EVALUATION OF SECTORAL LOAN PERFORMANCE AND SHARE OF LOAN ALLOCATION TO THE AGRICULTURAL SECTOR WITHIN THE BANKING INDUSTRY IN KENYA

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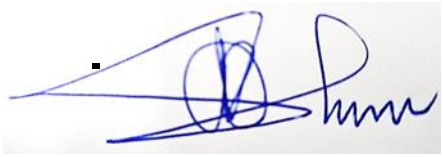
DECLARATION

I declare that this research proposal is my original work and that it has not been presented in any other university for academic credit.

Signature:  Date: 12th June 2025

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APPROVAL

This research was conducted under my supervision and is submitted with my approval as the university supervisor.

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DEDICATION

To family and friends who encouraged and supported me in this journey- May God bless you all.

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ABSTRACT

Agriculture is the mainstay of Kenya's economy providing substantial contribution to the country's Gross Domestic Product, labour force and foreign exchange earnings, yet the current share of lending to this critical sector amounts to only approximately 3.5 percent of the total bank lending. Commercial banks have taken a cautious approach towards lending to this largely due to the inherent risks associated with farming which make it vulnerable to relatively higher loan defaults, as well as the high costs of administering agricultural financing. This study sought to evaluate the influence of sectoral loan performance on the banking industry's share of loan allocation to the agricultural sector in Kenya, with non-performing loans used as a proxy for performance. A theoretical study was undertaken using descriptive research design with three objectives in mind: to establish how sectoral non-performing loan ratios influenced the share of loan allocation to the agricultural sector, to assess how sectoral contributions to the total NPLs value influenced the share of loan allocation to the agricultural sector and to determine how the growth rates of sectoral NPL values influenced the share of loan allocation to the agricultural sector. Quantitative secondary data was obtained electronically from the Central Bank of Kenya Bank Supervision Annual Reports for 2013 up to 2023. The data was compiled onto data sheets and Microsoft Excel program used for descriptive analysis of the variables. The findings of the study revealed that the share of loan allocation to the agricultural sector by the banking industry was largely influenced by the non-performing loan ratios of both the agricultural sector and the consolidated sectoral NPLs ratio, with a strong negative linear relationship exhibited in both cases. No association was established between the variables with respect to the second objective. A very strong linear relationship was identified between growth rates of total sectoral NPL values and the share of loans allocated to the agricultural sector, but no association was established when NPL growth rates specific to the agricultural sector were used. Key recommendations made from this study include change of approach by the banking industry in response to high NPL ratios with more focus on remedial action as envisaged by the performance feedback theory, in collaboration with other stakeholders including development partners willing to support de-risking of the agricultural sector. A further recommendation is for the banking regulator to consider setting a specific target for the banking industry's share of loan allocation to the agricultural sector as a key performance indicator to provide more focus on growth given that there has been little traction over the years, including the period of study. Further studies are recommended to understand the strong positive linear relationship in the third objective. There is also an opportunity for further study with a focus on loan allocation to the other sectors of the economy.

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OPERATIONAL DEFINITION OF TERMS

Bank Credit: This refers to any form of lending by banks.

Gross Bank Loans: This is the amount in Kenya Shillings of all the loans granted by commercial banks that was outstanding on the reporting date, as captured in the respective Central Bank of Kenya Bank Supervision Annual Reports. Gross and total are used interchangeably in this study.

Loan (Book) Quality: This is a measure of how the loan portfolio of commercial banks is performing, portrayed in this study by the level of non-performing loans (NPLs), with an inverse relationship existing between loan quality and NPLs. This implies that the higher the value of non-performing loans, the lower the quality of loans. It is used interchangeably with Asset Quality in this study.

Non-Performing Loans (NPLs): This refers to loans granted by commercial banks where principle and / or interest obligations have not been honored by clients over a period of ninety days or more. This is also referred to as non-performing loan(s') value or non-performing loan(s') stock in this study.

Non-Performing Loans (NPLs) Ratio: This is the gross value of non-performing loans as a percentage of gross outstanding loans within the banking industry, a key measure of loan quality

Sectoral Contributions to Total (Gross) Non-Performing Loans (NPLs): This refers to the apportionment of the gross banking industry non-performing loans to the respective economic sectors. For purposes of this study, it is defined as the respective sector's total NPLs value to the total banking industry's NPLs value, expressed in percentage terms.

Sectoral distribution of loans: This refers to the apportionment of gross loans within the banking industry in Kenya to the various sectors of the economy as prescribed by the Central Bank of Kenya. Generally, it is expected that the loan allocation is commensurate with the significance of the respective sector in the economy.

Sectoral Loan Performance: This, for the purpose of this study, refers to the general trends in the non-performing loans (NPLs) ratios of the various economic sectors, the contribution of

each economic sector to the gross NPLs of the banking industry, and the growth rate of sectoral NPL values in Kenya. The economic sector categories are as prescribed by the Central Bank of Kenya.

Sectoral Loan Performance Evaluation: This refers to the assessment of the loan performance of the various economic sectors to determine whether the performance is within the desired level as guided by Central Bank of Kenya and peer comparisons within the banking industry, whether the performance is improving or deteriorating compared to prior year results, and whether corrective action is required to avoid stifling economic growth.

Sectoral Loan Values: This refers to the total amount of loans granted by commercial banks to the various sectors of the economy that was outstanding on the reporting date, as captured in the respective Central Bank of Kenya Bank Supervision Annual Reports.

Sectoral Non- Performing Loans (NPLs): This refers to the NPLs of the respective economic sectors in Kenya

Sectoral Non-Performing Loans (NPLs) Ratio: This refers to the NPLs ratio of the respective economic sectors in Kenya

Share of loan allocation to the agricultural sector: This refers to the proportion of banking industry loans allocated to the agricultural sector, expressed in percentage terms. It is used interchangeably with Sectoral allocation of loans to the agricultural sector.

ABBREVIATIONS/ACRONYMS

AFC	Agricultural Finance Corporation
CBK	Central Bank of Kenya
DFI	Development Finance Institution
GDP	Gross Domestic Product
NPL(s)	Non-Performing Loan(s)
PFT	Performance Feedback Theory
SDGs	Sustainable Development Goals
UN	United Nations
UNDP	United Nations Development Programme
USAID	United States Agency for International Development

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CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.1. Introduction

This chapter encompasses several aspects commencing with the background of the study. The background provides an overview of the agricultural sector globally, regionally and locally, and presents a snapshot of the current status of this sector. The researcher thereafter introduces the dependent variable, which is the share of loan allocation to the agricultural sector, and the independent variable, namely, evaluation of sectoral loan performance. The indicators of performance of sectoral loans in this study included sectoral non-performing loan (NPL) ratios, sectoral contributions to total NPLs and growth rates of sectoral NPL values.

The researcher describes the statement of the problem after the background of the study, outlining the research problem being addressed in the study and the research gap identified. Thereafter the chapter summarizes the objectives of the study and research questions, respectively, which were derived from the study variables. The significance of this study and the scope of the study follow, with the latter incorporating the study delimitations. Limitations of the study and assumptions of the study, respectively, are also defined, after which the researcher unpacks the theoretical framework explaining the performance feedback theory which underpins this study. This chapter concludes with a conceptual framework illustrating the relationship between the dependent and independent variables.

1.2. Background of the Study

Sustainable and comprehensive food systems are crucial for the realization of the global development goals, according to the World Bank (2023). The World Bank considers development of agriculture a highly effective strategy for fighting extreme poverty, with growth in the agricultural sector estimated to boost incomes for the lowest cadre of the populace two to four times more than growth in other sectors. Additionally, agriculture accounts for 4 percent of the global gross domestic product (GDP), and as high as 25 percent and above in some developing economies, making it a key factor in the quest for

economic advancement (The World Bank, 2023). Diallo and Wouterse (2022) established, in their study of six African countries, namely Côte d'Ivoire, Ethiopia, Malawi, Mozambique, Niger, and Rwanda, that investment in agriculture can hugely impact agricultural growth, productivity of farms, food security and incomes of food producers, effectively reducing poverty levels. Indeed, they found that higher investment in the agricultural sector spurred economic growth, and lowered unemployment and poverty levels, more than investment in manufacturing or service sectors (Diallo & Wouterse, 2022).

Kenya is largely an agricultural economy, with the sector contributing approximately 33% of GDP, as well as employing 40% of the country's total population and a whopping 70% of the rural population, according to USAID (2023). Despite its economic significance, productivity of the agricultural sector has remained sluggish over recent years, with smallholder farmers and agricultural enterprises experiencing challenges expanding their businesses and enhancing their product quality due to financial constraints (USAID, 2023). Only a paltry 25 percent of the annual demand for credit by the agriculture value chain players in Sub-Saharan Africa is met, according to Feed the Future (2023). There is thus seemingly some disconnect between the financial sector's relatively low lending to the agricultural sector and the country's strategic goals with respect to the projected growth of this sector. This could largely be driven by the perceived contradiction between the profit-driven nature of commercial banks and the inherently high risks associated with lending to the agricultural sector which could result in higher non-performing loans (NPLs) and consequently erode bank profits.

It is widely acknowledged that the agricultural sector is a strategic economic sector in the country, and the mainstay of the Kenyan economy, in addition to being pivotal for achievement of the global United Nations sustainable development goals (SDG's), specifically goal 2, namely, "End hunger, achieve food security and improved nutrition and promote sustainable agriculture" (United Nations Department of Economic and Social Affairs, n.d.). Such significance calls for the collective responsibility of key stakeholders, including the banking industry, to pull together towards driving the success of this crucial sector. It may require a more tailored approach by the banking regulator to address the

financing gap in the agricultural sector, with the aim of steering commercial banks towards prioritization of societal needs to a certain extent over financial gain. Targeted performance monitoring and feedback by the banking regulator will be critical to ensure significant strides are made towards the realization of the national and ultimately global goal of zero hunger. This background guided the researcher's choice of the performance feedback theory (PFT), which emanates from the behavioural theory of the firm (BTOF), to underpin this study. The theory explains how an organization reacts to its performance, both good and bad, relative to the desired target. In the context of this study, it will help in understanding the impact of feedback to commercial banks on both the good and poor performance of sectoral loans and the significance of remedial decisions geared towards ramping up investment in the agricultural sector. The regulator can thus be guided in designing policies that are more geared towards achievement of the specific desired results.

While several studies have discussed loan performance with specific reference to non-performing loans, most of the studies analysed the relationship between non-performing loans and profitability or GDP contribution, and a few on loan growth (or de-growth), but none has focused on the relationship between NPLs and the sectoral distribution of loans with emphasis on the agricultural sector, and specifically in Kenya. Knowledge of the impact of sectoral loan performance on the corresponding sectoral allocation of loans by the banking industry will give the banking regulator a better indication of whether investment by banks in this sector is improving or declining relative to other sectors and how this is impacted by NPLs. This is crucial as the banking industry absolute value of loans to the agricultural sector may be growing, but lending to the agricultural sector is shrinking relative to other sectors, hence the researcher believes incorporating relativity in the measure is key for tracking the achievement of the critical strategic goals for this sector both locally and globally.

This study was motivated by the continued global and national emphasis on the criticality of the agricultural sector for the achievement of food security, and the key role of the banking industry in bridging the wide financing gap in the sector. Some key players in the financial sector such as Equity Group Holdings Limited have aligned their strategies to enhance their focus on agricultural lending regionally (Equity Group Holdings Plc, n.d.).

De-risking the sector through appropriate risk mitigation measures, according to the researcher, is key in helping allay the perceived notion of poor performance of agricultural loans locally, as well as regionally and globally. This study is expected to guide policymakers in formulating policies and employing tactical monitoring and feedback mechanisms that will encourage more lending to this strategically significant sector.

1.2.1. Share of Loan Allocation to the Agricultural Sector

Lending to the private sector stimulates economic growth, with commercial banks being the main financiers of economic activities (Cytonn Investments, 2023). The loan distribution in financial institutions is largely influenced by return and risk. In some counties like Nepal, the Nepal Rastra Bank which is the central bank of the country steers commercial banks' decisions on loan distribution across economic sectors through various policies. One such policy requires commercial banks to allocate a specified proportion of their total loan portfolio to what are considered by the Nepal Rastra Bank as priority sectors, which includes the agricultural sector. This is because Nepal is an agricultural economy hence the access of this sector to finance is considered critical for economic growth (Pokharel, 2022). Similarly in India, the Government of India and the Reserve Bank of India (the central bank) have been actively promoting lending to priority sectors including agriculture and micro, small and medium enterprises (MSME's), by setting annual goals for the banking sector with respect to agricultural loans to be disbursed (Abhishek, Srivastava & Sailaja, 2021). Dang et al. (2021) found that having a large share of agricultural sector finance to total financing by banks in Vietnam can have a positive impact on the profitability of banks.

Jean-Petit & Zheng (2022) opined that the agricultural sector in Africa is deficient of financing with financial institutions requiring justification to increase their risk tolerance levels for this sector. In their study covering forty Sub-Saharan African countries including Kenya, however, they found that enhanced lending to the agricultural sector leads to higher agricultural production which has a positive effect on banks by reducing risk and increasing profitability through lower non-performing loans. They thus recommended that governments, through the banking regulators (central banks) urge commercial banks to

take higher risks on the agricultural sector to realize the said benefits and improve food security (Jean-Petit & Zheng, 2022).

In Nigeria, also an agricultural economy, bank lending to the agricultural sector has shown incremental progress over the years, starting from a low sectoral share of less than 1% in 1981, gradually growing to an average of 6.63%. This has been through support from the government and Central Bank of Nigeria via policies and programs that promote agricultural credit to enhance agricultural growth and achieve sustainable development (Salisu & Alamu, 2023). Locally, the government of Kenya has been at the forefront of promoting lending to the agricultural sector, through various initiatives including strategic partnerships with development finance institutions (DFIs) that support agricultural sector growth globally and are willing to support de-risking of agricultural lending. These DFIs offer to commercial banks various de-risking options such as providing funds for on-lending to farmers, providing credit guarantees as a form of collateral for a pre-determined portion of the lending, as well as providing low-cost funding to Banks, all aimed at mitigating the inherent high risks of lending to the agricultural sector. Unfortunately, this has yet to make a significant impact on the magnitude of funding to the agricultural sector, as opined by Murungi, Alhassan, & Zeka (2023).

Central Bank of Kenya statistics indicate that gross loans by commercial banks to the agricultural sector at the end of 2023 amounted to Kes. 146 billion (CBK, 2024), accounting for only 3.5 percent of the total bank loans to all sectors of the economy. This highlights the relatively low share of loans that commercial banks have allocated to this economically significant sector. According to Murungi et al. (2023), the underinvestment in the agricultural sector has suppressed the rate of growth of this critical sector to levels below the population growth rate, thereby impacting food security and the nutritional health of the population. The scholars however posit that the scenario differs in the more advanced economies, where any gaps in public financing of the sector are sufficiently covered by private financing (Murungi et al., 2023).

The Kenya Vision 2030 blueprint, economic pillar, has identified the agricultural sector as one of the transformational sectors with potential to stir up economic performance and

propel the country's average economic growth rate to the desired level of 10 percent annually until 2030. The sector is also expected to play a major role in driving the accomplishment of 100 percent food and nutrition security for the Kenyan populace, creating employment opportunities, boosting foreign exchange earnings, and generating raw materials for the agro-industries. This, according to the Vision 2030 secretariat, is achievable through adoption of contemporary, innovative, and commercially viable agricultural practices (Vision 2030 Delivery Secretariat, 2022). The challenge is that substantial financing is required to invest in the proposed developments, yet there appears to be apathy by commercial banks towards financing of this sector, evidenced by the meagre 3.5 percent (Kes. 146 billion) sectoral share of lending (CBK, 2024), which though up from Kes. 126 billion in the prior year, remained at the same level in terms of sectoral share. The banking industry's role as an enabler is even more pronounced as the Agricultural Finance Corporation (AFC), a government-owned development finance institution with the core mandate of agricultural financing, has been grappling with high non-performing loans and low government funding, which have negatively impacted its effectiveness. In its strategic plan for 2018-2022, the AFC underscored the need for urgent ramping up both the level and sustainability of funding by banks to the entire agricultural value chain to boost the sector and aid the achievement of the government's medium-term plans (AFC, n.d.).

Agriculture is a key economic sector in Kenya in terms of GDP contribution, employment, and foreign exchange earnings, and it is thus expected that this is reflected in its share of loan allocation. Slow growth in agricultural lending is likely to impact the national (Vision 2030) and global (UN Sustainable Development Goals) on food security

1.2.2. Evaluation of Sectoral Loan Performance

Evaluation, as defined by Kusek and Rist (2004) is an assessment of a planned, continuing or finalized intervention to establish its relevance, efficiency, effectiveness, impact, and sustainability so that the key lessons learned can be factored in the decision-making process. The UN secretariat (2021) further expounds on the definition of intervention, describing evaluation as a systematic and impartial assessment of "an activity, project, programme, strategy, policy, topic, theme, sector, operational area or institutional

performance". While highlighting accountability and learning as the key purposes for evaluations, the UN secretariat underscores the need for evaluations to generate reliable and useful information backed by evidence so that the findings and recommendations can justly inform the decision-making processes of organizations as well as stakeholders (UN Secretariat, 2021). Kusek and Rist (2004) hold a similar view that the results of an evaluation can be used to diagnose issues and support remedial decisions in dialogues between government officials and key stakeholders. This study assessed the sectoral performance of loans within the banking industry (institutional performance) with the performance feedback expected to inform the decision-making process of commercial banks including any remedial action required for alignment with the strategic government goals operationalized through the Central Bank of Kenya.

There has been heightened focus on growth of non-performing loans in European banks since the global financial crisis of 2008, and the possibility of its negative impact on the lending by banks to the productive economy. Higher non-performing loans generally contribute to lower rates of growth of performing loans according to Serrano (2021). Singh, Basuki & Setiawan (2021) similarly opined that high NPLs negatively impact profitability, which is likely to discourage banks from additional lending, with a resultant slowdown in economic growth. Casabianca (2020) equally found a negative relationship between NPLs level and the supply of loans by Italian banks, and that an unanticipated surge in the NPL ratio has a negative association with credit supply for a period of at least two years following the shock, while an unexpected buildup in the NPL ratio is associated with stifled bank lending for a period of four years after the build-up. A different study in Asia exploring the relationship between bank risk and loan growth in the South Asian economies between 2011 and 2019 found that significant loan growth led to higher NPLs (Bhowmik & Sarker, 2021), which could translate to poorer loan performance. Ahmed et al. (2021) opted for NPLs as a proxy for loan portfolio quality due to the consistency of defining NPLs in the last two decades and in alignment with the international accounting and financial reporting standards with reference to bad loans. The study by Ahmed et al., which covered the banking industry in Pakistan, however found that enhanced credit growth worsens the non-performing loans position (Ahmed et al., 2021).

A different study conducted in Turkiye to establish the relationship between sectoral loan allocation and growth of the respective sectors found that loans allocated to construction, transportation and personal loans sectors have a positive linear relationship with economic growth, that is, when GDP increases, loans to these sectors also increase. However, the inverse does not occur, that is, loans to construction, transportation and personal sectors do not spur economic growth in the long run. On the other hand, loans to the metal sector, in the long run, promote economic growth (Akca, 2022). Another study on sectoral loans in Nigeria (Okoyan & Eze, 2021) established that loans to the agriculture/forestry, manufacturing, and mining/quarry sectors have only marginal impact on a bank performance with respect to return on assets. The scholars, however, recommended that the government strengthens institutions responsible for lending to the agricultural sector in view of the potential benefits both to the banks and the country's economy. Other sectors recommended to be promoted through reduced interest rates include manufacturing and mining, according to Okoyan and Eze (2021).

For purposes of this study, sectoral loan performance was evaluated using various non-performing loan attributes including the respective sectors' non-performing loans ratios, share of (contribution to) total NPLs and growth rates of sectoral NPL values. Non-performing loans' status is widely acknowledged globally as an indicator of how well loans are being repaid, which is a depiction of performance of loans as well as quality of the loan portfolio. This study hoped to determine how the sectoral performance of loans influences the banking industry's allocation of loans to the agricultural sector. The findings are anticipated to guide policymakers in fast-tracking the banking industry's lending to the agricultural sector through appropriate policies and strengthened performance monitoring practices geared towards attainment of food security as envisioned in the Kenya Vision 2030 economic blueprint and the UN SDG 2.

1.2.2.1. Non-Performing Loans Ratio

The non-performing loans (NPLs) ratio gives an indication of the quality of loans, with an inverse relationship existing between the quality of loans and the NPLs ratio. This implies that the higher the NPLs ratio, the lower the quality of loans and hence the worse the loan performance as it means that more customers are unable to pay their loans on schedule and

the risk of default is elevated, which could lead to lower bank profitability or losses. This study reviewed the sectoral non-performing loans ratios within the banking sector to evaluate the sectoral performance of loans between the years 2013 to 2023 and establish any association between sectoral NPLs ratios and the share of agricultural loans, which is the proportion of loans that the banking industry has invested in this sector.

In Kenya in both years 2023 and 2022 the NPLs ratio of the agricultural sector was constant at approximately 22 percent, which means that 22 percent of the loans granted to the agricultural sector were not being repaid as scheduled and hence were not performing. The agricultural sector's NPLs ratio was significantly worse than the overall banking industry (all sectors consolidated) NPLs ratio which stood at 15.6 percent and 13.9 percent respectively, in 2023 and 2022. Similarly in the prior year, 2021, the agricultural sector NPL ratio at 18 percent was higher than the industry average NPL ratio of 14 percent (CBK, 2022, 2023, 2024). The high NPL ratios recorded by the agricultural sector is an indication of poor performance of agricultural loans as it depicts a poorer quality of loans in this sector, portraying it as a risky sector to lend to.

Considering the apparent apathy by banks towards this sector, findings from this study anticipated to aid in structuring of government policies that boost the sectoral share of agricultural loans to the desired level in alignment with the government's strategic goals as laid out in the Kenya Vision 2030 economic blueprint and UN SDG 2. Ultimately the study will reveal whether justification exists for the apparent apathy by banks towards this sector, and if so, guide policymakers in formulation of appropriate policies that will cushion banks against the high perceived risks associated with this nationally strategic sector.

1.2.2.2.Contribution to Total Non-Performing Loan Value

In this study, the sectoral distribution of non-performing loans was reviewed, and more specifically, the agricultural sector's contribution to the total banking industry's non-performing loans was analyzed over the eleven-year period of study, against the share of loans allocated to the agricultural sector by the banking industry in Kenya. The study aimed to investigate the existence of any relationship between the two variables and hence

establish whether the agricultural sector's contribution to total NPLs influences the banking industry's allocation of loans to this sector.

The agricultural sector's NPLs contribution to total NPLs rose from 4.2 percent in 2021 to 5.5 percent in 2022. However, there was a small improvement (decline) recorded in 2023 to 4.9%, but this performance still remained of concern given that the sector's percentage share in the banking industry NPLs continued to be higher than the sector's percentage share of banking industry loans which stood at 3.3 percent, 3.5 percent and 3.5 percent respectively in 2021, 2022 and 2023 (CBK 2022, 2023, 2024).

This study aims to equip policymakers and other stakeholders with supportive evidence to formulate strategies and policies that promote the attainment of the ideal agricultural sector loan share necessary to turn around the economy. Policymakers will be guided in formulation of appropriate policies that will encourage more lending to this nationally strategic sector to bridge the existing lending gap

1.2.2.3. Growth Rates in Non-Performing Loan Values

Rising non-performing stock loans have been of grave concern within the banking industry and this performance trait continues to be highlighted by the regulator. The banking industry NPL stock across all sectors rose from Kes. 460 billion in 2021 to Kes. 503 billion in 2022 (a nine percent increase), with a steeper increase of 30 percent to Kes. 652 billion recorded in 2023. The value (stock) of non-performing loans for the agricultural sector in Kenya has also been on an upward trajectory, from Kes.19.2 billion in 2021 to Kes. 27.7 billion in the year 2022, further growing to Kes. 32.1 billion in 2023. Year on year percentage growth was 44 percent and 16 percent respectively for 2022 and 2023, both seemingly high and an indication of negative performance. Agricultural sector loan allocation however remained at 3.5% in 2022 and 2023, up from 3.3% in 2021. This implies that the deterioration in performance did not have much impact on the loan allocation, and in fact the allocation increased marginally in 2022 by 0.2% despite a 44-percentage growth in the agricultural NPLs stock. Additionally, despite the increase in the NPLs contribution in 2022, an indication of deterioration in performance, the agricultural loan book grew in absolute terms by 19 percent to Kes. 126 billion. The agricultural loan book grew by a

further 16% to Kes. 146 billion in 2023, a lower percentage growth despite a better performance in terms of NPLs contribution.

This study sought to establish whether the growth rates of sectoral NPL values had any association with the share of credit allocation by the banking industry, as this is likely to guide stakeholders in formulation of appropriate policies that support growth in lending to the agricultural sector.

1.3.Statement of the Problem

Agriculture is the backbone of Kenya's economy. A significant boost to the agricultural sector is likely to stir up economic activity and support fulfilment of the country's Vision 2030 goals which are largely aligned to the United Nations SDGs. Despite the significant role of the agricultural sector, credit allocation by commercial banks to this sector is conspicuously low, a factor largely attributed to the high risks associated with lending to this sector including the sector's high dependency on weather patterns which tend to be unpredictable, wide geographical spread which makes monitoring by banks difficult, lack of collateral especially for smallholder farmers, amongst others, all of which make the loans to this sector prone to high default rates. The inherently poor performance of agricultural loans as reflected by the sector's comparatively high NPLs, and the resultant lending gap as banks shy away from lending to this sector to avert potential losses, are of great concern both nationally and globally. There is therefore an urgent need for more in-depth study into the subject matter to address any constraints and help in realization of the sector's full potential.

This study aimed to establish whether the sectoral loan performance affects the banking industry's allocation of loans to the agricultural sector, using data provided by the Central bank of Kenya between 2013 and 2023. Understanding how various NPL measures, including sectoral NPL ratios, sectoral share of the total banking industry NPLs and growth rates of sectoral NPL values, respectively, influence the share of the banking industry loan allocation to the agricultural sector, will aid in formulation of appropriate policies that will encourage banks to enhance their lending to this sector up to the national aspirational level. Increasing the share of loan allocation to the agricultural sector is critical given that

agriculture is a key contributor to the country's economy (GDP) and lending to the sector is likely to have a snowball effect that will spur economic growth, in addition to enhancing food security. The study outcome is expected to equip stakeholders to make the necessary strategy changes that will help propel the agricultural sector to its optimal level.

Previous research has not structured indicators relative to other sectors, which this study provides as evidenced in its variables. The independent variables measure sectoral NPL ratios (sectoral NPLs to sectoral loans), sectoral contributions to total NPLs as well as growth rates in sectoral NPL ratios, all of which analyse different angles of loan performance, while the dependent variable reviews agricultural loans in proportion to total loans by the banking industry to all sectors. The previous studies have largely looked at absolute growth in agricultural lending which may portray a false sense of growth, yet there is a decline when measured relative to the other sectors. Additionally, few studies have looked at sectoral performance, with most focusing on the banking industry performance as a whole or performance of a single sector only. It is important for the policymakers to appreciate the holistic position of agricultural lending relative to other sectors to achieve the ultimate goal of increasing the banking industry's presently relatively low lending allocation of 3.5 percent to the agricultural sector and give the sector prominence in line with the sector's economic significance.

1.4.Purpose of the Study

This study sought to examine any association between sectoral loan performance and the banking industry's loan apportionment to the agricultural sector in Kenya. The indicators of the sectoral loan performance were sectoral non-performing loans (NPLs) ratio, sectoral contributions to total NPLs value and growth rates of sectoral NPL values.

1.5. Objectives of the Study

1.5.1. General Objective

To evaluate the influence of sectoral loan performance on the share of agricultural sector loan allocation within the banking industry in Kenya

1.5.1.1.Specific Objectives

i. To establish how the sectoral non-performing loan ratios influence the share of agricultural sector loan allocation within the banking industry in Kenya.
ii. To assess how sectoral contributions to the total NPLs value influence the share of agricultural sector loan allocation within the banking industry in Kenya.
iii. To determine how growth rates of sectoral NPL values influence the share of agricultural sector loan allocation within the banking industry in Kenya.

1.6.Research Questions

i. How do the sectoral non-performing loan ratios influence the share of agricultural sector loan allocation within the banking industry in Kenya?
ii. How do the sectoral contributions to total NPLs influence the share of agricultural sector loan allocation within the banking industry in Kenya?
iii. How do the growth rates of sectoral NPL values influence the share of agricultural sector loan allocation within the banking industry in Kenya

1.7. Significance of the Study

The study aims to guide stakeholders in better understanding of any associations between sectoral loan performance and the share of agricultural loans to enable formulation of appropriate strategies and policies that will propel growth in the banking industry credit to the agricultural sector above the current 3.5 percent sectoral share. This study will be useful to policymakers and key stakeholders including the banking industry, development partners, development finance institutions, as well as the Central Bank of Kenya, as they work towards bridging the current financing gap in this crucial sector and will ultimately steer the country towards food self-sufficiency. The study will also be of relevance to other countries struggling with a similar problem both within Africa and globally

1.8. Scope and Delimitation of the Study

The study was undertaken using secondary data from the Central Bank of Kenya website over a period of eleven years, from 2013 to 2023. This approach was considered ideal for the purpose of this study given that the data was to be sourced from a highly reliable and authoritative source, the banking regulator, and for a period long enough to identify trends

and associations that will support conclusive arguments. The period covered enabled objective comparison over the years as it dated back to the inception of the current data format presented by the regulator in the CBK Bank Supervision Annual Reports, enabling the research to be conducted in a relatively fast and inexpensive manner. This helped to overcome the challenges of limited time and resources. Additionally, the relatively recent data is likely to give a more accurate picture than older data which may be outdated for the purpose of this study. The CBK website provides an authoritative view of the entire banking industry performance and is thus deemed a trusted source. The CBK is also key in influencing policy within the banking industry, which is an important aspect in this study.

The choice of the agricultural sector as the area of focus was inspired by the significance of this sector to Kenya's economy, which makes it an important subject matter of interest that requires due attention by all stakeholders. Addressing of the current financing gap within this sector will aid in realization of the sector's full potential which will spur economic growth and facilitate achievement of strategic global and national goals relating to food self-sufficiency.

While the CBK provides numerous publications and datasets, this study narrowed down to the Bank Supervision Annual Reports which capture detailed data relating to sectoral loan distribution and non-performing loans and are thus key in evaluating any relationship between the loan performance of the eleven sectors of the economy and the share of loan allocation to the agricultural sector. The other publications and datasets are not directly relevant for the purposes of this study.

1.9. Limitations of the Study

The major limitation was that the secondary data would restrict the scope of analysis in the study as the researcher would rely on data that has already been collected and published and would not have the benefit of adding anything else the researcher would deem relevant for the study. The mitigating factor was that the data is from a highly reliable source, the regulatory body of the banking industry, and the datasets are therefore likely to contain all the relevant data for the industry. This mitigation also dispelled any limitations relating to accuracy of the secondary data.

Another limitation was that the data was not very current, given that the latest CBK publication of the Bank Supervision Annual Report that was available at the time of data collection was released in July 2024 and relates to data for the year 2023. The vindication was that the study would look at trends over an eleven-year period hence any solid pattern would be clearly established, and one more year was not likely to significantly distort the picture. Additionally, the researcher would be able to review other secondary sources for any significant developments relating to this study.

1.10. Assumptions of the Study

One assumption of the study was that the depth of analysis of the selected CBK datasets would appropriately address the research questions. The study also assumed that the selected period of data was sufficient to identify any relationships, and that the results will be useful to key stakeholders.

1.11. Theoretical Framework

The underpinning theory of this study is the performance feedback theory (PFT) which describes how organizations respond to feedback on their performance. The main proponents of the performance feedback theory (PFT) are Henrich R. Greve, Pino G. Audia, George A. Shinkle, among others. The theory was propounded in 2003 by Greve and was built on the foundation of the "Behavioural Theory of the Firm" (BTOF) developed by Richard Michael Cyert and James G. March in 1963. Three assumptions behind the PFT include: Unsatisfactory performance by an organization, below the aspiration level, automatically prompts intensified remedial action while there is lessened strategic action when the performance is above the aspiration level; Performance feedback has the same kind of effect on the competing courses of actions that can be taken to enhance performance (Gavetti et al., 2012; Shinkle, 2012; as cited in Kotiloglu, Chen & Lechler, 2021); Organizations respond to historical and social performance feedback in similar ways (Greve, 2003c; Iyer and Miller, 2008; as cited in Kotiloglu, Chen & Lechler, 2021).

The theory supports this study as it can be equated to the banking industry's sectoral loan performance evaluation where the performance is deemed unsatisfactory when sectoral NPLs ratios, sectoral contributions to total NPLs and growth rates of sectoral NPLs as

depicted in the respective CBK Bank Supervision Annual Report (the feedback) are considered high. The negative feedback is expected to prompt the banking industry to implement robust strategic measures to remediate the position to ensure the aspirational level of performance (as guided by the CBK and normal industry thresholds) is achieved, as implied by the Performance Feedback Theory (Greve, 2003). With the heightened focus on correcting the negative feedback (high NPLs), the banking industry will be more absorbed with maintaining the level of NPLs within acceptable (aspirational) levels rather than shying away from more agricultural lending, hence the share of agricultural loans is unlikely to be negatively impacted. The high non- performing loans in the agricultural sector will thus not be a stumbling block that prevents growth of the share of allocation of agricultural loans within the banking industry. On the other hand, when NPLs are within aspirational levels, the performance feedback from the CBK Bank Supervision Annual Reports will be considered satisfactory and no strategic remedial action will be required hence the banking industry will have no reason to curtail agricultural sector lending and will continue to ramp up the agricultural sector share of bank loans. The theory also refers to historical comparisons when assessing performance (Greve, 2003), which is in line with this study as the researcher reviewed historical data over the eleven-year period of the study to identify any trends and relationships between the independent and dependent variables. With the application of this theory, the current mismatch between the significance of the agricultural sector and the banking industry's loan allocation to this sector is likely to diminish especially with guidance and constant monitoring by the regulator to ensure the banking industry goals are aligned with the national goals. Indeed, the regulator can also set aspirational goals for the sectoral share of agricultural loans and provide satisfactory or unsatisfactory feedback to the banking industry players depending on their results, evaluating the performance on say quarterly basis to drive the desired growth trajectory.

1.12. Conceptual Framework

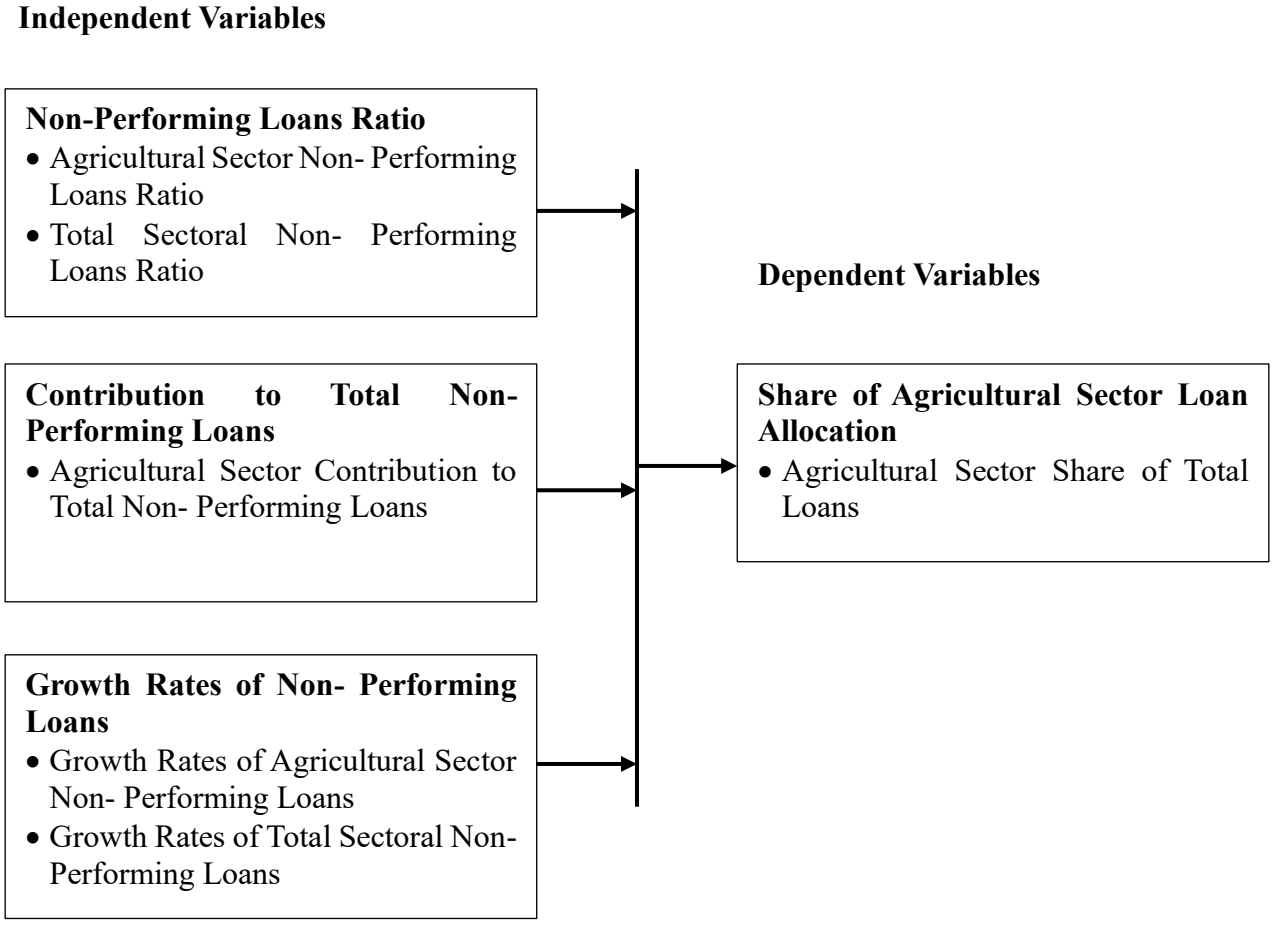


Figure 1.1

Conceptual Framework

Note. The above figure illustrates the relationship between the independent variables and the dependent variable. The arrows reflect the direction of influence, whereby the independent variables, sectoral non-performing loan (NPL) ratios, sectoral contribution to total NPLs, and growth rates of sectoral NPLs, influence the dependent variable, which is the share of the agricultural sector loan allocation.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

This chapter explores literature relevant to evaluation of sectoral loan performance, specifically on sectoral non-performing loans (NPLs) ratio, sectoral contributions to total NPLs, and growth rates of sectoral NPL values, and how these variables influence the allocation of loans to the agricultural sector by commercial banks in Kenya. The chapter will include a literature review of the variables and a summary of the literature review, highlighting any gap(s) in the existing research.

2.2. Review of the Literature

This section reviews recent scholarly works and findings on the influence of sectoral NPLs ratios, sectoral contributions to total NPLs and growth rates of sectoral NPL values on the share of agricultural loan allocation within the banking industry.

2.2.1. Sectoral Non-Performing Loans Ratio and Share of Agricultural Sector Loan Allocation

Gjeçi, Marinč & Rant (2023) found a negative as well as statistically significant association between NPLs ratio and bank loan growth in their study which spread across the diverse global geographical boundaries spanning across 42 countries, both emerging and advanced, and covering nearly 6,500 banks. The association was found to be more pronounced for well-capitalized banks. Chun & Ardaaragchaa (2024) also found a statistically significant negative association between non-performing loans and total loan growth in their study on non-performing loans and bank lending behaviour in Mongolia. Ana, Tuna, Dragan, and Velkovski (2022) established that financial institutions in North Macedonia perceive the agricultural sector to be highly risky and hence allocate the lowest share of loans to this sector, with the share of agricultural loans to gross loans at a paltry2.3 percent in 2021. The study also showed that this sector had the highest ratio of non-performing loans to gross loans (Ana et al., 2022). In Bangladesh, while banks strive to keep NPLs low to enhance profitability, they are compelled by their regulator, the Bangladesh Bank, to meet the yearly

agricultural credit supply set by the regulator who monitors and measures this metric as one of the indicators of the performance of banks (Yeasmin et al., 2024).

A study by Jing (2020) established that due to this strategic action by the regulator in recognition that agriculture is critical to achieve food security, agricultural credit supply tends to rise even when NPLs increase. The study also found that economic performance is enhanced when efforts are made to lower or get rid of the high NPLs ratio. This aligns with the performance feedback theory which emphasizes how businesses focus on remedial action on receipt of unsatisfactory feedback, to ensure performance levels, in this case the NPLs ratio, goes back to the aspirational level. Focus on maintaining low NPLs levels leads to a high supply of loans from the banking industry with countries that focus on lowering NPLs enjoying long-term benefits including growth in lending, which benefits the economy (Jing, 2020). The drive to maintain low NPLs, according to the scholar, requires concerted efforts by all stakeholders including the government and lawmakers who shape policy. The study thus suggests that a high NPLs ratio are not an impediment to growth provided all key stakeholders work towards reversing this when it occurs. As illustrated by the scholar, several countries including the USA experienced a surge in NPLs ratio after the 2008- 2009 financial crisis, but some counties recovered better than others based on their response with respect to corrective measures. Inaction towards reduction of high NPL-ratios could lead to stifled credit allocation and hampered economic growth (Jing, 2020).

Huljak et al. (2022) opined that high NPL ratios can affect the banking industry's financial stability and ability to lend to the economic sectors as high NPLs suppress profitability (due to higher provisions requirements, decline in interest income and higher monitoring and management costs), divert management attention from more lucrative tasks, and also carry higher risk weighting leading to higher capital consumption which means less capital available for lending, thus restricting credit growth. It is worth noting, however, that the findings of Kashian & Drago (2025) established a variance in the outcome of agricultural lending, with poorer performance recorded by the large-sized banks whereas the smaller banks particularly in the rural areas faced lower risks and recorded higher returns from agricultural lending.

In their study relating to sectoral distribution of private credit, Müller & Verner (2021) used non-performing loans (NPLs) as a proxy for sectoral losses. The NPLs ratio was defined as the sectoral NPLs amount to outstanding sectoral credit (loans) amount, in percentage terms, which portrayed the extent of loan default (performance) in the various economic sectors and is in alignment with this study's definitions. The Müller & Verner study, which focused on Spain and Portugal, revealed that the ratio of distressed loans (NPLs ratio) in the non-tradable sector was approximately double that of the tradable sector. The tradable sector in that study comprised agriculture, mining and manufacturing sectors, while construction and real estate, wholesale and retail trade, and transport and communication sectors were considered non-tradeable sectors. At the height of the 2008- 2009 global financial crisis, non-performing loans constituted nearly 30 percent of outstanding loans in the non-tradable sectors in Spain and 20 percent in Portugal, with households considered generally less prone to default than businesses, according to the scholars. Losses in the non-tradable sectors (construction and real estate, wholesale and retail trade, and transport and communications) constituted more than half of total NPLs whereas the tradable sectors (agriculture, mining and manufacturing) amounted to approximately 8-9 percent of the NPLs. The study concluded that the sectoral allocation of credit, which reflects the use of credit, is key for the comprehension of the linkage between the banking industry and the real economy. Credit growth in non-tradable sectors was deemed erratic by the scholars, exhibiting a boom-bust pattern, whereas lending to the tradable sectors was linked to enhanced future growth in productivity (Müller & Verner, 2021)

Another study in Tanzania found a statistically insignificant negative association between asset quality, as measured by non-performing loans to total loans (or NPLs ratio) and lending behaviour (Magoma, 2022). In a Kenya study, the variables were reversed, and loan growth was found to have a statistically insignificant positive relationship with NPLs of commercial banks in Kenya though this was in absolute terms with the explanation that the more the loans disbursed, the higher the likelihood of loan default hence the higher the NPLs (Mulwa, 2022).

2.2.2. Sectoral Contributions to Total NPLs and Share of Agricultural Sector Loan Allocation

According to Gaur & Mohapatra (2019), data from the Reserve Bank of India, India's banking regulator, the priority sector, which includes agriculture, micro and small enterprises, education and housing, accounted for 23.3 percent of total non- performing assets (loans). In terms of the priority sector's share of gross loans, a 40 percent lending target set by the regulator was achieved by private sector banks as at 31st March 2017, with public sector banks and foreign banks close to the target at 39.5 percent and 36.9 percent respectively. The results of this study however show a higher compounded growth in the share of gross non-performing assets contributed by the priority sector than the growth in the share of loans advanced to this sector. This can be partly explained by the fact that priority sector lending is more of a government initiative to promote balanced social growth (Gaur & Mohapatra, 2019).

Regionally, a study on the impact of non-performing loans on Nigeria's economic growth, found that higher non-performing loans could reduce a bank's willingness to lend more, and could even reduce the ability of the bank to disburse more loans to productive sectors, consequently lowering economic growth (Osunnaiye & Alymkulova, 2022). In Ghana, Zhen, Mawoko, and Benjamin (2020) opined that NPLs are highly volatile, from their analysis of NPL trends between years 2000 to 2015, which showed several peaks and troughs. The study further revealed that the agriculture, fisheries and forestry (AFF) sector's share of gross non-performing loans remained constant at 5 percent in 2012 and 2013, before doubling to 10 percent in 2014 and then sliding downwards to approximately 8 percent in the subsequent year (Zhen et al., 2020).

2.2.3. Growth Rates of Sectoral NPLs and Share of Agricultural Sector Loan Allocation

A study of trends in the non-performing loans of seventy- five European banks for the period 2014 to 2018 established that banks recording larger declines in their non-performing loans are inclined to increase their lending to the real economy (Serrano, 2021). Similar findings were recorded by Casabianca (2020) who posited that an unanticipated surge in the NPL ratio has a negative association with credit supply for a period of at least

two years following the shock, while an unexpected buildup in the NPL ratio is associated with stifled bank lending for a period of four years after the build-up. In Kenya, Kibet et al. (2020), from their study on the effects of selected factors on non-performing agricultural loans in commercial banks, posited that there was no correlation between growth in loan portfolio and agricultural non-performing loans. Their trend analysis for the period between 2011 and 2017 revealed a progressive rise in non-performing loans during this period, peaking in 2017, whereas the growth in agricultural loans was generally on a downward trajectory. The scholars also found that agricultural NPLs may rise during periods of economic boom hence banks should lend cautiously during such periods to avoid a surge in NPLs within this sector (Kibet *et. al.,* 2020).

2.3. Summary of Review of Literature and Research Gap(s)

Most previous studies relate to the general banking industry NPLs ratio and loan growth and have not analysed specific sectors such as manufacturing, real estate, tourism, agriculture, amongst others. Evaluating the performance of sectoral loans against their loan allocations is key as it narrows down to the respective sectoral NPLs ratios (percentage of sectoral NPLs value to sectoral loans value), which provides a clear indication of which sectors are performing and which are not, and the extent to which loans in the specific sectors of interest are not performing. Additionally, where previous studies have focused on the agricultural sector, they have largely been based on the relationship between agricultural non-performing loans and agricultural loan growth in absolute terms as opposed to this study where we are not looking at absolute loan growth but rather the growth relative to the total loan growth incorporating all sectors of the economy. Looking at the growth in agricultural lending in terms of an increase in total loans value (stock) may give a false sense of good growth achievement whereas the percentage share of bank loans to this sector may be shrinking in favour of other sectors that may be deemed more commercially attractive by banks.

The consideration of indicators relative to other sectors eliminates the possibility of this shortcoming which can disguise their true position and consequently slow down efforts by stakeholders towards achievement of the national and global goals geared towards

agricultural self-sufficiency. Similarly, the analysis of non-performing loans contribution, which is also relative to other sectors (objective two), gives a more comprehensive view of the agricultural sector performance in comparison with other sectors. Lastly, in line with the third objective, reviewing growth rates of sectoral NPL stocks (value) rather than a single point in time NPL value provides an opportunity to assess the extent and severity of fluctuations in non-performing loans, and hence come up with more appropriate remedial measures and policies that will provide the necessary comfort to the banking industry as lenders. The study is thus expected to help ensure the response to the performance feedback given to commercial banks will be more holistic and will help steer the industry towards more appropriate and effective action, as well as guiding policy makers more successfully in designing policies that support growth in agricultural loans.

The need for a deeper dive into the sectoral performance was to get a holistic view of the loan performance of various sectors of the economy, with the expectation that this will bring more clarity and help unravel as well as resolve the long-standing stagnation of the agricultural sector credit growth.

A summary of the research gaps is provided in Appendix G.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

This chapter highlights the methodology the researcher employed in undertaking the study. The chapter covers research design, target population, study sample, as well as data collection and data analysis methods. It also includes reliability and validity analysis of quantitative data.

3.2. Research Design

Thomas and Zubkov (2023) define research designs as methods of collecting and analysing data, with survey and experimental designs laying emphasis on data collection, while descriptive and correlational designs lean more towards data analysis.

The research design for this study is descriptive. According to Ansari et al. (2022), descriptive research seeks to describe a population, situation, or a phenomenon precisely, without manipulation of the variables, and focuses on the "what, where, and when" as opposed to the "why". This research design is considered ideal for identification of traits, frequencies, and trends, as well as categories. The scholars further opine that descriptive research is typically represented graphically for easier comprehension. (Ansari et al., 2022).

Descriptive research was used for this study to help in examining and understanding the trends in the independent variables, namely, sectoral non-performing loans (NPLs) ratios, sectoral contribution to total NPLs and growth rates of sectoral NPLs, as well as the dependent variable, the share of loan allocation to the agricultural sector, using longitudinal studies over a period of 11 years. The descriptive research was also relevant for this study as the researcher needed to describe patterns and any associations between the variables to help highlight the shortcomings in lending to the agricultural sector and to guide the stakeholders in assessing whether the current trends in lending position the country on the right track towards the fulfilment of the government's agenda on food security, or whether

further policy intervention is required. In addition, the descriptive research output is a source of valuable insights for future studies.

3.3. Research Site

The data used for this study was quantitative, secondary data. It was extracted from the Central Bank of Kenya publication, the Bank Supervision Annual Report, over a period of eleven years from 2013 to 2023. The reports are accessible from the Central Bank of Kenya website. The Central Bank of Kenya is the regulatory body of financial institutions, hence a very reliable and comprehensive source for the data required for this research.

3.4. Target Population

The target population as well as unit of analysis was the banking industry in Kenya. The aggregated results of the banking industry in Kenya are provided in the Central Bank of Kenya Bank Supervision Annual Reports available on the CBK website. The specific datasets for this study were consolidated by the CBK from the published financial statements of 39 commercial banks (CBK, 2024). The study reviewed datasets over a period of eleven years, from 2013 to 2023. The selected period dates back to the inception of the current data format used by the regulator in the CBK Bank Supervision Annual Reports hence easing comparison over the years. The period is considered adequate to detect solid trends and establish associations between the independent and dependent variables, and the data is considered relatively current and not obsolete.

Additionally, the selected period aligns with the onset of the Sustainable Development Goals (SDGs) which were birthed in June 2012 at the United Nations Conference on Sustainable Development, with the first meeting by the working group from 70 countries held in 2013 and publication of the final draft in July 2014 before becoming fully effective in August 2015. The researcher was therefore able to review trends in agricultural lending during the period of the SDGs journey. Policymakers will be able to scrutinize the banking industry's agricultural lending performance alongside the SDGs and assess whether the trends revealed by this study provide comfort that the country is on the right track towards attainment of SDG 2 in accord with the 2030 Agenda for Sustainable Development adopted by UN Member States (UNDP, 2024).

3.5. Sample size

The unit of observation was commercial banks in Kenya. The researcher used the consolidated banking data of commercial banks published by the banking regulator, the Central Bank of Kenya. The study sought to investigate the relationships between sectoral NPLs ratio, sectoral contributions to total banking industry NPLs, and growth rates of sectoral NPL values (stock) respectively, with the total lending from commercial banks allocated to the agricultural sector.

3.6. Data Collection

3.6.1. Data Collection Method

The researcher obtained quantitative secondary sectoral data from the Central Bank of. Kenya (CBK) "Bank Supervision Annual Report" for the period of study, 2013 to 2023.The CBK reports were sourced electronically from the Central Bank of Kenya website. Microsoft Excel program was used for all data collection and compilation onto data sheets and tables. The data was collected for each of the eleven sectors of the economy categorized in line with the Central Bank of Kenya classification, which includes Trade; Manufacturing; Real Estate; Personal and Household; Transport and Communication; Building and Construction; Agriculture, Energy and Water; Tourism, Restaurant and Hotels; Financial Services; Mining and Quarrying. The researcher arranged the sectors in alphabetical order for ease of analysis and populated the requisite data onto data sheets.

The independent variable data required for the first research objective, which sought to establish how sectoral non-performing loan ratios influenced the share of agricultural sector loan allocation within the banking industry in Kenya, was captured in data sheets in Appendix A titled *"Data Sheet: Sectoral Non-Performing Loan Values (Stock) - Kes Millions",* and Appendix C, titled "*Data Sheet: Sectoral Share of Loan Allocation- Kes. Millions".* The NPL ratios were derived by dividing the values in the respective fields in Appendix A by the corresponding values in Appendix C and then multiplying by 100 to get percentages. The results were compiled in Appendix E: *Sectoral Non- Performing Loan Ratios (NPL Ratios)*. Data for the dependent variable was compiled in Appendix D titled *"Data Sheet: Sectoral Share of Loan Allocation- Percentage*.

The second research objective sought to assess how sectoral contributions to total banking industry NPL values influence the share of agricultural sector loan allocation within the banking industry in Kenya. The independent variable data required for analysis of this objective was compiled into a data sheet in Appendix B titled *"Data Sheet: Sectoral Contribution to Total Non- Performing Loans"*. The dependent variable data was compiled in Appendix D: *"Data Sheet: Sectoral Share of Loan Allocation- Percentage*. The third research objective which sought to determine how growth rates of sectoral NPL values influence the share of agricultural sector loan allocation within the banking industry in Kenya, also relied on data in Appendix D for analysis of the dependent variable. For the independent variable, the researcher used the data in Appendix A *[Data Sheet: Sectoral Non-Performing Loan Values (Stock) - Kes Millions]* to derive annual growth rates of sectoral NPLs (current year NPLs minus prior year NPLs, then divided the result by prior year NPLs and multiplied by 100 to obtain a percentage). The output was presented in Appendix F titled *"Growth Rates of Sectoral Non- Performing Loan values"*. This represented all the data collected and compiled by the researcher for purposes of the study.

Mazhar et al. (2021) cite central, state, or local government publications as potential sources of published data for research. Taherdoost (2021) defines secondary data as data obtained from published sources. Though the data was collected for a different purpose, it may be useful for research purposes, usually with added benefits of being easier to extract and less costly than primary data. On the flip side, however, it tends to be rigid as one is limited to the data available, the data may not be current, and in some instances, it may be inaccurate (Taherdoost, 2021).

3.6.2. Validity and Reliability

The secondary data utilized for the study was sourced electronically from the Central Bank of Kenya website. The CBK is a government body that is also the regulator of financial institutions in Kenya. The data is thus considered credible and dependable and does not vary irrespective of who sources it and when it is sourced.

3.6.3. Data Collection Procedures

The researcher extracted the relevant data from the Central Bank of Kenya "Bank Supervision Annual Report" for the period 2013 to 2023, which was the period of study. The data was compiled onto Microsoft excel data sheets. The data was then organized onto various excel spreadsheets for analysis and to facilitate graphical presentations.

3.7. Data Processing and Analysis

According to Kotronoulas et al. (2023), quantitative research requires organization of numerical data in a way that aids detection of trends and associations. This involves use of statistics to interpret the raw data and convert it to findings or evidence. Statistics, according to the scholars, can be descriptive, producing summaries of the variables in a dataset to describe the sample, or inferential, assisting in investigating connections between variables (Kotronoulas et al., 2023).

This study used descriptive analysis to summarize and interpret the data for identification of trends. The evaluation of sectoral data was based on 11 sectors as categorized by the Central Bank of Kenya. The researcher collected and presented the relevant lending data in tabular format on data sheets to facilitate examination of the eleven-year datasets at a glance. Microsoft Excel program was used to facilitate the analysis which included extraction of scatter diagrams and charts to get a visual display that captured the existence of any relationship between the independent and dependent variables, in line with the research objectives. The charts also helped project a visual depiction of the trends in the variables over the study period.

3.8. Legal and Ethical Considerations

This research paper is submitted purely for the academic examination of a Master of Arts in Monitoring and Evaluation degree and can be shared with the Central Bank of Kenya, the banking regulator in Kenya, as well as other stakeholders. The purpose of the study was to evaluate the sectoral loan performance and establish any association with the share of the agricultural sector loan allocation within the banking industry in Kenya. The study was conducted using secondary data obtained from the Central Bank of Kenya "Bank Supervision Annual Report" for the period 2013 to 2023, retrieved from the Central Bank

of Kenya website. The researcher strictly adhered to the rules pertaining to conducting of research, and attributed credit to originators of ideas, processes and results used in this study.

Authorization from ANU to collect secondary data using data sheets is embedded in Appendix H.

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.1. Introduction

This chapter presents the findings of the analyzed data in line with the purpose of this study, which was to examine any association between sectoral loan performance (as measured by the sectoral non-performing loans ratio, sectoral contributions to total NPLs and percentage change in sectoral NPLs) and the share of agricultural sector loan allocation within the banking industry in Kenya. The findings were summarized in excel tables and graphs and were envisaged to aid realization of the objectives of the study.

4.2. Characteristics of the Subject of the Study

The subject of this study was the banking industry in Kenya, which is regulated by the central bank of Kenya. At the point of release of the latest CBK Bank Supervision Annual Report, the banking industry comprised thirty-nine commercial banks out of which thirty-seven were privately owned while the government had majority shareholding in two banks. The privately owned banks were further split into twenty locally owned and seventeen foreign- owned institutions. The CBK summary of the banking industry structure is found in table 4.1 below (CBK, 2024).

Table 4.1

Ownership and Asset Base of Commercial Banks as of December 2023

Ownership	Number of operating banks	% of Total	Total Net Assets (Kes. Mn)	% of Total
Local public commercial banks	2	5%	34,050	0.40%
Local private commercial banks	20	51%	5,326,011	69.30%
Foreign commercial banks	17	44%	2,330,597	30.30%
Total	**39**	**100%**	**7,690,658**	**100.00 %**

Source: CBK (2023)

The number of branches within the commercial banks totaled one thousand, five hundred and eleven as at 31/12/23. Nine banks were categorized as large and enjoyed a market share of seventy-seven percent, eight medium-sized banks had a joint market share of fifteen percent with the remaining twenty-two banks considered small banks, with a total market share of eight percent. The banking industry had outstanding loans worth Kes. 4 trillion, with only a paltry 3.5 percent (Kes. 146 billion) allocated to the agricultural sector, according to the consolidated data provided by the CBK in their 2023 Bank Supervision Annual Report (CBK, 2024). Various concerns have been raised on several occasions by policymakers over the relatively low lending by banks to this critical sector, which prompted the researcher's interest in this study,

The raw data for the study was derived electronically from eleven publications of the Central Bank of Kenya "Bank Supervision Annual Report" for the years 2013 to 2023. The datasets under study were obtained from Chapter 3 of the CBK report under the heading "Macro Economic Conditions and Banking Sector Developments" (previously "Macro Economic Conditions and Banking Sector Performance"), and under sub-heading "Sectoral Distribution of Gross Loans, Loan Accounts and Non- Performing Loans". The data provided in the report factors in all the sectors of the economy, which the researcher compiled onto four excel data sheets as captured in Appendices A, B, C and D, for further analysis in line with the research questions.

This study sought to establish if any linkages existed between sectoral NPL ratios and the share of loan allocation to the agricultural sector, sectoral contributions to the total NPLs value and the share of loan allocation to the agricultural sector, and lastly growth rates of sectoral NPL values and the share of loan allocation to the agricultural sector. The researcher was also to review trends in the respective variables over the eleven-year period of study to establish any patterns.

4.3. Presentation of Research Analysis, Findings, and Interpretation

In this section, results relating to each objective of the study are displayed and explained by the researcher. The Researcher used Microsoft Excel program to compile the data sheets, tables and to extract all the charts and graphs in the study.

4.3.1. Sectoral NPL Ratios and Share of Loan Allocation to the Agricultural Sector

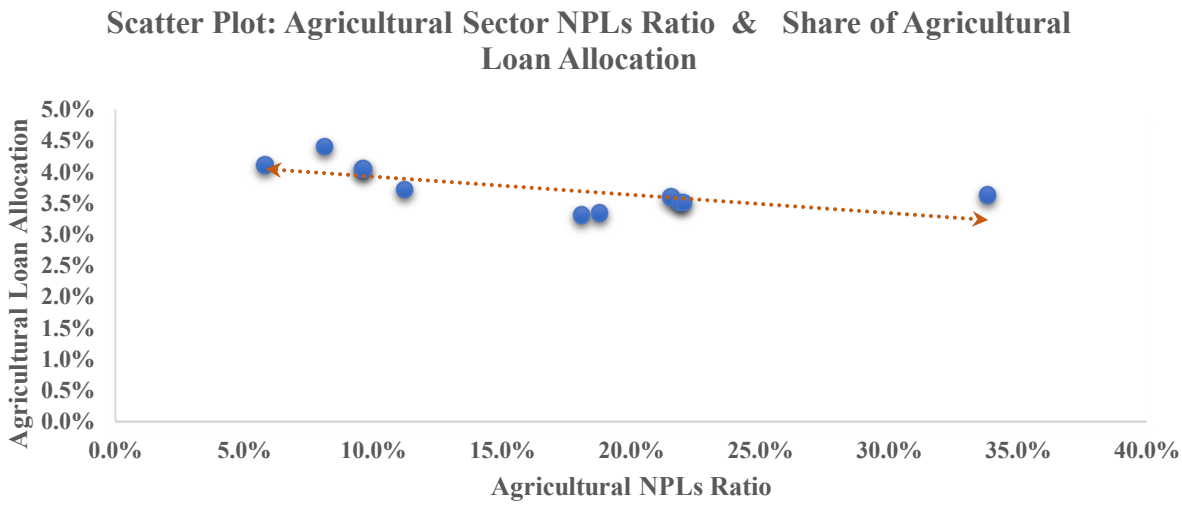
This study aimed to establish how sectoral non-performing loan ratios influenced the share of loan allocation to the agricultural sector within the banking industry in Kenya. The researcher used the data sheet information extracted from the Central Bank of Kenya website to calculate the sectoral NPLs ratios over the eleven-year period of study.

The NPLs ratios were derived by dividing sectoral data on *Appendix A (Data Sheet: Sectoral Non-Performing Loans Values)* by the corresponding sectoral data on Appendix C (Data Sheet: Sectoral Share of Loan Allocation) and then multiplying by 100 to express the figures as percentages. The results are displayed in Appendix E: Sectoral Non-Performing Loan Ratios.

The researcher then used the information to plot two scatter diagrams via Microsoft Excel program, to help determine if there was any evidence of a linear relationship between the independent variable and dependent variable. The first scatter diagram (Figure 4.1) specifically analyzed the relationship between the agricultural sector NPLs ratio and the share of agricultural sector loan allocation, while the second diagram (figure 4.2) incorporated the total sectoral NPL ratio (also considered the average banking industry NPLs ratio) to establish any association with the share of the agricultural sector loan allocation. The researcher used Microsoft Excel application to plot the scatter diagrams and obtained the graphs in Figure 4.1 and Figure 4.2 below:

Figure 4.1

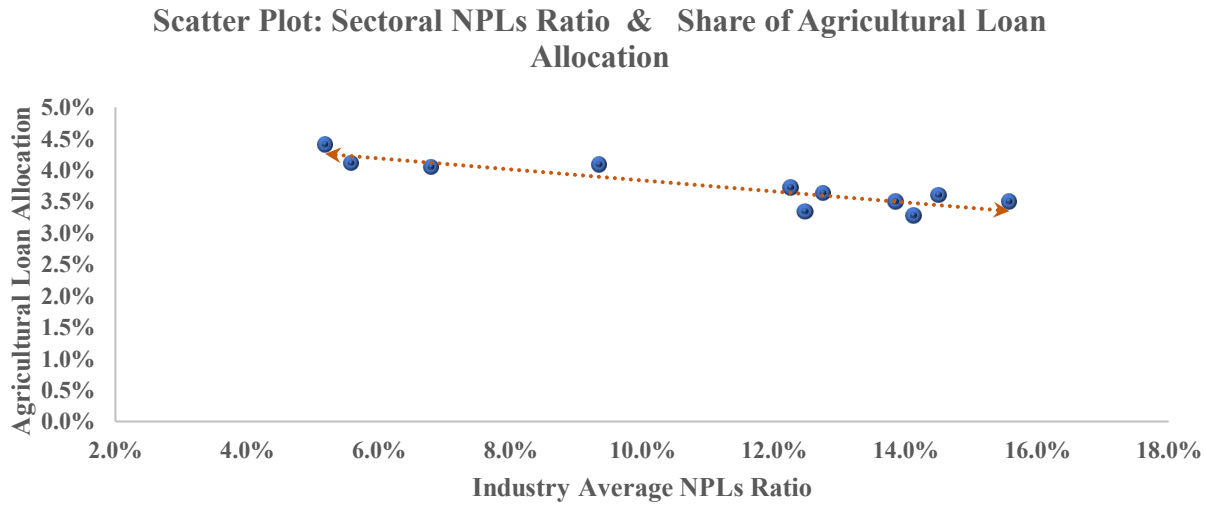
Agricultural Sector NPLs Ratio and Agricultural Sector Loan Allocation



The scatter plot in figure 4.1 above shows a strong negative linear pattern between the agricultural sector NPLs ratio and the sector's loan allocation.

Figure 4.2

Sectoral NPLs Ratio and Share of Agricultural Sector Loan Allocation

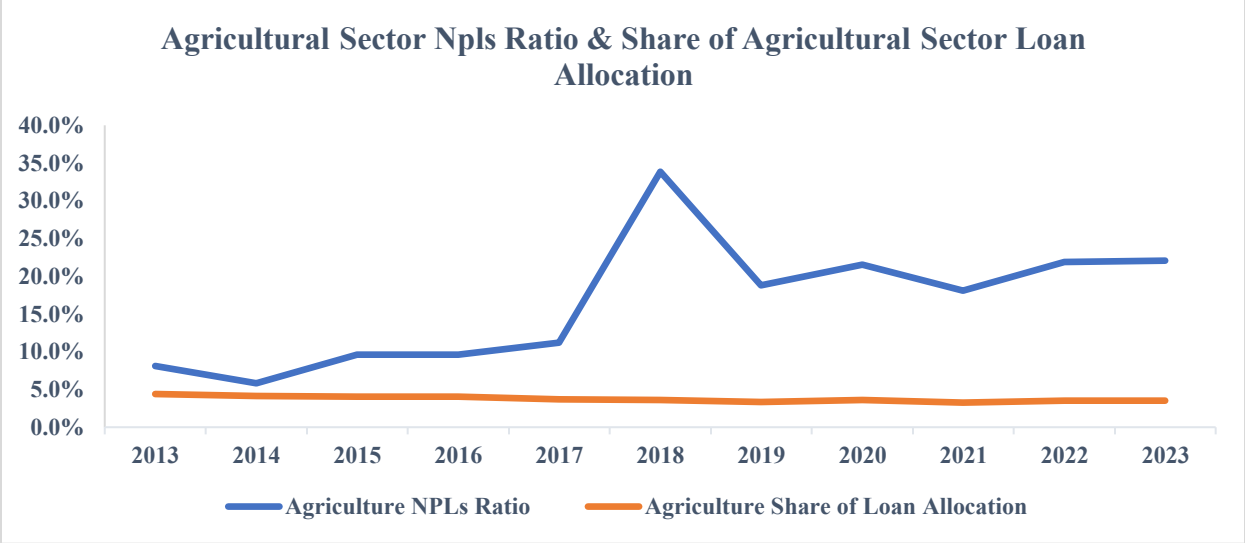


The scatter diagram in figure 4.2 displays a very strong negative linear association between sectoral NPLs ratios and loan allocation to the agricultural sector. To further analyze the

relationships the researcher used Microsoft Excel program to extract line graphs (Figure 4.3 and 4.4 respectively).

Figure 4.3

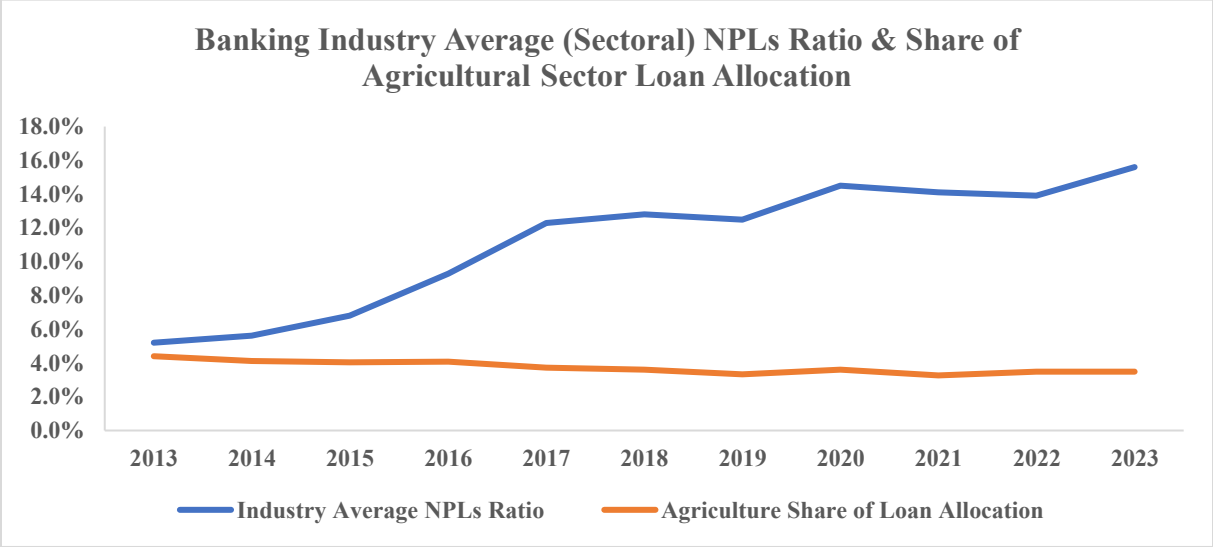
Agricultural Sector NPLs Ratio & Share of Agricultural Sector Loan Allocation



The line graph in figure 4.3, just like the diagram in figure 4.1, shows a strong negative linear association between agricultural sector NPLs ratio and the sector's loan allocation, save for an isolated steep rise in 2018 NPLs from 11 percent to 34 percent, followed by a sharp fall to 19 percent in the subsequent year. Excluding the outlier, the agricultural sector NPLs ratio generally maintained an upward trend, settling at approximately 22% in both 2022 and 2023, while the share of agricultural sector loan allocation over the study period maintained a relatively stable modest downward trend, settling at 3.5 percent in both 2022 and 2023.

Figure 4.4

Consolidated Sectoral NPLs Ratio and Agricultural Sector Loan Allocation

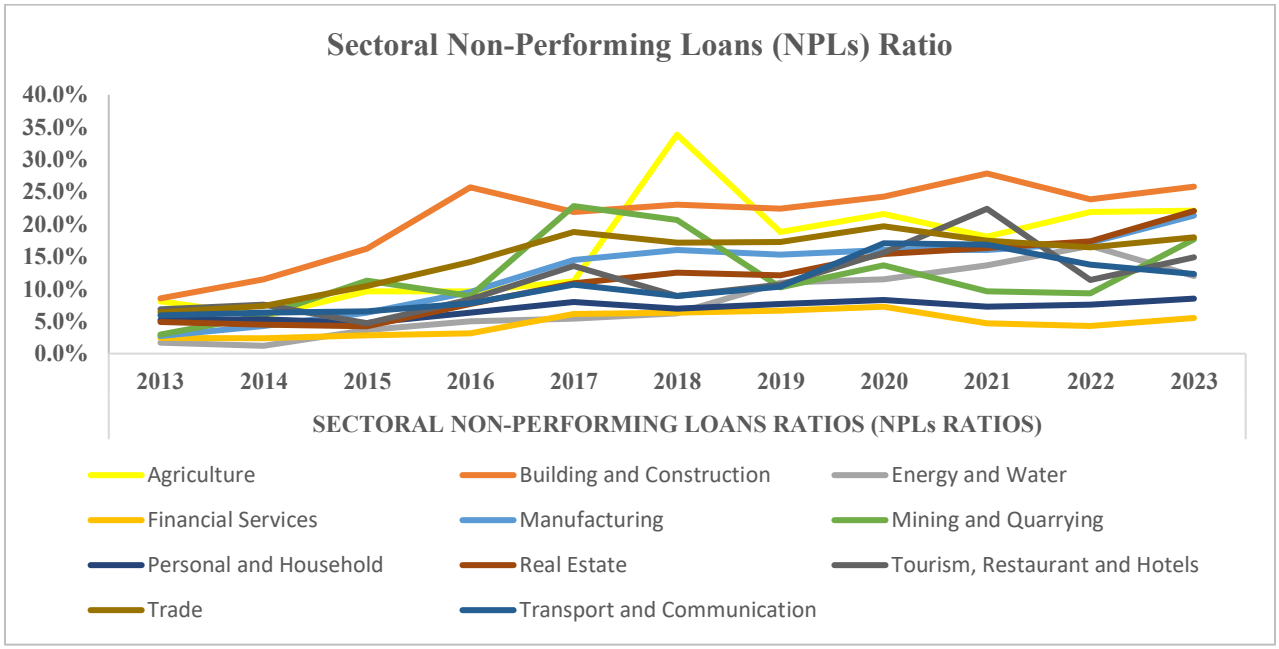


The line graph in figure 4.4 emphasizes the very strong negative linear relationship between the consolidated sectoral NPLs ratios and loan allocation to the agricultural sector, as reflected also in figure 4.2. While both figures 4.3 and 4.4 suggest a strong negative linear association between the variables, the relationship in figure 4.4 appears more pronounced, as was the case in the corresponding scatter diagrams.

The trends in the NPLs ratios for the eleven sectors and their respective sectoral loan allocations were summarized in figures 4.5 and 4.6 respectively, below.

Figure 4.5

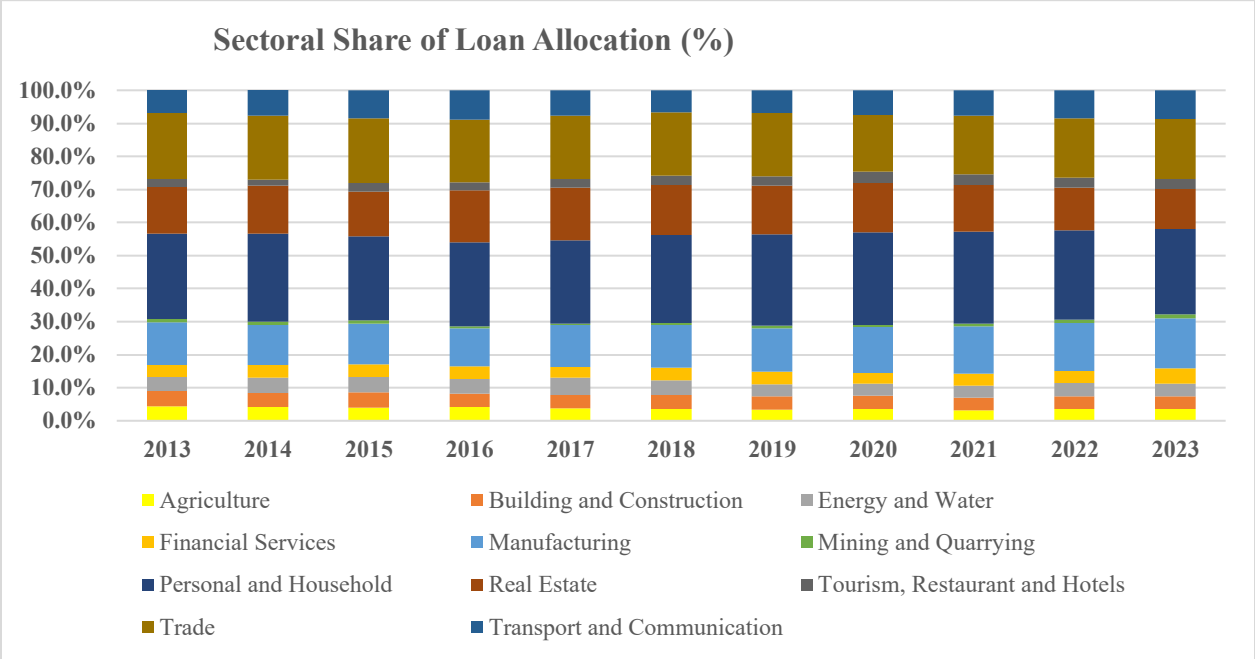
Line Graph Showing Trends in Sectoral NPLs Ratios



The above line graph (figure 4.5) was derived from the Sectoral NPLs ratio tabulation in Appendix F. The agricultural sector stands out in terms of high NPLs ratio, second to building and construction. Appendix F shows the top 4 sectors in terms of high NPLs ratio in 2023 as building and construction (25.8 percent), agriculture (22.1 percent), real estate (22 percent) and manufacturing (21.3 percent), against the consolidated sectoral (industry average) ratio of 15.6%. The corresponding shares of loan allocation for the four sectors in 2023 as exhibited in Appendix D were 4 percent, 3.5 percent, 12.1 percent and 15.1 percent respectively. The lowest NPL ratio for the agricultural sector was 5.8 percent, in 2014, close to that year's industry average of 5.6 percent, and the only year within the study period when agricultural NPLs ratio was below the industry average in 2017 at 11.2 percent against an industry average of 12.3 percent.

Figure 4.6

Bar Graph Showing Trends in Sectoral Share of Loan Allocation



The bar graph in figure 4.6 was derived from the data sheet in Appendix D and graphically portrays the apportionment of the banking industry loans to the various sectors of the economy. The top 3 sectors in terms of percentage share of loans in 2023 were personal and household, which had the lion's share of 25.9 percent, trade sector with 18.2 percent share and manufacturing sector with 15.1 percent. It is worth noting that the trade and manufacturing sectors had relatively high NPL ratios of 18 percent and 21.3 percent respectively against the industry average of 15.6 percent, while the personal and household sector had the second lowest NPL ratio at 8.5% (financial services sectors had the lowest at 5.5 percent as per Appendix E).

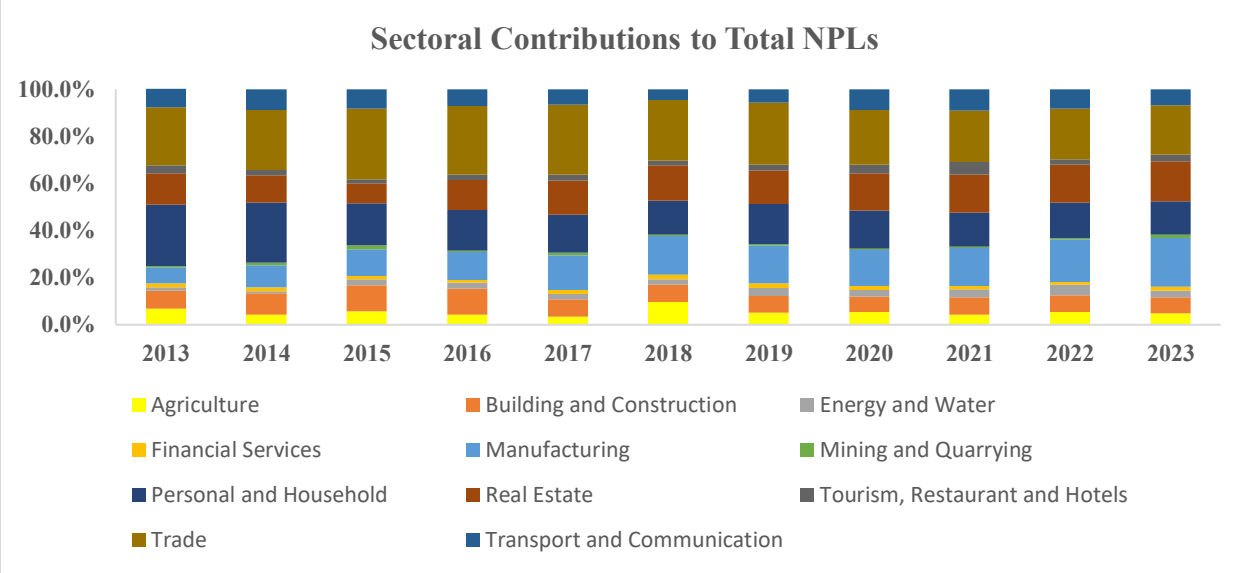
4.3.2. Sectoral Contributions to Total NPLs and Share of Loan Allocation to the Agricultural Sector

The study sought to establish how the sectoral contributions to total non-performing loans influence the share of loan allocation by the banking industry to the agricultural sector in Kenya. The first step was to analyze the data sheet in Appendix B and present it in graphical

form for a more enhanced visualization of the contributions of all sectors to the banking non-performing loans as per Figure 4.7.

Figure 4.7

Bar Graph Showing Trends in Sectoral Contributions to Total NPLs



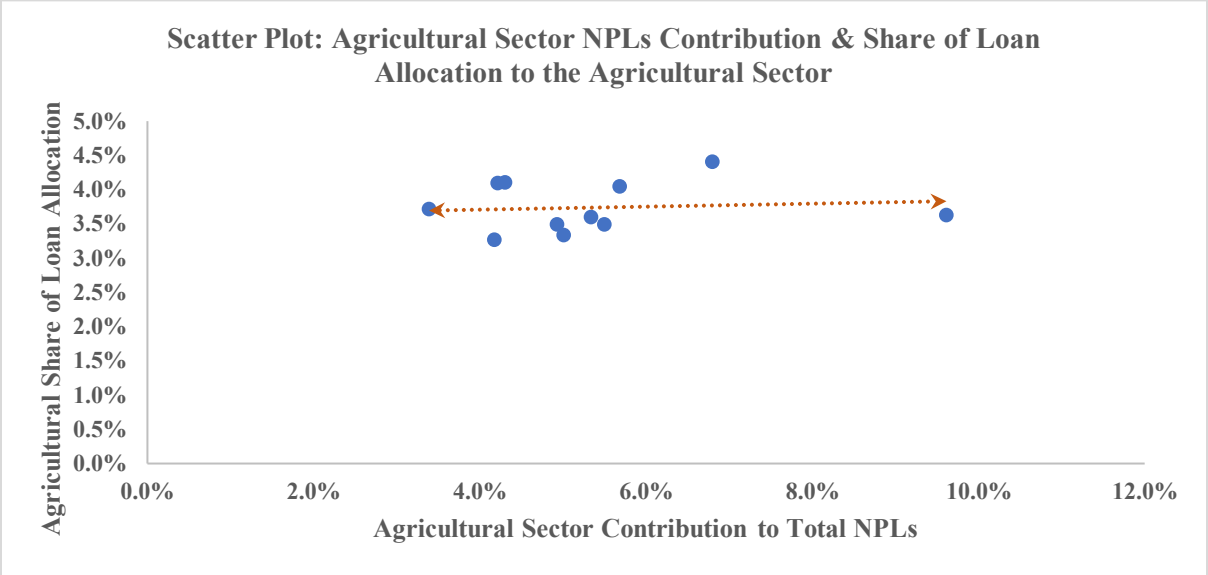
The bar graph in figure 4.7 exhibits the general trends in contributions across sectors to the banking industry NPLs stock. Trade, manufacturing and real estate sectors stand out as the top three contributors, with 2023 data sheet (Appendix B) showing trade and manufacturing almost at par at 21% and 20.7% respectively, while the real estate sector NPLs constituted 17.1 percent of the total banking industry non- performing loans. The corresponding share of loan allocations to the 3 sectors in the same year was 18.2 percent, 15.1 percent and 12.1 percent respectively. The agricultural sector on the other hand contributed to 4.9 percent of total banking industry NPLs and its share of loan allocation by the banking industry was 3.5 percent in the same year, 2023.

The researcher's next step was to undertake further analysis sector- wise, and for purposes of this study the researcher focused on the agricultural sector. A scatter diagram was plotted by the researcher to determine if a linear relationship exists between the agricultural sector contribution to total non-performing loans and the share of loan allocation to the

agricultural sector. Microsoft Excel application was used to plot the scatter diagram, with the output as captured in Figure 4.8.

Figure 4.8

Agricultural Sector Contribution to NPLs and Loan Allocation to the Sector



The scatter plot in figure 4.8 above shows that an insignificant positive relationship exists between the agricultural sector's contribution to total banking industry non-performing loans and the share of banking industry loans allocated to the agricultural sector. To further analyze the relationship and trends, the researcher used Microsoft Excel program to extract the line chart below (Figure 4.9).

Figure 4.9

Agricultural Sector Contribution to NPLs & Agricultural Sector Loan Allocation

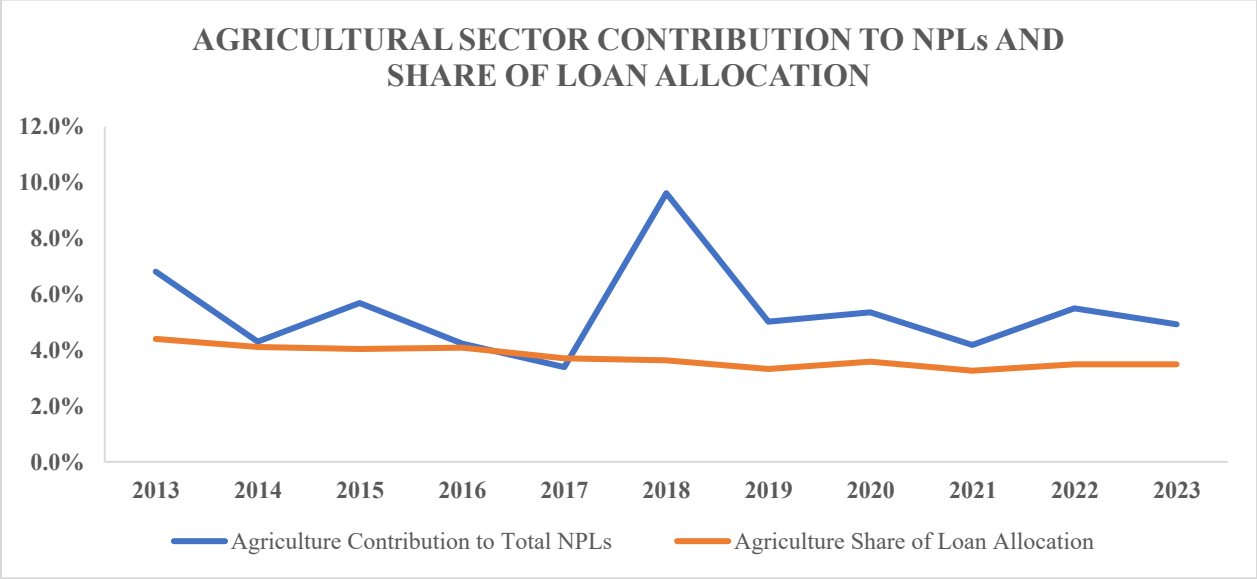


Figure 4.9 bar chart reveals a steady modest downward trajectory in the share of loan allocation to the agricultural sector, whereas the sector's contribution to total banking industry NPLs was erratic over the eleven- year study period, with its lowest level recorded in 2017 at 3.4 percent before spiking to its highest level of 10 percent in 2018, then back down to 5 percent in 2019. The graph depicts an insignificant relationship between the agricultural sector's contribution to total banking industry NPLs and the banking industry's loan allocation to the sector. The agricultural sector's share of gross NPLs notably remained consistently higher than the sector's share of gross bank loans except in 2017 when the sector's NPLs share was at its lowest at 3.4 percent, while the sectoral share of agricultural loans was 3.7%.

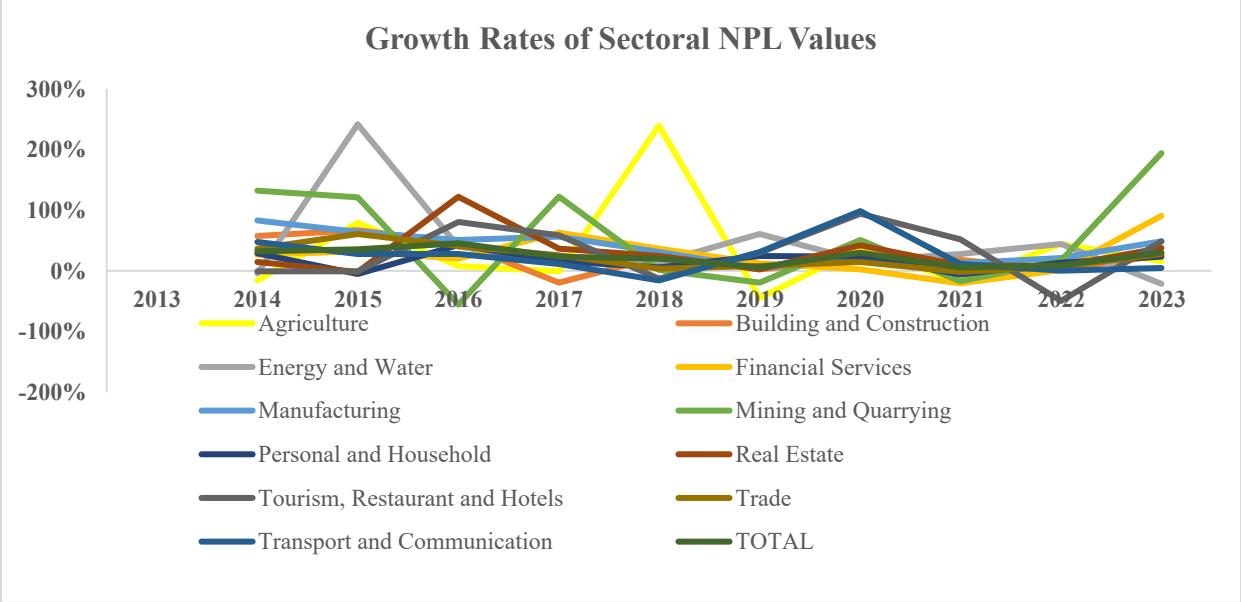
4.3.3. Growth Rates of Sectoral NPL Values and Share of Loan Allocation to the Agricultural Sector

The study sought to determine how the growth rates of sectoral non-performing loans influenced the share of loan allocation to the agricultural sector by the banking industry in Kenya. The researcher started by calculating the rates of growth of sectoral NPLs using the data on sectoral non- performing loan values (stock) found in the data sheet in Appendix A. The sectoral growth rates were calculated using Microsoft Excel program, derived as:

current year NPLs minus prior year NPLs, then divided by prior year NPLs and multiplied by one hundred to reflect as percentages, for each sector. The results are displayed in Appendix F. The researcher then portrayed the results in Appendix F in graphical form to provide a visual depiction to facilitate analysis, and this is captured in Figure 4.10 below.

Figure 4.10

Line Graph Showing Trends in Growth Rates of Sectoral NPL Values

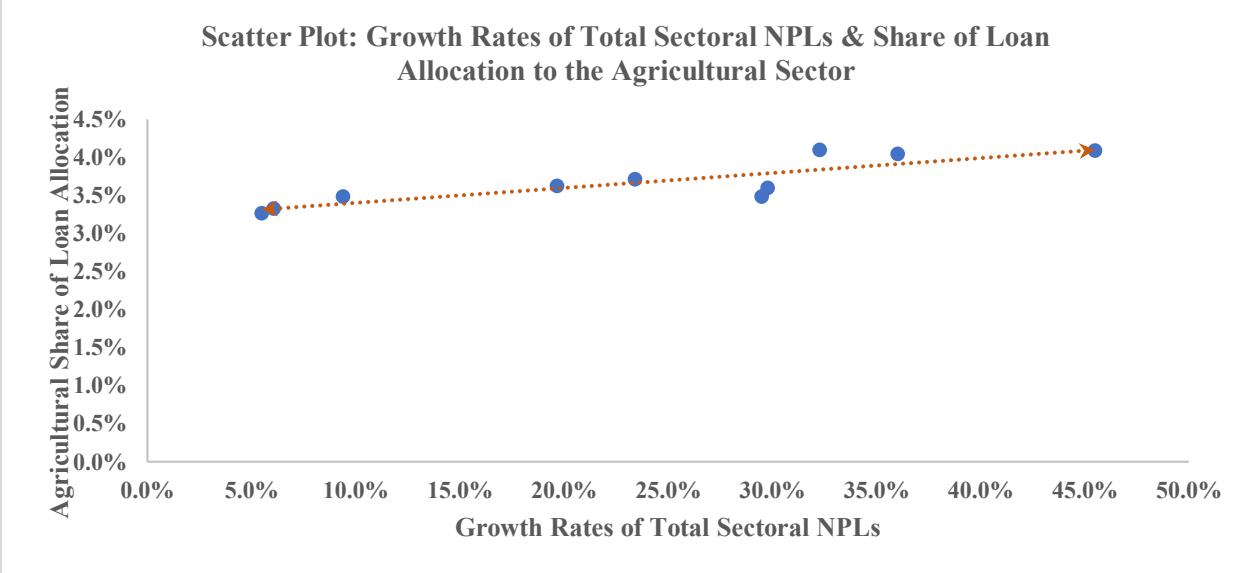


The line graph in figure 4.10, derived from the excel output in Appendix F, reveals the magnitude of erratic changes in non-performing loan values for various sectors, with both upward (negative performance) and downward (positive performance) swings recorded during different periods. The most significant growth rates in sectoral NPLs were recorded in 2015 (242 percent increase), 2018 (239 percent increase) and 2023 (194 percent increase) by the energy and water, agriculture, and mining and quarrying sectors respectively. The corresponding loan allocations for these sectors as per Appendix D were: 4.6 percent for energy and water sector, same as the prior year and a marginal drop to 4.5 percent in subsequent year; agriculture was 3.6 percent, down from 3.7 percent in the preceding year and a more notable drop to 3.3 percent in the subsequent year; mining and quarrying was 1.1 percent, up from 0.9 percent in the prior year, though data for the subsequent year, 2024, was not available and is outside the scope of this study.

The researcher's next step was to plot two scatter diagrams via Microsoft Excel program, to determine if there was any linear relationship between the independent and dependent variables. The first scatter diagram (Figure 4.11) investigated the relationship between the growth rates of total sectoral NPLs and the share of loan allocation to the agricultural sector while the second one (Figure 4.12) narrowed down to growth rates of agricultural sector NPLs and investigated the relationship with the agricultural sector loan allocation. The researcher used Microsoft Excel application to plot the scatter diagrams and obtained the graphs below:

Figure 4.11

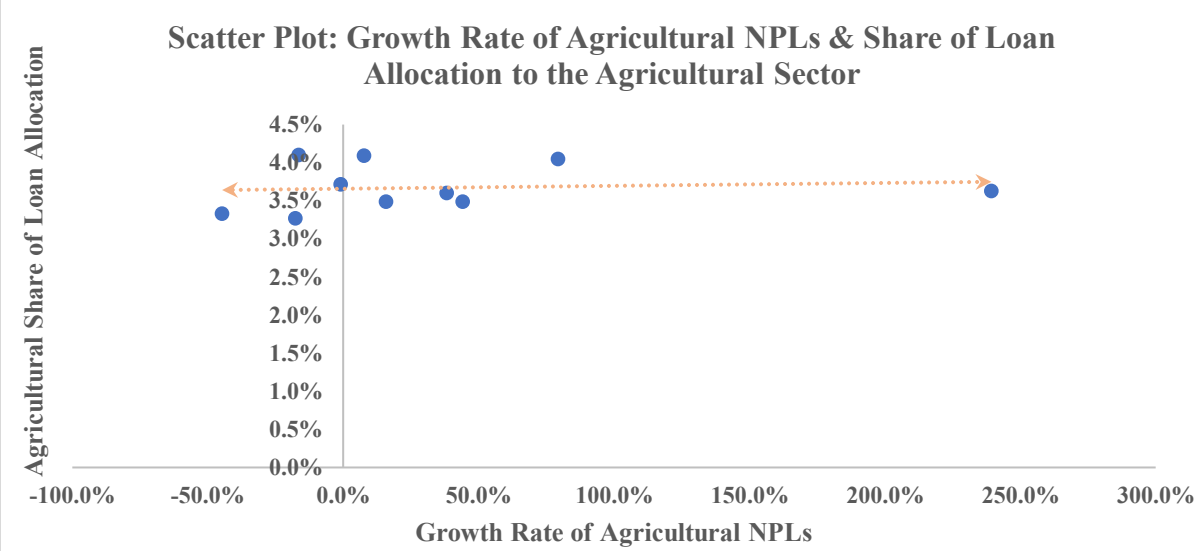
Growth Rates of Total Sectoral NPLs and Agricultural Sector Loan Allocation



The scatter plot in Figure 4.11 portrays a very strong positive linear relationship between growth rates of total banking industry non-performing loan values and the banking industry's loan allocation to the agricultural sector.

Figure 4.12

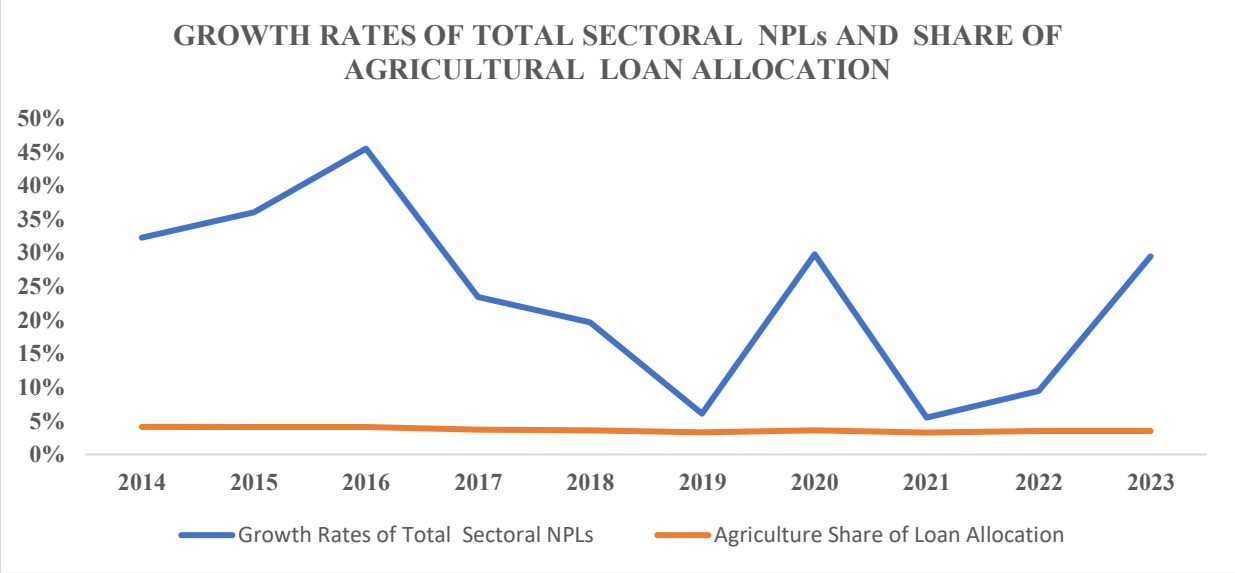
Growth Rates of Agricultural NPLs and Agricultural Sector Loan Allocation



The scatter plot in Figure 4.12 suggests a very weak positive linear relationship between growth rates of agricultural sectors non-performing loan values and the banking industry's loan allocation to the agricultural sector. For further analysis of the associations, the researcher used Microsoft Excel program to produce line graphs (Figure 4.13 and 4.14 respectively).

Figure 4.13

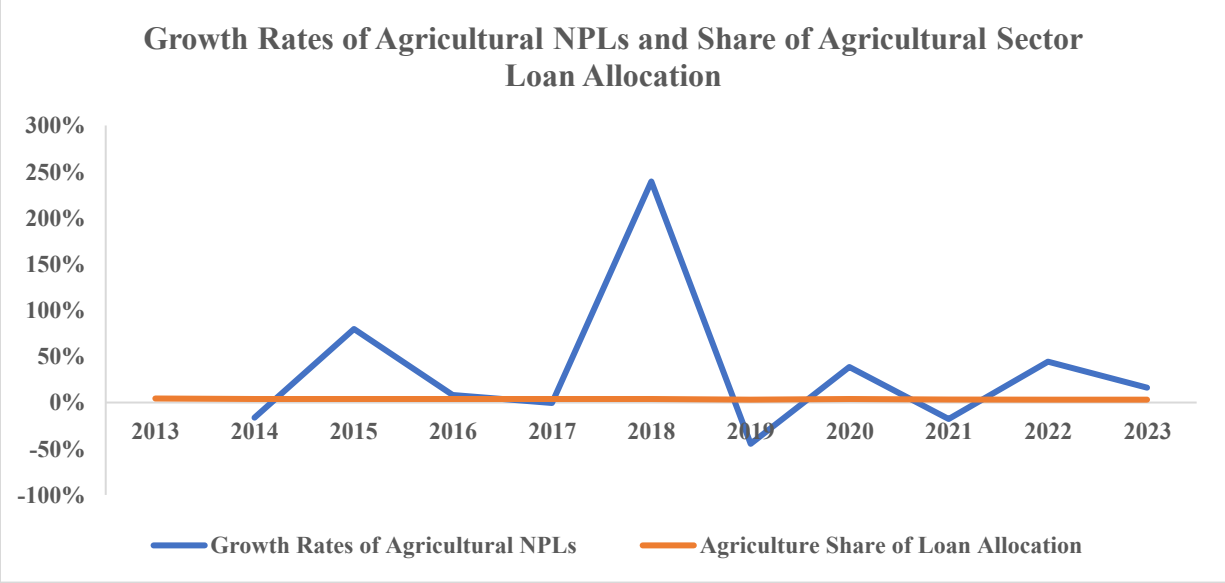
Growth Rates of Total Sectoral NPLs and Agricultural Sector Loan Allocation



The line graph (Figure 4.13) depicts notable fluctuations in total sectoral NPL growth rates, coupled with more subtle but largely corresponding movements in the share of loan allocation to the agricultural sector, a positive linear relationship recorded during the study period.

Figure 4.14

Growth Rates of Agricultural NPLs and Agricultural Sector Loan Allocation



The line graph in Figure 4.14 shows huge fluctuations in growth rates of agricultural sector non-performing loans which do not appear to correspond with the movements in the banking industry's loan allocation, suggesting a very weak positive linear relationship between the variables. The analysis of the chart depicting the growth rates of agricultural non-performing loans (NPLs) alongside the share of agricultural sector loan allocation between 2013 and 2023 reveals notable trends and disparities in credit management within the agricultural sector. The growth rates of agricultural NPLs exhibited considerable volatility throughout the review period. In 2015, there was a notable increase in NPL growth, nearing 80%, indicating heightened credit risk within the sector during that year. This trend was followed by a decline in 2016 and 2017, suggesting a brief period of credit performance stability. However, in 2018, the growth rate of agricultural NPLs spiked dramatically to approximately 240%, representing the highest point within the decade. This sharp increase likely reflects adverse macroeconomic conditions or sector-specific challenges, such as unfavorable weather patterns, commodity price fluctuations, or policy adjustments that significantly impaired farmers' ability to service loans. Following the 2018 surge, there was a sharp decline in NPL growth in 2019, dropping to negative growth rates, which points to either improved loan recoveries or reduced disbursements to high-risk borrowers. The years 2020 through 2023 were characterized by moderate fluctuations, with modest positive growth in 2020 and 2022, each reaching about 40–45%, and smaller negative or low-positive rates in the intervening years. This persistent volatility underscores the agricultural sector's inherent vulnerability to both environmental and economic shocks, which cyclically affect loan performance. In contrast, the share of the agricultural sector loan allocation remained remarkably flat throughout the entire period, consistently maintaining a low level estimated to be under 5%. This static trend, despite fluctuations in NPL growth rates, suggests a sustained cautious stance by financial institutions towards agricultural lending. The limited allocation implies a structural reluctance by banks to increase exposure to the sector, possibly due to its perceived high credit risk and susceptibility to unpredictable external factors. The data indicates that even significant changes in loan performance, such as the 2018 spike in NPLs, did not materially influence the overall loan allocation to the sector.

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This chapter encompasses the discussions, conclusions, and recommendations of this study. The study was guided by three objectives, including establishing the influence of sectoral non-performing loan ratios on the share of loan allocation to the agricultural sector; assessing how sectoral contributions to the total non-performing loans' value influence the share of loan allocation to the agricultural sector; determining how growth rates of sectoral non-performing loan values influence the share of loan allocation to the agricultural sector within the banking industry in Kenya

5.2. Discussions

The purpose of this study was to evaluate the banking industry's sectoral loan performance to establish any influence the performance has on the banking industry's loan apportionment to the agricultural sector in Kenya. The analysis and findings are presented in this section under each of the three objectives of the study.

5.2.1. Sectoral NPLs Ratio and Share of Loan Allocation

The study established that there is a strong positive linear relationship between NPLs ratio and share of loan allocation to the agricultural sector. The relationship between the agricultural sector non-performing loans' ratio and the share of agricultural sector loan allocation was found to be strong, implying that an increase in the NPLs ratio for the agricultural sector had a strong chance of leading to a decline in the banking industry's loan allocation to this sector. The association between the consolidated sectoral (industry) NPLs ratio and the loan allocation to the agricultural sector was found to be stronger, suggesting that the likelihood of the banking industry reducing its loan allocation to the agricultural sector was very high when the banking industry's average non-performing loans ratio (encompassing all sectors of the economy) increased. The finding implies that a general slump in sectoral loan performance with respect to NPLs ratio is likely to negatively impact growth in lending to the agricultural sector as banks shy away from lending to this sector

which is considered risky and easily prone to high default. Huljak et al. (2022) concurs that high NPL ratios can affect the banking industry's financial stability as high NPLs may cause losses which stifle profitability. Gjeçi, Marinč & Rant (2023) also found a negative and statistically significant association between NPLs ratio and bank loan growth. Similar views were held by Chun & Ardaaragchaa (2024) who reported a statistically significant negative association between non-performing loans and total loan growth.

Jing (2020) had an opposing view that agricultural credit supply tends to rise even when NPLs increase but attributed this positive linear relationship to intervention by the regulator in view of the criticality of the sector for food security. Another dissenting view was from Magoma (2022) who, while agreeing with the negative association, differed in terms of the strength of the association, opining that the relationship between asset quality, as measured by non-performing loans to total loans (or NPLs ratio) and lending behaviour was statistically insignificant. All in all, the consenting voices were stronger hence the researcher's findings were largely supported by similar scholarly findings with respect to the first objective. The fact that the linear relationship between consolidated sectoral (banking industry) NPLs ratios and loan allocation to the agricultural sector was even stronger than the relationship between the agricultural NPL ratios and the loan allocation to the same sector suggests that the agricultural sector is viewed with great caution by the banking industry to the effect that a general rise in industry NPLs, even if not attributed entirely to this sector, will be met with a reduction in loans to the sector. This is supported by the observation that while the building and construction industry had consistently higher NPL ratios than the agricultural sector (except for 2018 when there was an outlier), the loan allocation to the building and construction industry remained consistently higher than the allocation to the agricultural sector.

5.2.2. Sectoral Contributions to Total NPLs Value and Share of Loan Allocation

The study established an insignificant positive relationship exists between the agricultural sector's contribution to total banking industry non-performing loans and the share of banking industry loans allocated to the agricultural sector. This signifies that an increase in the agricultural sector's non-performing loans as a proportion of the total banking industry NPL stock has a very low likelihood of leading to an increase in the banking sector's loan

allocation to the agricultural sector. Indeed, from the researcher's observation of the findings, there were erratic changes in the agricultural sector's NPLs share, but this did not seem to have any notable impact on the allocation of loans by commercial banks to this sector, which remained relatively stable. Zhen, Mawoko and Benjamin (2020) also opined that NPLs are highly volatile.

The low association may imply that the banking industry feels compelled to lend to the agricultural sector in view of its strategic significance, irrespective of the performance of agricultural loans with respect to NPL contribution but may be hesitant to go above the current level of around 3.5 percent of total loans in view of the perceived high risks attributed to this sector. The researcher observed that the NPLs contribution by the agricultural sector was in all but one instance within the study period higher than the share of loan allocation to the sector, portraying a relatively high-risk sector. Ana, Tuna, Dragan, and Velkovski (2022) singled out the agricultural sector as highly risky as deemed by financial institutions in Macedonia, with the sector recording the highest NPLs ratio, and consequently being accorded the lowest share of loan allocation.

Further analysis by the researcher of the top 3 highest NPLs contributors, namely, trade, manufacturing and real estate sectors, exposed similar findings to the agricultural sector, with all three sectors having higher NPLs contributions than share of loan allocations to the respective sectors in 2023. This shows that the performance of the agricultural sector with respect to this objective is not more adverse than the three sectors mentioned, hence the agricultural sector should not be subjected to more punitive measures in terms of stifling lending to the sector.

Gaur & Mohapatra (2019) partially corroborated this study's findings as their study revealed a higher compounded growth in the share of gross non-performing assets contributed by the priority sector (incorporating agriculture, micro and small enterprises, education and housing) than the growth in the sector's share of loan allocation. The sector's loan allocation, however, according to the scholar, was driven by a predefined target set by the regulator as a performance indicator for the banking industry, subject to regular performance appraisal, to encourage lending to these strategic sectors, hence a high NPLs

contribution did not deter growth in lending to these sectors. Osunnaiye and Alymkulova (2022) had a contrasting view that higher non-performing loans could reduce a bank's willingness to lend more.

5.2.3. Growth Rates of Sectoral NPL Values and Share of Loan Allocation

The findings with respect to this objective indicated a very strong positive linear relationship between annual growth rates of total banking industry non-performing loan values and the banking industry's loan allocation to the agricultural sector. The interpretation of this suggests that when annual growth rates of total banking industry NPLs increase, there is a very high likelihood that the banking industry will enhance the share of lending to the agricultural sector. However, the same strength of association did not apply when specifically looking at agricultural sector growth rates, as these exhibited a very weak positive linear relationship with the banking industry's loan allocation to this sector, hence implying that when there is an increase in growth rates of agricultural NPLs, the likelihood of an increase in the loan allocation to the agricultural sector is very low.

The findings are considered unusual, especially in the case where high sectoral NPL growth rates and high lending allocation to the agricultural sector have a very strong positive linear association, and in the absence of direct intervention from the regulator as was the case in Yeasmin et al. (2024), Jing (2020) and Gaur & Mohapatra (2019). It also contradicts the findings of Serrano (2021) who opined that banks recording larger declines in their non-performing loans are inclined to increase their lending to the real economy. Kibet et al. (2020) however posited that there was no correlation between growth in loan portfolio and agricultural non-performing loans. Existing research relating to this objective appears limited hence more study is required to further interrogate the findings especially given the strong association established.

5.3. Summary of Main Findings

The evaluation of the banking industry's sectoral loan performance as guided by the three specific objectives of this study revealed various findings with respect to the influence on the banking industry's share of loan allocation to the agricultural sector. The share of loan allocation to the agricultural sector by the banking industry was found to be largely

influenced by the non-performing loans ratio of both the agricultural sector as well as the consolidated sectoral non-performing loans ratio, with the latter bearing a stronger influence. The linear relationship was negative, implying that the banking industry did not hesitate to tighten lending to the agricultural sector at any sign of deterioration (increase) in the NPLs ratio, whether specifically for the agricultural sector or the consolidated banking industry NPLs ratio. This confirms that banks view the agricultural sector as highly risky and respond to negative feedback in terms of NPL ratio by subduing lending to this sector, which may not be beneficial to the economy as a whole in view of the strategic significance of this sector in terms of GDP contribution and as a gateway to elimination of hunger in line with vision 2030 and United Nations Sustainable Development Goals. In line with the performance feedback theory, the banking industry should consider responding to the negative feedback by significantly beefing up efforts and resources towards remedial action that will positively turn around the performance, in this case lowering of the NPLs.

The influence of sectoral contributions to the banking industry total NPL stock on the share loan allocation to the agricultural sector was found to be very marginal hence a higher percentage contribution to the banking industry NPLs did not affect the share of loan allocation to the agricultural sector which remained relatively stable. While there is comfort that an increase in agricultural NPLs contribution does not elicit a reduction in the loan allocation to the sector, it may appear that the banking industry has an implied ceiling on the level of its appetite for agricultural lending which hovers around 3.5 percent of total lending. For achievement of the national and global objectives on food security greater action needs to be taken towards increasing this share of loan allocation, hence rather than remaining unresponsive to feedback on an increase in agricultural sector contribution to the banking industry's NPL stock, at least up to a certain level, the banking industry could consider strategic remedial action towards moderating the sector's contribution to NPLs to make the sector less risky and hence more attractive for a higher lending allocation.

The third objective which sought to establish the influence of sectoral NPL growth rates on the share of loan allocation to the agricultural had two diverse findings. The first investigation featured the entire banking industry's NPL growth rates and found a very

strong positive linear relationship with the banking industry's loan allocation to the agricultural sector, meaning an increase in the growth rates of the banking industry's NPLs (encompassing all sectors) would highly likely be matched by an increase in the share of bank lending to the agricultural sector. On the other hand, the second investigation which only considered agricultural sector NPL growth rates found no association with the loan allocation to the agricultural sector as evidenced by the very weak positive linear relationship exhibited by the respective scatter plot and line graph. This implies an increase in NPL growth rates for the agricultural sector would not have much impact on share of loan allocation to the sector.

The first finding requires further interrogation to establish how an increase in the consolidated sectoral NPL growth rates would be matched by an increase in the loan allocation to the agricultural sector, especially where there are no regulatory targets on the loan allocation. The second finding might however suggest that the banking industry has an implicit ceiling on the lending share to the agricultural sector which is not affected by negative feedback regarding the NPL growth rates. This, however, does not propel growth in agricultural lending as evidenced by the steady level of percentage loans to this sector over the study period, hence more strategic action needs to be considered by the banking industry and indeed other stakeholders to make lending to this sector attractive.

5.4. Conclusion

Several conclusions were derived from this study. Firstly, sectoral loan performance has a strong influence on the share of loan allocation to the agricultural sector by the banking industry in Kenya where the sectoral loan performance is depicted by the non-performing loans ratio, both the agricultural sector NPL ratio and the consolidated banking industry NPL ratio incorporating all the eleven sectors as defined by the Central Bank of Kenya. Where loan performance was expressed in terms of sectoral contributions to the banking industry's total NPL stock, the study found no association with the loan allocation to the agricultural sector. Lastly, in terms of performance measured by the sectoral NPL growth rates, the study found a very strong positive linear association with agricultural sector loan allocation only where the consolidated NPL growth rates were considered, but where NPL

growth rates applied specifically to the agricultural sector, there was no influence on the agricultural sector's loan allocation by the banking industry in Kenya. Further interrogation is required to understand why high NPL growth rates might contribute to growth of the agricultural sector's share of loan allocation.

From the conclusions and considering the significance of the agricultural sector's prosperity for achievement of national and global strategic goals, it is critical for commercial banks, the Central Bank of Kenya and other key policymakers and stakeholders including development partners to join forces in addressing the identified bottlenecks especially the negative influence that sectoral NPL ratios have on the agricultural sector's loan allocation as evidenced in this study. Several recommendations have been proposed by the researcher towards this end.

5.5. Recommendations

Based on the findings of this study which evaluated the influence of sectoral loan performance on the share of loan allocation to the agricultural sector within the banking industry in Kenya, the following recommendations are proposed. Firstly, the banking industry should reconsider its response to negative feedback on the sectoral loan performance with respect to high NPL ratios and deploy all its efforts towards remedial action that will aid in restoration of the NPL ratios to the aspirational levels, as outlined by the performance feedback theory. Stifling growth in agricultural lending in response to high NPLs should be discouraged as this is counterproductive to the achievement of national and global food security goals which requires enhancement in the share of loan allocation to the agricultural sector by the banking industry. Success of this elusive goal will require strong collaboration between all stakeholders including development partners who are willing to support commercial banks to de-risk the agricultural sector through measures such as issuing guarantees to commercial banks as collateral, providing funds for on-lending or granting access to relatively cheap funding to boost lending to the agricultural sector.

A further recommendation is for the banking regulator to consider formulating a new policy that entails setting a specific target for the banking industry's share of loan allocation to the

agricultural sector as a key performance indicator for the banking industry. This will be subject to regular monitoring by the regulator and evaluation of progress made and is likely to provide more focus on growth of this critical sector which has shown little traction over the past eleven years as revealed in this study. Similar policies have been implemented in other regions like Nepal (Pokharel, 2022), India (Abhishek, Srivastava & Sailaja, 2021; Gaur & Mohapatra, 2019) and Bangladesh (Yeasmin et al., 2024), which view key sectors such as the agricultural sector as priority sectors that are vital for achievement of strategic national goals.

The second objective, which was to assess the influence of sectoral contribution to total NPLs on the share of loan allocation to the agricultural sector showed no association between the variables and hence the recommendation is to continue monitoring this parameter to see if any patterns emerge in future. Regarding the third objective, which was to determine how sectoral NPL stock growth rates influence the share of loan allocation to the agricultural sector, the recommendation is two-fold. The influence of the agricultural sector's NPL growth rate on the loan allocation showed no association and hence for now should only be monitored for any future changes. With respect to the influence of the total sectoral NPL growth rates on the agricultural sector's loan allocation, which yielded results depicting a very strong association, the researcher recommends further interrogation of this phenomenon as it is not normal practice for high NPL growth rates to contribute strongly to a high growth in loan allocation. There is also an opportunity for further study with a focus on loan allocation to the other sectors of the economy.

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Appendices

Appendix A

Data Sheet: Sectoral Non-Performing Loan Values (Stock) - Kes Millions

YEAR	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Agriculture	5,588	4,670	8,384	9,042	8,973	30,452	16,841	23,286	19,222	27,707	32,132
Building and Construction	6,185	9,722	16,243	23,872	19,230	23,692	24,386	28,492	33,731	34,531	43,191
Energy and Water	1,118	1,073	3,666	5,129	6,015	6,859	11,013	12,876	16,473	23,773	18,704
Financial Services	1,361	1,726	2,273	2,726	4,441	6,049	6,819	7,007	5,565	5,658	10,798
Manufacturing	5,580	10,215	16,773	25,300	39,540	51,791	53,894	66,626	74,647	90,884	135,168
Mining and Quarrying	482	1,117	2,471	1,099	2,439	2,478	1,988	2,993	2,468	2,883	8,476
Personal and Household	21,266	27,478	26,096	37,172	43,101	45,672	56,954	70,198	65,989	74,665	92,034
Real Estate	10,998	12,662	12,426	27,600	37,799	47,033	48,065	68,448	74,932	81,075	111,504
Tourism, Restaurant and Hotels	2,610	2,578	2,562	4,619	7,323	6,392	8,282	16,079	24,374	12,287	18,301
Trade	20,236	27,552	44,294	62,232	78,337	81,622	88,453	101,884	100,108	107,200	137,025
Transport and Communication	6,435	9,507	12,143	15,583	17,418	14,674	19,234	38,178	42,500	42,580	44,482
TOTAL	**81,859**	**108,300**	**147,331**	**214,374**	**264,616**	**316,714**	**335,929**	**436,067**	**460,009**	**503,242**	**651,814**

Note. *The data sheet was compiled by the researcher using data from the Central Bank of Kenya "Bank Supervision Annual Report" for the years 2013 to 2023 (https://www.centralbank.go.ke/reports/bank-supervision-and-banking-sector-reports/).*

Appendix B

Data Sheet: Sectoral Contributions to Total Non- Performing Loans

YEAR	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
Agriculture	6.8%	4.3%	5.7%	4.2%	3.4%	9.6%	5.0%	5.3%	4.2%	5.5%	4.9%
Building and Construction	7.6%	9.0%	11.0%	11.1%	7.3%	7.5%	7.3%	6.5%	7.3%	6.9%	6.6%
Energy and Water	1.4%	1.0%	2.5%	2.4%	2.3%	2.2%	3.3%	3.0%	3.6%	4.7%	2.9%
Financial Services	1.7%	1.6%	1.5%	1.3%	1.7%	1.9%	2.0%	1.6%	1.2%	1.1%	1.7%
Manufacturing	6.8%	9.4%	11.4%	11.8%	14.9%	16.4%	16.0%	15.3%	16.2%	18.1%	20.7%
Mining and Quarrying	0.6%	1.0%	1.7%	0.5%	0.9%	0.8%	0.6%	0.7%	0.5%	0.6%	1.3%
Personal and Household	26.0%	25.4%	17.7%	17.3%	16.3%	14.4%	17.0%	16.1%	14.3%	14.8%	14.1%
Real Estate	13.4%	11.7%	8.4%	12.9%	14.3%	14.9%	14.3%	15.7%	16.3%	16.1%	17.1%
Tourism, Restaurant and Hotels	3.2%	2.4%	1.7%	2.2%	2.8%	2.0%	2.5%	3.7%	5.3%	2.4%	2.8%
Trade	24.7%	25.4%	30.1%	29.0%	29.6%	25.8%	26.3%	23.4%	21.8%	21.3%	21.0%
Transport and Communication	7.9%	8.8%	8.2%	7.3%	6.6%	4.6%	5.7%	8.8%	9.2%	8.5%	6.8%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Note. *The data sheet was compiled by the researcher using data from the Central Bank of Kenya "Bank Supervision Annual Report" for the years 2013 to 2023 (https://www.centralbank.go.ke/reports/bank-supervision-and-banking-sector-reports/).*

Appendix C

Data Sheet: Sectoral Share of Loan Allocation- Kes. Millions

YEAR	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Agriculture	68,926	80,195	87,456	93,712	79,975	89,961	89,579	108,053	106,201	126,463	145,712
Building and Construction	72,406	84,559	100,200	93,057	87,834	102,837	108,973	117,426	121,175	144,796	167,404
Energy and Water	66,190	88,692	100,144	102,877	111,864	109,613	100,533	112,172	120,380	142,689	156,131
Financial Services	56,397	72,612	80,905	86,834	73,065	95,780	102,381	96,608	118,444	132,484	197,069
Manufacturing	204,131	236,962	266,389	266,803	272,744	323,817	352,190	416,845	466,427	530,637	633,462
Mining and Quarrying	16,322	18,783	21,860	12,297	10,696	11,987	19,456	21,902	25,760	30,980	47,959
Personal and Household	408,168	516,320	551,063	584,549	542,107	661,460	745,048	843,599	902,720	984,116	1,082,241
Real Estate	222,735	282,396	293,989	357,558	346,394	376,237	396,350	444,705	458,534	467,171	505,770
Tourism, Restaurant and Hotels	37,956	34,249	54,529	55,117	53,993	72,134	77,696	103,181	108,896	108,168	123,139
Trade	316,707	375,525	423,626	438,856	416,135	475,423	512,314	517,729	574,525	652,574	762,219
Transport and Communication	108,831	150,488	185,167	201,531	163,722	164,271	186,390	223,884	252,367	310,173	362,342
TOTAL	**1,578,769**	**1,940,781**	**2,165,328**	**2,293,191**	**2,158,529**	**2,483,520**	**2,690,910**	**3,006,104**	**3,255,429**	**3,630,251**	**4,183,447**

Note. *The data sheet was compiled by the researcher using data from the Central Bank of Kenya "Bank Supervision Annual Report" for the years 2013 to 2023 (https://www.centralbank.go.ke/reports/bank-supervision-and-banking-sector-reports/).*

Appendix D

Data Sheet: Sectoral Share of Loan Allocation- Percentage

YEAR	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Agriculture	4.4%	4.1%	4.0%	4.1%	3.7%	3.6%	3.3%	3.6%	3.3%	3.5%	3.5%
Building and Construction	4.6%	4.4%	4.6%	4.1%	4.1%	4.1%	4.0%	3.9%	3.7%	4.0%	4.0%
Energy and Water	4.2%	4.6%	4.6%	4.5%	5.2%	4.4%	3.7%	3.7%	3.7%	3.9%	3.7%
Financial Services	3.6%	3.7%	3.7%	3.8%	3.4%	3.9%	3.8%	3.2%	3.6%	3.6%	4.7%
Manufacturing	12.9%	12.2%	12.3%	11.6%	12.6%	13.0%	13.1%	13.9%	14.3%	14.6%	15.1%
Mining and Quarrying	1.0%	1.0%	1.0%	0.5%	0.5%	0.5%	0.7%	0.7%	0.8%	0.9%	1.1%
Personal and Household	25.9%	26.6%	25.5%	25.5%	25.1%	26.6%	27.7%	28.1%	27.7%	27.1%	25.9%
Real Estate	14.1%	14.6%	13.6%	15.6%	16.1%	15.1%	14.7%	14.8%	14.1%	12.9%	12.1%
Tourism, Restaurant and Hotels	2.4%	1.8%	2.5%	2.4%	2.5%	2.9%	2.9%	3.4%	3.3%	3.0%	2.9%
Trade	20.1%	19.3%	19.6%	19.1%	19.3%	19.1%	19.0%	17.2%	17.6%	18.0%	18.2%
Transport and Communication	6.9%	7.8%	8.6%	8.8%	7.6%	6.6%	6.9%	7.4%	7.8%	8.5%	8.7%
TOTAL	**100.1%**	**100.1%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Note: *The data sheet was compiled by the researcher using data from the Central Bank of Kenya "Bank Supervision Annual Report" for the years 2013 to 2023 (https://www.centralbank.go.ke/reports/bank-supervision-and-banking-sector-reports/).*

Appendix E

Data Sheet: Sectoral Non-Performing Loan Ratios

YEAR	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Agriculture	8.1%	5.8%	9.6%	9.6%	11.2%	33.9%	18.8%	21.6%	18.1%	21.9%	22.1%
Building and Construction	8.5%	11.5%	16.2%	25.7%	21.9%	23.0%	22.4%	24.3%	27.8%	23.8%	25.8%
Energy and Water	1.7%	1.2%	3.7%	5.0%	5.4%	6.3%	11.0%	11.5%	13.7%	16.7%	12.0%
Financial Services	2.4%	2.4%	2.8%	3.1%	6.1%	6.3%	6.7%	7.3%	4.7%	4.3%	5.5%
Manufacturing	2.7%	4.3%	6.3%	9.5%	14.5%	16.0%	15.3%	16.0%	16.0%	17.1%	21.3%
Mining and Quarrying	3.0%	5.9%	11.3%	8.9%	22.8%	20.7%	10.2%	13.7%	9.6%	9.3%	17.7%
Personal and Household	5.2%	5.3%	4.7%	6.4%	8.0%	6.9%	7.6%	8.3%	7.3%	7.6%	8.5%
Real Estate	4.9%	4.5%	4.2%	7.7%	10.9%	12.5%	12.1%	15.4%	16.3%	17.4%	22.0%
Tourism, Restaurant and Hotels	6.9%	7.5%	4.7%	8.4%	13.6%	8.9%	10.7%	15.6%	22.4%	11.4%	14.9%
Trade	6.4%	7.3%	10.5%	14.2%	18.8%	17.2%	17.3%	19.7%	17.4%	16.4%	18.0%
Transport and Communication	5.9%	6.3%	6.6%	7.7%	10.6%	8.9%	10.3%	17.1%	16.8%	13.7%	12.3%
TOTAL SECTORAL	**5.2%**	**5.6%**	**6.8%**	**9.3%**	**12.3%**	**12.8%**	**12.5%**	**14.5%**	**14.1%**	**13.9%**	**15.6%**

Note: *The data sheet was compiled by the researcher using data from the Central Bank of Kenya "Bank Supervision Annual Report" for the years 2013 to 2023 (https://www.centralbank.go.ke/reports/bank-supervision-and-banking-sector-reports/).*

Appendix F

Growth Rates of Sectoral Non-Performing Loan Values

YEAR		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Agriculture		-16%	80%	8%	-1%	239%	-45%	38%	-17%	44%	16%
Building and Construction		57%	67%	47%	-19%	23%	3%	17%	18%	2%	25%
Energy and Water		-4%	242%	40%	17%	14%	61%	17%	28%	44%	-21%
Financial Services		27%	32%	20%	63%	36%	13%	3%	-21%	2%	91%
Manufacturing		83%	64%	51%	56%	31%	4%	24%	12%	22%	49%
Mining and Quarrying		132%	121%	-56%	122%	2%	-20%	51%	-18%	17%	194%
Personal and Household		29%	-5%	42%	16%	6%	25%	23%	-6%	13%	23%
Real Estate		15%	-2%	122%	37%	24%	2%	42%	9%	8%	38%
Tourism, Restaurant and Hotels		-1%	-1%	80%	59%	-13%	30%	94%	52%	-50%	49%
Trade		36%	61%	40%	26%	4%	8%	15%	-2%	7%	28%
Transport and Communication		48%	28%	28%	12%	-16%	31%	98%	11%	0%	4%
SECTORAL TOTAL		**32%**	**36%**	**46%**	**23%**	**20%**	**6%**	**30%**	**5%**	**9%**	**30%**

Note: *The data sheet was compiled by the researcher using data from the Central Bank of Kenya "Bank Supervision Annual Report" for the years 2013 to 2023 (https://www.centralbank.go.ke/reports/bank-supervision-and-banking-sector-reports/).*

Appendix G

Summary of Research Gaps

Researcher	Study	Gap(s)	Current Gaps Being Addressed
Gjeçi, A., Marinč, M., & Rant, V. (2023)	Found a negative and statistically significant association between NPLs ratio and bank loan growth in this study on non-performing loans and bank lending behaviour using data from 42 countries across diverse global and geographical boundaries	Looked at the consolidated banking position which was not broken down into sectoral performance and sectoral loan allocation	Analyzed the sectoral variances to make it easier for stakeholders to appreciate and address the funding gap
Chun, S. H., & Ardaaragchaa, N. (2024)	Found a statistically significant negative association between non-performing loan ratio and total loan growth in the study on non-performing loans and bank lending behaviour in Mongolia	Looked at the consolidated banking position but did not look at sectoral performance and sectoral loan allocation	Analysed the sectoral differences to make it easier for stakeholders to appreciate and address the funding gap
Ana, S., Tuna, E., Dragan, G., & Velkovski, D. (2022).	In their study to investigate the perspective of the banking sector in the process of financing the agricultural sector in North Macedonia, with reference to credit risk, the scholars established that this sector had the highest ratio of non-performing loans and was deemed by financial institutions as highly risky and hence was allocated the lowest share of loans.	Did not consider other factors like contribution to total NPLs and sectoral growth in NPLs, Limited sectoral loan performance analysis and relationship with loan allocation, with more focus on the bank process for loan appraisal of agricultural loans. Also opined that wholesale and retail trade was the riskiest sector, but the context was not provided	Current study performed a more comprehensive analysis of sectoral loan performance to facilitate a more informed approach to the financing gap issue
Jing, E. (2020)	In exploring the relationship between non-performing loan ratio and the impact on the	Broad perspective of the consolidated banking position- did	More comprehensive analysis of sectoral

	bank's profitability and lending behaviour the researcher established agricultural credit supply tends to rise even when NPLs increase where there is intervention by the regulator, and economic performance is enhanced when efforts are made to lower or get rid of the high NPLs ratio but suffers if left unaddressed.	not look at sectoral performance and sectoral loan allocation; There was intervention by the regulator	loan performance to facilitate a more informed approach to the financing gap issue; In current study there was no regulator intervention;
Yeasmin, S., Haque, S., Adnan, K., Parvin, M., Rahman, M., Rahman, K., ... & Hossain, M. (2024).	In their study in Bangladesh on factors influencing demand for and supply of agricultural credit, the scholars opined that an increase in non-performing loans does not hinder agricultural credit supply as the government intervenes to protect farmers from crop failure and other adverse conditions	Different view on relationship between NPLs and agricultural credit but explained by government intervention. Generally looked at supply of credit and not share of loan allocation or the sectoral performance	In the current study there was no government intervention; Specifically analysed share of loan allocation to highlight the low allocation to the agricultural sector
Huljak, I., Martin, R., Moccero, D., & Pancaro, C. (2022)	In their study on whether non-performing loans matter for bank lending and the business cycle in Euro area countries, the scholars opined that high NPL ratios can affect the banking industry's financial stability and ability to lend to the economic sectors as high NPLs suppress profitability, absorb a lot of management time and lead to higher capital consumption hence less capital is available for lending, thus restricting credit growth	The study was looking at overall banking NPLs and not specific sectoral NPLs; Reviewed how high NPLs lead to reduced lending generally but didn't look at the impact in terms of share of loan allocation	Sectoral performance reviewed for holistic stakeholder appreciation and action; Specifically analysed impact on share of loan allocation to highlight the low allocation to the agricultural sector
Müller, K., & Verner, E. (2021).	This study on credit allocation and macroeconomic fluctuations touched on the sectoral	While bringing to light the aspect of sectoral performance of loans, the focus was on the	More comprehensive analysis of sectoral performance and its

	distribution of private credit, and revealed that the ratio of distressed loans (NPLs ratio) in the non-tradable sector (construction and real estate, wholesale and retail trade, and transport and communication) was approximately double that of the tradable sector which comprised agriculture, mining and manufacturing	impact of the sectoral credit allocations on macroeconomic factors.	impact on loan allocation to facilitate a more informed approach to the financing gap issue
Magoma, A. (2022).	In this study on factors influencing bank lending behaviour in Tanzania, the scholar found a statistically insignificant negative association between asset quality, as measured by non-performing loans to total loans (or NPLs ratio) and lending behaviour	Variance in results – found a statistically insignificant negative association between NPLs ratio and lending behaviour; Lending behaviour is quite general, referring to increase or decrease in lending; No sectoral focus	Found a strong negative relationship between Sectoral NPLs ratio and share of loan allocation to the agricultural sector; this facilitatess a more informed approach to the agricultural financing gap
Mulwa, F. W. (2022).	The study on lending behaviour and non-performing loans of commercial banks in Kenya found that loan growth had a statistically insignificant positive relationship with NPLs	The study looked at the general banking industry NPLs rather than sectoral performance; Generally looked at loan growth but not share of loan allocation to the agricultural sector	Specifically analysed Sectoral NPLs impact on share of loan allocation to the agricultural sector to highlight the low allocation to this sector
Gaur, D., & Mohapatra, D. (2019).	This study on non-performing assets in India established that NPL ratio for priority sector lending (agriculture included) was high at 23.3% but the share of loan allocation for	Government intervention influenced share of loan allocation to the priority sector including agriculture,	In current study there was no government intervention and share of loan allocation was

	this sector was influenced by a pre-defined lending target (40%) set by the regulator; There was also a higher compounded growth in the share of NPLs contributed by the priority sector than the growth in the share of loans advanced to this sector	micro and small enterprises, education loans and housing loans	specific to the agricultural sector to highlight the low allocation to the sector
Osunnaiye, V. & Alymkulova, N. (2022).	The study on the impact of non-performing loans on Nigerian economic growth found that higher non-performing loans could reduce a bank's willingness to lend more, and could even reduce the ability of the bank to disburse more loans to productive sectors	Study looked at total banking NPLs and not sectoral NPLs; Reviewed how high NPLs led to reduced lending generally but didn't look at the impact in terms of share of loan allocation	Sectoral performance reviewed for holistic stakeholder appreciation and action; Specifically analysed impact on share of loan allocation to highlight the low allocation to the sector
Zhen, X., Mawoko, T., & Benjamin, T. (2020).	This study on non-performing loans and their impact on lending rate in Ghana reviewed sectoral distribution of loans and major contributors of non-performing loans	The study did not review the relationship between major contributors of non-performing loans and sectoral distribution of loans	Established in the current study
Serrano, A. (2021).	This study on the impact of non-performing loans on bank lending in Europe, established that higher non-performing loans generally contribute to lower rates of growth of performing loans, and banks recording larger declines in their non-performing loans are inclined to increase their lending to the real economy	The study looked at general banking NPLs and growth rates of NPLs but not sectoral NPLs; Reviewed how high NPLs and NPL growth rates affect lending generally but didn't look at the impact in terms of share of loan allocation	Sectoral performance reviewed for holistic stakeholder appreciation and action; Specifically analysed impact on share of loan allocation to the agricultural sector to highlight the low allocation
Casabianca, E. (2020).	In this study of credit supply response to non-performing loans in Italy, the scholar posited that an unanticipated	Study looked at banking NPLs and not specifically sectoral NPLs; Reviewed how	Sectoral performance reviewed for holistic stakeholder

	surge in the NPL ratio has a negative association with credit supply for at least two years after the shock, while an unexpected buildup in the NPL ratio is linked to reduced bank lending for up to four years	high NPLs led to reduced lending generally but didn't look at the impact in terms of share of loan allocation	appreciation and action; Specifically analyzed impact on share of loan allocation to the agricultural sector to highlight the low allocation
Kibet, B., Nyaoga, R., & Kingwara, R. (2020).	This study on the effect of selected factors on non-performing agricultural loans in Kenya opined that there was no correlation between growth in loan portfolio and agricultural non-performing loans	Variance in results – found no correlation between growth in loan portfolio and agricultural NPLs ratio; Looked at growth in agricultural loans value but didn't look at the impact in terms of share of loan allocation to this sector	Found a strong negative relationship between agricultural NPLs ratio and share of loan allocation to this sector; Specific about share of loan allocation to highlight the low allocation to this sector

Appendix H

ANU Theoretical Study Authorization Letter

My study was theoretical research guided by the research questions below, and the attached data sheets authenticated my study

- How do the sectoral non-performing loan ratios influence the share of agricultural sector loan allocation within the banking industry in Kenya?
- How do the sectoral contributions to total NPLs influence the share of agricultural sector loan allocation within the banking industry in Kenya?
- How do the growth rates of sectoral NPL values influence the share of agricultural sector loan allocation within the banking industry in Kenya

My authorization letter is embedded below.

AFRICA NAZARENE
UNIVERSITY

Date: November 29, 2021

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Rachel Shivere

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RE: THEORETICAL RESEARCH AUTHORIZATION FOR: Rachel Khakayi Shivere Adm. No.: 19m03dmme034

Rachel Khakayi Shivere is a postgraduate student of Africa Nazarene University in the Master of Arts in Monitoring and Evaluation (MME) program.
To complete her program, Rachel has conducted a Theoretical Research entitled: *EVALUATION OF SECTORAL LOAN PERFORMANCE AND SHARE OF LOAN ALLOCATION TO THE AGRICULTURAL SECTOR, WITHIN THE BANKING INDUSTRY IN KENYA.*
This Consent Note authenticates *any* assistance offered to her as she collated diverse Data Sheets.