constant, credit risk identification would improve lending performance of commercial banks confirming that the variations in lending performance are explained by risk identification. The influence of risk identification on lending is also statistically significant and hence the alternate hypothesis was accepted.

This means that the influence is not by chance. Commercial Banks in Kenya have been practicing credit risk identification and subsequently their lending performance. The study found that there was a problem with credit risk identification which results from competitive pressure and credit growth as they tend to put a time constraint on getting accurate data. Moreover, the study found that the desire to tap into new markets have lured management to lend without sufficient financial and economic analysis. It was also

found that there was subjective decision making by management especially when the borrower appears to have met the credit approval criteria.

The second objective of the study sought to examine the influence of credit risk measurement on lending performance of commercial banks in Nairobi County, Kenya. Results revealed that risk measurement had positive influence on lending performance of commercial banks in Kenya. This is supported by the marginal effect which shows that risk measurements explain the variations in lending performance of commercial banks in Kenya. The test for significance also showed that the influence was statistically significant and hence the alternate hypothesis was accepted. The study also found that commercial banks failed to thoroughly assess risk in the introduction of new products and do not install risk management system prior to launch of new products.

With rapid credit growth and heightened competition, banks succumb to the pressure of introducing new products and services to the market without proper testing. The study also found that commercial banks were not in line with the principle of proper credit underwriting and such practice has led to serious problems. There was credit approval over the limit or overriding the policy and this contributed to credit risk. Credit overrides is highly discouraged. Risk measurements in banks was also affected by the fact that credit was being granted without taking into account of business cycle, a situation which can cause an overly optimistic credit analysis. For example, businesses such as retail business, commercial real estate, real estate investment, and consumer lending tend to have strong cyclical effects.

The third objective of the study was to establish the influence of credit risk monitoring on lending performance of commercial banks in Nairobi County, Kenya. The results showed that credit risk monitoring have a positive influence on lending of commercial banks in Kenya. The analysis produced a marginal effect which shows an improvement in credit

monitoring would result to an improvement in lending performance of commercial banks, all other factors affecting lending performance held constant.

The significance test showed that influence of risk monitoring on lending performance was statistically significant and hence the alternate hypothesis was accepted. Majority of the respondents agreed that risk monitoring had a positive influence of lending performance. It was found that there was an ongoing credit review with accurate credit grading, appropriate amount and reporting to the management which allowed the commercial banks to monitor credit risk and solve credit problems in an appropriate and timely manner. Credit risk monitoring was affected by the failure of banks to mandatorily require borrowers to regularly submit reports on the value of the collaterals they use to secure loans from time to time.

When credit is granted and assets are used as collateral, banks do not make regular assessment on price changes and market value of collateral from time to time. This greatly affected the lending performance because borrowers' source of repayment is directly related to the quality of collateral asset used. When the borrowers' income stream deteriorates due to economic problems, the value of the asset placed as collateral is likely also to decline.

The fourth objective sought to establish the influence of credit risk control on lending performance of commercial banks in Nairobi County, Kenya. Results on the influence of credit risks on lending performance showed that variations in lending performance can be explained by credit risk control. This finding is further supported by logistic regression odd ratio results which showed that credit risk control has a statistically significant influence on lending performance of commercial banks in Kenya and therefore the alternate hypothesis was accepted. This meant that credit risk control has a positive

influence on lending performance of commercial banks in Kenya. Commercial banks in Kenya use various risk control measures though this is affected since commercial banks do not follow clients to ensure that loan granted is used according to the loan agreement.

5.3 Conclusion

Based on the results of the study, it can be concluded that credit risk influence lending performance of commercial banks in Kenya positively. The results indicated a positive significant relationship between the drivers of credit risk and lending performance of the commercial banks sector in Kenya. The study concludes that credit risk activities significantly influence the lending performance of commercial banks. This study found that the lending performance across the Kenyan commercial banks have decreased significantly. This led to a conclusion that operating capital of commercial banks have gone down to very low levels since lending is the major source of income for the commercial banks and this affected the performance of the entire banking sector.

The study also found the relationship between risk identification and lending performance to be positive and significant. Hence, the study concluded that risk identification significantly influences lending performance of banks in Kenya and that commercial banks have put more activities in place to identify potential credit risk. This study also found that among the activities of credit risk, credit measurement and credit monitoring were so much below average and this was a challenge across the entire sector. These activities can be concluded to have further contributed in exposing the banks to credit risk and as a result the lending performance was affected. The study concluded that as a result of this, there was more credit defaulting, inconsistent loan repayments and this resulted to a decline in lending across the entire commercial banks sector.

5.4 Recommendations and Policy Implications

The study was a justification of the fact that credit risk activities have a positive significant influence on the lending performance of commercial banks in Kenya and recommends as below.

5.4.1 Influence of Credit Risk Identification on Lending Performance

Credit risk identification was found to be positively significant, influencing lending performance and hence commercial banks managers should enhance training to improve the skills of their staff on credit risk identification. The banks should empower their research and design departments to facilitate the understanding of risk identification based on loan products and services. To facilitate quicker decision making, management may support credit decisions by using simple indicators of credit quality such as borrowers' characteristics, current and expected value of collateral or support of a parent company or affiliated companies. Credit department should constitute of highly trained personnel with proper knowledge of the risk identification on all the available loan products so as to improve the lending performance. The Kenya government through the National Treasury and in collaboration with CBK and KBA should develop policies on the qualification of credit officers in the commercial banks and monitor the way they work to ensure world class services are offered by employees on credit risk identification across all commercial banks in Kenya.

5.4.2 Influence of Credit Risk Measurement on Lending Performance

The results indicated significant positive influence of credit risk measurement activities on lending performance of commercial bank sector in Kenya, implying their importance. Bank managements should therefore ensure that their branches do not practice credit overriding in order to support their banks' lending performance. The KBA should lobby for application of the most recent technology by its members for use by the Research and

Development (R&D) department in conjunction with the Information and Communications Technology (ICT) department for capacity to measure risks before introduction of new loan products or services by banks. CBK should also lobby for the application of the right technology and monitor technological infrastructure in all commercial banks.

KBA and CBK should also ensure that all bank management adhere to the lending policies and take action against managers who contravene lending policies and those who rely on subjective decision making especially when the borrower appears to have met the credit approval criteria. The banks should also have robust training programs with a view to learning how to take into account of their borrowers' business cycle during the loan cycle since the effect of business cycle is less than the effect of product cycle, especially new, rapidly growing products such as business related to telecommunication. The CBK and KBA should ensure that effective stress testing that incorporate the effect of business cycle and product cycle is one approach for credit decision process and should induce clearer understanding in credit risk.

5.4.3 Influence of Credit Risk Monitoring on Lending Performance

The results indicated positive significant influence of credit risk monitoring activities on lending performance of commercial banking sector in Kenya, implying their importance. Therefore, the directors of the banks should ensure the use of the right credit risk monitoring tools and also ensure that bank officials supervise and monitor the borrowers' activities after credit is granted on behalf of the bank. KBA and CBK should make it a requirement that borrowers should be submitting reports regularly to the bank on changes in the value of collateral used to acquire the loans. The aim of this should be to ensure that the value of collateral does not lose more value in time below the value of loan granted. This will improve the lending performance of the whole banking sector. KBA

and CBK should lobby for the development of section in the banking sector that will be charged with strictly reminding the customers of their loan status every month before repayment date is due by calling or sending an email.

5.4.4 Influence of Credit Risk Control on Lending Performance

Since the results showed that there was positive significant influence of credit risk control activities on lending performance of commercial banking sector in Kenya, the study recommends that management of banks should lobby for policies that require borrowers to strictly submit regular financial reports for evaluation of their business in case they used the business to acquire credit. They should ensure that all staff are aware of the CBK guidelines that are used for setting credit line appropriate to borrowers. KBA and CBK should also lobby for intensive follow-up within the banking industry so that commercial banks follow clients to ensure that loan granted is used according to loan agreement.

5.5 Areas for Further Research

Based on the results of this study, further studies should be conducted to supplement the body of knowledge in the area of banking performance in a dynamic environment. The researcher also recommends further studies that take into account other forms of risks that may affect overall banks performance which were not included in this study.

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APPENDIX I

LETTER OF INTRODUCTION

To…….

……..

Dear Sir/Madam,

RE: COLLECTION OF RESEARCH DATA

My name is John Karanja a student pursuing a Doctorate degree in Business Administration – Finance option at Kenya Methodist University. Currently, I am carrying out a research on the "**Credit Risk and Lending Performance of Commercial Banks in Kenya; A Survey of Commercial Banks in Nairobi County***"*. I am in the process of gathering relevant data for this study. You have been identified as one of the collaborators and respondents in this study and kindly request for your assistance towards making this study a success.

I therefore kindly request you to take some time to respond to the attached questionnaire. I wish to assure you that your responses will be treated with confidentiality and will be used solely for the purpose of this study.

I thank you in advance for your time and responses. It will be appreciated if you can fill the questionnaire within the next 3 days to enable early finalization of the study.

Yours Sincerely

John Karanja

APPENDIX II

AUTHORIZATION LETTER FROM UNIVERSITY



KENYA METHODIST UNIVERSITY

P. O. Box 267 Meru - 60200, Kenya
Tel: 254-064-30301/31229/30367/31171
Fax: 254-64-30162
Email: info@kemu.ac.ke

Executive Secretary,
National Commission for Science, Technology and Innovations,
P.O.Box 30623-00100,
NAIROBI.

11/12/2017

Dear sir/ Madam,

RE: Karanja John Gakuu (BUS-4-0268-1/2016)

This is to confirm that the above named is a bona fide students at Kenya Methodist University, Department of Business and Economics undertaking a PhD in Business Administration and Management (Finance Option). He is conducting a research on: **"Evaluation of Credit Risk on Lending Performance of Commercial Banks in Nairobi County, Kenya"**

In this regard, we are requesting your office to issue permit to enable him collect data for his research.

Any assistance accorded to him will be appreciated.

Thank you.

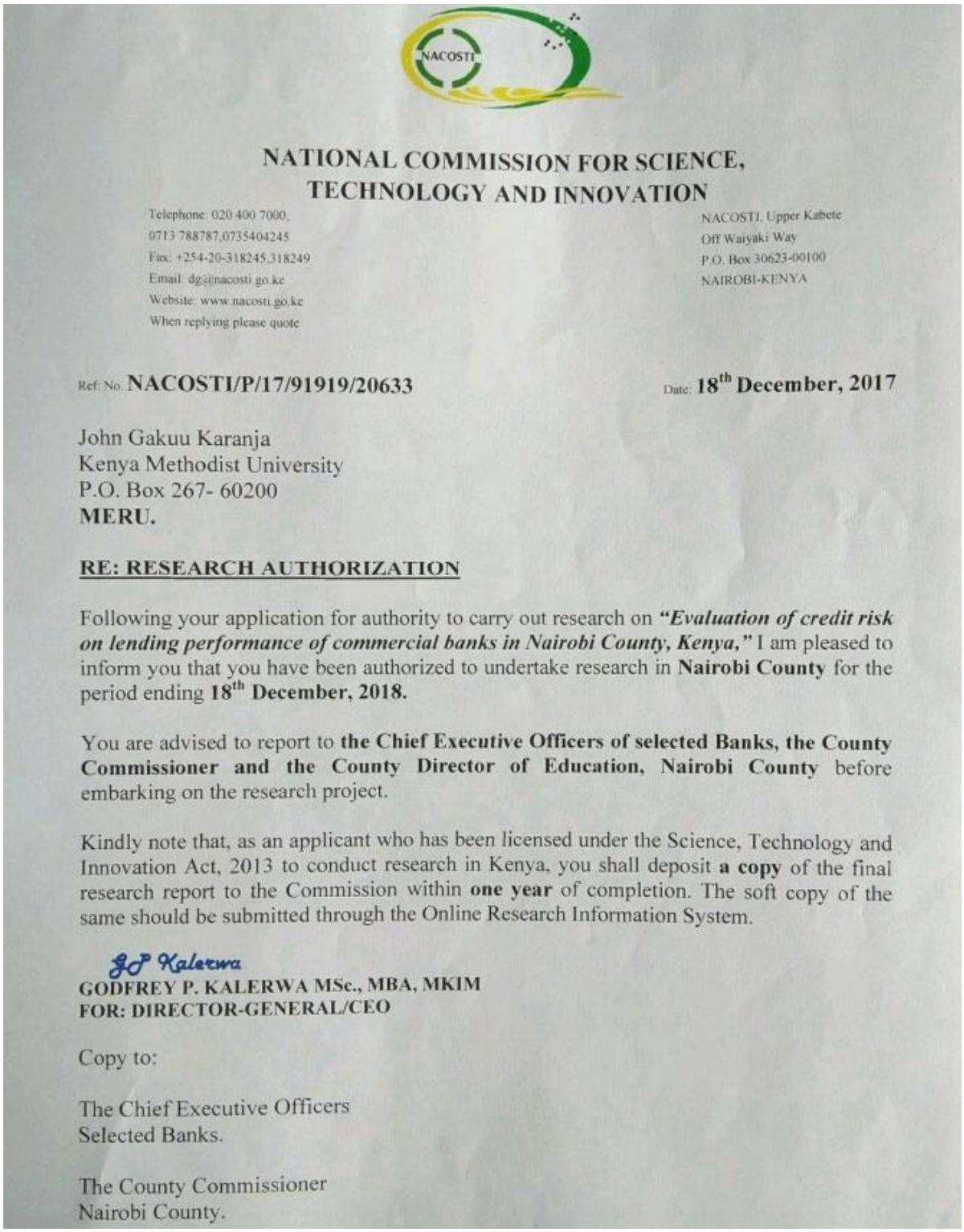
For

Dr. John Muchiri, PhD.
Dean, Research and Development and Postgraduate Studies

KENYA METHODIST UNIVERSITY
Dean
11 DEC 2017
BOARD OF POSTGRADUATE STUDIES
P.O. Box 45240-00100, NAIROBI

APPENDIX III

AUTHORIZATION LETTER FROM NACOSTI



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: 020 400 7000,
0713 788787,0735404245
Fax: +254-20-318245,318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/17/91919/20633**

Date: **18th December, 2017**

John Gakuu Karanja
Kenya Methodist University
P.O. Box 267- 60200
MERU.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Evaluation of credit risk on lending performance of commercial banks in Nairobi County, Kenya,"*** I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for the period ending **18th December, 2018.**

You are advised to report to **the Chief Executive Officers of selected Banks, the County Commissioner and the County Director of Education, Nairobi County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

GP Kalerwa

GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO

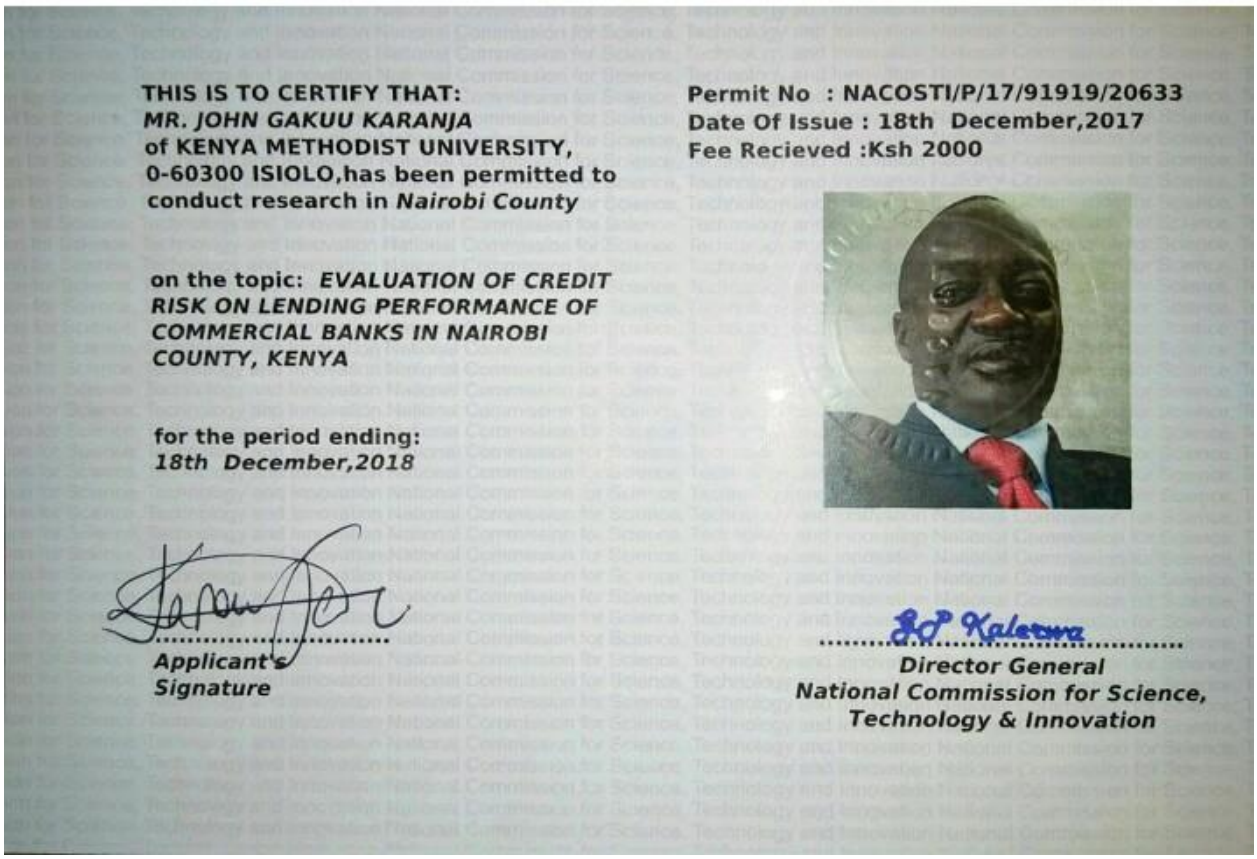
Copy to:

The Chief Executive Officers
Selected Banks.

The County Commissioner
Nairobi County.

APPENDIX IV

RESEARCH AUTHORIZATION PERMIT



THIS IS TO CERTIFY THAT:
MR. JOHN GAKUU KARANJA
of KENYA METHODIST UNIVERSITY,
0-60300 ISIOLO,has been permitted to
conduct research in *Nairobi County*

on the topic: *EVALUATION OF CREDIT RISK ON LENDING PERFORMANCE OF COMMERCIAL BANKS IN NAIROBI COUNTY, KENYA*

for the period ending:
18th December,2018

.....
Applicant's Signature

Permit No : NACOSTI/P/17/91919/20633
Date Of Issue : 18th December,2017
Fee Recieved :Ksh 2000

.....
Director General
National Commission for Science, Technology & Innovation

APPENDIX V

QUESTIONNAIRE

By means of a tick (√) kindly indicate an option that best describes your response:

SECTION A: GENERAL INFORMATION

1. What is your gender?

Male [ ] b. Female [ ]

2. What is your age?-

Below 25 years [ ]
25-30 years [ ]
31-35 years [ ]
36-40 years [ ]
41-45 years [ ]
46-50 years [ ]
Over 51 [ ]

3. What is your level of education?-

Secondary education (O level) [ ]
Diploma [ ]
Degree [ ]
Masters &Above [ ]

4. How Many years have you worked with the banking sector?-

Below 5 years [ ]
5-10 years [ ]
11-15 years [ ]
16-20 years [ ]
Above 21 years [ ]

5. Kindly indicate your current position

Credit Manager [ ]
Other Levels [ ]

SECTION B: CREDIT RISK IDENTIFICATION

6. In relation to your everyday experience at your bank, tick the most appropriate response choice to the statements made in the table below;

Where 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree And 5=Strongly Agree.

Credit Risk Identification	1	2	3	4	5
There is effective systems in place to enhance credit risk identification when clients are borrowing credit					
There is competitive pressure on credit lending which makes it impossible to get accurate data on borrowers credit worthiness					
Entry into new markets can tempt the management to lend without sufficient financial analysis of the borrowers					
The bank has developed internal guidelines apart from those stipulated by CBK on methodology to evaluate borrowers when issuing credit					
Quicker lending decision based on borrowers' characteristics & expected value of collateral has led to bank exposed to credit risk					
The banks have methods of analyzing other sources money for the borrower to pay the credit					

7. How would you rate your credit risk identification in terms of satisfaction in your bank?

a) Highly satisfied. ( )
b) Slightly satisfied. ( )
c) Neutral. ( )
d) Slightly dissatisfied. ( )
e) Highly dissatisfied. ( )

SECTION C: CREDIT RISK MEASUREMENT

8. In relation to credit risk measurement, tick the most appropriate response choice to the statement made in the table below;

Where 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree And 5=Strongly Agree.

Credit Risk Measurement	1	2	3	4	5
The bank have tools that are put in place to enhance credit risk measurement					
There is some branches that practices Credit overriding contributing to credit risks.					
The bank hires consultants to help in measuring credit risks.					
There is introduction of new loan products or services without proper risk measurement by banks					
Subjective decision making by management when the borrower appears to have met the credit approval criteria has increased credit risks					
Credit approval over the limit or overriding the policy is a factor contributing to credit risk					
Credits granted without taking into account of business cycle increases credit risks					
The bank has trained all credit officers on how to measure credit risk.					

9. How would you rate your credit risk measurement in terms of satisfaction in your bank?

a) Highly satisfied. ( )
b) Slightly satisfied. ( )
c) Neutral. ( )
d) Slightly dissatisfied. ( )
e) Highly dissatisfied. ( )

SECTION D: CREDIT MONITORING

10. In relation to your everyday experience of credit monitoring, tick the most appropriate response choice to the statements made in the table below;

Where 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree And 5=Strongly Agree.

Credit Monitoring	1	2	3	4	5
The banks officials supervises and monitors the borrowers activities					
The bank performs re-analysis of its borrowers credit profile to ascertain ability to pay from time to time					
Management regularly receives accurate and timely credit reports					
The banks strictly remind the customers before repayment date by calling or emailing.					
There is continues re-assessment for existing customers during life cycle of the loan					
The borrowers submits reports regularly to the bank on any changes in value of collateral					
There is regular contact with the borrower to update borrowers profile.					

11. How would you rate your credit risk monitoring in terms of satisfaction in your bank?

a) Highly satisfied. ( )
b) Slightly satisfied. ( )
c) Neutral. ( )
d) Slightly dissatisfied. ( )
e) Highly dissatisfied. ( )

SECTION E: CREDIT RISK CONTROL

12. In relation to your everyday experience of credit monitoring, tick the most appropriate response choice to the statements made in the table below;

Where 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree And 5=Strongly Agree.

Credit Risk Control	1	2	3	4	5
The bank strictly follows to ensure that loan granted is used according to the loan agreement.					
The loan officers assesses and reviews all the loans applications					
After Loans issued, they are then classified in several classes for the purpose of controlling					
There are policies that helps in making allowances on how to absorb anticipated loss when issuing credit					
Borrowers strictly submit regular financial reports for evaluation of business.					
There is clear guidelines that are used for setting credit line appropriate to borrowers					

13. How would you rate your credit risk control in terms of satisfaction in your bank?

a) Highly satisfied. ( )
b) Slightly satisfied. ( )
c) Neutral. ( )
d) Slightly dissatisfied. ( )
e) Highly dissatisfied. ( )

SECTION F: LENDING PERFOMANCE

14. In relation to your everyday experience of lending performance, tick the most appropriate response choice to the statements made in the table below;

Where 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree And 5=Strongly Agree.

Lending Performance	1	2	3	4	5
The number of loan applications approved by the commercial banks has reduced					
There is increased rate of loan defaulting by the borrowers.					
There is a big percentage of loans whose repayment pattern is not consistent					
Depending on the borrower, loan granted may sometimes exceed credit line guidelines.					
The number of borrowers who qualify for loans have reduced					

15. From your own experience in the banking sector, do you think there is growth or decline in lending activity by commercial banks in Kenya?

Lending has Grown ☐

Lending has Declined ☐

Thank you for taking your time to answer the questions. God Bless you

APPENDIX VI

LIST OF BANKS THAT PARTICIPATED IN THE STUDY

1. ABC Bank of Kenya
2. Bank of Africa
3. Bank of Baroda
4. Bank of India
5. Barclays Bank
6. Central Bank of Kenya
7. CFC Stanbic
8. CITI Bank
9. Commercial Bank of Africa
10. Commercial Bank of Kenya
11. Consolidated Bank of Kenya
12. Cooperative Bank
13. Credit Bank Ltd
14. Development Bank of Kenya
15. Diamond Trust
16. Dubai Bank of Kenya
17. ECO Bank of Kenya
18. Equatorial Commercial Bank
19. Equity Bank
20. Family Bank
21. Fidelity Commercial Bank
22. First Community Bank
23. Giro Commercial Bank
24. GT Bank
25. Guardian Bank
26. Gulf African Bank
27. Habib Bank AG Zurich
28. Housing Finance Bank
29. I &M Bank
30. Jamii Bora Bank

31. Kenya Commercial Bank
32. Middle East Bank Kenya
33. National Bank of Kenya
34. NIC Bank
35. Oriental Bank
36. Paramount Universal Bank
37. Prime Bank Kenya
38. Sidian Bank
39. Standard Chartered Bank
40. Transnational Bank Kenya
41. United Bank Africa
42. Victoria Commercial Bank

(Source: Central Bank of Kenya, 2017)

NB: Chase Bank and Imperial Bank are still under receivership hence they are omitted in the study.