THE EFFECTS OF COLLATERALIZATION ON LOAN PERFORMANCE OF COMMERCIAL BANKS IN KENYA

BY

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DECLARATION

I declare that this research proposal is my original work and has never been submitted to any other institute for any academic purpose.

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DEDICATION

I dedicate this research work to my loving wife Molly June Ochich for her encouragement and emotional support during the study period.

To my parents; Joseph Ngode and Mary Ngode for their prayers and emotional support.

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LIST OF ABBREVIATIONS

ANOVA- Analysis of Variance

CBK- Central Bank Of Kenya

FSD- Financial Sector Deepening Report

GDP- Gross Domestic Product

IFRS- International Financial Reporting Standards

KBA- Kenya Bankers Association

KCB – Kenya Commercial Bank

NPV- Net Present Value

NPL- Nonperforming loans

PAR- Portfolio at Risk

OLB- Outstanding Loan Balance

ROA- Return on Asset

SME- Small and Medium Enterprises

SPSS- Statistical Package for Social Sciences

ABSTRACT

In the recent years, banking industry in Kenya has witnessed unprecedented rise in default rates which has in turn led to massive increase in the stock of nonperforming loans across all the banks' portfolio thus reducing profitability. The main source of banks' revenue is the interest earned on loans and advances, and as such, portfolio quality is the greatest driver of a bank's profitability and growth. In view of the above, banks have adopted different ways of credit risk mitigation strategies, inter alia, collateral lending. The objective of the study was therefore to establish the effects of collateralization on loan performance of commercial banks in Kenya. The dependent variable in the study was loan performance measured using NPL ratio. The main independent variable was collateralization. Other control independent variables were bank size and financial performance. Data was extracted from secondary sources which included published audited annual financial reports of commercial banks in Kenya and Central Bank of Kenya annual reports and surveys for the period between 2016 and 2020. The study adopted census method whereby all the commercial banks in Kenya were studied. However, only 38 banks out of 40 were in operation during the study period translating to 95% response rate. The data was subjected to other tests like normality, autocorrelations, Collinearity and the results were impressive and conformed to the required standards. Regression model was used in the study to determine the effects of collateralization on loan performance. R-square was found to be 26.1%. This represented the percentage of the variation in the dependent variable that is explained by predictor variables. F statistics value was found to be greater than F critical value, and that led to a rejection of the null hypothesis. The study established F statistics value by way of ANOVA of 4.246 and F critical value of 3.26 at degrees of freedom of 3 and 36. P-value established was 0.011 which was less than alpha value=0.05. Null hypothesis, therefore, was rejected and the conclusion was that Regression model was significant hence fit for predicting effects of collateralization on loan performance. The finding of the study shows that collateralization was statistically significant in predicting the performance of loans of commercial banks in Kenya, with a p-value of 0.006. The study revealed negative significant statistical relationship between Collateralization and loan performance with a determinant of -3.239 established in the model. This means that increasing loan collateralization by one unit would lower non-performing loans by 3.239 units.

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CHAPTER ONE

INTRODUCTION

1.1 Background

Financial intermediation is the foundation upon which banking activity thrives. Banks play a critical function in the intermediation process by moving money from surplus sectors of the economy to deficit areas. Ongore and Kuria (2013) observe that banks play a crucial role in allocating economic resources by routing capital from depositors to investors. Banks are intermediaries whose assets consist overwhelmingly of deposits (Howell and Keith, 2008). Banks hold these deposits on behalf of savers which they then lend out to individuals and companies in need of working capital. The performance of these borrowed funds is critical if banks are to continue discharging their crucial role of intermediation. Performing loan portfolio is linked to sound financial performance and stability which in turn inspires confidence among savers to continue keeping their money with the banks. On the other hand, non-performing loans erode banks profitability which can ultimately lead to bank failure eventually putting shareholders' investment and clients' deposits into jeopardy. Banks in developed and developing economies have undergone crisis occasioned by nonperforming loans (Prahald, 2002). Thus, in a bid to address challenges associated with loaned funds, banks use collateralization as a default risk mitigation strategy. According to a study by Chau and Nguyen (2018), collateralization signals credible borrowers and also instills good habits in the utilization of borrowed funds thus limiting default risk.

The study is anchored on two main theories which the researcher finds relevant to the topic of study. The first theory is information asymmetry advanced by Stiglitz (1961), Akerlof (1970) and Spence (1973). They aver that moral hazard and adverse selection problems are common in financial markets which are characterized by information asymmetry thus collateralization plays a critical role in sorting out adverse selection problems by requiring borrowers to reveal their riskiness by either pledging high quality collateral or avoiding entering into debt contracts that requires them to pledge collateral. Collateral also solves moral hazard problems by monitoring behavior of borrowers upon receipt of funds. The second theory is called lender- based theory of collateral developed by Roman Inderst and Holger Mueller in 2007 which argues that collateral is a competitive tool used by local bank, which lacks underwriting cost advantage, to win customers against distant transactional lender in a

competitive loan market. These theories are relevant to the study because they explain the link between collateralization and loan performance and how banks can leverage on collateralized lending to maintain a healthy loan book.

Loan portfolio performance has drawn lots of interest from shareholders and scholars across the globe. The renewed interest emanates from the fact that banks worldwide continue to suffer from credit losses arising from nonperforming loans. Sabrani (2002) avers that credit risk, world over, remain the most common type of risk faced by financial institutions. Studies such as Nikolaidou and Vogiazas (2014) argue that the ever increasing nonperforming stock is the biggest factor contributing to financial losses that banks continue to incur. Locally, Central Bank of Kenya (2017) reported a 4% increase in asset deterioration in the back drop of rising non-performing loans in the banking sector. The decline in asset quality has negative impact on the financial performance of commercial banks because they are required by law to set aside huge portions of their profits to provision for loans that are doubtful. Collateralization plays a key role with regards to loan performance in that it screens good borrowers from bad ones by kicking out those who do not meet collateral requirements and those who are not ready to pledge collateral, who are potentially risky. Screening of borrowers reduces bank's exposure to credit losses by ensuring that only credit-worthy individuals access credit. KBA (2012) confirms over- reliance on collateral among Kenyan commercial banks. Thus, as a show of commitment that the amount borrowed will be paid back by the borrower as stipulated in the loan contract, Kenyan banks usually require borrowers to pledge collateral as a fall back plan. In the event the borrower defaults, the bank invokes its right by liquidating the asset to offset loan amount due from the debtor.

1.1.1 Collateralization

The term collateralization originates from the word collateral. It refers to the use of collateral to secure a loan. KBA (2012) define collateralization as the pledging of an asset to the lender as a signal of their commitment to repay the debt facility extended to them. The lender reserves the right to exercise the power of sale over the pledged asset should the borrower fail to repay the loan. Collateral is an asset pledged against a debt which if disposed will be sufficient to clear the principal amount, loan interest and the collections costs (Larr, 1994). In this study, the measure of collateralization is the portion of bank's portfolio that is secured by collateral. This information is normally provided by commercial banks in their annual financial statements.

Nagarajan and Meyer (1995) lists land, motor vehicle, share certificates, crops, livestock, insurance policies as some of the frequently used forms of collateral by borrowers to obtain credit facilities from banks. In a bid to further reduce exposure, commercial banks take into account loan-to-value ratio which is largely dependent on the type of asset pledged and its characteristics. In most cases, lenders would go for an asset that if liquidated then the proceeds from such sale will be sufficient to square off the outstanding debt amount. Simply speaking, the more marketable collateral is, the higher the chances of acceptability by the lending institutions. Lenders require collateral from borrowers they perceive to be high risk whereas those borrowers perceived to be low risk are allowed to access credit from lenders without necessarily pledging collateral (Berger and Udell, 1990). Menkhoff et al. (2006) aver that problem of moral hazard and adverse selection which arises from market imperfection can be well mitigated by lenders if they insist on the use of good collateral to secure loans advanced.

Assessment of collateral characteristics and quality are very important considerations before deciding on the type of collateral to accept from a borrower at the point of loan application. As already pointed out, collateral acts as the fall back plan for the lender, therefore, the lender takes due care in approving collateral to be pledged. According to Equity Bank annual report (2018), collaterals held against loans and advances, at the very least, are sufficiently liquid, legally effective, enforceable and regularly reassessed. Memba and Obuba (2015) observe that movable collaterals are most preferred by lenders due to their liquidity characteristics. The other important consideration is transaction costs involved in verifying ownership, perfection, valuation and liquidation. While some forms of collaterals like land and buildings are preferred by banks, the process of liquidating them is not only costly but also cumbersome. For example, the cost of perfecting a building in Nairobi for the purpose of guaranteeing 10M mortgage, the charger will have to pay Kes. 577, 995 and the process may take not less than 2 months (FSD-Kenya, 2009).

1.1.2 Loan Performance

Commercial banks measure loan performance by use of default rate. In this study, default rate is equivalent to the amount of NPL in a bank's portfolio divided by the total outstanding loan balance of that particular bank. A loan is said to be performing when interest and principal amounts are paid as and when they fall due and in the event the payment is late then it is not more than 90 days in arrears. A loan ceases to perform the moment the unpaid arrears reach

90 days plus. In another study, Njenga (2014) define loan performance as the financial soundness of a lender with regards to the performance of loans and advances. This definition is key because the financial performance of any bank is directly linked to the performance of its loan portfolio. Besides default rate, other measures used by financial banks to measure portfolio performance are loan loss ratio, NPL ratio, Portfolio at risk (PAR) and coverage ratio. Signs of portfolio deterioration must be nipped in the bud by taking aggressive and proactive measures aimed at improving performance of the loan book. Some of the actions that can be taken by financial institutions to address the situation include enhancing debt collection capacity, legal action, initiate foreclosure process and out-source past due accounts to external debt collectors and auctioneers.

The Central Bank of Kenya, the body that regulates commercial banks in Kenya, is mandated to provide guidelines on asset classification and provisioning rules from a risk perspective. Loan accounts can be categorized as current, watch, substandard, doubtful or loss. Loans that are up-to-date in repayment in line with the loan contract and are projected to continue in this status are said to be normal, loans that are past due but fall between 30 days and 90 days are classified as watch, substandard have arrears falling between 90 days and 180 days, Doubtful loans are past due with more than 180 days but less than 360 days in arrears. Further, banks are required to declare a loan as a loss if the account remains unpaid for more than 360 days (CBK, 2018). According to CBK report (2018), amount of nonperforming loans increased from Kshs. 264.6 billion as at end of December 2017 to Kshs. 316. 7 billion as at end of December 2018 represents 19.6% increase. The double digit percentage increase in the stock of NPLs goes to illustrate the sorry state of affairs in the banking sector which needs urgent redress to avert looming banking crisis.

IFRS 9 guidelines require banks to provision for doubtful. This makes non-performing loans undesirable thus forcing banks to adopt different default risk mitigating strategies to minimize accumulation of nonperforming loans in their portfolio. Banks generate cash flows from payment of principal and interest (Kirui, 2014). The largest income generating stream for financial institutions is interest earned on loans and advances. As such, performance of the loan portfolio determines the financial health of the bank. This is critical because the principal goal of the firm is wealth creation for its shareholders (Van Horne et al., 2008). Nonperforming loans erode the profits made by banks due to huge provisions that banks allocate to defaulted and written off debts (Kirui, 2014).

1.1.3 Collateralization and Loan Performance

The goal of the firm is wealth creation for its shareholders (Van Horne et al 2008). Shareholders expect returns from their investment and the only way banks can give back returns is when they hold a performing loan portfolio. Ngina (2017) observes that asset quality of a bank determines its financial strength. Thus, banks will serve the interest of their shareholders best, and the public in general, if they remain stable and profitable. To achieve stability, collateralization has been widely used to stem default in banks saving them from collapsing under the weight of nonperforming loans. Bank for International Settlement (2004) identifies use of collateral as one of the major credit risk mitigation techniques used by lenders. According to Financial Sector Deepening Report (2009), Kenyan banks rely on collateralization as a default risk mitigating strategy. Barro (1976) and Benjamin (1978) observe that collateral performs its role by reducing the loss arising from failure by the borrower to honor his debt obligation or by making it expensive for the debtor to default. Besanko and Thakor (1987) aver that customers who readily offer collateral as security against credit facilities are unlikely to default as opposed to the risky borrowers who may be reluctant to pledge their ass. Thus, collateral plays a critical role in screening good borrowers from the bad ones. Chege (2014) avers that the main source of a bank's revenue is the loan portfolio. Loan portfolio being the largest component of a bank's assets, credit risk mitigation and management is thus central to the success of a commercial bank.

The above cited studies hold the view that collateralization can improve loan performance hence financial performance. As such, credit risk arising from failure of borrowers to repay their loans can adequately be addressed by use of collateral in debt contracts. Unsecured lending and weak business rules have exposed banks to rogue borrowers who access large sums of money from banks and refuse to pay back, and in cases where the bank has no fall back plan like collateral, such amounts are never recovered. Borrower who hesitates to pledge security is a red flag to the bank thus a more in-depth credit appraisal and due diligence has to be conducted before making credit decision. Reluctance in pledging asset could mean the borrower has no good intentions and is likely to default on his debt obligations should the bank proceed to grant the loan.. By agreeing to pledge an asset against a loan, the borrower is sending a message to the lender that he has confidence in the quality of the project and that the project has very high chances of success (Besanko and Thakor, 1987; Bester, 1985). A borrower who has pledged an asset will most likely incline towards projects with positive NPV that will generate sufficient returns to pay off the debt. Collateral

pledging constraints the high risk borrower from shifting investments from low risk to risky ones upon obtaining funds from the lender (Boot et al., 1991)

1.1.4 Commercial Banks in Kenya

The banking sector in Kenya is regulated under the following Acts; Companies Act, Banking Act and CBK Act. Additionally, CBK, from time to time, may issue prudential guidelines on how banks are expected to conduct their business. The Banking Act defines a bank as any company involved in banking business except Central Bank of Kenya. Further, banking business is defined in the same Act as accepting money from the public in the form of deposit and producing the same amount on demand or at the expiry of the agreed period fixed period. It also involves lending money to the public at the risk of the bank. According to CBK (2018), Kenyan banking sector consists of 43 banking institutions whereby 42 are commercial banks and 1 mortgage finance company.

The financial reforms that began in the 1980s created an impetus for the momentous growth which saw the number of banks grow from under 25 in the 1980s to over 40 banks as at end of 2018. Part of the reforms included reduction of core capital requirement which made it easy for the formation of new local banks as well as removal of entry barriers signaling influx of foreign banking institutions. However, over the last few years consolidation has remained a key activity in the sector with banks either being acquired or merged with a view to leverage on the benefits of economies of scale. According to Cytonn report (2019), 13 banks have either been fully acquired by other banks or merged with others; KCB finalized 100% take over NBK, CBA and NIC merged to form NCBA, SBM acquired 75% stake in Chase Bank, CBA group acquired Jamii Bora Bank, I & M acquired Giro Bank, Mwalimu SACCO acquired Equatorial Commercial Bank, Centum Acquired K-Rep.

Rapid expansion and growth in the industry ignited cut-throat competition among industry players compelled banks to abandon their conservative lending policies to adopt new ways of doing business and repackage their services with a view to increasing the market share and retain customers. These new developments forced banks to redesign their business models with a view to venturing into other sectors of the economy previously viewed risky. In return, these new growth points have turned out to be the Achilles heels of bank performance. Thus, collateralized lending became an effective tool in mitigating the risk of default in commercial banks. Waweru and Kalani (2009) attribute bank failures witnessed in the banking sector to

rising stock of nonperforming loans. In fact, CBK report (2018) reported 52.1 billion as the amount of loans that went bad between December 2017 and December 2018.

1.2 Research Problem

Collateralization is the pledging of high quality collateral in order to obtain a loan facility from a lender so that in the event of default, the lender will sell the asset to recover its money. It is widely believed that loans given against collateral have high chances of being recovered fully either by the borrower repaying back the debt in strict adherence to loan contracts or recovering the defaulted amount from the sale of pledged asset. The fact that collateralized loans are relatively 'safe' underscores the important function performed by collateral in loan performance. Relationship between collateralization and loan performance is an area that has drawn immense interest from scholars. On one hand, some scholars have confirmed existence of significant positive relationship between collateralization and loan performance. Makokha (2019) concludes that collateral security pushes the borrower to keep his loan account current by servicing his loan promptly. Barro (1976) and Benjamin (1978) in their studies also support the view that collateralization plays a critical role in portfolio performance by making it expensive for the borrower to default. The fear that they stand to lose pledged assets in the event of default cajoles borrowers to honour their debt obligations. On the other hand, some scholars argue that there is no correlation between collateralization and default risk. Elsas and Krahnen find no significant link between borrower quality and collateralization among top 5 German banks. Machuer and Weber (1998) find no relationship between collateralization and borrower default risk. Saurina and Jimenez (2004) observe higher chances of default in secured loans. Clearly, from the above studies, the debate on whether collateralization is the cure to nonperforming loans menace ravaging banking sector remains unsettled thus there is no consensus among scholars on this topic hence the need for further research in this area.

Kenyan banks, like other banks elsewhere, have not been spared the consequences of nonperforming loans. Kalani and Waweru (2009) listed a total of 37 banks that collapsed between 1986 and 1998 due to nonperforming loans. Muriithi (2010) concludes that nonperforming loans is the primary cause of bank failures in Kenya. The Kenya Bankers Association report (2019) paints a gloomy picture of the current situation in Kenya with regards to nonperforming loans. The report observes that asset quality is on the decline occasioned by an increase in NPL ratio which moved from 12.3% in 2017 to 12.7% in 2018. To underscore the extent of crisis in the Kenyan banking sector, CBK (2018) reported a jump

of 19.6% in the stock of nonperforming loans. What this means is that in a single year, between 2017 and 2018, 52.1 billion worth of loans moved from performing status to nonperforming status. More recently, Cytonn (2018) reports that between 2015 and 2019, 4 banks, Dubai bank, Chase bank and Imperial banks were placed under statutory management and a couple others like National bank of Kenya, K-rep and Jamii Bora Bank etc were acquired mainly due to cash flow and liquidity issues fuelled by nonperforming loans.

Globally, Chau and Nguyen (2018) conducted a research to investigate the relationship between collateral quality and loan default among Vietnamese banks. The study found that high quality collateral is associated with low risk borrowers; they argue that collateral inculcates discipline in utilization of borrowed funds and also enable banks to mitigate problems of adverse selection and moral hazards. Elsas and Krahnen (2000) examine the role and real effects of collateral among the top 5 banks in German and found no significant correlation between borrower quality and collateralization. Berger and Udell (1990) examine influence of collateralization on the selected American banks and conclude that collateral pledging is synonymous with high risk borrowers. These studies present a contextual gap since they were conducted outside Kenya.

Locally, Memba et al. (2015) examine the influence of collateral pledged by SMEs on performance of loan portfolio of commercial banks operating within Kisii County and found that the ease with which the pledged collateral can be converted into cash, the lower the chance of default. Their study focused on 14 commercial banks operating within Kisii County as opposed to all commercial banks in Kenya. Khole (2014) carried out a study to examine the relationship between unsecured lending and loan performance in Kenyan commercial banks and found a strong positive relationship between unsecured lending and loan performance. Although Makokha (2019) did a research to find out the relationship between financial performance, one of the conclusions she makes in her study is that collateral security is an incentive to prompt loan repayment. None of these studies examined effects of collateralization on loan performance of Kenyan commercial banks. This study, therefore, seeks to fill both the knowledge and contextual gaps by answering the question: What is the effect of collateralization on loan performance of commercial banks in Kenya?

1.3 Objective of the Study

The objective of this study was to examine the effects of collateralization on loan performance of commercial banks in Kenya.

1.4 Value of the Study

The findings of the study would be useful in designing and formulating lending policy and business rules for commercial banks. It will empower credit managers with information to enable them make right decisions when screening loan applications in that debtors willing to pledge high quality collateral signal their low risk to the bank while those borrowers who are reluctant in pledging collateral can be perceived to be high risk thus denied funds.

The government of Kenya and CBK would find this information useful in formulating policies aimed at reducing the rising level of bad debts. Continuous review of lending policies aimed at addressing credit risks is the foundation of a successful banking sector.

Default rate affects profitability of the bank which ultimately affects sustainability of the banking institutions. Findings from this study would be very useful to investors and stakeholder in terms of investment decisions

From the studies reviewed, little evidence exists on the effects of collateralization on loan performance of commercial banks in Kenya. As such, this study will contribute to theory by revealing relationship between collateralization and loan performance. Findings of this research will act as a basis for further as well as source of citation and reference to academicians.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter the researcher explores relevant past studies on the subject. The researcher explores past studies on loan performance from within Kenya and outside.

2.2 Theoretical Reviews

The study is anchored on the two theories; Lender based theory and Information asymmetry theory.

2.2.1 Lender Based Theory of Collateralization

This theory was developed by Roman Inderst and Holger Mueller in 2007. This theory is a contradiction of traditional based view of collateralization postulated by other scholars; inter alia, Besanko and Thakor (1987). They view collateral as a screening tool that allows borrowers to signal private information to the lenders regarding the viability of a project. Contrary to the above view, lender-based theory sees collateral as a very important tool used by lenders to gain market share in an imperfectly competitive loan market. The competition is between local banks which has a perfect relationship with the borrower thus has the advantage of being able to assess the borrower's project and a distant-transactional bank which has loan underwriting cost advantage.

For the local bank to remain competitive in such markets, it has to charge low interest rate just like the distant transactional bank. However, when assessing projects with marginal profits, local bank is bound to reject such projects since their ability to charge higher rates is restricted. In such cases, local bank can still attract borrowers by asking for low collateral requirements but charge high interest rates for borrowers who are less likely to be won by transactional bank or charge low interest rate but place high collateral requirements from customers who are more likely to be won by transactional distant lender.

2.2.2 The Theory of Information Asymmetry

This theory is linked to the works of 3 economists; Stiglitz J. (1961), Akerlof G. (1970) and Spence M. (1973). Presence of Information Asymmetry in a financial market gives rise to two types of risk, moral hazard and adverse selection, exposure between the lender and the borrower: Moral hazard which happens after the borrower receives money from the lender and adverse selection which occurs before the transaction. In both scenarios, the lender stands to suffer credit losses if due care is not taken to mitigate these risks. Selecting who to give your money is very critical so far as credit is concerned. However, in the money market some borrowers deliberately provide incorrect information about the projects with the aim of obtaining funds. From the lender's point of view, lack of complete information about the project quality and the management capacity of the small business owners make it very difficult for the lender to make informed credit decision hence the problem of adverse selection (Stiglitz and Weiss, 1981).

Moral hazard occurs after the financial transaction and the borrower decides to divert funds to other uses other than the purpose for which funds were obtained. Bester (1987) observes that moral hazard occurs because it is too expensive for lenders to effectively continue monitoring activities of the borrower after the funds are disbursed. For instance, a borrower may apply for working capital loan but after loan approval he/she decides to use that money for gambling purposes. The motivation to divert funds arises from the fact that the borrower is aware that in the event money is lost in his gambling activities, it is the lender that will bear the brunt.

In an environment where information is asymmetric, Besanko and Thakor (1987) aver that collateral is a suitable tool in tackling moral hazard and adverse selection problems in loan contracts. Collateralization can reduce information asymmetry risks when borrowers signal their low risk profile when they choose to pledge high quality collateral. On the other hand, high risk borrowers will shy away from pledging collateral thus signaling their riskiness. Increasing collateral requirement makes default costly for the borrower because they stand to lose their property if they do not service their loans as per contractual agreements. Cadot (2011) concludes that collateral performs a dual function that of reducing the default risk and monitoring costs that would otherwise be borne by creditors in the absence of collateral.

2.3 Factors Influencing Loan Performance in Commercial Banks

Factors affecting loan performance can be categorized as internal and external. While it is widely believed that banks can address internal risk factors to avoid credit losses, external factors too are worth considering before making the decision to approve a loan or not. From the literature reviewed, researcher found other determinants of loan performance as discussed below.

2.3.1 Interest Rate

Todaro (1992) defined interest rate as the total amount of money the bank expects from a borrower in excess of the principal amount obtained from the bank expressed as a percentage against the principal loan amount. Simply speaking, interest rate is the cost of obtaining funds from a bank. Since loan interest is amortized over the loan term and repaid monthly together with part of the principal, monthly installment is a function of the interest rate. On one hand, higher interest rate results into higher installment amount which the borrower may have difficulties in servicing. On the other hand, low interest rates would mean lower installments which the borrower can service with relative ease.

According to Thordsen and Nathan (1999), keeping the cost of credit low motivates borrowers to obey the loan contracts leading to good repayment rates and also encourages more people to borrow. On the other hand, high cost of loans makes it difficult for borrowers to repay their loans promptly. Apunyo (2011) observes that an increase in cost of credit that does not match the increase in ones income will have a negative impact on loan repayment. Ngondo (2018) observes that the performance of loans deteriorates as lending rates increases leading an increase of nonperforming loans.

2.3.2 Financial Performance

This measures how well a company utilizes its assets to generate revenue. The largest income generating source for organization that carry out the business of lending is interest they earn on the loans borrowed. Financial performance indicators are Return on Assets, Return on Equity, Return on Employed Capital and Return on investment. Kirui (2014) banks generate cash flows from payment of principal and interest. Makokha (2019) finds a positive relationship between asset quality and financial performance.

2.3.3 Economic Growth

GDP is one of the measures commonly used by economists to gauge the economic well being of a country. GDP is the total value of everything produced within the borders of a particular country. Growth in GDP or its decline can affect banking industry, specifically loan performance, in several ways. To begin with, during boom period, there are increased economic activities, employment levels are low, increased demand for goods and services, property prices rise. This expansion of the economy creates suitable environment for economic investments thus banks witness an upsurge in loan uptake, and because income levels are high, debtors service their loans well. However, during recession, the opposite happens. With lost jobs, reduced demand for goods services and reduced income, borrowers find it hard to repay their loans thus more reported cases of default.

Jimenez and Saurina (2006) examined the link between GDP growth and loan default. The results confirm existence of negative relationship between nonperforming loans and GDP.

2.3.4 Size of the Bank

Aktan and Masood (2009) aver that smaller banks lack underwriting cost advantage thus adopt loan underwriting practices that are riskier compared to the loan vetting practices employed by bigger banks. Smaller banks tend to draw their loan clientele from small businesses and startups that do not have financial data and business records that can provide the lender with adequate information for proper credit decision. Lack of this crucial information may lead to wrong credit decisions in terms of loan amount and even loan terms which eventually may have negative impact on loan repayment. Additionally, small businesses are prone to failure due to wrong investment decisions and poor management by the owners thus making lending to small business a risky affair. Bank size is one of the factors contributing to variations in the performance of a bank's loan portfolio (Caporale and Gil-Alana, 2010). Nakayiza (2002) found that size of the bank and loan performance to be negative.

2.4 Empirical Review

The researcher reviews past studies on areas touching on loan performance and credit risk mitigation strategies, and in particular loan collateralization was reviewed. Berger and Udell (1990) examine influence of collateralization on probability of default in selected 460 American banks. The study found out that use of collateral in debt contracts is common in

circumstances where the borrower is perceived to be riskier, thus riskier banks and riskier loans. The results of supports the theoretical assumption that lenders usually demand collateral from borrowers viewed to be risky while less risky borrowers may access credit facilities without necessarily pledging collateral.

Saurina and Jimenez (2004) examine factors causing default loan default of commercial banks in Spain from 3 Million loan accounts. The study found out a greater default probability for secured loans. The study reveals positive relationship between collateral and loan default risk. Menkhoff et al. (2006) examine the role and determinants of collateral in emerging markets by analyzing loan accounts of selected 560 banks in Thailand. The study reveals that collateralization is predominant in emerging loan markets than in mature loan markets more so when dealing with borrowers perceived to be high risk. The, study, however, did not reveal any significant relationship between ex-post credit risk and degree of collateralization.

Machauer and Weber (1998) observe no significant relationship between loan collateralization and the risk of the borrower. The study examined how interest rates, line of credit and collateral are related to the borrower's risk. The study, however, confirm that riskier borrowers pay higher rates than low risk borrowers. In another study, Brick and Palia (2007) observe that debtors who have longer relationship history with the lenders are subjected to lower premium rates and lower collateral requirements.

Elsas and Krahnen (2000) investigate the influence of collateral on borrower quality among German banks. The findings of the study reveal no significant correlation between collateral and quality of the borrower. They observe that the idea behind collateral usage in debt contracts to help the lender build strong relationship with its customers and also for restructuring purposes and debt renegotiations. Cressy and Toivanen (2001) found no significant correlation between credit risk and collateralization among UK banks.

Locally, Memba and Obuba (2015) examine the influence of motor vehicle, land and buildings and Inventories used as collaterals on the loan performance of commercial banks in Kisii County. They observe that motor vehicle, because of its liquidity, is preferred over immovable assets. They found out that collateral liquidity has negative relationship with the default risk. Meaning, debt contracts secured with liquid collateral tend to have lower default rates.

Kathuku et al. (2017) examine the influence of secured lending as a strategy adopted by the commercial banks in lending to Kenyan SME sector. The result of the study reveal that since most SMEs do not have collaterals to pledge to the lenders, they shy away from obtaining credit from the banks thus low growth levels by SMEs. The study concludes that collateral requirement as a condition for obtaining credit facilities has negative and significant effect on the growth of SMEs.

Kirui and Kering (2017) carried out a study to examine the impact collateral on loan performance: Case study of Moi University SACCO, Kenya. The study analyzed data using descriptive design. Additionally, researcher used Pearson and chi square for data analysis. Conclusion from this study is that collateralization is a crucial requirement in debt contracts for effective SACCO management and proper credit risk mitigation the default risk.

Khole (2014) examined the relationship between non collateralized debt contracts and default risk among Kenyan banks and found a positive relationship between unsecured lending and portfolio performance. Makokha (2019) links collateralized loans to loan performance hence better financial performance

KBA (2012) examined evidence of over-reliance on collateral in debt contracts among Kenyan banks. Time series data employed to develop a long run model to establish lending patterns of Kenyan commercial banks. The study finds that Kenyan banks over rely on collateral in their debt arrangements with their customers. This evidence supports signaling argument that collateral pledging eliminates high risk borrowers.

2.5 Summary of Literature Review

Evidence obtained from literature review shows that some studies have revealed strong positive relationship between loan performance and collateralization. However, some studies also found negative relationship between default rate and collateral lending with findings showing no relationship at all between collateralization and loan performance. These findings vary from one researcher to another which means the debate on whether collateralization can solve the problem of nonperforming loans effects of is not settled. Given that there is no consensus among scholars with regards to role of collateralization in loan performance. This study seeks to weigh into the debate by examining the effects of collateralization on loan performance of commercial banks in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents research methodology used in the study to achieve the objective. It outlines the research design chosen by the researcher, population studied as well as data collection and analysis methods.

3.2 Research Design

Descriptive research design approach was used to examine effects of collateralization on loan performance of commercial banks in Kenya. The technique was chosen because it enabled the researcher to establish the link between variables. Kothari (2004) descriptive design is appropriate when the study seeks to establish relationship between variables.

3.3 Target Population

All the 42 commercial banks licensed and by CBK were studied. However, two banks were under receivership, the study therefore focused on 40 commercial banks. Owing to the significance of this study area, the researcher chose to survey all the banks.

3.4 Data Collection

The study used quantitative data, and as such, the researcher exclusively relied on secondary data. The quantitative data was helpful in drawing conclusions and recommendations for study. The quantitative data was extracted from the annual bank supervision reports submitted to CBK, Annual Integrated Reports and Financial Statements of Kenyan commercial banks for a five- year period from 2016 to 2020. The data was then organized and tabulated in excel before being exported to SPSS.

3.5 Data Analysis

According to Mugenda and Mugenda (2003), meaningful conclusions and results can only be obtained if the data collected is cleaned, coded and properly analyzed. Statistical Packages for Social Sciences (SPSS) was used to analyze the data. The study focused on four key variables which were analyzed; dependent variable, Loan performance, and three independent variables such as financial performance (ROA), collateralization and bank size. Correlation

analysis helped researcher establish the degree of relationship between variables. Regression analysis technique was used to predict whether independent variable could predict dependent variables

The researcher used the regression model to establish the relation between collateralization, financial performance, and bank size and loan performance. ANOVA and F-test was used to test significance of relationship between variables. Pearson correlation was used to analyze how collateralization is related to loan performance; degree and nature of relationship.

$$\mathbf{Y= \beta 0 +\beta 1X1 + \beta 2X2 + \beta 3X3 +\varepsilon}$$

Where:

Y= Dependent Variable (Loan performance measured by diving NPL stock by Gross loans)
β0 = Constant
β1, β2, β3, = Are regression coefficients
X1= Collateralization (Percentage of loan book under collateral)
X2= Financial Performance (Measured using return on assets by dividing profit before tax by total assets)
X3=bank size (Evaluated using the natural log of gross loan portfolio of the banks)
ε=Error Term.

CHAPTER FOUR

DATA ANALYSIS RESULTS AND DISCUSSIONS

4.0 Introduction

Here, data analysis results and discussions are presented. The findings reveal the relationship between loan performance and financial performance measured by return on assets, relationship between bank size and loan performance, relationship between collateralization and loan performance, relationship between loan performance and size of the bank. Descriptive design was deployed to establish the link between predictor variables and out independent variable.

4.1 Response Rate

The research target population was 42 commercial banks operating in Kenya as at end of December 2020. The study adopted census survey method whereby all the 40 commercial banks were studied for a period of 5 years between 2016 and 2020. This represented 95% response rate as tabulated in table 4.1. The impressive results were achieved because all commercial banks in Kenya are required by the CBK to file their annual performance reports with Central Bank of Kenya, and make the same available on their websites.

Table 4.1: Response Rate

	Frequency	Percentage
Respondents	**40**	**95%**
Non Respondents	**2**	**5%**

Source: Author, 2021.

4.2 Data Validity

The study relied on data from secondary sources extracted from published audited annual financial of Kenyan commercial banks. The sector is under stringent regulation by the CBK thus compliance to reporting standards and prudential guidelines is of paramount importance. Banks therefore are under obligation to conform to the expected reporting standards as by IFRS while at the same time ensuring highest standards of accuracy of the provided information. Additionally, the financial reports are independently verified by an external

auditor before the reports are filed with CBK. These measures are aimed at ensuring accuracy of the information published in the financial reports of Kenyan commercial banks thus the data obtained from these sources are were valid and reliable.

Table 4.2: Descriptive Statistics

	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance
					Statistic	Std. Error		
ROA	40	4.45	-1.73	2.72	.5039	.14345	.90724	.823
Collateralized	41	.58	-.62	-.04	-.3246	.02026	.12973	.017
Grossloans	41	5.48	9.14	14.62	11.7029	.22031	1.41066	1.990
NPLRatio	45	4.83	-4.83	.00	-1.8448	.15173	1.01783	1.036
Valid N (listwise)	40							

Source: Author 2021.

The minimum for return on assets is -1.73 and maximum of 2.72. The mean is 0.5. Therefore, the conclusion is that the data is normally distributed with no outliers. Collateralization had a minimum of -0.62 and a maximum of -0.04. The mean for collateralization is -0.325. No outliers in the data set. This means that the data is normally distributed. Key observation is that all the variables appear to be normally distributed.

The data was further subjected to statistical normality tests by use of Skewness and Kurtosis to establish if there is any variable that is an outlier. The values for Skewness Kurtosis were all within the acceptable range which then confirms data normality of data hence fit to be subjected to linear regression model. Bryne (2010) avers that skewness and kurtosis values of between -2 and +2 and -7 and +7 respectively are normally distributed. All the variables presented values that fall within these ranges hence were found to be fit for further statistical analysis.

4.3 Normality Tests

Table 4.3: Normality Tests

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
ROA	40	-.112	.374	.227	.733
Collateralization	41	-.175	.369	.313	.724
Bank Size	41	.299	.369	-.752	.724
NPL Ratio	45	-.162	.354	.839	.695
Valid N (listwise)	40				

Research variables were subjected to Collinearity and multi-Collinearity tests to ascertain if two or more variables had similar characteristics hence highly related. Variable Inflation Factor (VIF) score was used to determine presence of Collinearity. A VIF factor of above 8.0 and above, signals presence of Collinearity. VIF scores of the study variables were below 2.2. This means no Collinearity and multicollinearity existed between the variables.

4.3.1 Multicollinearity Test

Table 4.4: Multicollinearity

Coefficients

Model		Collinearity Statistics	
		Tolerance	VIF
1	Collateralization	.791	1.264
	Bank Size	.457	2.190
	ROA	.527	1.896

Source: Author, 2021.

4.3.2 Autocorrelation Test

Durbin Watson test was used to determine autocorrelatio. DW values below +1 or higher than 3 are undesirable. The Durbin Watson value was 1.652. This value falls within the acceptable range hence confirms absence of autocorrelations. This test, further confirms that the variables are normally distributed.

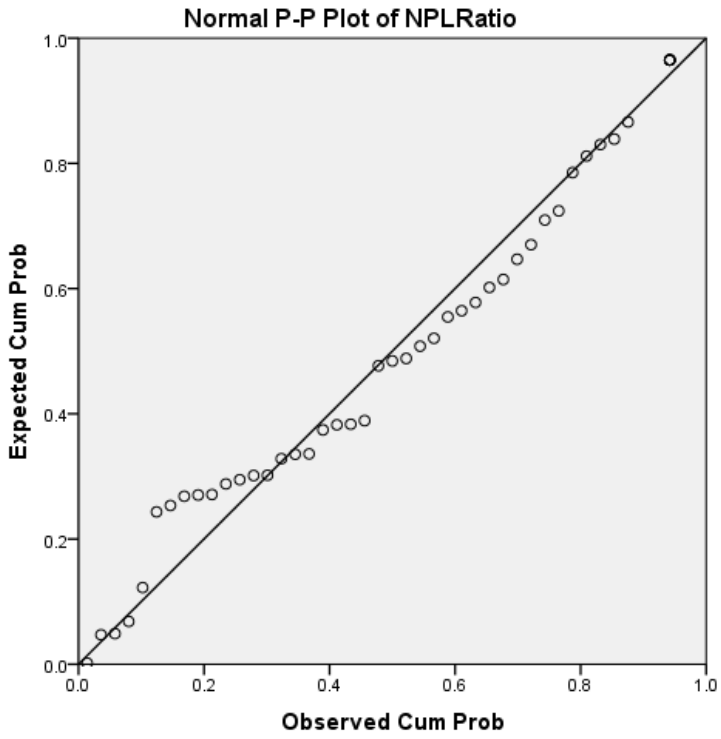
Table 4.5: Autocorrelation Test

	Durbin-Watson
	1.652[a]

Source: Author, 2021

4.3.3 P-P plot Normality Test.

Table 4.6: P-P Plot of NPL Ratio



This test was used to establish if the standardized residuals are normally distributed. If the data is normal then the little circles (Scatter) will not follow the diagonal line (normality line). The scatter will fall away from the normality line. In this study, the scatter followed the normality line thus confirming a normal distribution of the data.

4.4 Descriptive Statistical Analysis

Descriptive design was used to analyze the effects of financial performance, collateralization, and size of the bank on loan performance of commercial banks in Kenya.

4.4.1 The Loan Performance of Commercial Banks

Loan performance was the dependent variable in this study hence it was important for the researcher to study it and it relates to the size of the bank, collateralization and financial performance (ROA)

Table 4.7: Loan Performance of Commercial Banks in Kenya

Year	Gross loans (Kes. Trillions)	Nonperforming loans (Kes. Billions)	NPL Ratio	Percentage Change of NPL ratio
2016	2.3	210	9.10%	
2017	2.4	264	11.00%	22.20%
2018	2.5	317	12.80%	16.40%
2019	2.7	337	12.60%	-0.02%
2020	3	436	14.50%	15%

Source: Author, 2021

From the table above, between 2016 and 2020, gross loans grew by 0.4 Trillion, translating to 17%. The total gross loans were Kes. 2.3 Trillion in 2016, this grew to Kes. 2.4 Trillion in 2017, it further by 0.1 Trillion to Kes. 2.5 Trillion in 2018. At the end of 2020, the total loan book in Kenyan commercial banks stood 3.0 Trillion.

The stock of nonperforming loans also grew from Kes. 210 Billion in 2016 to Kes. 264 Billion, to 317 Billion, to 337 Billion in 2017, and to 436 Billion as at end of 2020. NPL ratio, measured by the stock of nonperforming loans over gross loans, increased from 9.10% in 2016, to 11% in 2017, to 12.8% in 2018. However, in 2019, the sector registered a slight decrease in NPL ratio from 12. 8% to 12. 6%. CBK (2019) notes that this gain in asset quality is attributable to enhanced recovery efforts by banks as well as payment of pending bills by the National government which had a trickle down effects in the larger economy. The NPL ratio jumped to 14.5% as at end of 2020. In the period under study, the biggest change in NPL ratio was between 2016 and 2017 which recorded 22. 2%, followed by 16.40% change which was recorded 16. 4%. It was observed that as the loan book grew, the stock of nonperforming loans also increased. The gross loans increased from 2.3T in 2016 to 3T in 2020, growth of 46%. Nonperforming loans grew from 210B in 2016 to 436B in 2020, representing 107% increment in a span of 5 years.

4.4.2 The Financial Performance of Commercial Banks

ROA, used as a measure of financial performance, was one of the independent variables. The researcher sought to establish how it relates to loan performance. From the study, the performance of Kenyan commercial banks increased during the period under study

Table 4.8: Financial Performance of Commercial Banks in Kenya

Year	Total Assets (Kes. Trillions)	Gross loans Kes. Trillions	Profit Before Tax(PBT) (Kes. Billions)	Return on assets(ROA)	NPL ratio
2016	3.7	2.3	147	3.70%	9.10%
2017	4	2.4	133	3.30%	11.00%
2018	4.4	2.5	152	3.50%	12.80%
2019	4.8	2.7	159	3.30%	12.60%
2020	5.4	3	112	2.07%	14.50%

Source: Author, 2021

From the above table 4.3, the banking sector recorded growth in assets from Kes. 3.7 Trillion in 2016 to Kes. 5.4 Trillion in 2019. This represents growth of 46% in 5 years. Profit before tax increased from Kes. 147 billion in 2016, to Kes. 159 billion in 2019, representing percentage increase of 8% in a period of 4 years. Between 2016 and 2017, profit before tax dipped by 10%. Return on assets (ROA) on the other hand, decreased from 3.7% in 2016, to 3.3% in 2017, then improved to 3.5% in 2018 before dipping further to 3.3% in 2019. The biggest decline was recorded in 2020, at 2.07%. Growth in total assets between 2016 and 2017 is disproportionate to the growth in profitability during the same period.

4.4.3 size of the Bank

The study observed that loan book grew from year-on-year during the period under study.

Table 4.9: Bank Size

Year	Total Assets (Kes. Trillions)	Gross loans Kes. Trillions	Profit Before Tax(PBT) (Kes. Billions)	Return on assets(ROA)	NPL ratio
2016	3.7	2.3	147	3.70%	9.10%
2017	4	2.4	133	3.30%	11.00%
2018	4.4	2.5	152	3.50%	12.80%
2019	4.8	2.7	159	3.30%	12.60%
2020	5.4	3	112	2.07%	14.50%

Source: Author, 2021

From the above table, total assets grew by 46% from 3.7T in 2016 to close the year 2020 at 5.4T. On the other hand, gross loans grew by 100 billion every year, from 2016 to 2018. Between 2018 and 2019, gross loans grew by 200 billion. Gross loans further increased by 300 billion from 2.7T to 3.0T by close of 2020. Growth in loan book was matched by increase in the NPL ratio from 9.1% in 2016, to 11% in 2017, to 12.8% in 2018. However, in 2019 there was marginal decrease in NPL ratio from 12.8% in 2018 to 12.6% in 2019. The highest NPL ratio was recorded in 2020. As banks lend more money, they also encounter the risk of default thus increasing stock of nonperforming loans hence the observed increase in NPL ratio from 9.10% in 2016 to 12.80% in 2018, with a slight of 0.2% recovery in 2019. Return on assets decreased by 44% from 3.7% in 2016 to 2.07% to 2020.

4.4.4 Collateralization of Commercial Banks in Kenya

The researcher sought to establish how collateralization affects loan performance of commercial banks. Collateralization was the main variable therefore its study was extremely important to the researcher.

Table 4.10: Collateralization

Collateralization							
Year	Total Assets (In Trillions)	Assets (In Trillions)	Amount of secured loans	% of collaterali	Financial Performanc	Loan Performance(	Percentage Change in Collateralization
2016	3.7	2.3	1.633	71%	4%	9%	
2017	4	2.4	1.944	81%	3%	11%	19%
2018	4.4	2.5	2.025	81%	4%	13%	4%
2019	4.8	2.7	2.214	82%	3%	13%	9%
2020	5.4	3	2.5	83%	2%	15%	13%

Source: Author, 2021

From table 4.5, the portion of secured loans in the bank's portfolio increased proportionately to the gross loans. Banks seek to cushion themselves by asking for more collateral even as they seek to grow their loan book. In the year 2016, 1.63 trillion, against 2.3 trillion was secured; this represented about 71% of banks' portfolio. The portion of secured loans increased to 71% of the OLB in 2017, this further increased to 81% in 2018, and at the end of the study period, the portion of secured loans stood at 81% of the OLB and finally to 83% in 2020. On the other hand, there was considerable increase in the NPL ratio in 2016 to 2017, through to 2018, increasing from 9.10% to a high of 12.80% in 2019. The sharpest rise in NPL, however, was experienced in 2020 which recorded circa 15%. The highest NPL ratio in the recent history

4.5 Inferential Statistics

The researcher conducted correlation and regression analysis to establish the extent to which collateralization influenced loan performance of Kenyan commercial banks.

4.5.1 Correlation Analysis

Pearson correlation at 99% confidence level was employed in the study to establish the kind of relationship that existed between predictor variables and dependent variable. Correlation is assumed to be linear and the correlation co-efficient ranges from -1 to +1 where perfect positive relationship is +1 and perfect negative relationship is -1.

Table 4.11: Correlation Analysis

	ROA	Collateralization	Bank Size	NPLRatio
ROA	1	0.033	.651**	-0.292
Collateralization	0.033	1	.402**	-.452**
Bank Size	.651**	.402**	1	-0.292
NPLRatio	-0.292	-.452**	-0.292	1

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Author, 2021.

Correlation coefficient was worked out to establish the strength of correlation. Return on assets (ROA), which was the measure of banks profitability, had positive correlation with collateralization having a correlation co-efficient at R= 0.033. The more collateralized the loan book is, the higher the interest income. Since the coefficient of correlation is closer to zero, the relationship is weak.

The study results found that return on assets and bank size, measured using total assets, had strong positive correlation at r=0.651, P=0.000<0.01. As the total assets increases, return on assets also increases in the same direction.

The correlation between return on assets and NPL ratio, which measured loan performance, was found to be negative at r=-0.292. Meaning, NPL ratio had a negative impact on the banks' revenue. This relationship, was however, established to be weak.

The study estimated a strong positive correlation between collateralization and bank size, at r=0.402, P=0.009<0.01. As banks increase in size, level of collateralization increases in the same direction.

Collateralization was found to have strong negative correlation with loan performance, measured using NPL ratio at r=-0.452, P=0.003<0.01. This means that as collateralization increases, the NPL ratio decreases in opposite direction. The relationship between collateralization was established to be strong.

The study established negative correlation between bank size and NPL ratio at r=-0.292. The relationship was, however, determined to be weak. As bank size increases, NPL ratio decreases in the opposite direction.

4.5.2 Regression Analysis

The data was subjected to regression analysis to estimate the relationship predictor variables (Return on assets, collateralization and bank size) and dependent variable (Loan performance measured by NPL ratio). The R square in the study estimated the extent of variation in the dependent variable that can be explained by predictor variables. The study carried out ANOVA and established that the overall regression model was significant hence fit for making a prediction of the relationship between collateralization and loan performance.

Table 4.12: Regression Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.511[a]	.261	.200	.79109

Source: Author, 2021

From table 4.3, R square is 26.1%. This number represents the percentage of the variation in the dependent variable that is explained by predictor variables. Bank size, Collateralization and Return on Assets, combined, explain about 26.1% in the variation of loan performance. Further, the results showed that 73.9% of the loan performance is influenced by other factors which are not part of the study hence not in the study model.

Table 4.13: ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	7.972	3	2.657	4.246	.011[b]
Residual	22.530	36	.626		
Total	30.502	39			

Source: Author, 2021.

F statistics value greater than F critical value leads to a rejection of the null hypothesis. The study established F statistics value by way of ANOVA of 4.246 and F critical value of 3.26 at degrees of freedom of 3 and 36. P-value established is 0.011 which is less than alpha value=0.05. Null hypothesis, therefore, is rejected and the conclusion is that Regression model is significant hence fit for predicting effects of collateralization on loan performance.

Table 4.14: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-4.373	1.716		-2.548	.015
Collateralization	-3.239	1.117	-.467	-2.900	.006
Bank Size	.130	.135	.204	.962	.343
ROA	-.399	.192	-.410	-2.077	.045

$Y= \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \varepsilon$ after being subjected to SPSS becomes

Y=-4.373-3.239X1+0.130X2-0.399X3+1.1716

Where:

Y= Dependent Variable (Loan performance to be measured by diving NPL stock by gross loans)

X1= Collateralization extracted from annual financial reports of commercial banks which normally disclose the portion debt that is collateralized.

X2= Financial Performance measured using return on assets by dividing profit before tax by total assets.

X3=Size of the bank evaluated using the natural log of gross loan portfolio of the banks.

ε=Error Term.

4.6 Interpretation of the Findings

The findings of the study show that collateralization was statistically significant in predicting the performance of loans of commercial banks in Kenya, with a p-value of 0.006. The study revealed negative significant statistical relationship between Collateralization and loan performance with a determinant of -3.239 established in the model.

This means that an increase in loan collateralization by one unit would decrease non-performing loans by 3.239 units. Makokha (2019) links collateralized loans to better loan performance hence improved financial performance. Baker (2014) avers that collateral is a key ingredient of loan performance since they act as fall back plan in case of default.

Kirui and Kering (2017) concluded that collateralization is a crucial component of debt contracts for effective SACCO management and proper credit risk mitigation the default risk. These findings affirm the critical role played by collateral in mitigating credit risk as well as safeguarding wealth of the investors and at the same time assuring investors higher return on investment.

Financial performance measured by return on assets was found to be statistically significant in determining loan performance with p-value of 0.045. Return on assets was found to have a negative determinant of -0.399. This meant that when NPL ratio goes up by one unit, ROA would decline with .399. This finding mirrors the findings of Klein (2013) who notes that profitability of commercial banks to a very large extent is dependent on the asset quality. Eyup (2017) found a negative relationship between profitability and default rates. Kirui

(2014) found negative relationship between profitability and non performing loans. Towett (2018) found a positive significant relationship between collateralization and bank profitability. The study further found negative relationship between profitability of commercial banks in Kenya and nonperforming loans. As the stock of nonperforming loans increase, banks' revenue declines.

Bank size, measured by gross loans, was established to have effect on the nonperforming loans ratio. The determinant was at 0.0130 thus making the relationship positive albeit not significant yielding a P-value of .345. This meant that a unit increase in the gross loans would lead to an increase of 0.130 in the non performing ratio. As the loan book grows, the asset quality deteriorates almost in a similar fashion as the growth of the loan book. Nakayiza (2002) found existence of negative relationship between the size asset book and its performance.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In this chapter, the researcher summarizes the findings of the study, makes conclusions from the research findings, and outlines recommendations in line with the study outcomes and makes a case for further research.

5.2 Summary

Loan default has been pointed out as the major cause of bank crises in Kenya (Muriithi, 2010). Banks continue to post depressed profits largely due to high loss provision rates occasioned by ballooning size of nonperforming loans in their loan book. Banks that have collapsed in Kenya have gone down with billions of shillings of investor's wealth. This study therefore sought to establish the effects of collateralization on loan performance among commercial banks operating in Kenya as the objective.

Descriptive research design was adopted in this research with a view to studying all the 42 licensed commercial banks in Kenya. The study period was 5 years; between 2016 and 2020. Secondary data of each bank's total loans and advances, non-performing loans, percentage of the loan book under collateral were extracted data from the CBK website and Banks websites. Collected data was cleaned and organized in excel before being subjected to analysis using SPSS. Descriptive and inferential techniques such regression, ANOVA, Multicollinearity, autocorrelation tests were used to analyze the data.

The following model was established from the research findings.
Y=-4.373-3.239 Collateralization+0.130Bank Size-0.399ROA+1.1716. The study had an R square of 26.1 which shows that the collateralization affects loan performance by about 26.1%. The remaining 73.9% is attributable to other factors not in the study model. The findings of the study revealed significant negative relationship between loan performance and collateralization. What the study findings is telling us is that tightening of lending rules by insisting on collateral against borrowings leads to a decrease in default rates. This means banks can use collateralization to curb default rates in their loan portfolio.

Loan performance was established to have a positive correlation with bank size. This means that as banks grow their loan book, loan performance increases which essentially means a decrease in default rates. The relationship between return on assets was found to be inverse but significant. This means that the bank's profitability is largely dependent on the quality of its loan book. An increase in loan performance leads to a decrease in loan loss provision. Provision is amount of money that banks set aside to cater for doubtful debts. The loan provision is normally deducted from the profits thus reducing the cash available to shareholders.

5.3 Conclusions

The conclusion drawn from the study is that there is a significant negative relationship between collateralization and loan performance of commercial banks in Kenya. From the study findings, we further conclude that collateralization is key in addressing the challenge of default risk which is a big threat to the survival of commercial banks in Kenya. Collateral is a critical incentive for loan repayment. Loans that are collateralized have minimal chances of default but even in the event of default, banks normally have a fallback plan through foreclosure of pledged collateral. The other variables in the study were bank size and return on assets.

The other conclusion drawn from the study was that return on assets had a negative significant relationship with loan performance. What this means is that banks' profitability pretty much depends on the quality of the loan book. Nonperforming loans erode profits made by banks. This is because banks are obligated to set aside huge sums of money to cushion the shareholders from losses that may arise from credit risk.

The study concluded that there is a positive relationship between bank size and nonperforming loans. As banks grow in size, the stock of nonperforming loans also increases. Banks, therefore, have to manage growth in a sustainable manner so as not to compromise the quality of their loan book. Growth that is not checked may open a window for an unprecedented increase in nonperforming loans.

5.4 Recommendations

Nonperforming loans is a menace in the banking industry in Kenya. As such, this study proposes a raft of recommendations that the industry players and regulators should adopt with a view to managing the skyrocketing nonperforming loans.

The study strongly recommends collateralization of loans advanced by commercial banks. Borrowers who pledge collateral against borrowed funds tend to service their loans very well because of the fear of losing pledged securities. Banks should therefore ensure that all their loans and advances are fully collateralized with tangible security to minimize cases of default.

Central Bank of Kenya should come up with a policy for minimum percentage of the bank's portfolio that must be collateralized. Banks will then be compelled to comply with this policy. This will ensure that as much as banks are engaging in unsecured lending, a good percentage of their portfolio must be under tangible security.

5.5 Suggestions for Further Study

This study has identified two areas of further research. The first recommended study would be to examine how different types collateral affects loan performance of commercial banks in Kenya.

The second suggested area of study that researchers could possibly consider exploring is find out how collateralization would affect financial access to Micro, Small, Medium and Enterprises.

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APPENDICES

Appendix 1: Gross Loans by Commercial Banks

GROSS LOANS BY COMMERCIAL BANKS IN , Kshs M					
Name of bank	**2016**	**2017**	**2018**	**2019**	**2020**
	Gross loans	**Gross Loans**	**Gross loans**	**Gross loans**	**Gross loans**
KCB Bank Kenya Ltd	373,031	411,666	434,361	468,258	544,837
Equity Bank Kenya Ltd	221,039	221,698	231,026	290,564	355,630
Co-operative Bank of Kenya Ltd	241,395	248,626	257,566	281,516	307,324
Barclays Bank of Kenya Ltd	176,349	177,224	186,984	205,304	229,677
Diamond Trust Bank Kenya Limited	141,702	156,843	152,387	155,307	165,948
Standard Chartered Bank Kenya Ltd	132,497	139,406	133,166	144,383	152,711
NIC Bank PLC	112,509	118,459			
Commercial Bank of Africa Limited	105,082	107,038	238,271	244,395	259,698
I & M Bank Ltd	104,302	126,983	144,434	152,807	160,665
Stanbic Bank Kenya Ltd	118,483	135,443	155,498	163,859	176,597
National Bank of Kenya Ltd	68,616	68,153	66,123	60,677	74,774
Family Bank Ltd.	53,485	46,928	47,023	54,389	63,111
HFC Ltd	56,786	52,630	49,215	45,822	41,836
Prime Bank Ltd	40,170	39,763	38,188	38,932	44,531
Bank of Africa (K) Ltd	37,480	33,589	26,255	22,546	21,850
Bank of Baroda (Kenya) Limited	38,089	43,943	43,439	49,335	51,151
Ecobank Kenya Ltd	27,393	21,456	14,733	24,118	26,884
Citibank N.A. Kenya	28,242	38,080	27,255	27,068	39,726
Bank of India	19,354	20,771	19,153	13,608	20,980
Gulf African Bank Ltd	16,686	46,928	23,616	24,578	22,928
African Banking Corporation Ltd	15,022	16,371	18,620	20,115	21,961
Sidian Bank Ltd	14,488	12,330	14,108	15,846	20,409
Victoria Commercial Bank Limited	15,293	18,887	22,810	24,542	25,442
Guaranty Trust Bank Ltd	13,418	13,746	13,342	14,872	15,714
First Community Bank Ltd	11,926	10,995	10,691	11,833	14,572
Jamii Bora Bank Ltd	10,497	9,929	9,112	10,766	8,907
Spire Bank Limited	8,319	6,867	6,109	5,114	3,827
Consolidated Bank of Kenya Limited	10,317	9,882	10,027	8,929	10,130
Guardian Bank Limited	9,604	10,303	9,715	9,892	9,248
Giro Commercial Bank	9,287				0
Development Bank of Kenya Ltd	10,083	10,710	10,031	9,801	10,149
Credit Bank Ltd	8,361	10,171	13,440	15,797	17,512
Transnational Bank Limited	7,026	7,365	7,646	7,313	3,481
Paramount Bank Ltd	6,243	6,345	6,172	7,177	7,883
M-Oriental Commercial Bank Ltd	7,109	7,741	8,018	7,455	7,742
Habib Bank AG Zurich	4,339	5,680	6,451	7,000	6,847

Middle East Bank (K) Ltd	4,015	3,242	3,064	6,153	7,639
UBA Kenya Bank Ltd	3,127	3,309	3,465	3,841	3,178
SBM Bank Kenya Ltd	0	6,680			36,760
Mayfair Bank Ltd	0	235	3,184	4,606	5,056
Chase Bank	0				
Imperial Bank	0				
Charter House Bank	0				
DIB Bank of Kenya	0	291			8,789
TOTAL	**2,281,164**	**2,426,706**	**2,464,698**	**2,658,518**	**3,006,104**

Appendix 2: Gross NPL by Commercial Banks

GROSS NPL BY COMMERCIAL BANKS IN , Kshs M					
Name of bank	**2016**	**2017**	**2018**	**2019**	**2020**
KCB Bank Kenya Ltd	28,333	34,182	30,012	34,786	66,810
Equity Bank Kenya Ltd	15,547	14,758	17,064	26,185	42,825
Co-operative Bank of Kenya Ltd	11,273	18,714	28,953	31,156	51,781
Barclays Bank of Kenya Ltd	11,472	12,615	21,661	20,058	17,038
Diamond Trust Bank Kenya Limited	5,520	11,901	11,036	12,892	19,747
Standard Chartered Bank Kenya Ltd	15,038	17,621	13,910	13,519	22,337
NIC Bank PLC	12,650	13,265			
Commercial Bank of Africa Limited	7,450	7,798	25,101	30,516	35,995
I & M Bank Ltd	5,072	17,669	21,115	18,799	20,198
Stanbic Bank Kenya Ltd	7,013	10,359	16,644	19,345	25,038
National Bank of Kenya Ltd	29,987	27,658	31,461	25,175	26,438
Family Bank Ltd.	7,015	9,478	8,138	8,244	9,391
HFC Ltd	6,193	8,212	13,334	12,316	10,799
Prime Bank Ltd	1,855	2,252	2,821	4,555	4,838
Bank of Africa (K) Ltd	10,974	10,571	9,509	8,998	8,689
Bank of Baroda (Kenya) Limited	3,392	2,666	3,903	4,126	6,342
Ecobank Kenya Ltd	5,359	8,287	3,192	4,783	4,377
Citibank N.A. Kenya	805	1,724	819	1,126	1,120
Bank of India	272	435	1,347	1,212	996
Gulf African Bank Ltd	1,617	1,962	2,572	3,613	4,028
African Banking Corporation Ltd	2,840	3,535	4,232	3,557	3,425
Sidian Bank Ltd	2,459	2,596	2,942	3,258	2,337
Victoria Commercial Bank Limited		17	696	1,204	1,679
Guaranty Trust Bank Ltd	994	1,421	2,526	2,747	3,269
First Community Bank Ltd	3,853	4,399	4,940	4,699	5,258
Jamii Bora Bank Ltd	2,141	2,106	6,344	6,083	6,787
Spire Bank Limited	1,322	2,349	2,686	2,632	2,711
Consolidated Bank of Kenya Limited	2,038	2,481	2,539	2,632	2,436
Guardian Bank Limited	787	1,122	960	944	1,181
Giro Commercial Bank			0	0	0
Development Bank of Kenya Ltd	2,594	2,310	2,879	3,441	3,420
Credit Bank Ltd	676	877	1,113	1,592	2,017
Transnational Bank Limited	891	1,595	1,860	2,196	159
Paramount Bank Ltd	778	778	1,069	1,263	1,346
M-Oriental Commercial Bank Ltd	856	809	773	1,411	1,812
Habib Bank AG Zurich	158	592	581	787	836
Middle East Bank (K) Ltd	1,193	1,438	1,227	870	790
UBA Kenya Bank Ltd	69	152	442	883	1,295
SBM Bank Kenya Ltd		3,917	16,311	14,980	16,225

Mayfair Bank Ltd			0	67	129
Chase Bank			0	0	0
Imperial Bank			0	0	0
Charter House Bank			0	0	0
DIB Bank of Kenya			0	0	0
TOTAL	**210,486**	**264,621**	**316,712**	**336,650**	**435,899**

Appendix 3: NPL Ratio by Commercial Banks

NPL RATIO BY COMMERCIAL BANKS IN , PERCENTAGE					
	2016	2017	2018	2019	2020
Name of bank	NPL Ratio	NPL Ratio	NPL ratio	NPL Ratio	NPL Ratio
KCB Bank Kenya Ltd	8%	8%	7%	7%	12%
Equity Bank Kenya Ltd	7%	7%	7%	9%	12%
Co-operative Bank of Kenya Ltd	5%	8%	11%	11%	17%
Barclays Bank of Kenya Ltd	7%	7%	12%	10%	7%
Diamond Trust Bank Kenya Limited	4%	8%	7%	8%	12%
Standard Chartered Bank Kenya Ltd	11%	13%	10%	9%	15%
NIC Bank PLC	11%	11%	11%	12%	14%
Commercial Bank of Africa Limited	7%	7%			
I & M Bank Ltd	5%	14%	15%	12%	13%
Stanbic Bank Kenya Ltd	6%	8%	11%	12%	14%
National Bank of Kenya Ltd	44%	41%	48%	41%	35%
Family Bank Ltd.	13%	20%	17%	15%	15%
HFC Ltd	11%	16%	27%	27%	26%
Prime Bank Ltd	5%	6%	7%	12%	11%
Bank of Africa (K) Ltd	29%	31%	36%	40%	40%
Bank of Baroda (Kenya) Limited	9%	6%	9%	8%	12%
Eco bank Kenya Ltd	20%	39%	22%	20%	16%
Citibank N.A. Kenya	3%	5%	3%	4%	3%
Bank of India	1%	2%	7%	9%	5%
Gulf African Bank Ltd	10%	4%	11%	15%	18%
African Banking Corporation Ltd	19%	22%	23%	18%	16%
Sidian Bank Ltd	17%	21%	21%	21%	11%
Victoria Commercial Bank Limited	0%	0%	3%	5%	7%
Guaranty Trust Bank Ltd	7%	10%	19%	18%	21%
First Community Bank Ltd	32%	40%	46%	40%	36%
Jamii Bora Bank Ltd	20%	21%	70%	57%	76%
Spire Bank Limited	16%	34%	44%	51%	71%
Consolidated Bank of Kenya Limited	20%	25%	25%	29%	24%
Guardian Bank Limited	8%	11%	10%	10%	13%
Giro Commercial Bank	0%		0%	0%	0%
Development Bank of Kenya Ltd	26%	22%	29%	35%	34%
Credit Bank Ltd	8%	9%	8%	10%	12%
Transnational Bank Limited	13%	22%	24%	30%	5%
Paramount Bank Ltd	12%	12%	17%	18%	17%
M-Oriental Commercial Bank Ltd	12%	10%	10%	19%	23%
Habib Bank AG Zurich	4%	10%	9%	11%	12%
Middle East Bank (K) Ltd	30%	44%	40%	14%	10%
UBA Kenya Bank Ltd	2%	5%	13%	23%	41%
SBM Bank Kenya Ltd		59%			44%

Mayfair Bank Ltd		0%	0%	1%	3%
Chase Bank					
Imperial Bank					
Charter House Bank					
DIB Bank of Kenya		0%			0%
TOTAL	**9.23%**	**10.90%**	**12.85%**	**12.66%**	**14.50%**

Appendix 4: Collateralization by Commercial Banks

COLLATERALIZATION BY COMMERCIAL BANKS IN , Kshs M										
	Collateralized 2016		Collateralized 2017		Collateralized 2018		Collateralized 2019		Collateralized 2020	
Name of bank	%	Gross Secure	%	Gross secured	%	Gross secured	%	Gross secured	%	Gross secured
KCB Bank Kenya Ltd	72%	268,582	73%	300,516	71%	308,396	76%	355,876	75%	408,628
Equity Bank Kenya Ltd	76%	167,990	74%	164,057	74%	170,959	78%	226,640	77%	273,835
Co-operative Bank of Kenya Lt	72%	173,804	70%	174,038	73%	188,023	74%	208,322	73%	224,347
Barclays Bank of Kenya Ltd	68%	119,917	65%	115,196	70%	130,889	67%	137,554	66%	151,587
Diamond Trust Bank Kenya Li	73%	103,442	75%	117,632	76%	115,814	77%	119,586	76%	126,120
Standard Chartered Bank Ken	74%	98,048	75%	104,555	76%	101,206	76%	109,731	77%	117,587
NIC Bank PLC	80%	90,007	97%	114,905	77%	91,069	78%	190,628	76%	197,370
Commercial Bank of Africa Li	75%	78,812	76%	81,349						0
I & M Bank Ltd	78%	81,356	79%	100,317	78%	112,659	79%	120,718	76%	122,105
Stanbic Bank Kenya Ltd	78%	92,417	75%	101,582	76%	118,178	77%	126,171	75%	132,448
National Bank of Kenya Ltd	56%	38,425	60%	40,892	65%	42,980	65%	39,440	64%	47,855
Family Bank Ltd.	59%	31,556	60%	28,157	70%	32,916	70%	38,072	71%	44,809
HFC Ltd	80%	45,429	80%	42,104	82%	40,356	84%	38,490	83%	34,724
Prime Bank Ltd	78%	31,333	79%	31,413	80%	30,550	80%	31,146	79%	35,179
Bank of Africa (K) Ltd	92%	34,482	92%	30,902	92%	24,155	92%	20,742	89%	19,447
Bank of Baroda (Kenya) Limite	97%	36,946	98%	43,064	97%	42,136	96%	47,362	95%	48,593
Ecobank Kenya Ltd	80%	21,914	82%	17,594	83%	12,228	83%	20,018	80%	21,507
Citibank N.A. Kenya	78%	22,029	80%	30,464	85%	23,167	88%	23,820	87%	34,562
Bank of India	76%	14,709	77%	15,994	77%	14,748	79%	10,750	78%	16,364
Gulf African Bank Ltd	92%	15,351	93%	43,643	90%	21,254	88%	21,629	86%	19,718
African Banking Corporation	88%	13,219	89%	14,570	89%	16,572	87%	17,500	85%	18,667
Sidian Bank Ltd	70%	10,142	72%	8,878	72%	10,158	74%	11,726	73%	14,899
Victoria Commercial Bank Li	71%	10,858	73%	13,788	73%	16,651	74%	18,161	72%	18,318
Guaranty Trust Bank Ltd	68%	9,124	69%	9,485	70%	9,339	70%	10,410	71%	11,157
First Community Bank Ltd	60%	7,156	65%	7,147	67%	7,163	68%	8,046	69%	10,055
Jamii Bora Bank Ltd	60%	6,298	56%	5,560	67%	6,105	62%	6,675	62%	5,522
Spire Bank Limited	57%	4,742	54%	3,708	53%	3,238	56%	2,864	56%	2,143
Consolidated Bank of Kenya L	58%	5,984	53%	5,237	52%	5,214	53%	4,732	54%	5,470
Guardian Bank Limited	72%	6,915	75%	7,727	75%	7,286	76%	7,518	77%	7,121
Giro Commercial Bank	56%	5,201		0		0				0
Development Bank of Kenya Lt	68%	6,856	67%	7,176	70%	7,022	70%	6,861	72%	7,307
Credit Bank Ltd	65%	5,435	66%	6,713	68%	9,139	69%	10,900	70%	12,258
Transnational Bank Limited	66%	4,637	68%	5,008	69%	5,276	70%	5,119	70%	2,437
Paramount Bank Ltd	65%	4,058	69%	4,378	70%	4,320	72%	5,167	72%	5,676
M-Oriental Commercial Bank	63%	4,479	65%	5,032	66%	5,292	70%	5,219	69%	5,342
Habib Bank AG Zurich	63%	2,734	64%	3,635	68%	4,387	73%	5,110	72%	4,930
Middle East Bank (K) Ltd	63%	2,529	65%	2,107	66%	2,022	75%	4,615	74%	5,653
UBA Kenya Bank Ltd	68%	2,126	70%	2,316	70%	2,426	83%	3,188	83%	2,638
SBM Bank Kenya Ltd		0	72%	4,810	70%	16,521	70%	19,058	70%	25,732
Mayfair Bank Ltd		0	70%	165	70%	2,229	74%	3,408	74%	3,741
DIB Bank of Kenya		0		0	60%	1,279	60%	3,040	61%	5,361
Chase Bank		0		0		0		0		0
Imperial Bank		0		0		0		0		0
Charter House Bank		0		0		0		0		0
TOTAL	**74%**	**1,679,041**	**75%**	**1,815,811**	**74%**	**1,763,323**	**76%**	**2,046,013**	**75%**	**2,251,214**