

**CREDIT SURVEY INFORMATION AND COMMERCIAL BANKS' LENDING
TO NON-FINANCIAL CORPORATE SECTOR IN KENYA**

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DECLARATION

I, the undersigned, do declare that this thesis is my original work and has not been submitted for examination or award of any other degree in any other university.

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DEDICATION

I dedicate this thesis to my parents, David and Lucy, for their love, support and guidance.

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I thank the Almighty God who has seen me to this far by enabling me to have a reason, mental soundness and good health while working on this thesis. My special gratitude also goes to the management of Kenyatta University for granting me a scholarship to pursue this course. To my supervisors, Dr. Ambrose Jagongo and Mr. Gerald Atheru, this study would not have been without your tireless effort, guidance, and advice. May you leap back in a hundred folds. I also pass my special gratitude to my family for their unconditional love, support, and prayers that has kept me going. Finally, I thank my friends who in one way or the other offered their support and prayers. God bless you all!

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OPERATIONAL DEFINITION OF TERMS

- Credit demand:** The need of enterprises and households for bank loan financing. It reflects the entire amount of loans which were either formally or informally requested at a bank, even if some loans were rejected.
- Credit standards:** The internal guidelines or loan approval criteria of a commercial bank that defines the type of a loan the bank considers desirable or undesirable, the designated sector or geographical priorities and the collateral deemed acceptable or unacceptable. These guidelines are usually established prior to the negotiation of terms and conditions of a loan.
- Non-performing loans:** Refers to a loan where the full repayment of the principal as well as the interest may no longer be expected. Typically, the principal or the interest would be in arrears for at least 90 days.
- Commercial banks' lending:** Refers to financial resources provided to the various players in the economy by the commercial banks, such as through loans, overdrafts and trade credits that establish a claim for repayment.
- Credit Survey Information:** Information relating to changes in the various loan dynamics such as credit demand, credit standards, and

NPLs among other parameters collected from senior loan officers in various commercial banks in Kenya

Non-financial corporate sector: Otherwise referred to as the non-financial private sector, the non-financial corporate sectors in Kenya comprises of 11 sectors. It is composed of all sectors of the economy excluding the loan lending/giving institutions such as commercial banks, microfinance banks, SACCOs and mortgage finance companies.

ABBREVIATIONS AND ACRONYMS

ADFT	Augmented Dickey-Fuller test
CBK	Central Bank of Kenya
EAC	East African Countries
EBLS	European Bank Lending Survey
ECB	European Central Bank
ESLS	Euro System Lending Survey
FEM	Fixed Effects Model
GDP	Gross Domestic Product
GLS	Generalised Least Squares
HAC estimators	Heteroskedasticity- and autocorrelation-consistent estimators
IMF	International Monetary Fund
KAM	Kenya Association of Manufacturers
KBA	Kenya Bankers Association
KNBS	Kenya National Bureau of Statistics
NFCS	Non-Financial Corporate Sector
NPL	Non-Performing Loans
REM	Random Effects Model
ROA	Return on Assets
SDG	Sustainable Development Goals
VEC model	Vector Error Correction model
VIF	Variance Inflation Factor
WBG	World Bank Group

ABSTRACT

While Non-Financial Corporate Sector in Kenya finances most of its investment from borrowed funds particularly from commercial banks, the growth rate of lending by commercial banks to Non-Financial Corporate Sector in Kenya has been on a significant slowdown. It has declined from 30.5 percent in 2011 to 4.3 percent in 2018. This slowdown is a concern among both the government and Non-Financial Corporate Sector on the ability of commercial banks in Kenya to fund Kenya's overall investment needs. The slump of commercial banks' lending arises from both demand-side and supply-side factors. However, a gap that has remained unexplored in literature is whether commercial banks' lending to the Non-Financial Corporate Sector is penchant to the variations in the supply of credit by the commercial banks or the changes in demand of credit partly owing to the fact that credit demand and credit supply are not directly observable variables. This study sought to assess the relationship between credit survey information and commercial banks' lending to the Non-Financial Corporate Sector. The study used information contained in credit survey reports that enabled separation of the effect of credit demand, non-performing loans and the effect of credit standards on commercial banks' lending to Non-Financial Corporate Sector in Kenya. Additionally, the study tested the moderating effect of lending to the government by commercial banks on the link between credit survey information and commercial banks' lending to the non-financial corporate sectors in Kenya. Credit rationing theory and portfolio theory underpin this study. The study used secondary data extracted from reports prepared by the Central Bank of Kenya and Kenya National Bureau of Statistics. Data was collected only after the issue of authorization letter by Kenyatta University as well as a research permit by the National Commission for Science, Technology and Innovation. The data obtained was analyzed using a random effects panel model as supported by Hausman test using gretl software. Prior to the model estimation, various diagnostic tests such as unit-root tests and normality test were conducted to avoid model mis-specification. The descriptive statistics revealed that on average, commercial banks always tightens their lending standards. However, based on the regression results, credit standards do not significantly influence commercial banks' lending to Non-Financial Corporate Sector in Kenya. In respect to credit demand, the regression results indicate that increase in the percentage of commercial banks reporting a net increase in credit demand results in an increase in the growth rate of total lending by commercial banks to the Non-Financial Corporate Sector in Kenya. The regression results further indicated that non-performing loans in respect to loans issued by commercial banks in the second immediate past quarter negatively influence the growth of commercial banks' lending to the Non-Financial Corporate Sector in the current quarter. Considering the effects of commercial banks' lending to the government, the study established that it has no moderating effect on the relationship between credit survey information and commercial banks' lending to the non-financial corporate sectors in Kenya. Based on the study's empirical results, the study recommends that the government should play a role in assisting the Non-Financial Corporate Sector in Kenya increase their credit demand from commercial banks. This should involve focusing on the factors influencing credit demand such as employment rate, public investment, and exchange rates. In addition, the study recommends that when commercial banks are lending to the Non-Financial Corporate Sector, they should focus on the repayment plan of the loan including the expected future cash flows to repay the principal amount and the interest as and when they fall due. The study further recommends that the Central Bank of Kenya adjust its credit survey to cover quantitative data. This will enable researchers conduct a more detailed study on the extent to which credit demand influence commercial banks' lending.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The financial sector is considered as the spirit of the economy (Banga, 2013). Access to funds from the commercial banks and the financial sector in general has been the dominantly used economic tool for sustainable economic growth and for the achievement of the Sustainable Development Goals (Chebet and Muriu, 2016). In developing countries, access to credit play an indispensable role in solving the puzzle of underdevelopment, poverty and unemployment (Shijaku and Kalluci, 2013). The aftermath of the global financial crisis provided salient evidence that limited access to credit serves to hinder economic recovery (World Bank, 2017).

From a theoretical point of view, commercial banks significantly influence a country's economic growth by channeling funds from depositors to productive investment (Khalid and Nadeem, 2017). In addition, by providing liquidity to depositors and investors, commercial banks assist in mitigating the challenge of premature liquidation of promising investment (Rioja and Valev, 2014).

The First Medium Term Plan (2008-2012) in Kenya observes that, to promote the development of the Non-Financial Corporate Sector (NFCS) and stabilize the economy, the financial sector in Kenya must not only be vibrant but also globally competitive to finance the overall investment needs in Kenya (Republic of Kenya, 2007). In this line, for a country's financial system to be considered as developed, domestic lending from the financial sector should be at least 70% of the GDP (Assefa, 2014).

The domestic lending by the financial services sector in Kenya as a percentage of GDP averages 32.68% from 1965 (12.02%) to 2017 (42.63%) (World Bank, 2017). Itimu and Abdul (2018) further documents that compared to its peers such as Malaysia, Mauritius and South Africa, whose lending from the financial sector to the NFCS as a percentage of the GDP is over 100%, Kenya trails its peers.

1.1.2 Credit Survey Information

On quarterly basis, since March 2012, the Central Bank of Kenya (CBK) conduct credit surveys covering supply and demand aspects of commercial bank lending conditions in Kenya (CBK, 2017). This practice is also adopted across the world including the Euro Area and the United states where they conduct Bank Lending Surveys and Senior Loan Officers Opinion Survey respectively (Filardo and Siklos, 2018). The survey requires credit officers to respond to the changes in the various loan dynamics such as credit demand, credit standards, credit recovery efforts and NPLs (CBK, 2016). The responses from all the commercial banks are then combined to have an aggregate of responses for each variable (Hempell and Sorensen, 2010).

Since the launch of the CBK's credit survey, the scope and coverage of the survey has remained largely unchanged. This feature is vital in the construction of a stable time series data from the survey information. Despite the survey being on voluntary basis, the participation rate is usually 100% (Ciccarelli, Maddaloni and Peydró, 2015). The credit survey information, although qualitative by nature, serves as the best information available on changes in demand and supply of bank loans. According to Petra, Hempell and Scopel (2016), qualitative answers in the credit survey reports are anchored on the quantitative data on the financial and macroeconomic side of the economy.

For credit demand, the related question is framed in terms of how the demand for loans has changed in the last three months, increased, unchanged or decreased (As Kurul, 2013). The indicator of credit demand is the net result which is calculated as the difference between the percentage of commercial banks reporting a rise in loan demand and those reporting a decline in loan demand (Petra, Hempell and Scopel, 2016). A positive net result indicates a net increase in loan (credit) demand from commercial banks in Kenya. For credit standards, commercial banks give their responses by choosing among three options: tightened, remained unchanged or loosened (CBK, 2017). Similar to credit demand, the indicator of credit standards is the net result which is computed as the difference between the percentage of commercial banks reporting a tightening in their credit standards and the number of commercial banks' reporting a loosening in credit standard (CBK, 2017). A positive net result indicates an overall tightening in credit standards in the commercial banking sector in Kenya. For NPLs, the responses from commercial banks indicate whether in the past quarter, the NPLs rose, remained unchanged or fell. The indicator of NPLs the difference between the percentage of commercial banks reporting a rise in NPLs and the number of commercial banks' reporting decrease in NPLs. A net positive result indicates a net increase in NPLs in the commercial banking sector in Kenya.

The above three variables were picked as the indicators of both the supply side and demand side of commercial banks' lending (Burdeau, 2015). Changes in credit demand as well as credit standards are non-observable variables and the only way to incorporate these variables in any empirical inquiry is to consider the credit survey information (Ciccarelli, Maddaloni, and Peydro, 2013).

1.1.1 Commercial Banks' Lending in Kenya

The banking sector in Kenya comprises of 7 categories of institutions as summarised in Appendix 1 of this study. Commercial banks serve as the main financier for both the NFCS as well as government's domestic borrowings in Kenya (Muthama, 2015). They mobilise deposits from individuals and organisations, both local and foreign, and use them to advance loans to the NFCS and the government (KBA, 2015).

Due to the underdevelopment of Kenya's capital market, the commercial banks serves as the dominant player in the credit market accounting for over 90% of the total lending to the NFCS in Kenya (World Bank, 2017). Further, the bank sector accounts for over 60% of the Kenya's financial sector's total assets excluding market capitalization (CBK, 2017).

1.1.1.1.Lending to the Non-Financial Corporate Sector

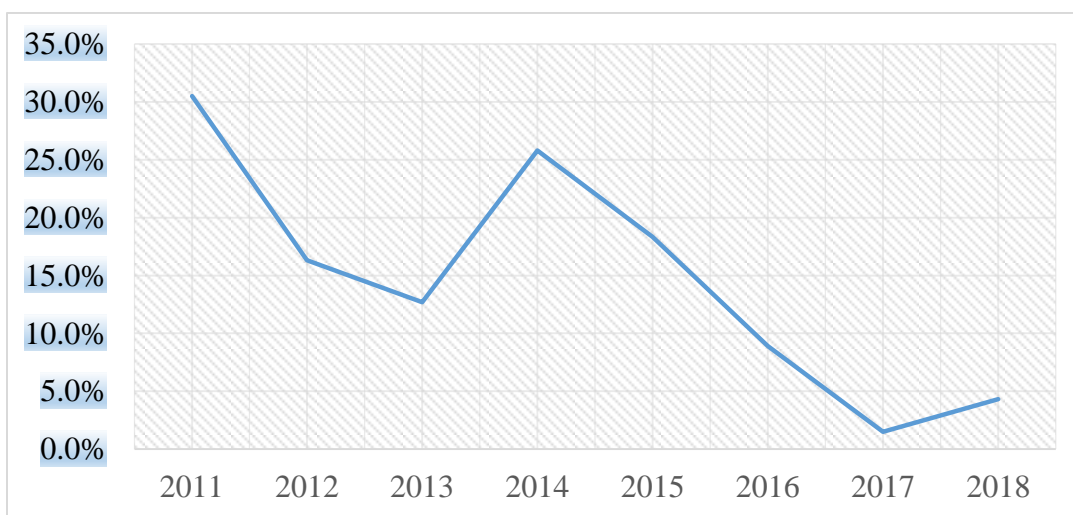
The Non-Financial Corporate Sector (NFCS) in Kenya comprises of 11 sectors as highlighted in appendix 2 of this study. Over the years, Kenya has adopted a strategy of NFCS-led growth strategy as it seeks to transform itself into an industrializing, middle-income country as envisaged in the vision 2030 blueprint (IMF, 2018).The big four agenda has further identified manufacturing as one of the four key pillars that the government will focus on in the next four years with an aim of raising the sector's contribution to GDP from the current 9% to 15%.

The NFCS finances most of its investment from borrowed funds. The increase in investments by most firms occurs in a period that also witnesses a rise in leverage implying that the sector finances most of its investments through borrowing (IMF, 2018).

The highest GDP growth rate in Kenya was experienced between 2008 and 2010 when credit by commercial banks to the NFCS was steadily increasing (Parliament Service Commission, 2019). When the credit to the NFCS dipped in 2012 GDP growth declined by 6.1%. In the following year, credit to NFCS grew again and this saw GDP rise to 5.9% (Parliament Service Commission, 2019). The CBK (2018) further observes that a 1.4% downturn in the lending to NFCS leads to a loss of 0.4% in the GDP. These observations underscore the direct link between lending to the NFCS and Kenya's economic growth.

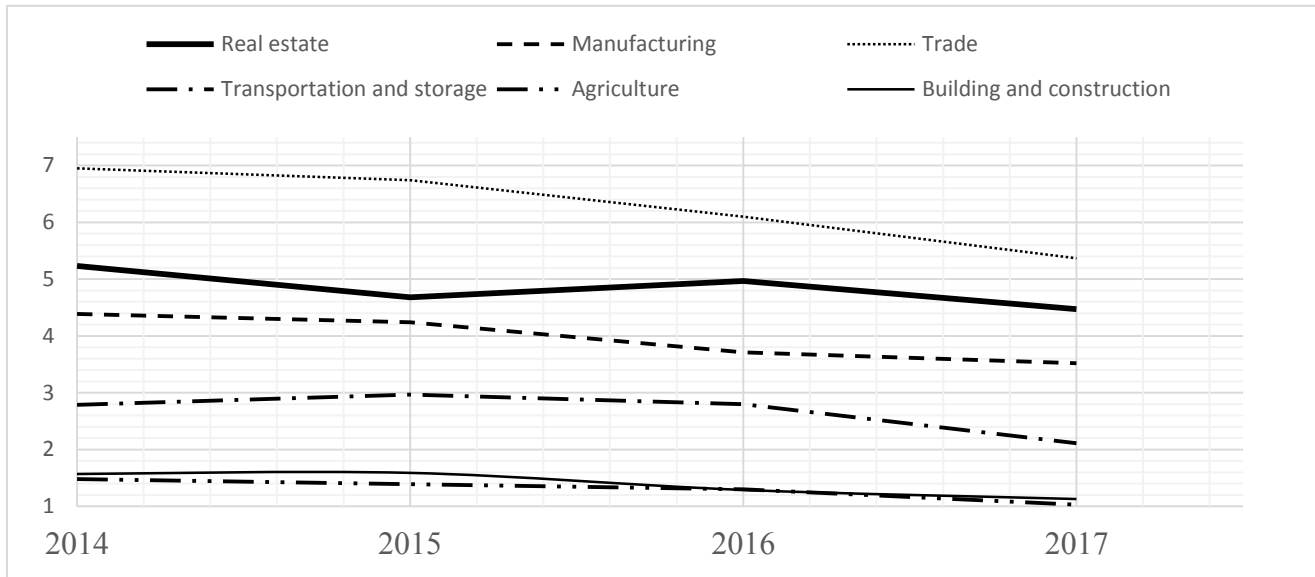
Analysis of the credit market in Kenya indicates that loans from commercial banks to the NFCS in Kenya have been on a constant slowdown. The growth rate in credit to the NFCS has declined from 30.5 percent in 2014 to 4.3 percent in 2018 as depicted (CBK, 2018). Figure 1.1 below summarises the trends in commercial banks' lending to the overall NFCS in Kenya while figure 1.2 summarises commercial banks' lending to the six largest non-financial corporate sub-sectors in Kenya.

Figure 1.1: Annual growth rate in commercial banks' lending to the Non-Financial Corporate Sector in Kenya



Source: Central Bank of Kenya

Figure 1.2: Commercial Banks' credit to various sectors in Kenya



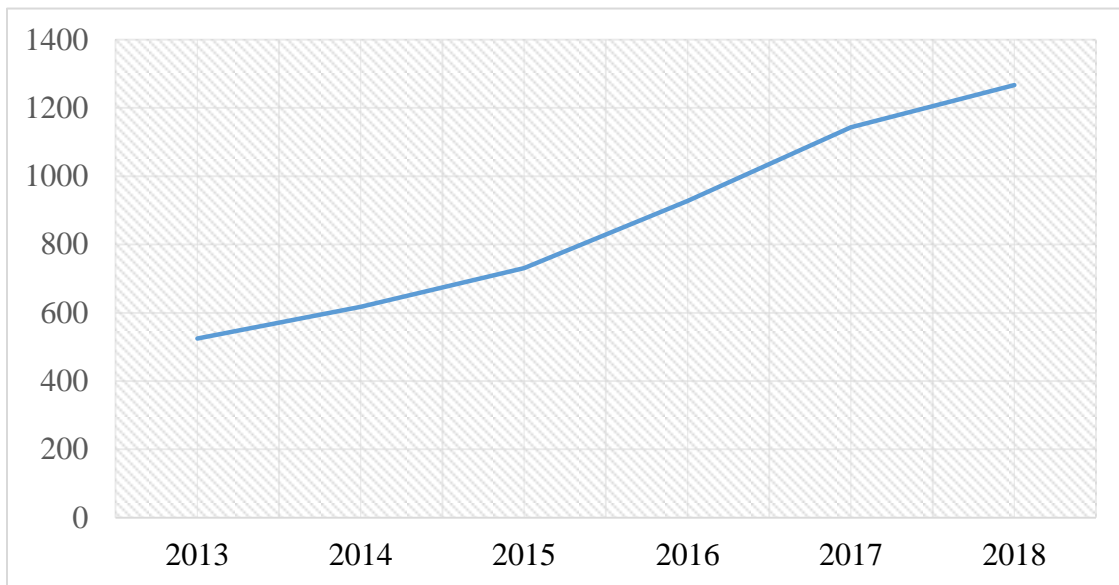
Source: CBK (2017)

The Financial Sector Stability Report (2017) observes that commercial banks' lending to NFCS began dampening in June 2012. The Quarterly Economic Review (2017) attributes the slowdown in commercial banks' lending to NFCS in Kenya to supply side factors as well as the demand side factors. Weak performance of some key sectors of the economy has reduced the credit uptake by these sectors while rise in credit risk as well as non-performing loans (NPLs) has caused majority of the commercial banks to adjust their portfolios to favor less risky assets and relocate lending to the public sector (Kashif and Nishat, 2012; WBG, 2018). Revival of growth in lending by commercial banks to the NFCS in Kenya is vital in boosting revenue mobilization so as to support fiscal consolidation (World Bank, 2017).

1.1.1.2.Lending to the government

The IMF (2018) observes that since late 2013, Kenya has experienced a shift of credit from commercial banks to the public sector as the government borrows to finance fiscal deficit. The government of Kenya uses domestic borrowing as one of the major ways to bridge the budget deficit. The domestic borrowing majorly includes loans from the CBK and commercial banks in the form of Treasury bills and bonds. As depicted in figure 1.3 below, commercial banks' lending to the government in Kenya has been increasing between 2013 and 2018.

Figure 1.3: Commercial banks' lending to the government in Kenya (Kshs "Billion")



Source: The National Treasury and Planning (2018)

Increase in domestic borrowing by the government from commercial banks has a potential adverse effect on commercial banks' lending to the NFCS (Lidiema, 2017). According to Greenwood, Hanson & Stein (2015), when the government increases its domestic borrowing, less credit would be available for lending to the NFCS. The trend

depicted in figure 1.3 above corresponds to period when commercial banks' lending to NFCS in Kenya has been on a significant slowdown as depicted in figure 1.2.

1.2 Statement of the problem

Commercial banks' lending to the NFCS have been on a significant slowdown (World Bank, 2017). The growth rate in credit to the NFCS has declined from 30.5 percent in 2011 to 4.3 percent in 2018. This slowdown is a concern among both the government and the NFCS on the ability of commercial banks in Kenya to fund Kenya's overall investment needs. The CBK (2017) observes that the decline in commercial banks loans to the NFCS is affecting investments in the NFCS and Kenya economic growth adversely. In actual terms, a 1.4% downturn in the lending to the NFCS leads to a loss of 0.4% in the GDP (CBK, 2018).

Growth rate of commercial banks' loans to NFCS sector began dampening from June 2012, save for early 2014, with the steepest slump occurring in the last quarter of 2015 onward. The government is concerned that the decline in the commercial banks' lending to the NFCS particularly the agricultural, manufacturing and services industry is hurting Kenya's economic performance by denying the NFCS the much-needed funds for expansion (World Bank, 2017). At a time when the government is increasing its effort to revive the economy, the NFCS in Kenya is being starved of credit particularly in the agricultural and manufacturing sectors.

WBG (2017) observes that the slump in commercial banks' lending to the NFCS in Kenya arises from both demand-side and supply-side factors. In this line, empirical studies in Kenya have focused on investigating the determinants of loan demand and

credit supply (Ndal, 2017). However, a gap that has remained unexplored in literature is whether commercial banks' lending to the NFCS is penchant to the variations in the supply of credit by the commercial banks or the changes in demand of credit and NPLs by the NFCS. This is partly owing to the fact that changes in these two variables are not directly observable. However, the CBK's credit survey reports provide useful information that would enable the disentangling of the separate relationship between credit standard and credit demand on commercial banks' lending.

This study, therefore, sought to estimate the relationship between credit survey information and commercial banks' lending to the NFCS. In this inquiry, the study used unique information contained in credit survey reports that enabled separation of the effect of credit demand, NPLs and the effect of credit standards on commercial banks' lending to the NFCS. This approach has been used by various researchers such as Deryugina *et al.* (2015) who applied bank-specific Bank Lending Survey results to assess credit supply and credit demand shocks in Russia.

This study expands existing literature on commercial banks' lending by including NPLs as a lagged variable. According to the CBK (2018), NPLs serve as a major indicator of credit risk for commercial banks. As such, including NPLs as a variable in any model assessing commercial banks' lending would be vital. NPLs refers to a loan where the full repayment of the principal as well as the interest may no longer be expected. Typically, the principal or the interest would be in arrears for at least 90 days. Based on this definition, the study included NPLs as a lagged variable given the fact that, it is the non-

payment of loans extended by commercial banks in the previous periods (quarters) that is likely to influence commercial banks' lending in the current period (quarter).

1.3 Research objectives

1.3.1 General objective

To assess the relationship between credit survey information and commercial banks' lending to Non-Financial Corporate Sector in Kenya.

1.3.2 Specific objectives

The study aimed at achieving the below specific objectives.

- a) To establish the relationship between credit standards and commercial banks' lending to Non-Financial Corporate Sector in Kenya.
- b) To assess the relationship between credit demand and commercial banks' lending to Non-Financial Corporate Sector in Kenya.
- c) To establish the relationship between the rate of NPLs and commercial banks' lending to Non-Financial Corporate Sector in Kenya.
- d) To determine the moderating effect of commercial banks' lending to the government on the relationship between credit survey information and commercial banks' lending to Non-Financial Corporate Sector in Kenya.

1.4 Research hypotheses

The study tested the hypotheses listed below

- i. **H₀₁**: There exist no statistically significant relationship between credit standards and commercial banks' lending to Non-Financial Corporate Sector in Kenya.

- ii. **H₀₂**: There exist no statistically significant relationship between credit demand and commercial banks' lending to Non-Financial Corporate Sector in Kenya.
- iii. **H₀₃**: There exist no statistically significant relationship between NPLs and commercial banks' lending to Non-Financial Corporate Sector in Kenya.
- iv. **H₀₄**: Commercial banks' lending to the government has no moderating effect on the relationship between credit survey information and commercial banks' lending to Non-Financial Corporate Sector in Kenya

1.5 Significance of the study

This study contributes to the existing body of knowledge on commercial banks' lending to the NFCS in Kenya in multifold ways. Using a novel and unique way to separate supply side and the demand side of commercial banks' lending, the study assessed which side among the two plays a more significant role in influencing commercial banks' lending in Kenya. By disentangling the credit supply effect and credit demand effect on NFCS credit, the study provides a salient evidence base to the policy makers on which factors to focus on to enhance commercial banks' lending to the NFCS in Kenya. If the slowdown in credit growth to the NFCS arises from low demand of credit, using the determinants of credit demand identified by prior studies in Kenya, policy makers can enhance credit demand.

As Ciccarelli *et al.* (2013) observed, from a monetary policy perspective, it's vital to understand whether developments in the aggregate loan to NFCS are driven by credit demand changes or variations in credit supply. The tool of monetary policy will be hinged on whether the aim is to influence credit demand, credit supply or both. Additionally, the results of this study will lay a strong foundation for future researches in

Kenya using the credit survey information. By linking the qualitative data (credit survey information) to actual commercial banks' lending in Kenya, the study enlarged the range of data available in Kenya to disentangle credit supply and credit demand from commercial banks in Kenya.

1.6 Scope of the study

This study considered an interesting period of 24 quarters, September 2012 – September 2018, for various reasons. In this period, the country witnessed a considerable dampening on the growth rate of commercial bank lending to the private sector (KAM, 2018). In the same line, the period from Oct 2015 onward also saw the widening of the private sector credit gap which is the difference between the targeted private sector lending allocation and the actual lending. Additionally, data on credit survey information is only available for this period thus restricting the period of the study to 2012 - 2018. However, with 24 time periods, this study period is long enough to capture the long-term trend as well as the relationship among the study variables.

1.7 Limitations of the study

The study was based on collection and analysis of panel data. Panel data involves the integration of a time series dimension and cross-sectional dimensions. There is a significant risk that the time series component of the panel data is not stationary. In consequence, this may result into a spurious regression. To resolve this limitations, the study applied the Augmented Dickey-Fuller test (ADFT) to test for unit root in each of the time series. First level differentiating was applied on the variables that were found not to be stationary.

In addition, there is a risk that in the course of collecting data on the five variables for each of the eleven economic sectors over 24 quarters could lead to measurement errors leading to mis-specification of the economic model. To resolve this limitation, a pre-designed data collection sheet with a validation technique through cross referencing was used to collect secondary data used. Two sets of data were collected by separate individuals and a data comparability analysis performed to identify any inconsistency in the data collected.

1.8 Organization of the study

This thesis is collated into five major sections. Chapter one summarises the background information, the statement of the problem, the objectives of the study, research hypothesis, significance of the study as well as the scope of the study. Chapter two discusses the theoretical models that underpin this study and past literature on the subject matter while highlighting the research gaps that exist. Chapter three explains the research design, research philosophy, study population, and data analysis method adopted in the course of this study. Chapter four presents a summary of the findings of this study while chapter five summarises the results of this study and provides policy implications as well as recommendations for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter provides an overview the theoretical models underpinning the study and an empirical review of literature on the areas covered by this study. Literature analysis and summary has been provided to reveal research gaps and the relevance of this study in addressing the research gaps.

2.2. Theoretical Review

The theories discussed below underpins this study

2.2.1. Credit Rationing Theory

The concept of credit rationing gained prominence following the pioneer work of Jaffe & Russell (1976) coupled with Stiglitz and Weiss (1981) who analyzed credit rationing by financial institutions based on asymmetric information. Keeton (1979) defined credit rationing as a condition where the economy experiences unfulfilled loan demand given a certain prevailing interest rate. The credit rationing behavior of commercial banks arises from the asymmetric expectations, between the lenders and borrowers, on the probability of repayment of the loan with the lenders being more risk-averse (Paloni 2014). The theory argues that there exists a maximum amount of loan that a particular borrower can credibly promise to repay which sets a ceiling which the lender cannot exceed when advancing loans irrespective of the interest rates.

This theory is useful in explaining commercial banks' lending behavior to the various economic sectors. As Stiglitz and Weiss (1981) observed, different categories of borrowers have different probabilities of repaying a loan and banks are unable to

correctly identify these probabilities thus unable to sort ‘good’ borrowers from ‘bad’ borrowers. In most cases, banks often use credit standards including interest rates as a screening tool (Kimutai and Ambrose, 2013). However, given the risk of moral hazards and adverse selection, high risk borrowers are often ready to take loans at high interest rates. As such, even as demand increases, banks are sometimes reluctant to increase lending (Cho, 2017).

The fundamental uncertainty about the riskiness of the borrower repaying the loan significantly affects banks willingness to extend credit to various customers. In this line, lenders accommodate all the borrowers they perceive to be less risky while rationing credit for borrowers perceived to be risky. These trends explain commercial banks’ lending behavior to the various sectors of the economy where some sectors such as professional services easily access credit while other sectors such as agriculture rarely get bank funding (Cho, 2017).

2.2.2 Agency Theory

Agency relationship encompasses the separation of the ownership and management as well as the trade-off between incentives and effective risk sharing (Islam & Bonazzi, 2007). In the credit market, commercial banks are the owners of the fund, the principal, while borrowers serve as managers of the borrowed funds. Agency theory posits that agents are often involved in activities that serve their interests at the expense of the principal’s interests thus forcing the latter to incur agency costs.

Janda (2006) observes that agency theory plays a primary role in the lender-borrower relationship through the estimation of the optimal lending contract. In this relationship, agency conflict arises when the agent borrows money from the principal to run an

investment with the promise of paying the amount borrowed plus the interest accrued from the incomes generated from the investment. The inability of the principal to effectively monitor the activities of the agents at reasonable cost presents the primary dilemma (Kapunda, 2016). As Paul and Segolame (2018) argues, the supply of credit by financial institutions is influenced by the contract that creates the appropriate incentives for both the borrowers and the lenders.

The agency conflict between borrowers and lenders serves as the major cause of NPLs and the lenders consequent unwillingness to extend more credit to borrowers who pose even less risks (Vargas and Cruz, 2018). Should the lender be convinced that borrowers will utilise the borrowed money in good faith, the demand and supply for credit would be at equilibrium. The agency theory is useful in analysing the interaction between the independent variables and particularly NPLs and commercial bank lending to the NFCS.

2.2.3 Portfolio Theory

Kazan and Uludag (2014) observes that diversification of lending based on the diverse economic sectors is vital in understanding the repayment ratio of loans as well as the credit risk in details. The portfolio theory, first published by Markowitz (1952), provides a model on how commercial banks can diversify their loans and investments. The theory endeavours to maximise a portfolio's expected returns within certain levels of risk within that portfolio.

Owing to the high credit risks that commercial banks are exposed and the rising competition which has driven the market share for various banks down, the attractiveness of lending as a source of income for commercial banks is increasingly dropping (Agbloyor and Aboagye, 2017). On this account, most commercial banks have shifted

focus to more profitable and less risky investments such as lending to the government (Mwangi and Muturi, 2016).

The volatility of a particular economic sector influences the risk of the loan extended to firms operating in that sector. As such, commercial banks apply more strict credit standards when lending funds to the more volatile sectors such as the agriculture sector (Kazan and Uludag, 2014). Additionally, commercial banks are increasingly willing to lend more to the government given the low credit risk associated with such lending. Consequently, the lending by commercial banks to the NFCS declines as the banks diversify their portfolio to the less risky sectors. This theory plays an indispensable role in explaining why banks increasingly prefer to lend to the government compared to the NFCS.

2.3 Empirical Review

This section analyses the previous literature on the areas covered by this study while highlighting the research gaps that exist in the previous studies.

2.3.1 Credit Survey Information and Commercial Banks' lending to the NFCS

For a long time, a major and crucial gap that has remained unexplored in literature is whether commercial banks' lending to the NFCS is penchant to the variations in the supply of credit by the financial firms or the changes in demand of credit by the non-financial firms (Jimenez *et al.*, 2017). Everaert *et al.* (2015) observes that while it is vital to gauge the relative impact of credit supply and credit demand due to its potential policy implications.

According to Burdeau (2015), it is challenging to observe credit supply and credit demand simultaneously given the fact that available quantitative data does not allow the separation of the two effect. However, the CBK's credit surveys convey information on variations in credit standards applied by banks when approving loans, credit demand and NPLs. The credit survey information is useful in disentangling the effect of credit supply from the effect of credit demand on commercial banks' lending to the NFCS.

2.3.2 Credit standards and Commercial Banks' lending to the NFCS

Der Veer and Hoeberichts (2013) analysed the implications of tightening of bank lending standards on loans from banks to the various economic sectors in Netherlands using micro-data contained in EBLs Reports. The authors used the survey-based measure of banks' lending standards' level. The study confirmed a long-term co-integrating relationship between credit standards and commercial bank lending to the NFCS where a one-point percentage net tightening of commercial bank standards results to a half point percentage change in commercial bank lending to the private sector. The author did not consider the effects of credit demand on loans from banks to the various economic sectors.

Del Giovane et al. (2011), assessed the linkage between credit standards and commercial banks' lending in Italy using micro-data using a sample of commercial banks that participate in the ESLs. The study established that the relationship between the cumulative level of loans from commercial banks to the private sector and credit standards is not significant. ECB (2009) conducted a similar study on the relationship between supply-side factors on banks' lending during financial crisis using a country-panel estimation approach. The study concluded that a bank's credit standards

significantly impact on the bank's lending to the NFCS. Quantitatively, the study established that a 1%-point net tightening of credit standards result in a decline of 0.1% point in corporate lending. ECB (2009) considered cost of capital as the proxy of credit standards to arrive at these results. Der Veer and Hoeberichts (2013), both Del Giovane et al. (2011) and ECB (2009) did not consider the linkage between credit demand and commercial banks' lending. Given the fact that demand and supply factors are indispensable factors in an economy, it is critical to consider both factors in any empirical study.

2.3.3 Credit demand and Commercial Banks' lending to the NFCS

Arnold, Kool and Raabe (2006) determined the sensitivity of bank lending to the NFCS to variations in demand for credit as well as monetary policy in Germany. The authors applied the dynamic panel model using quarterly data from banks' balance sheets and banks' lending from 1992-2002. The results of the study established that bank lending to the private sector predominantly responds to the changes credit demand, output growth and inflation. Additionally, the study concluded that structural and cyclical differences between the diverse sectors of the economy have a strong implication on bank credit growth. In comparison to the monetary policy, Arnold, Kool and Raabe (2006) established that credit demand has a stronger effect on bank lending. Given the fact that credit demand is a non-observable variable, use of banks' balance sheet does not provide an accurate measure of credit demand. The balance sheet contains data on loans that were actually granted by a bank without considering the loan requests that the bank declined.

Deryugina et al. (2015) applied the error-correction model and structural vector auto-regression model with sign restriction to decompose loan developments in Russia into

components associated with credit demand and credit supply. The study utilised Bank Lending Survey information and found evidence that loan growth in Russia is influenced to a great extent by credit demand compared to deviation in credit standards. Given the limitation of the scope of the study to Russia, it is vital to assess whether the findings of this study would apply to other countries.

Evaraert et al. (2015) used sample bank-level data to assess whether supply and demand for credit serves to drive credit in Central, Eastern and South-eastern Europe. The study applied the fixed effect panel model and found evidence that demand as well as supply factors significantly influences bank lending. However, following the global financial crisis, the sensitivity of credit growth to the variations in credit demand decreased. The study used real domestic demand growth, average inflation and exchange rates as the indicators of credit demand. Given the fact that credit demand is a non-observable variable, the indicators of credit demand applied by Evaraert et al. (2015) might not provide an accurate measure of the rate of credit demand in a country.

2.3.4 Non-Performing Loans and Commercial Banks' lending to the NFCS

Cucinelli (2015) analysed the impact of NPL on lending decisions for banks during financial crisis in Italy using data from 488 banks from 2007-2013. With a fixed effect model, the study found out that a unit increase in NPLs led to a 0.21 unit decrease in bank lending behaviour as indicated by the growth in the loan rate for each year. The study concluded that credit risk serves as the major determinant of the lending behaviour by commercial banks. The scope of the study was limited to Italy, a developed country. A study to assess whether the findings obtained by Cucinelli (2015) applies to developing countries like Kenya would be useful in arriving at more conclusive findings.

Eksi and Amir (2018) extended the above study and assessed the relationship between NPL and credit growth in Bosnia & Herzegovina, Croatia and Serbia using multiple regression analysis. The study used quarterly data from 2007Q1 to 2017Q2 for NPLs, credit growth, growth in deposits and GDP. For each of the four countries observed, the study established a reverse relationship between NPLs and credit growth. While the overall level of NPLs generally reflect the tendency of banks in taking risks in a negative way, it influences their future lending mainly by reducing profitability of the banks as well as increasing systematic risk. The study further indicated that economic growth follows credit growth owing to the stagnation of the real sector.

Similar to Eksi and Amir (2018), Accornero et al. (2017) explored the implications of NPLs on banks' loans to the NFCS. Using time-varying fixed effect as the control for the shift in changes in borrower characteristics and shift in demands, the authors employed an extensive dataset on the level of loans by borrowers in Italy between 2008 and 2015. The authors concluded that while the exogenous emergence of new NPL as well as higher loan loss provisions serve to influence credit supply negatively, there's no a significant impact of NPL ratios *per se* on credit supply. The reason behind this trend is the fact that banks often channel the impact of NPLs shocks by reducing their profitability as a result of high loan loss provisions. As such, by liquidating their non-performing loans at prices below their face value, a bank weakens its ability to supply credit.

2.3.5 Commercial Bank lending to the public sector and NFCS

Using VAR empirical model, Shetta and Kamaly (2014) examined the role of budget deficit in crowding-out private credit in Egypt. The study used quarterly data from IFS online databases maintained by the IMF for 40 years and found empirical evidence that as

the government issues more debt instruments, commercial banks shifts their lending away from the risky private sector. Consequently, the overall lending to private sector shrinks. This trend affects private investment adversely and ultimately the private sector's growth potential is adversely affected.

Zaheer, Khaliq and Rafiq (2017) analysed the impact banks' lending to the government on loans lent to the private sector using monthly data for 17 years, 1998-2015. The results of the study established that increase in government borrowing by 1%-point leads to decline on private sector credit by 8 basis points. Even after introducing interest rate corridor in 2009 to boost credit flow to the private sector, the result remained unchanged. These results are similar to a similar study by Majali (2018) who applied the VEC Model in analysing the implication of internal public borrowing on credit by commercial banks to the private sector in Jordan. The authors found evidence that local borrowing by the government leads to more than one-on-one crowding of private sector credit to include the preference by commercial banks to invest in low-risk high-return investments.

In Kenya, different researchers have conducted various studies on the implications of domestic borrowing by the government on credit to the private sector and investment by the NFCS in general. Makambi, Muhundi and Nduku (2017) analysed the nexus between government local borrowings in the current fiscal deficit environment in Kenya and banks' lending to the private sector. The study established that as interest from loans to the government takes a larger share of commercial banks' income, credit to the private sector is bound to decline.

Mwakima (2017) analysed the implications of domestic borrowing by the government on private credit levels in Kenya over a period of eight years, 2008-2016. The study

considered Treasury bill, Treasury bond and central bank overdraft as the predictor variables with private sector credit levels being the dependent variable. The authors established a negative co-integrating linkage between independent and dependent variables. The results of this study confirmed the empirical evidence from a study by Sumbi (2016) who investigated the implications of public debt on interest rates using Barro-Ricardo Equivalence Theorem and crowding-out effects theory. Sumbi (2016) established that public debt serves as a major determinant of the interest rates charged by commercial banks for loans. In the event that the interest rate is controlled, public debt has a negative relationship on credit to the NFCS

2.3.7 Summary of the research gaps

Table 2.1: Summary of research gaps

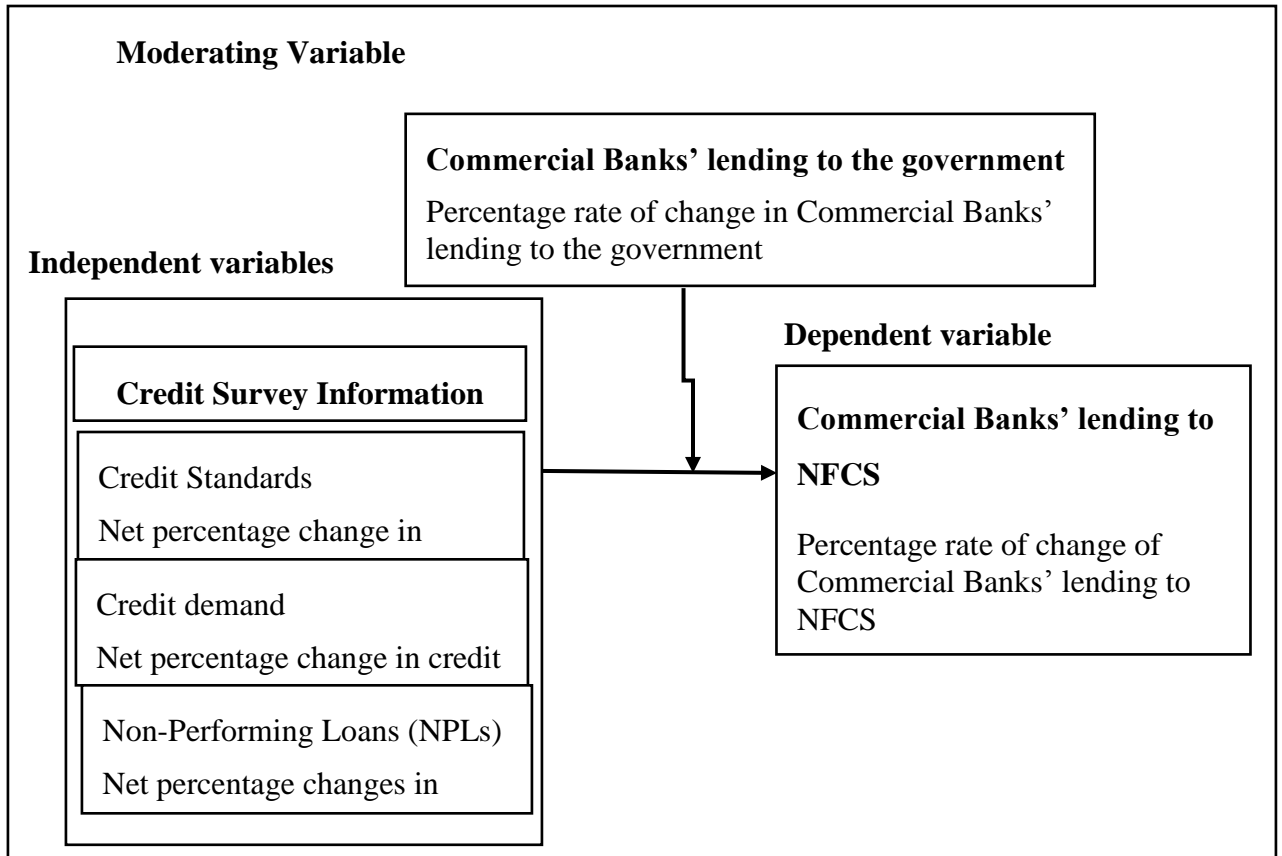
Author (s)	Area of focus	Findings	Research gap and focus of this study
Makambi, Muhindi, and Nduku (2017)	The linkage between government's domestic borrowings & private sector credit in Kenya.	Local borrowing by the government negatively impacts on the credit to the private sector.	Rather than using annual aggregate data, quarterly data based on credit survey information was used in this study.
Mitai (2017)	Implications of NPLs on the performance (ROA) of banks in Kenya.	As NPLs rises, banks' ROA tend to decline.	The authors focused on listed banks. However, this study covered lending from all commercial banks in Kenya.
Mukhanyi (2016)	Influencing factors for lending behavior of commercial banks in Kenya.	Bank capitalization, volume of deposit, and interest spread enhances a bank's lending ability.	The study focused on three sides of commercial banks' lending; the lenders side, borrowers' side and the government side

Cucinelli (2015)	Impact of NPL on aggregate bank lending behaviour in Italy.	There's a negative relationship between NPL & bank lending behaviour.	The focus of this study was quarterly data and decomposition of banks' lending behaviour to various sectors in Kenya.
Deryugina <i>et al.</i> (2015)	Loan development in Russia, credit demand & credit supply.	Credit standards affect loan growth more than credit demand.	This study sought to investigate whether the finding of Deryugina's study apply to Kenya.
Evaraert <i>et al.</i> (2015)	Does supply and demand for credit serves to drive credit growth?	Banks often respond to supply as well as demand factors when making lending decisions.	While the author used real domestic demand growth, exchange rates as well as inflation as the indicators of credit demand, this study used credit survey information.
James (2015)	Determining factors of commercial banks' lending to Uganda's private sector (1997-2013).	Domestic deposits, foreign liabilities & real GDP influences credit to the private sector.	The study analysed the link between credit survey information and Commercial Banks' lending to the NFCS in Kenya.
Der Veer & Hoerberichts (2013)	Implications of tightening of lending standards on credit growth in Netherlands.	There's a long-term negative co-integrating relationship between credit standards and commercial bank lending to the NFCS.	The study used intuitive survey-based measure of lending standards. However, this study used credit standards' data contained in credit survey reports.
Del Giovane <i>et al.</i> (2011)	Credit standards and commercial banks' lending in Italy.	No relationship between credit standards and commercial banks' lending.	The authors focused on a sample of banks in Italy while the focus of this study was all commercial banks in Kenya.
Arnold, Kool & Raabe (2006)	Sensitivity of bank lending to variations in credit demand & monetary policy in Germany.	Growth in bank lending responds to changes in credit demand, output and inflation.	In departure from the study's focus on manufacturing sector only from 1992-2002, this study focused on different sectors of the economy in Kenya from 2012-2018.
Shetta and Kamaly (2014).	Budget deficit & private credit in Egypt.	Lending to the private sector shrinks as government domestic borrowing grows.	Unlike the study which VAR model, a panel model was used for this study

2.4 Conceptual framework

The study will adopt the conceptual framework in fig 2.1 to demonstrate the relationship among variables considered in this study.

Figure 2.1: Conceptual framework depicting the relationship between credit survey information and commercial banks' lending to NFCS



Source: Author (2021)

Figure 2.1 displays the conceptual framework highlighting the linkage/relationship between the predictor variables, moderating variables and the control variables. The study will use three sets of independent variable (credit demand, credit standards and NPL), commercial bank's lending to the government as the moderating variable and one dependent variable (Commercial banks' lending to NFCS in Kenya).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research design applied in the study, research philosophy, data collection instruments, data collection procedure, empirical model, approach to data analysis and the study's ethical considerations.

3.2 Research philosophy

Saunders and Bezzina (2015) defined a research philosophy as the researcher's conviction on how the data relating to a phenomenon should be gathered and analyzed. The study adopted a positivism research philosophy. Positivists are distinguished by their conviction that whatever that exist can be proved through experiment and logical proofs (Hatch & Cunliffe, 2006). The researcher's focus rests on facts gathered and analyzed empirically through quantitative methods and statistical analysis. This philosophy served as the most plausible paradigm for this study since the data that was used in this study is measurable, quantifiable, and can be described from an objective point of view with the researcher having no influence on the variables (Saunders *et al.*, 2015). Besides, this study involved quantifiable statistical analyses through testing of hypothesis developed from the existing theories on commercial banks' lending.

3.3 Research design

To Cooper & Schindler (2008), a research design is a researcher's blueprint during collection, measurement, and analysis of data for a study. This study adopted a causal research design. Morgan (2015) propounds that a causal research design is focused on establishing the trends that the variables depict, effects that are evident, practices that are

held, as well as the links and conditions that exist. This design served as the most appropriate research design for this study as it sought to establish the relationship between credit survey information and commercial banks' Lending to NFCS in Kenya.

3.4 Operationalization and measurement of variables

Table 3.1 summarises how the variables in this study were operationalised and how they were measured for purposes of testing the relationship between the variables in this study.

Table 3.1: Operationalization and measurement of variables

Category of variable	Variable	Operationalization	Measurement	Scale of measurement
Independent (predictor) variables	Credit survey information	Credit standards	Net percentages changes in credit standards	Ratio
		Credit demand	Net percentages changes in credit demand	Ratio
		Lagged value of NPLs	Net percentages change in NPLs.	Ratio
Dependent variable	Commercial Bank Lending to NFCS	Percentage change	Percentage change in the rate of commercial banks' lending to the NFCS	Ratio
Moderating variable	Commercial Banks' lending to the public sector	Percentage change	Percentage change in the rate of commercial banks' lending to the government.	Ratio

Source: Author 2021

3.5 Target Population

According to Majid (2018), a target population serves as the population of interest that the researcher intends to study. It is from the target population that the researcher draws a

suitable sample for the study. The target population for this study encompassed all the 11 sub-sectors of the NFCS in Kenya. All the eleven sub-sectors were considered in the study.

3.6 Data source and type

The study focused on secondary quarterly data obtained from quarterly credit survey reports and quarterly economic reviews by the CBK and KNBS from September 2012 to September 2018. A major advantage of using secondary data in this study rests on the fact that it is the only way to capture past change or past developments. Besides, Rengasamy (2017) opines that secondary data provide large databases of a high quality which would have otherwise been unfeasible for a researcher to collect on their own. Moreover, in most cases, the degree of validity and reliability in secondary data is often pre-established thus necessitating no re-examination of the same by the researcher (Rengasamy, 2017).

3.6.1 Data collection instrument

Data collection sheets attached in appendix 3 (a) and 3 (b) of this study were used to collect quarterly data on credit demand, credit standards, NPLs, commercial banks' lending to the NFCS and commercial banks' lending to the government from 2012 to 2018.

3.6.2 Data collection procedure

The secondary data for this study encompassed data contained in credit survey reports and economic reviews conducted by the CBK and the KNBS. This data is available in electronic forms in reports by the CBK and KNBS. All the reports containing the data

were downloaded from the CBK website and the necessary data for this study extracted. A data collection sheet was filled for all the variables.

3.7 Data analysis and presentation

The study applied random effects panel data regression technique as supported by Hausman test using Generalized Least Squares (GLS). As Mukhanyi (2016) notes, panel data analysis is superior to time series data models as well as cross-sectional data models. The techniques are attributed with more degree of freedom and less multicollinearity. On this account the estimates are more efficient. The Gretl software was used for data analysis.

3.8 Analytical model

For the purpose of testing the relationship between credit survey information and commercial banks’ lending to NFCS in Kenya, this study adapted the the panel estimation framework applied by Deryugina et al. (2015). Banks’ lending to the government as well as NPL as a lagged variable was added to the model. The reason behind the inclusion of NPL as lagged variable rests on the fact that a loan is declared as non-performing after the interest and principal has been in arrears for six to nine months. As such, it is the level of NPL of the previous periods (quarters) that is likely to influence banks’ lending decision for the current period.

$$Y_{it} = \beta_0 + \beta_2 CS_{it} + \beta_1 CD_{it} + \beta_3 NPL_{it-1} + \varepsilon \dots\dots\dots \text{Equation 3.1}$$

Where: Y_{it} represents Commercial Banks’ lending to the NFCS;

β represents the coefficients of the independent variables;

CS_{it} represents the net percentage changes in credit standards;

CD_{it} represents the net percentage change in credit demand;

NPL_{it-1} represents net percentage change in non-performing loans;

ε represents the random error;

i represents a particular economic sector; and

t represents the period.

3.8.1 Moderating effects model

The study used the moderating effects model proposed by Hayes’s model 1 (Amanda and David, 2010) summarised below in equation 3.2.

Y_{it} = β₀ + β₁X_{it} + β₂GD_{it} + β₃X_{it}GD_{it} + εEquation 3.2

Where: **GD_{it}** represents commercial banks’ lending to the government.

β₂ estimates the simple effect of **GD_{it}** when **X_{it}** is zero while β₃ estimates the interaction effect between **X_{it}** and **GD_{it}**.

A moderating variable is said to have a moderating effect on the relationship between the predictor and the dependent variable when β₃ is statistically significant. The second step was to estimate whether government borrowing enhances or crowds out borrowing by NFCS. When β₃ is statistically significant and negative, it serves as an indication that government borrowing crowds out commercial banks’ lending to NFCS. On the other hand, if β₃ is statistically significant and positive, then this is an indication that government borrowing enhances commercial banks’ lending to the NFCS.

To test the moderating effect of commercial bank lending to the government on the relationship credit survey information (CS, CD and NPL) and commercial banks' lending to the NFCS the model summarised in equation 3.3 was used.

$$Y_{it} = \beta_0 + \beta_2 CS_{it} + \beta_1 CD_{it} + \beta_3 NPL_{it-1} + \varepsilon + \beta_4 GD_{it} + \beta_5 CS_{it} * GD_{it} + \beta_6 CD_{it} * GD_{it} + \beta_7 NPL_{it-1} * GD_{it} \dots \dots \dots \text{Equation 3.3}$$

3.9 Diagnostic tests

Prior to model estimation, several diagnostic tests were applied to mitigate the risk of model mis-specification in regression analysis as well as the violation of OLS assumptions.

3.9.1 Normality tests

A major assumption in all regression models is normality. That is, the data follows a normal distribution. Before performing the statistical analysis for credit survey information and commercial banks' lending to the NFCS, skewness statistics was determined. The statistic considers the extent to which a distribution of the values used in a study deviates from symmetry around a mean (Luo *et al.*, 2018).

3.9.2 Multicollinearity Test

Multicollinearity is a condition where two explanatory variables are highly related to each other. To test for multicollinearity, variance inflation factors (VIF) was used.

3.9.3 Test for cross-sectional dependence/contemporaneous correlation

Cross-sectional dependence is applied in testing whether the residuals are correlated across entities which might lead to bias in the estimated results. Given the fact that the

panel data model used in this study is a micro panel, cross-sectional dependence raises no serious concerns. Nonetheless, Pesaran CD test of independence was used to test to cross-sectional independence.

3.9.4 Unit-Root Test (Stationarity test)

Prior to applying any econometric estimation method, it is necessary to render variables stationary so as to avoid any spurious regression given the fact that majority of the macroeconomic variables often with a univariate time-series have a unit root (Perron, 2017). The study used the Augmented Dickey-Fuller test (ADFT) to test for unit root in each of the time series. In this test, $\rho = 1$ indicates a unit root while $0 < \rho < 1$ indicates stationarity.

3.9.5 Hausman Test

Hausman test serves as the dominantly used method by researchers in deciding whether to use the FEM or the REM. Given the fact that the model used in the study was panel data model, the specification of the model plays an indispensable role in obtaining consistent results (Sheytanova, 2014). REM is preferred under the null hypothesis since it is consistent and efficient (Whisman and McClelland, 2005)..

3.10 Research ethical consideration

As Tripathy (2013) observes, while secondary data may is often available on the internet and public forums, which means further analysis and use of the data is implied, the researcher must acknowledge the proper ownership of the data. In this line, all information sources used for this study were acknowledged. Besides, data was collected

only after the issue of authorization letter by Kenyatta University as well as a research permit by the National Commission for Science, Technology and Innovation. Save for the data used for this study, no other data was collected under the authorization letter issued.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

The chapter presents a summary of the findings as well as the interpretation of the results of this study. The findings have been presented majorly in the form of tables and figures.

4.2 Descriptive statistics and inferential statistics

The descriptive statistics presented in this section aimed at ascertaining the nature of the data used. The mean was relied on as the most relevant statistic as it is more stable and robust compared to the other measures of central dispersion (Mungami, 2013). The results of this descriptive analysis of the study are as presented in table 4.1.

Table 4.1: Descriptive statistics of the study

	Mean	Median	Minimum	Maximum	Std. Dev
Credit demand	13.47	15.00	-42.00	61.00	20.98
Credit standards	19.52	20.00	-26.00	63.00	18.37
NPLs	-0.30	-2.00	-48.00	53.00	19.40
Lending to sector growth rate	2.57	2.56	-31.78	38.85	7.19
Lending to government growth rate	2.64	3.74	-49.23	65.67	21.10

Source: Author (2021)

Net credit demand had a mean of 13.47% and a median of 15.00%. This meant that, on average, 13.47% of the commercial banks in Kenya reported a net increase in demand for loans in each quarter during the study period. This further implies that on average, that credit demand by the NFCS in Kenya is always increasing. At the extremes, the highest

number of commercial banks that reported a decrease in the net credit demand during the period of the study were 42% while the highest number of commercial banks that reported increase in net credit demand over the study period were 61.00%. This implies that credit demand tend to increase at a higher rate than the rate at which it declines.

On average, during the study period, there was a net tightening of credit standards from 19.52% of commercial banks while the rest maintained constant credit standards. At the extreme, the highest number of commercial banks that reported a loosening of credit standards during the study period were 26% while the highest number of commercial banks that reported a tightening of credit standard were 63%. This indicates that commercial banks tighten their credit standards at a higher rate than the rate they loosen the credit standards. Coupling this indicator with the above results for credit demand, it indicates that, in general, the demand for loans from commercial banks is always increasing while commercial banks always tighten their credit standards.

The mean for NPLs was -0.3%. This figure indicates that, on average, 0.3% of the commercial banks reported a net decrease in NPLs. On average, quarterly growth rate of commercial banks' lending to the NFCS and the government during the study period was 2.57% and 2.64% respectively. This implies that commercial banks' lending to the government grows at a slightly higher rate than the lending to the NFCS. The highest growth rate of commercial banks' lending to the NFCS and the government was 38.85% and 65.67% respectively while the highest decline rate for commercial banks' lending to the NFCS and the government was -31.78% and -49.23% respectively. This indicates that commercial banks' lending is likely to increase at a faster rate than the rate at which they decline.

4.3. Diagnostic tests

4.3.1. Unit root test

The study employed the ADF test to assess whether the data used for the study is stationary. Table 4.2 summarises the ADF results test for each variable used in the study.

Table 4.2: Stationarity test results for the study variables

Variable	ADF Statistic		
	Inverse chi-square(18)	Inverse normal test	Logit test: t (49)
Credit demand	98.9072 [0.0000]	-7.36336 [0.0000]	-9.2109 [0.0000]
Credit standards	20.2623 [0.3182]	-1.19071 [0.1169]	-1.10645 [0.1370]
NPLs	55.8794 [0.0000]	-4.9239 [0.0000]	-5.12028 [0.0000]
Lending to sector growth rate	89.2326 [0.0000]	-6.9759 [0.0000]	-8.31656 [0.0000]
Lending to government growth rate	201.008 [0.0000]	-12.561 [0.0000]	-18.8591 [0.0000]

Source: Author (2021)

The ADF test results presented in table 4.2 above indicate that the probability value in each of the three indicators of stationarity for all the variables save for credit standards was below 0.05. Consequently, the study rejected the null hypothesis and concluded that all the variables apart from credit standards do not have a unit root and thus are stationary. For credit standards, since the p-value in each of the three indicators is above the significance level of 0.05, the study concluded that credit standard data has a unit root. A first-level differentiating was conducted on the credit standards data and the ADF test re-applied on the new set of values. The results of this second test is as presented in table 4.3

Table 4.3: Stationarity test results for credit standards (first-level differentiating)

	ADF statistic	Prob
Inverse chi-square(18)	188.305	[0.0000]
Inverse normal test	-11.9196	[0.0000]
Logit test: t (49)	-17.667	[0.0000]

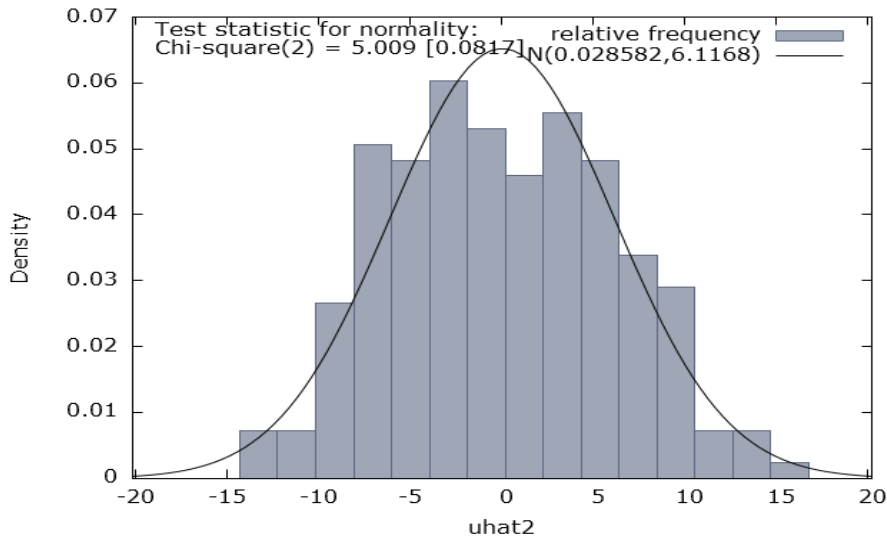
Source: Author (2021)

As per the results in table 4.3 above, the probability value for each of the three indicators was 0.00 which falls below the significance level of 0.05. In this line, the null hypothesis was rejected and the study concluded that first-level differentiating on credit standards is stationary.

4.3.2 Normality test

The study sought to test the normality of the data used using the Jarque-Bera (JB) test. The results of the test are shown in figure 4.1

Figure 4: Normality test results



Source: Author (2021)

JB test's null hypothesis is that the data is normally distributed. The p-value obtained from this test was 0.0817 which falls above the significance level of 0.05. As such, the study failed to reject the null hypothesis and concluded that the normality assumption for the data is not violated.

4.3.3 Multicollinearity

The study employed the VIF test for normality as presented in table 4.4 below.

Table 4.4: Multicollinearity test results

Variance Inflation Factors	
Minimum possible value = 1.0	
Credit Demand	1.003
d-Credit Standards	1.095
NPLs	1.098

Source: Author (2021)

Based on the above results, all the independent variables had a VIF of approximately 1.0 which indicates no severe collinearity in the data.

4.3.4 Cross-sectional dependence test

Pesaran CD test was used to test for cross-sectional dependence. In this test, the null hypothesis is that the cross sections are independent of each other (Rafael and Vasilis, 2006). Table 4.5 summarises the results of this test

Table 4.5: Cross-sectional dependence test results

Test statistic: $z = 1.941115$, with p-value = $P(z > 1.94112) = 0.0512$
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Source: Author (2021)

Based on the results presented in table 4.5 above, the study failed to reject the null hypothesis and concluded that the cross sections are independent of each other.

4.3.5 Hausman Test

The study applied the Hausman specification test in selecting between the fixed-effects model and the random-effects model. The results of the test are presented in table 4.6 below.

Table 4.6: Hausman Test Results

Hausman test
Asymptotic test statistic: Chi-square(3) = 0.836882, with p-value = 0.8406

Source: Author (2021)

As per the results in table 4.6, the probability value of the Chi-square test statistics was 0.8406 which is higher than the significance level of 0.05. On this account, the study failed to reject the null hypothesis and concluded that the REM is the best model for this study.

4.4 Regression results of the REM

Table 4.7 summarises the regression results obtained after running the GLS using REM.

Table 4.7: GLS Regression results using the random-effects model

Model 2: Random-effects (GLS), using 200 observations				
Included 10 cross-sectional units				
Time-series length = 20				
Dependent variable: Credit to sector growth rate				
Robust (HAC) standard errors				
	coefficient	std. error	z	p-value
const	1.2491	0.5407	2.310	0.0209 **
d_Credit standards	0.0163	0.0629	0.2593	0.7954
Credit demand	0.0875	0.0262	3.3380	0.0008 ***
NPLs_1	0.0075	0.0219	0.3413	0.7329
NPLs_2	-0.0571	0.0163	-3.5060	0.0005 ***

Source: Author (2021)

The above results can be summarised in the equation below

$$\text{Commercial Banks' Lending to NFCS} = 1.2491 + 0.0163 \text{ credit standards} + 0.0875 \text{ credit demand} - 0.0571 \text{ NPLs} \dots \dots \dots \text{Equation 4.1}$$

4.8.1 Relationship between credit standards and commercial banks' lending to the NFCS

The results presented in table 4.7 show a positive relationship between credit standards and commercial banks' lending to the NFCS. However, the relationship is not statistically significant since the p-value of 0.7954 was higher than the significance value of 0.05.

Consequently, the study concluded that credit standards have no statistically significant relationship with commercial banks' lending to the NFCS. Using the wald test statistic, the study assessed the significance of credit standards as a variable in the model. Where

the variable is not significant, it can be removed from the model without affecting it in a meaningful way. Table 4.8 shows a summary of the wald test results

Table 4.8: Wald-test results

Test on Model 1:

Null hypothesis: the regression parameter is zero for d_Credit Standards

Test statistic: Robust $F(1, 185) = 0.0672514$, p-value 0.79567

Source: Author (2021)

Based on the above results, the study concluded that credit standard is not a significant variable in the model. These results confirms the results obtained by Del Giovane et al. (2011) who found no evidence of a statistically significant relationship between credit standards and banks' lending in Italy. However, the above results are contrary to the results of a study by Deryugina *et al.*, (2015).

4.8.2 Relationship between credit demand and commercial banks' lending to the NFCS

The regression result shows a beta coefficient of 0.0875 for credit demand. This implies that a unit change in the percentage of commercial banks reporting a net increase in credit demand results in a 0.0875 percentage change in the growth rate of total lending by commercial banks to the NFCS. This relationship was found to be statistically significant given the fact that the p-value for credit demand was 0.0008 which was lower than the significance level of 0.05. On this account, the study concluded that there is a statistically significant positive relationship between credit demand and commercial banks' lending to NFCS. These results are similar to those obtained by Evaraert *et al.* (2015) as well as Deryugina et al. (2015) whose studies concluded that credit demand factors significantly influences bank lending.

The descriptive statistics on credit demand indicate that, on average, 13.47% of the commercial banks in Kenya reported a net increase in demand for loans in each quarter. It would be expected that, with the increase in credit demand reported by commercial banks in Kenya coupled with the regression results above, commercial banks' lending to the NFCS should be increasing. However, as depicted in figure 1.2, the growth rate in credit to the NFCS has declined from 30.5 percent in 2014 to 4.3 percent in 2018 (CBK, 2018). These statistics indicates that, save for credit demand, there are other factors that influence commercial banks' lending to the NFCS. In addition, there may be other aspects of credit demand such as quantity of the loans issued by different commercial banks that are not reflected in the credit survey information which play a key role in influencing the overall growth rate of commercial banks' lending to the NFCS

4.8.3 Relationship between NPLs and commercial banks' lending to the NFCS

The regression result shows a beta coefficient of 0.0075 for NPLs-1. This implies that a unit change in the number of commercial banks reporting a net increase in NPLs for loans issued in the past quarter results in an increase of lending by commercial banks' lending to the NFCS in the succeeding quarter by 0.0075 percentage points. This relationship was found not to be statistically significant given the fact that the p-value associated with the beta coefficient was 0.7329 which was above the significance level of 0.05. However, when the value of NPLs for the immediate second past quarter is considered, the effect of NPLs on commercial banks' lending to the NFCS becomes statistically significant with a p-value of 0.0005 and a beta coefficient of -0.0571. This implies that a unit increase in the percentage of commercial banks reporting a net increase in NPLs for loans issued in the immediate second past quarter results in a

decline in lending by 0.0571 percentage points. Based on these results, the study concluded that there exists a statistically significant relationship between NPLs and Commercial Banks' lending to the NFCS. These results confirm the results obtained by Eksi and Amir (2018) of a reverse relationship between NPLs and credit growth. However, the results contradicts the results obtained by Accornero *et al.* (2017) who established that while the exogenous emergence of new NPL as well as higher loan loss provisions serve to influence credit supply negatively, there's no a significant impact of NPL ratios *per se* on credit supply.

Based on the descriptive statistics, on average, there is a general decline in NPLs reported by commercial banks in Kenya. This decline should result in an increase in lending to the NFCS as established by the regression results. However, this was not the case during the study period as depicted in figure 1.2. While the net decrease in NPLs reported by commercial banks is marginal, it would be expected that a combination of the descriptive statistics and the regression results would be in harmony with the actual trend in the market. As such, the study explored reasons that might have led to this disharmony. Other credit risk factors such as credit adequacy ratios have a direct relationship with commercial banks' lending (Grace, 2012). As such, it would be expected that even when NPLs commercial banks' lending might still decline if the credit adequacy ratios is declining.

4.8.4 Moderating effect of commercial banks’ lending to the government on the relationship between credit survey information & commercial banks’ lending to NFCS

To test for the moderating, commercial banks’ lending to the government was introduced in equation 3.1 to obtain equation 4.2 illustrated below.

$$Y_{it} = \beta_0 + \beta_2 CS_{it} + \beta_1 CD_{it} + \beta_3 NPL_{it-1} + \beta_4 GD_t + \varepsilon \dots\dots\dots \text{Equation 4.2}$$

Where GD_t represents commercial banks’ lending to the government in period t. Table 4.9 below summarises the regression results for equation 4.3

Table 4.9: Regression results after introducing credit to government as an explanatory variable

Model 2: Random-effects (GLS)				
	coefficient	std. error	z	p-value
const	1.4155	0.5275	2.6830	0.0073 ***
d_Credit standards	0.0164	0.0637	0.2566	0.7975
Credit demand	0.0858	0.0254	3.3840	0.0007 ***
NPLs_2	-0.0564	0.0158	-3.5690	0.0004 ***
GD_t	-0.0238	0.0171	-1.3960	0.1626

Source: Author (2021)

Based on the results summarised in table 4.9 above, equation 4.2 is illustrated as below.

$$\text{Commercial Banks’ lending to the NFCS} = 1.4155 + 0.0164 \text{ credit standards} + 0.0858 \text{ credit demand} - 0.0564 \text{ NPLs}_2 - 0.0238 GD_t + \varepsilon \dots\dots\dots \text{Equation 4.4}$$

This implies a negative relationship between commercial banks’ lending to the government and lending to the NFCS. The p-value for the coefficient of GD_t is 0.1549

which is higher than the significance level of 0.05 hence the study concluded that β_4 is insignificant.

In the second step, commercial banks' lending to the government was introduced as a moderating variable in line with equation 3.3 under chapter three of this study

$$Y_{it} = \beta_0 + \beta_2 CS_{it} + \beta_1 CD_{it} + \beta_3 NPL_{it-1} + \varepsilon + \beta_4 GD_{it} + \beta_5 CS_{it} * GD_{it} + \beta_6 CD_{it} * GD_{it} + \beta_7 NPL_{it-1} * GD_{it} \dots \dots \dots \text{Equation 3.3}$$

Prior to the model estimation, the predictor and moderating variables were centralised to mitigate against any risk of collinearity as suggested by Cronbach (1987). The results of the regression are as summarised in table 4.10 below.

Table 4.10: Regression results after introducing credit to the government as a moderating variable

	coefficient	std. error	z	p-value
Const	2.3199	0.5305	4.3730	1.22e-05 ***
d_CS	0.0297	0.0699	0.4247	0.6711
CD	0.0835	0.0307	2.7220	0.0065***
NPLs_2	-0.0584	0.0174	-3.3600	0.0008***
GD_1	0.0557	0.0259	2.1490	0.0316 **
CSGD	0.0008	0.1905	0.0041	0.9967
CDGD	0.0124	0.1234	0.1002	0.9202
NPLs GD	0.1680	0.1263	1.3290	0.1837

Source: Author (2021)

Based on the results in table 4.10, β_5 , β_6 , and β_7 are all in significant since the p-values are greater than the significance level of 0.05. As such, the study concluded that commercial banks' lending to the government does not have a moderating effect on the relationship between credit survey information and commercial banks' lending to the NFCS. These results contradicts the results studies conducted by Shetta and Kamaly(2014) Zaheer,

Khaliq and Rafiq (2017) who found empirical evidence that as the government issues more debt instruments, commercial banks shifts their lending away from the risky NFCS.

Based on the descriptive statistics of the study as summarised in table 4.1, on average, the quarterly growth rate of commercial banks' lending to the NFCS and the government during the study period was 2.57% and 2.64% respectively. The difference between the two growth rates is marginal. As such, it might not be reflected by a statistically significant moderating effect in the model used in this study.

4.9 Summary of the Research Hypothesis

Based on the summarised results of the study in the sections above, table 4.1 summarise the research hypotheses used in this study

Table 4.11: Summary of Research Hypotheses

Hypothesis	Analysis	Significance level	p-value	Decision
H₀₁ : There exist no statistically significant relationship between credit standards and commercial banks' lending to NFCS in Kenya	GLS using a REM	0.05	0.1301	Fail to reject H₀₁
H₀₂ : There exist no statistically significant relationship between credit demand and commercial banks' lending to NFCS in Kenya	GLS using a REM	0.05	2.31e-031	Reject H₀₂
H₀₃ : There exist no statistically significant relationship between NPLs and commercial banks' lending to NFCS in Kenya	GLS using a REM	0.05	3.18e-012	Reject H₀₃
H₀₄ : Commercial banks' lending to the public sector has no moderating effect on the relationship between credit survey information and commercial banks' lending to NFCS in Kenya	GLS using a REM	0.05	0.9967, 0.9202, and 0.1837 for β_5 , β_6 , and β_7 respectively	Fail to reject H₀₄

Source: Author (2021)

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

Chapter five summarises the findings of this research which set the premises upon which the conclusion, recommendations as well as suggestions detailed in this chapter were drawn from.

5.2 Summary of the study

The aim of this study was to assess the relationship between credit survey information and commercial banks' lending to the NFCS. The dependent variables of the study were credit standards, credit demand and NPLs. The study also sought to assess the moderating effects of commercial banks' lending to the government on the relationship between credit survey information and commercial banks' lending to NFCS in Kenya. The summary of the findings are presented per each objective of the study.

5.2.1. Credit standards

The first objective of the study was to assess the relationship between credit standards and commercial banks' lending to the NFCS. The results of the analysis revealed that on average, commercial banks always tighten their lending standards. However, the regression results revealed that credit standards do not significantly influence commercial banks' lending to NFCS in Kenya. The key question that arises from this would be why commercial banks' tighten credit standards if it does not influence their lending decisions. Credit rationing theory is useful in explaining this trend by arguing that lenders accommodate all the borrowers they perceive to be less risky while rationing credit for

borrowers perceived to be risky. Result of an empirical study would be different depending on the quantum of these two categories of borrowers and how commercial banks set the credit standards for each category.

5.2.2. Credit demand

The second objective of the study was to establish the relationship between credit demand and commercial banks' lending to the NFCS. The descriptive statistics on credit demand indicate that, on average, 13.47% of the commercial banks in Kenya reported a net increase in demand for loans in each quarter. The regression results on credit demand indicate that a unit change in the number of commercial banks reporting a net increase in credit demand results in a 0.0875 percentage change in the growth rate of total lending by commercial banks to the NFCS. As such, it would be expected that, with the increase in credit demand reported by commercial banks in Kenya coupled with the regression results, commercial banks' lending to the NFCS should be increasing. However, as depicted in figure 1.2, the growth rate in credit to the NFCS has declined from 30.5 percent in 2014 to 4.3 percent in 2018 as depicted (CBK, 2018). These statistics indicates that, save for credit demand, there are other factors that influence commercial banks' lending to the NFCS.

In addition, the study considered the qualitative measure of credit demand. In consequence, the results of the study indicate the general trend that should be expected without indicating the quantitative measure of such trend. For example, assume that the banking industry has three commercial banks. Bank A and Bank B report an increase in credit demand while Bank C report a decline in credit demand. While the reporting made by these three banks are anchored on the banks' quantitative data, they are qualitative in

nature. Based on this example, it is reasonable to conclude that there is a net increase in credit demand in the industry since two banks out of the three reported an increase in credit demand. However, examining the qualitative side of credit demand might reveal a different trend. For example, assume that Bank A and Bank B reported an increase in credit demand by 3 units and 4 units respectively while Bank C reported a decrease in credit demand by 10 units. Based on quantitative data, the net result contradicts the qualitative data since there is a net decrease in credit demand by 3 units.

AsBurdeau (2015) noted, available quantitative data does not allow the separation of the effect of credit demand from the effect of credit supply when assessing their separate relationships with commercial banks' lending to the NFCS. As such, qualitative credit survey information used in this study is the widely used data in disentangling the effect of credit supply from the effect of credit demand on commercial banks' lending to the NFCS.

5.2.3 NPLs

The third objective of the study was to assess the link between NPLs and commercial banks' lending to the NFCS. The lagged variables of NPLs in the immediate past two quarters were considered. From the REM regression results, the study established that the NPLs of second immediate past quarter negatively influences growth of commercial banks' lending to the NFCS while the NPLs of the immediate past quarter does not have a significant impact.

Based on the descriptive statistics, on average, there is a general decline in NPLs reported by commercial banks in Kenya. This decline should result in an increase in lending to the

NFCS as established by the regression results. However, this was not the case during the study period as depicted in figure 1.2. While the net decrease in NPLs reported by commercial banks is marginal, it would be expected that a combination of the descriptive statistics and the regression results would be in harmony with the actual trend in the market. As such, the study explored reasons that might have led to this disharmony. Other credit risk factors such as credit adequacy ratios (CAR) have a direct relationship with commercial banks' lending (Grace, 2012). As such, it would be expected that even when NPLs commercial banks' lending might still decline if the CAR is declining.

5.2.4 Commercial banks' lending to the government

The fourth objective of the study was to establish whether commercial banks' lending to the government has a moderating effect on the linkage between credit survey information and commercial banks' lending to NFCS in Kenya. The study established that growth rate of commercial banks' lending to the government has no statistically significant effect on the linkage between credit survey information and commercial banks' lending to NFCS in Kenya.

Based on the descriptive statistics of the study as summarised in table 4.1, on average, the quarterly growth rate of commercial banks' lending to the NFCS and the government during the study period was 2.57% and 2.64% respectively. The difference between the two growth rates is marginal. As such, it might not be reflected by a statistically significant moderating effect in the model used in this study.

5.3 Conclusion on the results of the study

Comparing the beta coefficient for the three variables considered in this study, credit demand had the highest coefficient. The study, therefore, concluded that credit demand serves as the most significant factor influencing commercial banks' lending to the NFCS among the variables considered in this study. These results confirm the findings by Kool and Raabe (2006) as well as Deryugina et al. (2015) who established that commercial banks' lending is influenced by a great extent by credit demand compared to deviation in credit standards. Based on these results, it would be expected that as the NFCS in Kenya seek for more financing from commercial banks, there would be a significant growth in commercial banks' lending to the NFCS. However, credit demand should not be considered in isolation but in combination with other variables that significantly influence commercial banks' lending such as NPLs. NPLs have a negative relationship with commercial banks' lending to the NFCS. As such, an increase in NPLs arising from loans to the NFCS is likely to cancel out the positive effect that an increase in credit demand has on commercial banks' lending to the NFCS. Commercial banks not only consider whether there is demand for their loan products but also the borrower's ability to pay both the interest and principal as and when they fall due.

Further, credit theory argues that there exists a maximum amount of loan that a particular borrower can credibly promise to repay which sets a ceiling which the lender cannot exceed when advancing loans. As such, even if there is a direct relationship between credit demand and commercial banks' lending, this relationship is valid up to a certain level of the amount loan requested by the NFCS. This level is determined by the amount the NFCS can credibly promise to repay.

While credit survey information is based on quantitative data from commercial banks', it is qualitative in nature. Based on the regression results, the study established while qualitative credit survey information is useful in providing an explanation how the demand and supply factors influence commercial banks' lending, such information may not provide the complete picture.

5.4 Policy implications and recommendations

From a monetary policy perspective, it is important to know whether developments in the aggregate loan to the NFCS are driven by the changes in the demand of loans or by the changes in the supply of loans. The tool of monetary policy will be hinged on whether the aim is to influence loan demand or loan supply or both. The recommendations of this study are presented per each the research variables that were found to have a statistically significant relationship with commercial bank lending to the NFCS.

5.4.1. Credit demand

The study found evidence of a positive relationship between credit demand and commercial banks' lending to the NFCS. Nonetheless, this relationship exists up to a certain level based on the amount the NFCS can credibly promise to repay based on credit rationing theory. As such, when seeking financing from commercial banks, the NFCS should focus on the repayment plan for the loan including the expected future cash flows to repay the principal amount and the interest as and when they fall due. Commercial banks will be willing to lend more to the NFCS if they have confidence of NFCS' ability to repay the loans, The study recommends that the government should play a role in assisting the NFCS increase their credit demand from commercial banks. This

should involve focusing on the factors influencing credit demand such as employment rate, public investment, and exchange rates as identified by various researchers such as Chebet and Muriu (2016).

The study further recommends that the CBK adjust its credit survey to cover quantitative data. This will enable researchers conduct a more detailed study on the extent to which credit demand influence commercial banks' lending. For example, the CBK can structure the qualitative question on credit demand in terms of, among the borrowers who came requesting for loans from your bank, how much of that loan was declined and how much was approved. Such information will play an indispensable role in dissecting the detailed relationship between credit demand and commercial banks' lending to the NFCS. Establishing the detailed relationship will play a vital role in designing effective tool of monetary policy.

5.4.2. NPLs

The decline in net NPLs reported by commercial banks as indicated by the descriptive results of this study corresponds to a period when the growth rate in commercial banks' lending to the NFCS has been declining. The key question would be, are commercial banks reporting a net decline in NPLs since they the commercial bank are lending less to the NFCS, due to the fact that the NFCS are repaying the loans on time or due to the fact that commercial banks have increased their credit recovery efforts? Such a question would be answered if quantitative credit survey information is available. In this line and similar to the recommendation above, the study recommends that the CBK consider adjusting the credit survey to collect quantitative information on NPLs. For example, the CBK can structure the qualitative question on NPLs in terms of, out of the total loans

issued to the NFCS in the past half of the year, how much have you declared as NPLs in the current quarter.

If the NPLs are declining since commercial banks are lending less to the NFCS to mitigate the credit risk they are exposed to, the study recommends that the government should play a role in enhancing the ability of the NFCS to repay loans borrowed from commercial banks. The government should enact measures aiming at boosting the revival of the economy to boost the cash flows of the various economic sector. Such measures would enhance the financial performance and consequently reduce NPLs in the long run. These measures would include reducing the tax burden, increasing public investment and enhancing the market for locally produced products and services.

5.5 Recommendations for further research

This study did not consider all the factors and credit dynamics influencing commercial banks' lending to the NFCS such as the level of interest rates, requirement for collateral, the terms of the loans such as tenure as well as characteristics of the borrowers. As such, the study recommends a further comparative analysis to be carried out on the relationship between these factors and credit growth in Kenya. Secondly, given the fact that there exists other sources of financing for the NFCS such as capital markets and private equity, the study recommends that an empirical inquiry be conducted to assess the determinant of the sources of financing in the NFCS.

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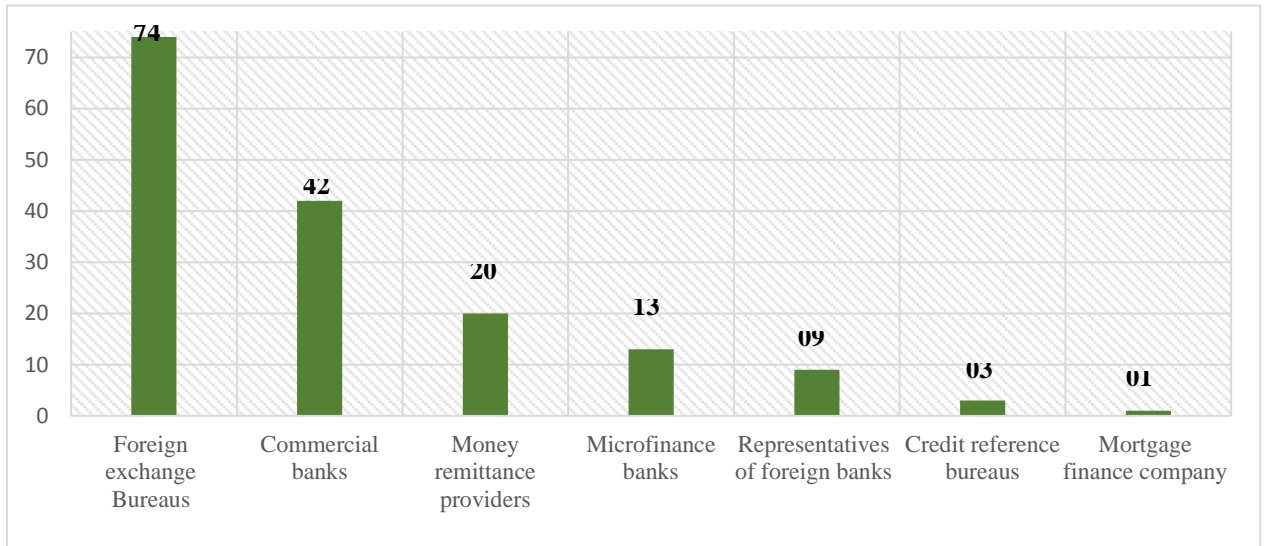
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APPENDICES

Appendix 1: Structure of the banking sector in Kenya



Source: CBK, 2019

Appendix 2: The composition of the non-financial corporate sector in Kenya.

The non-financial corporate sector in Kenya comprises the following sectors.

- i. Agriculture
- ii. Manufacturing
- iii. Building and construction
- iv. Mining and quarrying
- v. Energy and water
- vi. Trade
- vii. Tourism, Restaurants and Hotels
- viii. Transport and Communication
- ix. Real Estate
- x. Financial Services
- xi. Personal/Household

Source: Credit Survey Report (2017)

Appendix 3 (a): Data Collection Sheet: Independent variables

Year	Quarter	Credit Demand			Credit Standards			NPLs		
		Increased	Remain unchanged	Decreased	Tightened	Remain unchanged	Loosened	Increased	Remain unchanged	Decreased
2012	Q2									
	Q3									
	Q4									
2013	Q1									
	Q2									
	Q3									
2014	Q4									
	Q1									
	Q2									
2015	Q3									
	Q4									
	Q1									
2016	Q2									
	Q3									
	Q4									
2017	Q1									
	Q2									
	Q3									
2018	Q4									
	Q1									
	Q2									


Source: Author (2021)

Appendix 3 (b): Data Collection Sheet: Dependent variable and moderating variables

Year	Quarter	Commercial banks' lending to the NFCS	Commercial banks' lending to the public sector	NPLs
2012	Q2			
	Q3			
	Q4			
2013	Q1			
	Q2			
	Q3			
	Q4			
2014	Q1			
	Q2			
	Q3			
	Q4			
2015	Q1			
	Q2			
	Q3			
	Q4			
2016	Q1			
	Q2			
	Q3			
	Q4			
2017	Q1			
	Q2			
	Q3			
	Q4			
2018	Q1			
	Q2			

Source: Author (2021)

Appendix 4: Permit NACOSTI




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