CAPITAL STRUCTURE, BANK SIZE AND FINANCIAL PERFORMANCE OF LOWER TIER COMMERCIAL BANKS IN KENYA

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DECLARATION

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

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The research thesis is dedicated to my family for their love, encouragement and support. Thanks for being there for me in the course of developing this extremely complex assignment.

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ABBREVIATIONS AND ACRONYMS

AIC	Akaike's Information Criterion
AICC	Hurvich and Tsai's Criterion
BIC	Schwarz's Bayesian Criterion
CAIC	Bozdogan's Criterion
CBA	Commercial Bank of Africa
CBK	Central Bank of Kenya
COVID-19	Corona Virus of 2019
EPS	Earnings per Share
EPS	Earnings per Share
GPM	Gross Profit Margin
I&M	Investments & Mortgages
IFC	International Finance Corporation
IMF	International Monetary Funds
KBA	Kenya Bankers Association
KCB	Kenya Commercial Bank
KDIC	Kenya Deposit Insurance Corporation
MFI	Micro Finance Institutions
Mixed ANOVA	Mixed Analysis of Variance
MM theory	Modigliani and Miller theory
NACOSTI	National Commission for Science, Technology and Innovation

NCBA	National Commercial Bank of Africa
NIA	Net Income Approach
NIC	National Industrial Credit
NPL	Non-Performing Loans
NPM	Net Profit Margin
NPM	Net Profit Margin
NSE	Nairobi Securities Exchange
PBT	Profit Before Tax
PLC	Public Listed Company
ROA	Return on Assets
ROE	Return on Equity
SACCOS	Savings and Credit Co-Operatives
SBM	State Bank of Mauritius
SPSS	Statistical Package for the Social Sciences
US	United States
WACC	Weighted Average Cost of Capital

ABSTRACT

The banking sector is recognized as the most visible source of finance and key to global trade and economic growth. Banking institutions play a notable role in building both domestic and global economies by ensuring credit is available to finance businesses and households. However, the performance of banking sector from global, regional and local perspective has been deteriorating with small banks being affected the most. The phenomenon has been linked to the manner banks of different sizes finances their operations (capital structure), but remains debatable among scholars. It is argued that a properly designed capital structure defines the manner in which a bank seeks funds from various sources to finance its operations without risking high costs of capital that may jeopardize its performance. In Kenya, the capital structure has been in the center of operational performance of commercial banks in Kenya. The Kenyan banking sector is categorized into three tiers, tier I, II and III based on bank size. However, the profitability of the tier II and III have been declining resulting to an enquiry to whether, the size of the bank has any influence on capital structure and performance of the banks. This study therefore sought to determine the moderating influence of bank size on the relationship between capital structure and profitability of lower tier commercial banks in Kenya. The specific objectives of the study were to assess the influence of internal equity capital; the influence of short term debt capital; the influence of external equity capital and the influence of long term equity capital on profitability of lower tier commercial banks in Kenya. Appropriate null hypotheses were developed for each objective. This study was anchored in pecking order theory, Modigliani and Miller Capital Structure Theory, trade-off theory of capital structure, the net income approach, Dynamic Trade-off Theory and Agency Cost Theory. Pragmatism research philosophy was adopted where the study concurrently employed descriptive and explanatory research design. The study population was 37 commercial banks in Tier II and III in Kenya that were fully operational from 2016 to 2020 and a census of all the 37 banks was conducted. The main data of study was secondary data; whereby primary data was also collected for triangulation purposes. The validity of the secondary data was enhanced by collecting data from audited and certified sources while the reliability of the questionnaire was ascertained through use of Cronbach Alpha coefficient. Data analysis involved descriptive and inferential statistics. Descriptive statistics entailed percentages, means, standard deviations, minimums, maximums, Skewness and Kurtosis. The inferential statistics comprised of multilevel mixed model analysis and hierarchical multiple linear models. A range of model and data diagnostic tests were conducted before estimating the study's regression models and included the Mixed ANOVA, autocorrelation, normality tests, heteroscedasticity tests, multicollinearity tests and stationarity tests. The results were presented using tables and figures. The study found that internal equity had a positive and significant effect on net profit margin of lower tier commercial banks (β=.429, p=.000<0.05) but bank size did not moderate the effect of internal equity on net profit margin of lower tier commercial banks in Kenya (β=.148, p=600>0.05). External equity had a positive and significant effect on net profit margin of lower tier commercial banks (β=.229, p=.036<0.05). Bank size positively and significantly moderates the relationship between external equity and performance of lower tier banks in Kenya (β=2.350, p =.000<0.05) and has an enhancing effect on external equity. Long term debt had a negative and significant effect on the financial performance of lower tier commercial banks (β=-.966, p=.029<0.05). Bank size moderates the effect of long term debt on financial performance of lower tier commercial banks in Kenya (β=-.695, p-value=.024<0.05) and has an antagonistic effect on long term debt capital. Nonetheless, short term debt had a positive but insignificant effect on the financial performance of lower tier commercial banks (β=.067, p=.625>0.05). Bank size moderated the effect of short term debt on financial performance of lower tier commercial banks (β=.127, p=.019<0.05) with strengthening effect. Thus, the study concludes that bank size moderates the effect of external equity, short term debt and long term debt on financial performance of lower tier commercial banks but does not moderate the effect of internal equity on financial performance of lower tier commercial banks. The study recommends that lower tier commercial banks need to encourage

its shareholders to re-invest back their earnings rather than consuming them as dividends as internal equity is affordable and readily available when the bank is in urgent financial need. The study further recommends that a bank should keenly evaluate when to use external equity funding though external equity funding may be costlier. Lower tier commercial banks may also employ long term sources like equity shares, debentures, preference shares and public deposits as they are usually less prone to short term shocks as it is secured by formally established contractual terms. In addition, lower tier commercial banks may also need to diversify their product and service portfolio to expand their aggregate asset base and competitiveness in the market so that they can withstand financial and market shocks. The study offers great value to the management of lower commercial banks and other players in the sector. The regulators including the CBK may get insightful information that would assist in formulation of policy on ideal financing structures for lower tier commercial banks. The study also provides a worthy benchmark to future research work on capital structure and profitability of small and medium sized commercial banks.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Banking sector is key to trade, commerce and global economic growth (Mhadhbi, Terzi & Bouchrika, 2020). The banking industry is a critical financial entity and is essential in capital accumulation, mobilization of savings, availing credit funds to individual and industry financing (World Bank, 2016). To the economy, the banking sector remains a critical sector. It supports the financial system of the economy contributing immensely to the socioeconomic growth of a country (IFC, 2021). Nonetheless, performance of the global banking sector continues to decline with lower tier banks affected the most. The operational sustainability of banks revolves around capital strength and mobilization that varies across banks depending on bank sizes, hence the need to undertake a study in this line area.

From a global perspective, the banking sector is recognized as the most visible source of finance and key to modern trade and global economic growth (Puatwoe & Piabuo, 2017). Ozili (2018) posits that the institutions play a notable role in building both domestic and global economies by ensuring credit is available to finance businesses and households. World Bank (2022) observe that the financial wellness of the banking sector in a country plays a critical role to the health of economies. As opined by Aidoo (2019), an efficient banking sector contributes positively to the economy by encouraging accumulation of capital as suppliers of credit. The banking sector rallies and assigns savings, supports sound trade activities, aids diversification and hedging of risk and makes credit available to the private sector which plays a pivotal role to economic growth. Additionally, as argued by Onoh and Nwachukwu (2017),

commercial banks help in achieving monetary policy objectives as designed by the Central Bank in the economy.

Globally, the banking sector has been viewed over the past two decades as a declining industry with some players unsure about the direction of the all-important players to economies (Puatwoe & Piabuo, 2017). More so, the current Covid-19 pandemic has presented a serious downturn on the global banking sector. The banks now trend on an uncertain future as shareholders' value is diluted by additional financial risks associated with the pandemic. The current situation represents a season of weak profits, shrinking dividends and much lower, or no, bonuses at a time when most investors had already turned bearish. European banks have suffered far more than their US rivals. In particular, the current Covid-19 era has caused an unprecedented disruption in profits (IMF, 2020).

The global banking industry has continued operating in an environment of significant stress with bank stocks underperforming their domestic markets and other non-bank financial firms (IMF, 2020). The effectiveness of policy interventions to cushion the banks sustainability has been mixed in different economies. Notably though, a common observation is that the banking sector has been declining in most global economies. The industry growth has stagnated in the midst of global Covid-19 crisis. The World Bank (2020) reports that the growth rate of assets of the top 1000 banks has remained at 2.7 percent compared to the double digit growth rates witnessed during the before the crisis. Profits have also significantly dipped as the banks adopt a more conservative approach to investment. This has especially been the case with small banks as they lacked the resources required to adjust to instant market shocks.

It is evident from the statistics that the performance of lower tier banks (small and medium sized banks) are the worst hit globally, regionally and locally. The situation has been worsened by the Covid-19 pandemic which has left lower tier banks with deteriorating asset quality, up surging bad loans, declining profitability and waning liquidity. In Europe, the level of non-performing loans have increased from 2.3 percent of total loans to 10 percent of lower tier bank total lending. The profitability of the lower tier banks too in Europe is also estimated to have declined by approximately 50 percent meaning that the profit levels have reduced by half (IMF, 2023).

Bank capital structure allows the banks to make choice of how to finance its operations, that is, what mix of equity, subordinated debt, and deposits to use (Stuart *et al.,* 2016). However, achieving optimal mix of capital structure continue to confront many banks resulting to the deterioration of bank performance (Gohar & Rehman, 2016). Furthermore, past empirical studies present mixed results with regard to the effect of different capital structure items on financial performance from a global perspective. With regard to internal equity, through a study targeting the Jordanian public industrial companies, Maswadeh (2016) established that internal equity (retained earnings) has a positive and significant effect on financial performance whereas Thuranira (2014) showed that internal equity is a weak and insignificant determinant of bank profitability. On external equity, through a study involving fuel sector firms in Pakistan, Liaqat *et al.* (2017) found out that external equity has a significant negative impact on financial performance of firms in fuel and energy sector of Pakistan while King'oo (2015) established that external equity has a significant positive effect on financial performance. It can be observed that the studies present conflicting results which calls for further probe to determine the direction of effect of external equity on performance.

On short term debt, in a study involving joint venture banks in Nepal, Ranabhat (2019) established the existence of a significant negative influence of short term debt on financial performance. With regard to long term debt, in a study involving American energy firms, Tailab (2014) demonstrates that the effect of long term debt on financial performance is insignificant. Nonetheless, Gill, Biger and Marthur (2011) while focusing on 272 American firms listed at New York Stock Exchange indicated that long-term debt has a positive effect on financial performance. With regard to firm size and its effect on financial performance of firms, Aladwan (2015) established that bank size has a huge positive effect on financial performance. The study involved Jordanian commercial banks. The studies on the subject matter; short term debt and performance present mixed and contradictory results. While some studies indicate a positive impact of short term debt on performance, others indicate either an insignificant or negative effect. This justifies why it is important to undertake the current study to provide new evidence on the subject.

Regionally, the African banking sector is being redesigned to withstand the new shifts in their operating environment (Dayi *et al.,* 2022). Banks have been forced to restructure in order to survive as they face stiff competition from other mobile banking service providers such as Interswitch in Nigeria and Mpesa in Kenya and East Africa at large Ngigi (2016). The Covid 19 pandemic has not spared African Banks either as earnings have dimmed significantly or fallen short of prospects. This has been especially the case for Eastern African banks for 2020. Cytonn investments (2020)'s report themed "Deteriorating Asset Quality amid the COVID-19 Operating Environment" indicates that asset quality deteriorated in Q1'2020 with the gross NPL ratio increasing by 0.9 percentage points to 11.3% from 10.4% in Q1'2019. This level

of NPL was quite high compared to the 5-year average of 8.5%. This condition shows the urgency of need for studies to focus on the financial performance condition of African banking sector.

In their annual report, Moody's Investors Service (2020) indicated a deteriorating performance condition for lower tier banks in Africa on account of tougher economic times, growing competition and operating conditions. The report indicates that performance inefficiencies for lower tier banks were more dominant in South Africa, Nigeria, Tunisia and Angola. Nonetheless, despite showing great resilience in difficult circumstances compounded by Covid-19 pandemic, lower tier banks in Egypt, Morocco, Mauritius and Kenya still reported a significant decline in profitability and an upsurge in the level of non-performing loans (African Development Bank, 2020).

From a regional perspective, studies have also presented mixed results with regard to the effect of different components of capital structure on financial performance. Ganiyu *et al.* (2019) studied capital structure and performance of 115 listed non-financial firms in Nigeria. Results demonstrated a positive relationship between short term debt and financial performance. Nonetheless, short term debt was seen to negatively impact on performance of Nigerian non-financial firms. In a study targeting banks in Zimbambwe, Makosi (2018) examines the impact of capital structure on bank financial performance between 2011 and 2015. Results indicated a weak impact of internal equity and external equity on financial performance measured by return on assets, return on equity and earnings per share. With regard to bank size, Eyigege (2018) while studying banks quoted on the Nigeria Stock Exchange demonstrated that bank size had an insignificant negative effect on financial performance. The contradictory results presented provides

the justification for the current study undertaking in demystifying the empirical contractions and providing new and verifiable evidence on the subject.

Muriithi and Louw (2017) observe that the banking sector's financial soundness and performance has been on the downside trend over the past few decades. Cytonn Investments (2018) points out the lower tier banks (Tier II and III) as the worst affected by diminishing performance. Organizations that were previously considered to be giant performers reported losses in the financial year 2016/2017 with Family Bank reporting a dip of a whopping 83% in company's profits to make a loss of 259.57 million. Other banks that reported losses include Sidian Bank (307 million loss) and Eco bank (2 billion loss). The Central Bank of Kenya (2018) reports that the large banks (Tier 1 banks) control approximately 70.28 percent of the sector's market shares and profits. The second tier (medium banks) controls about 21.22 percent of market share and profits with the small (third tier) banks controlling a mere 8.50 percent of the market. The study is important as it helped to demystify the performance dilemma in the banking sector and determine what would constitute the ingredients of performance improvement, so urgently required of the lower tier commercial banks.

Ngigi (2016) notes that the performance challenges have seen several players in the lower tiers exit the business platform with a handful of them put under receivership. These include banks like Chase Bank which was put under receivership due to a tumorous liquidity freeze occasioned by poor capital structure decisions (Stevis, 2016). Imperial Bank also suffered with a closure order from Central Bank of Kenya attributed to poor portfolio management and insider lending. Dubai Bank of Kenya was put under statutory management by the regulator (CBK) for a period of one year owing to

liquidity and capital deficiencies. The Kenya Deposit Insurance Corporation (KDIC) would be the receiver manager of the Dubai Bank of Kenya (KDIC, 2015).

The banking sector plays a vital role to economic growth and development. According to the Kenya Bankers Association (2019), the total value of outstanding loans and advances by the banking industry was KES 2.5 trillion at 31st Dec 2018. This represented 30 percent of the Kenya's Real Gross Domestic Product of KES 8.33089 trillion (CBK, 2019). This demonstrates how indispensable the banking industry is to the economy. Notably, the outstanding credit has grown ten times over from KES 264 billion in 2003. The profitability of commercial banks had been on a declining trend over the past decade representing a negative figure in 2017. This was however reversed in 2019. The total income grew by 3.3 percent in 2018 as compared to a decline of 4.8 percent reported in 2017 (Cytonn Investments, 2018). The financial performance of the banks has been largely unpredictable which calls for a search for empirical evidence on how the financial performance can be sustained.

The Kenya Bankers Association (2018) reports that the total income for the large banks, Tier I banks declined from 13.80 percent in 2014 to 13.68 percent in 2015. This improved to 14.11 percent in 2016 only to register the highest ever decline to stand at a negative figure (-0.66%) in 2017. The same would however increase yet again to 5.45 percent in 2018. For the second tier banks, an improvement was recorded between 2014 and 2015 as total incomes stood at 17.64 percent and 20.17 respectively. For the year 2016 the total income stood at 11.84 percent declining to losses of -11.02 percent in 2017 but improving later to a 1.14 percent in 2018.

For the third tier of banks, total income stood at 16.04 percent in 2014 and improved to 15.03 percent in 2015 (Cytonn Investments, 2018). The incomes improved further in 2016 to stand at 4.91 percent. In the year 2017, the incomes deteriorated to stand at -9.90 percent loss. The incomes would improve in 2017 to stand at 11.04 percent. Therefore, it can be observed from the results that lower tier banks are grossly entangled in performance challenges. There has been mixed trends in the growth banking income, which has often registered a negative or declining trend. As such, this situation gives weight to the focus of the current study. The focus on the banking sector and specifically the lower tier commercial banks validates the indispensable value of the study. The aggregative banking sector incomes grew from 14.84 recorded in 2014 to 15.42 percent in 2015 but declined to 12.54 percent in 2016. The aggregative incomes further deteriorated in 2017 where the banking sector made an aggregate loss of -4.79 percent. This would later improve to 3.30 percent in 2018 (Kenya Bankers Association, 2018). This gives a highlight that the banking sector financial performance challenges needs to be addressed given its relative significance in the economy.

On the local perspective, studies have also presented mixed results with regard to the effect of capital structure components and financial performance of firms. In a study targeting craft micro enterprises in Kenya, Nyanamba (2018) indicated that internal equity (retained earnings) financing is a useful determinants of financial performance. The study also indicates that short term and long term debt financing have a positive effect on financial performance. In an analysis of real estate firms in Kenya, Mutinda (2015) indicated that capital structure has a weak but insignificant effect on profitability of real estate firms. Results further indicated that short term debt to total debt has more positive effect on profitability than overall debt ratio. Koech (2013) studied capital

structure and profitability of NSE listed financial firms. Findings indicated that growth in the debt level (whether short term or long term) increases the interest payments therefore resulting in a decline in profitability. In an analysis of deposit taking MFIs in Kenya, Mulwa (2020) indicated that firm size measured through total assets has a positive impact on financial performance. However, customers' deposits as a measure of firm size showed no significant effect on financial performance.

1.1.1 Financial Performance

Financial performance explains the efficiency and effectiveness with which an entity generates value for the owners from their investment (Kaplan & Atkinson, 2015; El Khoury, Nasrallah & Alareeni, 2023). Popular metrics used to indicate financial performance in a banking environment include profitability indicators, efficiency metrics and liquidity ratios. Profitability entails the extent to which the firm is able to generate income from their investment undertakings (Abbas, Iqbal & Aziz, 2019). Profitability is the pivot that assures growth in shareholders' investments and business survival. Almaqtari *et al.* (2019) opines that profitability involves the capacity of a firm or enterprise to derive positive benefits from shareholders' inputs in form of capital to the firm. Profitability represents the ability to make profits from all the business activities of an enterprise. It aids in understanding how the financing structure could be impacting on ability to grow and survive (Fatihudin & Mochklas, 2018).

Profitability ratios assess the firm's ability to generate income against expenses and other cost associated with the generation of income (Pham, Tran & Nguyen, 2018). Profitability ratios evaluate the firm's capacity to earn a profit relative to their sales revenue, operating costs, balance sheet assets, and shareholders' equity (Reddy, 2012).

Profitability ratios are classified into margin ratios and return ratios. The margin ratios include gross profit margin, operating profit margin and net profit margin. The gross profit margin measures how much sales income a company has left over after it covers for their cost of goods sold. Comparatively, the operating profit margin shows the percentage of revenue that is left over once these costs are deducted from the net sales. Lastly, net profit margin shows the percentage of profit that the firm makes its sales revenue after all expenses (operating and non-operating) are paid (Velnampy & Niresh, 2012).

Shapiro and Hanouna (2019) posit that return ratios demonstrate how well the firm is making profits out of capital investment in the firm, whether by shareholders or external sources. The return ratios include the return on equity (ROE) and return on assets (ROA). The return on assets evaluates how successfully the firm uses the assets at their disposal to improve their bottom line. On the other hand, ROE shows how efficiently a firm can use shareholder investments to generate profits (Abbas, Iqbal & Aziz, 2019). This study utilized net profit margin to evaluate the profitability of lower tier commercial banks. Net profit margin helps investors assess if a company's management is generating enough profit from its sales and whether operating costs and overhead costs are under control (Jayathilaka, 2020).

1.1.2 Capital Structure

Capital structure represents the specific mix of debt and equity utilized by a firm in financing their investments and operations (Yapa, 2017). Key components of debt used include, short term or long term debt and equity that include internal and external equity (Yapa, 2017). On the other hand, equity includes common stock and retained earnings.

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Equity has been categorized as internal or external equity. The former represents financing from retained earnings and reserves while the latter denotes use of share capital finance as a source of finance (Ardalan, 2017).

Davie and Puca (2020) argue that capital structure embodies an independent association between debt and equity. It epitomizes the amounts or mix of equity share capital, preference share capital, debentures, long-term loans, retained earnings that a firm should raise to run its business. Capital structure has also been described as the make-up of a firm's capitalization and incorporates all long-term capital resources such as loans, reserves, shares and bonds (Yapa, 2017). Capital structure represents the mix of securities and other funds consumed for various investment undertakings.

Capital structure in this study focused on short-term debt, long-term debt, internal equity and external equity. Davie and Puca (2020) highlights that short-term debt refers to a financial obligation payable within one year. Short term debts are classified with the current liabilities section of a firm's balance sheet and may include trade accounts payables and accrued expenses. Conversely, long term debt represents funds owed by a company to funders and whose repayment period exceeds one year. Common examples of long term debt are bank loans, mortgage bonds or debentures due for more than one year.

Proponents of debt financing cite the tax advantage in that the interest payable on debt is taken as a business expense for purposes of computation of taxable income (Ardalan, 2017). Debt may also help in saving a firm from capital shortages for viable investments hence driving growth. Opponents indicate that consumption of debt is a risky engagement as it puts the assets provided as collateral on the line. It is further argued

that consumption of debt is expensive as it dilutes the profits distributable to investors (Brigham *et al.,* 2016). The consumption of debt finance decisions would therefore be determined by interest rates, tax, and covenant restrictions. A large debt appetite reduces the attractiveness of a company's shares to investors as it increases the probability of financial distress.

Internal equity represents a firm's financing by use of own funds in form of retained earnings, reserves and intra-firm borrowing (Nguyen & Rugman, 2015). In distinction, external equity finance involves use of share capital financing by way of issuing new shares (ordinary shares) (Brigham *et al.,* 2016). Proponents of equity financing cite freedom from debt obligations and increase in business experience and contacts as diverse shareholders jointly own the firm. Equity capital represents funds paid into the enterprise by investors in return for common or preferred stock. It epitomizes the core funding of most business, to which debt funding may be added.

Consumption of equity financing has a range of merits as it is useful for expansion and diversification and provides an economical sources of finance (Davie & Puca, 2020). Further, equity financing presents no fixed obligation and further provides a flexible funding sources. Proponents have also indicated that equity financing, whether short term or long term may increase the shareholders' value and avoid excessive tax. Retained earnings provide opportunities for tax avoidance and improve the earning capacity. Retained earnings consist of least cost of capital and also it is most suitable to those companies which go for diversification and expansion (Ardalan, 2017). While past studies have considered capital structure as a theme, they have rarely considered a comprehensive analysis that considered all the four dimension of capital structure that includes internal equity, external equity, short term debt and external debt. The aspects

of the capital structure have been cited by scholars to have significant impact on the profitability of banks. This study makes a clear distinction of specific debt and equity components for more specific understanding of how capital structure influences financial performance.

1.1.3 Bank Size

Firm size represents a justification regarding whether an enterprise is big or small as represented by their total assets, total sales, and market value of equity (Sari & Sulastri, 2019). Large firms often have a stronger asset base and are able to keep expanding their investments as they have necessary collateral for lending. Firm size represents the scale or volume of operation turned out by a single firm. A number of measurement standards have been advanced and are broadly grouped into measures of input and measures of output. Input measures include capital employed, net worth, total assets, and labor employed.

Capital employed represents the sum of owners' total capital injection and borrowed capital. Net worth on the other hand represents the excess of assets over liabilities in the firm (Hou & Van Dijk, 2019). The third input indicator of firm size is total assets and represents total current and fixed assets of the firm. Labor employed denotes the number of employees in a firm. The output measures of firm size include volume of output, the value of output, and value-added (Sari & Sulastri, 2019). The output measures of firm size are nonetheless, most applicable for manufacturing firms hence are not considered in depth for the current study.

In the context of a banking establishment, firm size represents the market value of the banking investment and in a banking context may be indicated by asset base, branch

network and sales volume (Hou & Van Dijk, 2019). The asset base is defined as the underlying assets that give value to the company, investment or loan and in this case the lower tier commercial banks. The asset base is not a static component and may grow or decline as driven by market forces and emerging internal conditions (Dang *et al.,* 2018).

The asset base can be indicated by the net assets which is one of the key indicators of the asset base of a company (Sari & Sulastri, 2019). Net assets denotes the total assets minus total liabilities and is reported as stockholders' equity in a corporation. Branch network represents the number of divisions that a firm operates and which report to the main organisation on a regular basis and whose performance determines the performance of the entire organisation. The sales volume represents the amount of turnover made by a business organisation (Hou & Van Dijk, 2019). For this study, firm size was used as a moderating variable. Firm size was measured as logarithm of asset base (net asset of the bank). This metric is considered more applicable in a banking context that involves provision of financial services. The metric is also widely used in assessment of the size aspects in the banking sector. Considering that lower tier banks are poorly performing compared to tier one banks, this results to the inquiry if bank assets has any effect on the nexus between capital structure and profitability.

1.1.4 Lower Tier Commercial Banks in Kenya.

International Trade Administration (2022) reviews that the banking sector in Kenya is regulated and controlled by the Central Bank of Kenya. The Central Bank of Kenya is established under Article 231 of the Kenyan Constitution of 2010. Currently, there are 43 banking institutions authorised by the regulator to operate in Kenya (CBK, 2020).

The Central Bank of Kenya applies the Tier System of Classification that classifies commercial banks into three tiers, Tier I, Tier II and Tier III (CBK, 2020). The classification of banks in Kenya is based on market share and total assets.

Commercial banks in Tier 1 are large banks with hundreds of billions in cumulative assets and millions of depositors. In terms of market share, tier I banks control 74.76% of market share, Tier II 16.41% of market share and 8.82% of market share (CBK, 2022). In terms of asset base, tier I banks assets base is KES 4.51 trillion (74.9%), Tier II KES 968 billion (16.1%) while tier III asset base is KES 463 billion (9%) (CBK, 2022). Lower tier commercial banks (Tier I and Tier II) in Kenya are not performing well compared to tier I commercial banks leading to the inquiry if bank size in terms of assets of a bank has any effect on the nexus between capital structure of the bank and profitability.

1.1.5 Capital Structure and Profitability

According to Velnampy and Niresh (2012), capital structure decisions are important drivers of the ability of business enterprises to deliver profits and value to shareholders. As such, capital structure decisions should reflect a strong degree of care as they have a big impact on the survival of firms. It is therefore imperative for managers to ensure successful selection and application of capital as a key ingredient of the enterprise's financial strategy (Brusov *et al.,* 2011).

Capital structure and profitability as a financial management subject has continued to attract growing concern in various finance quotas (San & Heng, 2011). Most literature sources however assert that indeed capital structure formations will have a direct ramification on profitability and ultimate business performance (Tudose, 2012).

Business performance metrics are classified into financial, organizational or operational indicators.

The market value of the firm has a positive association with long term debt component of the capital structure (Brusov *et al.,* 2011). The proponents of the static trade-off theory suggest the existence of a positive association between the level of a firm's leverage and performance. Other orientations that have attempted to explain the link between capital structure and performance came with proponents of agency theory. The foundations are based on the supposition that the ideal capital structure epitomizes a concession between the effects of interest tax shield, financial distress costs and agency costs. The basic premise is that improved leverage in the context of small agency costs may elevate the level of efficiency which would enhance firm performance (Akintoye, 2008). Additional presentations are made by the pecking order theory which is premised on the supposition that there exists a negative correlation between the debt level and firm performance (Tudose, 2012).

Gill, Biger and Mathur (2011) studied capital structure and profitability of American service and manufacturing firms. Findings demonstrated that the ratio of short-term debt to total assets enhances profitability. Although results support foundations of theory such as the trade-off theory, empirical gaps arise on need to consider an expanded framework of capital structure variables, besides debt, for analysis. While many banks in the lower tier segments in Kenya continue to struggle with low profitability, it remains unclear whether capital structure has an undesirable effect on profitability. Some theories attribute low profit levels to over-gearing habits by banks.

Nonetheless, notable empirical studies demonstrate that borrowed capital is not singularly detrimental to firms. Equity financing has also been seen as reserved and not aggressive enough to drive profitability. Proponents however note that financing from own sources reduces the level of detrimental exposures and has potential to positively influence profitability. Thus, putting into consideration the dichotomous forms of corporate financing (debt and equity), there is need to determine whether in deed debt and equity financing influence corporate profitability, and if so, how it does.

1.2 Statement of the Problem

The banking sector in Kenya is crucial in the contribution to the GDP, financial intermediation, creation of employment, pivotal role in the achievement of Kenya Vision 2030 (and beyond) and government agenda for socioeconomic transformation by 2027. However, the commercial banks in Kenya have been recording declining performance over the recent past with the lower tier banks being the hardest hit (Onuonga, 2014). In 2017 Family Bank reported a loss of KES 259.57 million, Sidian Bank (KES 307 million loss) and Eco bank (KES 2 billion loss). Furthermore, several banks in the lower tier such as Chase Bank, Dubai Bank of Kenya and Imperial Bank have been put under receivership (CBK, 2018). Collapse of banks does not give a good reflection of the sustainability of the banking system (CBK, 2018).

Due to financial performance challenges and operations conditions, Kenyan banks have witnessed a series of mergers and acquisitions. Most recent merger was between NIC Group PLC and CBA Ltd to establish the NCBA Bank Kenya PLC in 2019, acquisitions of National Bank by KCB. I&M Bank Ltd acquired Giro Commercial Bank Ltd, SBM Bank Kenya Ltd acquired Fidelity Commercial Bank Ltd and Diamond Trust Bank

Kenya Ltd acquired Habib Bank Kenya Ltd all in year 2017 (CBK, 2018). The motivations behind the mergers and acquisitions have been financial performance challenges and inability to meet regulatory requirements such as capital base requirements. Acquisitions has been so pronounced that SACCOs are also beneficiaries of acquisition of commercial banks. For instance, in 2014 Equatorial Commercial Bank Ltd was acquired by Mwalimu Sacco Society Ltd. Considering that lower tier banks are poorly performing compared to tier one banks, this results to the inquiry if bank assets have any effect on the nexus between capital structure and profitability.

Capital structure plays a pivotal role in determining the ability of the firm to deliver on the shareholder wealth maximization. By giving attention to the cost of capital in financing corporate undertakings, managers are able to maximize on the benefits accruing from consumption of funds while minimizing on the risks involved (Ardalan, 2017). Capital structure decisions are critical to business growth and profitability as they have a ramification on both risk and valuation status of the firm. Despite a number of empirical research on the subject matter, a lot of gaps remain unresolved especially in conclusively seeking to relate capital structure to profitability. Key contextual, empirical, conceptual and methodological gaps remain unaddressed.

Contextually, gaps exist as most studies on the subject matter are foreign in orientation with scarce empirical evidence locally (Eyigege, 2018; Hossain & Mohammad, 2019). Further, a number of studies did not consider up to date data and there is a considerable period of time that has elapsed since the studies were done (Muhindi & Ngaba, 2018; Liaqat *et al.,* 2017). This study considered data for the period 2016 to 2020 to address the study gap. Conceptually, gaps emerge in that a number of studies fell short of a comprehensive assessment of bank size (Mulwa, 2020; Shibutse *et al.,* 2019). In a study

on capital structure and firm's profitability in the Kenyan banking sector, Yegon *et al.* (2014) found to have no useful relationship with profitability in support of the Modigliani-Miller Irrelevance Theorem assertion an indication of empirical gap. Empirically, gaps arise as the findings contradict past studies which for instance Koech (2013) which indicated that the effect of capital structure on profitability is strong and significant. While the Koech (2013) findings agree with most indications of theory, empirical gaps are evident on the need to cover more capital structure variables in the analysis other than just debt. Muigai (2016) indicated that internal equity has a significant positive effect on profitability, contradicting Thuranira (2014) who indicated that internal equity has no significant impact on profitability. The study therefore assessed the effect of capital structure on profitability of lower tier commercial banks in Kenya.

1.3 Research Objectives

The objectives of the study are developed by linking the capital structure (independent variables) components with financial performance (dependent variable). The independent variables are the components of capital structure and include short term debt, long term debt, internal equity and external equity.

1.3.1 General Objective

The general objective of the study was to determine the influence of capital structure on financial performance of lower tier commercial banks in Kenya under the moderating influence of bank size.

1.3.2 Specific Objectives

i) To determine the influence of internal equity capital on financial performance of lower tier commercial banks in Kenya.

ii) To examine the influence of external equity capital on financial performance of lower tier commercial banks in Kenya.

iii) To establish the influence of short term debt capital on financial performance of lower tier commercial banks in Kenya.

iv) To find out the influence of long term debt capital on financial performance of lower tier commercial banks in Kenya.

v) To determine the moderating influence of bank size on the influence of internal equity capital, external equity capital, short term debt capital and long term debt capital on financial performance of lower tier commercial banks in Kenya.

1.4 Research Hypotheses

Appropriate null hypothesis was developed for each objective. The study tested the following null hypotheses:

H_{01}: There is no statistically significant effect of internal equity capital on financial performance of lower tier commercial banks in Kenya.

H_{02}: External equity capital has no statistically significant effect on financial performance of lower tier commercial banks in Kenya.

H_{03}: There is no statistically significant effect of short term debt capital on financial performance of lower tier commercial banks in Kenya.

H₀₄: Long term debt capital has no statistically significant effect on financial performance of lower tier commercial banks in Kenya.

H₀₅: Bank size does not statistically moderate the influence of internal equity capital, external equity capital, short term debt capital and long term debt capital on financial performance of lower tier commercial banks in Kenya.

1.5 Significance of the Study

There has been challenges in the banking sector which has seen banks fail. The challenges have been more profound to lower tier banks (Tier II and III banks). The inability of these banks to secure consistent profitability has greatly affected their going concern status with a good number of them closing down. The study offers great value to management teams of commercial banks and other players in the financial sector. The management can be in a position to understand how their investment proposals should be financed in order to provide optimal benefits to the investors. The investors may be empowered to understand the implications of management proposals on financing on the profitability and value of the firm. The lower tier commercial banks may benefit by redesigning the financing structure to meet their day to day operations without incurring expenses related to cost of capital financing. The banks may pursue optimal mix of debt and equity to finance their operations.

The potential investors may also benefit from the study as they may be empowered to analyze the capital structure of the firm and appraise the implication on profitability potential. The potential investors may thus be empowered to make prudent investment decisions. The regulators including the Central Bank of Kenya (CBK) may get

insightful information that would assist in formulation of policy on ideal financing structures for banks.

Researchers, both current and future may benefit from the study as key research gaps that remain unaddressed may be highlighted. The study findings also provide a worthy benchmark to future research work on capital structure and profitability of banks. Future scholars may also find it useful when studying capital structure in banks and how it variably impacts the performance of banks of different asset sizes.

1.6 Scope of the Study

The content scope of the study was to establish the moderating influence of bank size on the relationship between capital structure and financial performance of lower tier commercial banks in Kenya. Bank size was measured as natural logarithm of net asset for each bank. Capital structure components include internal equity, external equity, short term debt and long term debt. The financial performance of banks was indicated by net profit margin, return on equity and return on assets. On context scope, the study targeted thirty-seven (37) lower tier commercial banks in Kenya, of which primary and secondary data were utilized. Regarding the methodological scope, a census study approach was utilized to study all the 37 banks in Tier II and III of banks' classification. The time scope of the study was 5 years from 2016 to 2020. Banks that have not operated since 2016 were still included in the analysis but the mean index for the factors analyzed recognized the period of operations. This is justified by a report by the Kenya Bankers Association (2018) that captures deteriorating aggregate income growth for the banks in this period.

The choice of the five-year span is further justified by the shift in market dynamics with marked growth of mobile banking and internet banking in this period. Banks are not only facing competition from their traditional competitors such as SACCOs and Micro Finance Institutions but have mobile and internet money dealers as new rivals. Further, the Covid-19 Pandemic also happened during this period and it would be interested and valuable to assess the profitability of these banks under these unexpected conditions. There has also been a range of regulatory changes in this period such as the interest rate capping that may have also impacted on the performance of the banking business. In terms of theoretical scope, the study employed trade-off theory of capital structure, the net income approach, the pecking order theory, Modigliani and Miller Capital Structure Theory, Dynamic Trade-off Theory and Agency Cost Theory.

1.7 Limitation of the Study

The study encountered a number of limitations. There existed missing data for some of the years within the study scope. However, the study mitigated this limitation by adopting unbalanced data analysis technique. The study encountered errors in the reports used to extract data as audited financial statements and annual reports which could have led to biased conclusions. To address this, the researcher utilized authoritative sources such as the Central Bank of Kenya and Kenya Bankers Association in addition to the individual audited financial statements and management reports of the banks. The researcher also acquired all the necessary research permits and approvals from Karatina University and National Commission for Science, Technology and Innovation to request the banks to give the correct reports for data review. They were also assured that he data were for academic research only. In terms of methodological limitation, the study focused only at lower tier commercial banks

limiting the study population. However, this was mitigated by concurrently adopting cross section and time series data.

1.8 Operational Definition of Variables

Capital Structure	For purposes of this study, capital structure represented the debt to equity mix utilized in the firm to finance banks operations (Yapa, 2017). Key components of debt used include, short term or long term debt and equity that include internal and external equity (Yapa, 2017).
Debt financing	This term as used denoted the extent to which the firm would have financed their operations and investment through externally procured funds in form of loans, whether short term or long term (Davie & Puca, 2020).
Equity Financing	Equity financing represented the amount of funds that the firm utilizes from internal sources either retained earnings or issue of shares (Ardalan, 2017).
External Equity	This was represented as the use of share capital financing or issue of new shares as a way of financing the firm (Ardalan, 2017).
Bank Size	Firm size represents how large or small the firms are in terms of the asset base (net asset), market

	share and customer deposits (Sari & Sulastri, 2019). In this study, natural logarithm of net assets of the bank was used to measure bank size.
Internal Equity	This represents financing of the firm though internal / own sources from retained earnings and reserves (Almaqtari *et al.,* 2019).
Long Term Debt	This represent uptake of loans with repayment period exceeding one year to finance operations and investments in the firm (Flannery & Hankins, 2007).
Lower Tier Commercial Banks	These are the medium and small sized lenders in tier II and III of the Central Bank of Kenya's Tier system of classification (CBK, 2020)
Short Term Debt	This represents financing of the firm through short term loans with a repayment of less than one year (Brigham *et al.,* 2016).
Profitability	This is the extent to which the firm generates income from shareholder's investment. In the study, this is measured through net profit margin, return on assets and return on equity (Abbas, Iqbal & Aziz, 2019).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents an appraisal of existing literature on the subject matter; bank size and its moderating role on the influence of capital structure on financial performance of firms. It captures a review of past studies under empirical review. It also covers relevant finance theories on capital structure and the likely impact on profitability. This includes an appraisal of past findings and gaps that remain unfilled.

2.2 Theoretical Review

This section covers a review of capital structure theories. The key guiding theories include the the pecking order theory, Modigliani and Miller Capital Structure Theory, trade-off theory of capital structure, the net income approach, Dynamic Trade-off Theory and Agency Cost Theory. The theories are considered instrumental in creating an understanding of different schools of thought regarding the variables and how they relate.

2.2.1 Pecking Order Theory

The Pecking Order Theory was proposed by Donaldson (1961) and is founded on the argument that firms prefer internal sources as they are more productive than external sources of finance. The pecking order model advances that the argument that a firm should prefer internal equity (retained earnings) as this would have the largest impact on profitability. Only upon exhausting the retained earnings should the firm resort to debt, with a preference to short term debt and then long term debt. External equity (share capital financing) should be avoided and used only as a last resort.

Myers and Majluf (1984) modifies the pecking order theory by making further significant improvements by enriching the arguments with the information asymmetry view to the pecking order hypothesis. The improved version dictates that the cost of financing upsurges with asymmetric information. The pecking order hypothesis could also act as a signal to the performance condition of the firm. Firms that use internal finance are deemed strong (Jiang *et al.,* 2019). Additionally, firms that use debt show management confidence on the ability of the firm to meet her obligations and still deliver returns to the firm. However, when a firm issues new equity, this send a negative signal that the management wants to distribute the risk of the investment across a wide base of investors as they might be unsure of the company's future (Nagakura, 2020).

According to Shahar *et al.* (2015), the advantage of using internal financing through retained earnings is that it attracts no floatation costs. In addition, internal sources of finance need no additional disclosure of financial information that could expose the firm's competitive advantage. The theorists provides a scale or guide that can be used to consume external funds starting with short term debt, long term debt, convertible securities, preferred stock, and lastly common stock (Watson & Head, 2010).

Jarallah *et al.* (2019) tests the traditional trade-off model against the pecking order model of capital structure. The test was based on secondary data from companies listed on the Tokyo Stock Exchange in Japan. A total of 1,362 firms were analyzed. The study considered data from 1991 to 2015. Empirical evidence established that the financing pattern of Japanese firms was inconsistent with the tradeoff suggestions. The financing pattern was leaning more towards the basic pecking order model where internal equity is more preferred. Guizani (2020), while testing the application of pecking order theory finds no evidence to support the preference of internal financing sources over other

external sources. The study was based on an analysis of firms operating under Islamic principles. The study was based on a sample of 66 Islamic firms listed on Kingdom of Saudi Arabia stock market between the year 2006 and 2016. The firms were found to prefer sale-based instruments and only resort to equity financing as a last resort, often during crisis. The study conflicts the foundational argument presented by pecking order theorists who indicate that internal sources are more preferred over external ones.

Frank and Goyal (2003) tests the pecking order theory of corporate leverage on a broad cross-section of publicly traded American firms for the period between 1971 to 1998. The study also finds no significant empirical evidence to support the propositions of pecking order theorists on internal sources superiority over external sources. The theory is significant to this study as it suggests that firms consuming less debt will be more profitable than firms with a big debt appetite. As such, the theorists opine that use of equity with exception to external equity, would deliver more profit to the firm than debt would. This premise was key in evaluating the statistical results of the study. The theory anchors the influence of internal equity capital and external equity capital on financial performance of lower tier commercial banks in Kenya.

2.2.2 Modigliani and Miller Capital Structure Theories

The Pecking order theory presents a case for funding from internal sources but fails to present practical explanations of either debt or equity financing. Researchers have argued that the pecking order theory cannot be useful in making practical applications because of theoretical nature. (Guizani, 2020). While the theory may still find relevance in determining whether firms apply the proposed funding hierarchy, it fails to give in

depth analysis of either debt or equity financing. The Modigliani and Miller Capital Structure Theory partially addresses this shortcoming by focusing on an in-depth examination of debt as a finance option. The theory is associated with Modigliani and Miller (1963) and provides an insightful view of the optimal capital structure in the firm. In essence, the theorists define the financial decisions which are irrelevant in determining firm value. The theory supposes that firm value remains the same, irrespective of the financing framework that the firms adopt. Thus, there may not be any noteworthy link between profitability and the debt to equity mix in the firm. The theory argues for the existence of perfect markets where all users have similar access to relevant information (Ahmeti & Prenaj, 2015).

The theory makes an assumption that firms have two main options for financing their activities and operations; equity and debt. While either financing options has their own merit or drawbacks, the ultimate goal of firms is distributing their cash flows among the owners of the firm outcome regardless of the method used in financing (Shahar *et al.,* 2015). By assuming that all investors can access the same financial markets, the proponents hold that they can purchase into or dispose out of a firm's cash flows at any point. Thus, where there is no taxation, asymmetric information, bankruptcy, or agency costs, the value of a firm will not be affected in anyway by how or by the manner by which firm is financed (Ahmeti & Prenaj, 2015).

Krstevska *et al.* (2017) tested the Modigliani and Miller (MM) theory which suggests that financing structure is irrelevant in terms of the cost of capital. The study was based on the banking system in the Republic of Macedonia. The results provide no evidence in support of the propositions of the MM theory. It is such conflicting results that the current study becomes indispensable in providing new evidence to test the validity and

useful of the theory in modern firm evaluation. The study is useful in evaluating the effect of debt on the financial performance of the firm. Both short term and long term components of debt are analyzed in the context of the theoretical precincts of the theory. This theory is relevant to the study because it provides for a non-biased perspective on the effect of capital structure and profitability of variables employed by the study. By providing that financing decisions are irrelevant to the firm, the theory offers a foundational platform to analyze and critique the use of different components of corporate finance. The theory anchors the influence of short term debt capital and long term debt capital on financial performance of lower tier commercial banks in Kenya.

2.2.3 Net Income Approach Theory

The Modigliani and Miller (MM) theory has not gone unchallenged on the proposition that financing structure is irrelevant in terms of the cost of capital. Conflicting evidence has been presented in support of a case for consideration of the cost of capital dimension as key to financial performance (Krstevska *et al.,* 2017). Thus, the Net Income approach brings a new, much useful argument that incorporates the cost of capital dimension. Net Income Approach was developed by Durand (1959) with a proposition that firms can enhance the value of the firm by controlling and reducing the overall cost of capital measured through the Weighted Average Cost of Capital. The Weighted Average Cost of Capital (WACC) represents the weighted average costs of equity and debts where the weights are the amount of capital raised from each source. According to the theorists, debt is a prudent source of financing and as such, a higher proportion of debt would influence profitability better than external equity finance (Merriman, 2017).

According to Ardalan (2017), the Net Income Approach hold that the market value of a firm is influenced by the operating income and associated business risks. It is further held that financial leverage has no link whatsoever with either the business risks or operating income and therefore does not determine the profitability of the firm. Yapa (2017) posits that financial leverage would only impact on the share of income earned by debt holders and equity holders but would not determine the operating income. Therefore, change in debt to equity ratio cannot make any change in the value of the firm. Nonetheless, the theory has not gone unchallenged as Wambua (2019) presents results that negate the arguments of the net income approach finding that debt financing has a weak negative relationship with profitability as a metric of financial performance. Methodologically, the study presents knowledge gap on need to split the debt component to reflect short term, long term and total debts which have been reported to affect profitability differently. Baral (2004) tests the net income approach using data obtained from companies listed at Nepal Stock Exchange Ltd for the period as at 2003. Others who have criticized the theory and presented contradicting evidence are Kanini (2016) who indicated a positive effect of debt on performance study by Birru (2016) who indicated a negative effect of debt on performance.

The results support the theoretical foundations of the net income approach in suggesting that it is business risks, earning capacity and income levels that have an implication on the pattern of borrowing as well as the financial performance of the firm. Therefore, the theory is relevant to this study as it argues that debt may not significantly affect the profitability position of the firm.

2.2.4 Trade-off Theory

Although the net income approach brings in important considerations of the cost of capital as key in influencing the financial performance of the firm, it seems to lean more on consideration of the debt component of capital structure. The Tradeoff Theory solves this shortcoming by addressing the cost benefit analysis of both components of capital structure: debt and equity. The Tradeoff Theory of capital structure was first developed by Kraus and Litzenberger (1973) and provides insights on what the firms consider in establishing the optimal debt equity proportions. The trade-off theory of capital structure is premised on the proposition that a firm determines the amount of debt and equity to consume by striking a balance on the costs and benefits accrued (Nicodano & Regis, 2019). The classical version of the tradeoff hypothesis considers a balance between the dead-weight costs of bankruptcy and the tax saving benefits of debt. In most cases, the agency costs are also included in the trade off.

According to Izhakian *et al.* (2016), the tradeoff theory of capital structure competes with and challenges the pecking order theory of capital structure. The bottom-line of the theory is that firms finance their operations partly with debt and partly with equity. While financing with debt delivers some tax benefits, it also comes with the cost of interest payments, bankruptcy costs and non-bankruptcy costs (Yapa, 2017). The marginal benefit of further increases in debt declines as debt increases, while the marginal cost increases, so that a firm that is optimizing its overall value will focus on this trade-off when choosing how much debt and equity to use for financing (Bender, 2013).

As such, profit seeking firms ought to set the ideal target debt-equity ratio that maximizes the benefits of debt and equity and progressively move towards achieving that ratio (Ahmadimousaabad *et al.,* 2013). The optimal capital structure epitomizes a trade-off between the tax advantage of debt and various leverage-connected expenses or charges (Brounen *et al.,* 2006). Jarallah *et al.* (2019) tests the traditional trade-off model against the pecking order model of capital structure. The test was based on secondary data from companies listed on the Tokyo Stock Exchange in Japan. A total of 1,362 firms were analyzed. The study considered data from 1991 to 2015. Empirical evidence established that the financing pattern of Japanese firms was inconsistent with the tradeoff suggestions. The financing pattern was leaning more towards the basic pecking order model where internal equity is more preferred.

2.2.5 Dynamic Trade-off Theory

Dynamic Trade-off Theory was proposed by Fischer, Heinkel and Zechner (1989). The dynamic version of the trade-off theory explicitly accounts for the adjustment behavior of the leverage ratio where adjustments take place when the cost of deviation from the target exceeds the cost of adjustment towards that target (Fischer *et al.,* 1989). One advantage of the dynamic feature is that since the adjustment towards the target is a characteristic of trade-off theory, it can be used to validate the trade-off theory against other theories of capital structure that do not presume the existence of target leverage, i.e. pecking order theory (Myers & Majluf 1984).

According to the dynamic trade-off theory, a firm's profitability can be an important determinant of its capital structure (Dierker & Seo, 2019). Dynamic trade-off theories explicitly emphasize the idea that firms have a target that maximizes its value and

deviations from that target are costly. Hence, deviations will be gradually removed over time. However, the dynamic adjustment in certain conditions, specifically for near-target and underleveraged firms, is weak and can be easily dominated by other considerations. That means that other theories of capital structure might dominate the financing decisions (Abdeljawad *et al.,* 2013).

The dynamic trade-off theory is applicable in this study. The dynamic trade-off theory states that a firm that is big in its operations tends to employ more external financing through debt at a lower cost. Large banks have consistent and diversified cash flow. According to this notion, the large banks can use more external finances than small banks. The theory anchors the objective on the moderating effect of bank size on the relationship between capital structure and bank performance.

2.2.6 Agency Cost Theory

The theory was founded by Jensen and Meckling in 1976 and entails contractual agreements made by principal owners of a firm (shareholders) and the individuals or entities (agents firm directors) where the agent is dedicated authority to manage and run a business on behalf of the owners. The principal owner trusts that firm agent will act on the best interests of the firm owners, nonetheless, it never goes as suggested as the agents end up pursuing their own interests termed as agency problems (Jensen & Meckling, 1976). Agency theory explains the agency problems that exist when the agent employed by principal to run a firm act on the contrary resulting to conflict of interests.

Agency problems result to agency costs which becomes a burden or expense to the firm as agents fail to carry out the core tasks of the firm as agreed in the agreement. The

principal agent is not always available and thus actions of the agents in the form of hidden actions/information derail the prosperity of the firm. In most cases, the agents are well informed about the market than the principals and this phenomenon worsens the agency problems (Johnson & Droege, 2004). Jensen and Meckling (1976) expounded the agency costs into three types: the cost of monitoring the decisions made by managers, contract costs of restricting agreements, and finally, the residual loss which is the loss that occurs because of suboptimal decision-making and actions by managers. To reduce agency costs, the above costs have to be controlled.

Critics argue that agency theory at times is not realistically suitable in actual social life. It assumes that agents are only driven by self-interests and only interested in their gain which is not always the case. Agency theory also assumes that the market is not influenced by social relations which is not true (Lan & Heracleous, 2010). In addition, the mechanisms suggested to control agency problems are termed to be expensive, economically inefficient as the mechanisms employed to protect shareholders' interests tend to jeopardize prudent decision making, distort firm's investment plans, restrict collective management, ignore value of other prospective shareholders resulting to low commitment to the firm strategic goals (Hatchuel & Segrestin, 2011).

The relevance of this theory is that it tries to explain corporate structure as a crucial objective by the banks to create value to the shareholders. Agency costs if not monitored can deprive operational capabilities of the banks through lack or inability to adequately finance its operations. In view of the agency theory, the ideal capital structure comes from settlement among several funding choices like equity, debts and other securities and that let the settlement of conflicts of interests among the capital providers (stockholders and debt providers) and bank managers.

2.3 Empirical Review

This section presents a review of past studies on the subject matter; capital structure and profitability of firms. The review also covers a justification for using bank size as a moderating variable to the relationship between capital structure and profitability of banks. The objective of the review is the establishment of knowledge gaps which would be the basis of this study.

2.3.1 Internal Equity and Profitability

King'oo (2015) studied the effect of selected internal factors on the financial performance of commercial banks listed in the Nairobi Securities Exchange. The study focused on a time span of 5 years between 2010 and 2014. Financial performance was indicated through the return on assets (ROA) ratio. Analysis was done through Pearson correlation analysis and multiple regression analysis. Results established that internal and external equity have a significant positive effect on financial performance. The size of the bank was also seen to be a positive determinant of financial performance. Conceptual gaps are established in that only a handful of studies have attempted a wholesome appraisal of all capital structure items, debt included. Methodologically, further gaps are clear in that studies have rarely considered analyzing, as the main theme, the moderating effect of bank size on capital structure-financial performance relationship. These two are the foundational gaps upon which the study was constructed.

Kanini (2016) studied the effects of capital structure on financial performance of commercial banks in Kenya. Specifically, the study sought to determine the effect of debt, internal equity, external equity and preference share capital on financial

performance of commercial banks in Kenya. Financial performance was indicated by the earnings before interest and tax. The study targeted the 43 commercial banks licensed by the Central Bank of Kenya. The secondary data collected covered a ten-year period between 2005 and 2014. Internal equity represented by retained earnings also showed positive effect on financial performance. The study presents contextual gaps on need to have an up to date analysis. This study considered data for the period 2016 to 2020 to address the study gap.

Muigai (2016) studied equity structure effect on financial soundness of non-financial companies listed in Kenya. A panel research design was used. The study adopted a census approach where all the forty non-financial listed firms were studied. Secondary data was relied upon to and was extracted from firm's published financial statements. The study covered the time between 2004 and 2013 which translated to ten years. The findings indicated that there exists a positive and significant effect of internal equity on firm's financial soundness. Conversely, results showed that external equity has a significant negative effect on financial soundness. The study presents empirical gaps in that results contradict earlier findings by Thuranira (2014) who indicated that internal equity has no significant impact on profitability. Gaps were addressed by conducting an empirical study anchored on diverse theoretical and empirical perspectives to guide worthy conclusions.

Thuranira (2014) studied the influence of retained earnings as a component of internal equity on the returns of NSE listed firms. A descriptive survey design was adopted. The study period was between 2009 and 2013. Inferential statistics were used in the analysis for their ability to enhance generalizations. The regression analysis was the main method of analysis. Results showed that retained earnings is a weak and

insignificant determinant of stock returns and profitability. The study recommended that organizations ought to retain their earnings only if they have projects that have a positive net present value. Conceptually, the study presents gaps as it considered a narrow dimension of equity that excluded other key components such as external equity. This study assessed all key dimensions of capital structure including external equity and various debt elements.

Maswadeh (2016) studied financing structures and firm profitability and dividend payout. The research focused on public industrial companies in Jordan. A total of forty-seven firms were sampled with the study period being 2008 to 2014. Results indicated a negative effect of liabilities (both short term and long term ones) on profitability. The study also indicated that internal equity (retained earnings) have a positive and significant effect on profitability. Contextually, gaps exist as most studies on the subject matter are foreign in orientation with scarce empirical evidence locally. This study filled was oriented to local banking industry, a factor that addressed the aforementioned gap.

Based on the literature reviewed, the study formulated the hypothesis that there is no statistically significant effect of internal equity capital on financial performance of lower tier commercial banks in Kenya.

2.3.2 External Equity and Profitability

Muigai (2016) studied equity structure effect on financial soundness of non-financial companies listed in Kenya. A panel research design was used. The study adopted a census approach where all the forty non-financial listed firms were studied. Secondary data was relied upon to and was extracted from firm's published financial statements.

The study covered the time between 2004 and 2013 which translated to ten years. The findings indicated that there exists a positive and significant effect of internal equity on firm's financial soundness. Conversely, results showed that external equity has a significant negative effect on financial soundness. Contextual gaps are unveiled with regard to the time period considered. The study gaps were addressed by updating the study to cover the data over the period 2016 to 2020 for better applicability.

Liaqat *et al.* (2017) assessed the influence of capital structure on profitability of fuel sector firms in Pakistan. The study collected secondary data from 2006 to 2014. Results showed that external equity has a significant negative impact on profitability of firms in fuel & energy sector of Pakistan. The Earnings per Share (EPS) was found to be the least driven performance metric by external equity. Methodological gaps were unveiled on the need to use a wide range of indicators of financial performance to reflect listed firms such as ROE and ROA. This was addressed by using ROA, ROE and Net Profit Margin as key metrics.

Omai, Memba, and Njeru (2018) examined share capital finance and profitability of petroleum marketing firms in Kenya. A sample of 35 petroleum firms were studied. The time period of the study was the year 2007 to 2016. Results showed that share capital financing (external equity) negatively impacts on profitability. Conceptual gaps exist as the study was narrowly focused on external equity leaving out other key components of capital structure such as short term debt, long term debt and internal equity. This study covered an expanded framework of capital structure items.

Maina and Ishmail (2014) examined capital structure and profitability of firms listed at Nairobi Securities Exchange. The study targeted all firms listed at the NSE from year

2002 to 2011. Using a causal research design, regression analysis results indicated that equity and debt finance are significant determinants of profitability. Further, it was established that external equity (share capital finance) has a positive effect on profitability. Contextual gaps arise as the study, like most others on the subject matter was done in a foreign setting. Further contextual gaps are with regard to the time span in that data may not reflect the current situation as a considerable time span has passed. To address this shortcoming, this study considered up to date data covering the period 2016 to 2020 and targeted the local banking sector. Though the study by Maina and Ishmail (2014) focused at capital structure and profitability of banks, it did not consider the impact of bank size in influencing the this relationship.

Based on the literature reviewed, the study formulated the hypothesis that there is no statistically significant effect of external equity capital on financial performance of lower tier commercial banks in Kenya.

2.3.3 Short Term Debt and Financial Performance

Ranabhat (2019) studied the effects of internal factors on financial performance of Joint Venture Banks in Nepal. Financial performance was indicated through profitability ratios namely; return on assets and return on equity. Short term debt and long term debts were among the variables assessed by the study. Secondary data was collected from bank supervision report of Nepal Rastra Bank and annual reports of six banks. The period of review was 10 years; between 2008 to 2018. The pooled Ordinary Least Squares was the main analytical tool. Results indicated a significant negative influence of short term debt on financial performance. Long term debt also showed a significant negative effect on financial performance. The study like most other past studies had a

foreign orientation. Contextual gaps are clear on need to consider a local study on the Kenyan banking sector. This was addressed by targeting the local banking sector.

Serwadda (2019) studied the effects of capital structure on performance of the Ugandan banking industry. The study covered a ten years span from 2006 to 2015 and included 20 Ugandan commercial banks in the sample. Financial performance was measured through return on equity, return on assets, net interest margin and cost to income ratio. The independent variables were the elements of capital structure that included long-term debt to total assets, short-term debt to total assets and total debt ratio. The results show a positive effect of long-term debts and total debt on financial performance indicators. The results show a negative relationship between short-term debt and return on assets. Empirical gaps are unveiled as the study results conflicts with other that found a positive effect. This study is anchored on the framework of through comparisons and critique to arrive at justifiable conclusions.

Fu, Ke and Huang (2002) studied capital growth, financing source and profitability of small businesses: Evidence from Taiwan Small Enterprises. The study relied on a population of 1,276 small firms operating in Taiwan. The period considered was between 1992 and 1997. Results indicated that while capital growth influenced the profitability of firms, debt and equity had varying effects. Results indicated that equity has a significant positive effect on profitability while debt has a negative effect on profitability. Gaps are established on need to split the debt and equity components to represent more dimensions that have been found to influence profitability differently. The established gaps were addressed by splitting the components of debt and equity to reflect specific elements that can influence profitability differently.

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Birru (2016) assessed capital structure and financial performance of selected commercial banks in Ethiopia. The study covered a five-year period from 2011 to 2015. Profitability measures of performance were adopted and included return on equity (ROE) and return on assets (ROA). The measures of capital structure included the debt ratio, debt to equity ratio, loan to deposit, bank's size and asset tangibility. The results established a negative and significant effect of debt ratio, debt to equity ratio, loan to deposit, bank's size and asset tangibility on financial performance. Conceptually, gaps emerge on need to split the analysis of debt and equity components to consider short term debt, long term debt, internal equity and external equity. This split of capital structure components gives the difference of the current analysis from past approaches.

Tailab (2014) studied capital structure and profitability of American energy firms. Profitability was assessed through return on assets and return on equity metrics. For capital structure, short-term debt, long-term debt, total debt, debt to equity ratio, and firm's size were used as key indicators. The study relied on a sample of thirty energy firms and covered a span of 9 years from 2005 to 2013. The Partial Least Square was adopted in the analysis. Findings showed that short debt has a positive effect on profitability. Nonetheless, the effect of long term debt on profitability was found to be insignificant. Gaps arise as the study failed to consider other specific dimensions of financing such as internal equity and external equity which are key in contemporary discussions. This study provided a comprehensive or fairy rich evaluation of capital structure, clearly distinguishing all elements.

Gill, Biger and Marthur (2011) studied the effect of capital structure on profitability of United States firms. The study focused on 272 American firms listed at New York Stock Exchange. The period of assessment was between 2005 and 2007. Analysis relied

heavily on inferential statistics with correlations and regression analyses being the main analysis methods. Results showed a positive relationship between short-term debt to total assets and profitability. Results also indicated that long-term debt to total assets was positively correlated with profitability. In context, gaps emerge as most studies on the subject matter are clustered in foreign settings leaving scarce empirical literature available locally. This study focused on the local banking sector and specifically the lower tier banks.

Maswadeh (2016) studied financing structures and firm profitability and dividend payout. The research focused on public industrial companies in Jordan. A total of forty-seven firms were sampled with the study period being 2008 to 2014. Results indicated a negative effect of liabilities (both short term and long term ones) on profitability. The study also indicated that internal equity (retained earnings) have a positive and significant effect on profitability. Contextually, gaps exist as most studies on the subject matter are foreign in orientation with scarce empirical evidence locally. This study was oriented to local banking industry, a factor that addressed the aforementioned gap.

As per the literature reviewed, the study formulated the hypothesis that there is no statistically significant effect of short term debt capital on financial performance of lower tier commercial banks in Kenya.

2.3.4 Long Term Debt and Profitability

Serwadda (2019) studied the effects of capital structure on performance of the Ugandan banking industry. The study covered a ten years span from 2006 to 2015 and included 20 Ugandan commercial banks in the sample. Financial performance was measured through return on equity, return on assets, net interest margin and cost to income ratio.

The independent variables were the elements of capital structure that included long-term debt to total assets, short-term debt to total assets and total debt ratio. The results show a positive effect of long-term debts and total debt on financial performance indicators. Similarly focused studies had established conflicting results which presents empirical gaps. This study was based on a thorough comparison and critique of results to arrive at worthy conclusions.

Ranabhat (2019) studied the effects of internal factors on financial performance of Joint Venture Banks in Nepal. Financial performance was indicated through profitability ratios namely; return on assets and return on equity. Short term debt and Long term debts were among the variables assessed by the study. Secondary data was collected from bank supervision report of Nepal Rastra Bank and annual reports of six banks. The period of review was 10 years; between 2008 to 2018. The pooled Ordinary Least Squares was the main analytical tool. Results indicated a significant negative influence of short term debt on financial performance. Long term debt also showed a significant negative effect on financial performance. Contextual gaps are clear on need to consider a local study on the Kenyan banking sector. This study was targeted the local banking sector to address the gap.

Koech (2013) studied capital structure and profitability of NSE listed financial firms. Specifically, the study focused on debt and equity components of capital structure as the study variables. The period of analysis was between 2008 and 2012. The study used descriptive statistics for analysis purposes. The results demonstrated that the financial firms (banks) were highly leveraged institutions. It was also indicated that debt level was inversely related to performance. Specifically, findings indicated that growth in the debt level (whether short term or long term) increases the interest payments therefore

resulting in a decline in profitability. Gaps are clear in that the study was anchored solely on descriptive statistics presenting need to adopt inferential statistics as well for enhanced generalizations. This study was used both descriptive and inferential statistics.

Mutinda (2015) assessed capital structure and profitability of the real estate firms in Kenya. The population of the study was made up of 78 real estate firms in Kenya. The study examined the profitability of the firms for a period of 7 years from 2008 to 2014. The descriptive survey research design was employed. For analysis of data, the regression analysis was the main tool. Return on assets and earnings before tax to total assets were the main profitability metrics. On the other hand, capital structure was indicated by debt to equity ratio, short term debt to total term debt and long term debt to total debt. Findings indicated that capital structure has a weak but insignificant effect on profitability of real estate firms. Results further indicated that short term debt to total debt has more positive effect on profitability than overall debt ratio. Therefore, the study recommended that real estate focus more on short-term debt as opposed to the overall debt to equity ratios. Empirically, gaps arise as the findings contradict past studies which for instance Koech (2013) which indicated that the effect of capital structure on profitability is strong and significant. This study was anchored on a variety of theories and empirical comparisons to arrive at justified conclusions.

Birru (2016) assessed capital structure and financial performance of selected commercial banks in Ethiopia. The study covered a five-year period from 2011 to 2015. Profitability measures of performance were adopted and included ROE and ROA. The measures of capital structure included the debt ratio, debt to equity ratio, loan to deposit, bank's size and asset tangibility. The results established a negative and significant

effect of debt ratio, debt to equity ratio, loan to deposit, bank's size and asset tangibility on financial performance. Conceptually, gaps emerge on need to split the analysis of debt and equity components to consider short term debt, long term debt, internal equity and external equity. This split formed the main shift of the current study from past empirical studies.

Tailab (2014) studied capital structure and profitability of American energy firms. Profitability was assessed through return on assets and return on equity metrics. The study relied on a sample of thirty energy firms and covered a span of 9 years from 2005 to 2013. The Partial Least Square was adopted in the analysis. Findings showed that short debt has a positive effect on profitability. Nonetheless, the effect of long term debt on profitability was found to be insignificant. Gaps arise as the study failed to consider other specific dimensions of financing such as internal equity and external equity which are key in contemporary discussions. The capital structure items were effectively split to give value to the study.

Wambua (2019) studied the implications of debt financing on financial performance of NSE listed companies. The study was anchored on a number of theories that explain capital structure including; pecking order theory, trade-off theory, agency theory, and Modigliani and miller theory. A descriptive survey research design was employed with the target population comprising 35 non-financial firms. The research period was between 2014 and 2018. Analysis of data was effected through descriptive and inferential statistics. Findings indicated that debt financing has a weak negative relationship with profitability as a metric of financial performance. Methodologically, the study presents knowledge gap on need to split the debt component to reflect short

term, long term and total debts which have been reported to affect profitability differently.

Dwilaksono (2016) studied the effect of short term debt and long term debt on profitability (return on equity) for Indonesian mining firms listed at Indonesia Stock Exchange. Both qualitative and quantitative data were utilized. Descriptive and inferential statistics, majorly regression analysis were used in the analysis. The data captured profitability and capital structure for the period between 2003 and 2007. Results established that short term debt has a positive and significant influence on profitability as indicated by Return on Equity. On the same note, long term debt was shown to yield a negative and significant influence on Profitability. Empirically, gaps emerge as other components of capital structure besides debt, such as equity were excluded in the analysis. This study was based on a rather fairy comprehensive assessment of capital structure components.

Because of lack of consensus among scholars regarding the effect of long term debt capital on firm performance, the study formulated the hypothesis that there is no statistically significant effect of long term debt capital on financial performance of lower tier commercial banks in Kenya.

2.3.5 Moderating Effect of Bank Size to Capital Structure-Profitability Relationship

Qamar, Farooq and Akhtar (2016) studied the moderating role of firm size on the leverage-profitability relationship in Pakistan. A total of 304 Pakistanian non-financial firms were targeted with the study period being between 2005 and 2013. Results showed that while the relationship between leverage and profitability is negative for all

firms, the losses are more prominent for small sized firms. Further, findings indicated that the link between leverage and performance relation is nonlinear for medium and large size firms. The study concludes that while small firms should avoid debt all together, medium and large firms should seek to arrive at an optimal debt to equity mix to optimize their profits. The study presents arguments that interests the current study in suggesting that small firms should avoid borrowing altogether while medium and large firms should go for an optimal mix of finance. The current study is particularly targeting lower tier banks which makes the distinction presented quite useful.

Maina *et al.* (2019) studied the effect of bank size on financial performance of commercial banks in Kenya. A descriptive survey was applied while the study considered data for the period between 2012 and 2016. Bank size was indicated by annual bank deposits and annual gross loans. Financial performance was measured through annual net profit after tax. Results established that bank size has a positive effect on financial performance of commercial banks in Kenya. The study is very useful in the current analysis. This is because past studies, just like this study, have rarely attempted to analyze bank size as a moderator despite the evidence that it could have huge ramification on performance.

Muigai and Muriithi (2017) studied firm size as a moderator on the relationship between capital structure and financial distress. The study targeted manufacturing firms in Turkey and considered the period from 2007 to 2017. Results showed that as debt whether short term or long term increased, the level of financial distress also increased. Firm size, return on equity, asset tangibility variables are reported as effective on the association between leverage and financial distress. Interestingly, the study finds that large firms suffer more than small ones when debt is taken. This finding conflicts that

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of Qamar, Farooq and Akhtar (2016) who indicated that smaller firms would be more negatively affected by debt uptake. The researcher finds the study results quite useful in the current analysis as it would be imperative to determine what the conflicting results of past studies mean.

Sari and Sulastri (2019) studied the moderating role of firm size on the relationship between capital structure and profitability for manufacturing firms in Indonesia and Malaysia. The study population comprised of 40 and a further 130 manufacturing firms listed at Indonesia Stock Exchange and Bursa Malaysia stock exchange respectively. The period covered was year 2008 to 2017. Results established that firm size moderated the effect of capital structure on profitability to show that large firms are more largely negatively affected. The researcher finds the study useful in comparing the study findings, done in a foreign set up, with locally gathered evidence.

Aladwan (2015) studied the impact of bank size on financial performance of listed Jordanian commercial banks. Data was collected for the period between 2007 and 2012. The asset size to total assets was used to indicate size of the firm. On the other hand, profitability was used to indicate financial performance and was measured through Return on Equity (ROE). Results established that bank size has a huge effect on financial performance. Past studies, just like this study, have rarely attempted to analyze bank size as a moderator despite the evidence that it could have huge ramification on performance. This study filled the gap by assessing the influence of bank size as a moderator of the relationship between capital structure and performance.

Mboi *et al.* (2018) analyzed the moderating effect of firm size to capital structure and financial performance. The study was based in 30 medium size and 60 large enterprises

in Kenya. The theories guiding the study included the trade-off theory, pecking order theory and free cash flow theory. The study established that firm size has a positive moderating effect on the relationship between capital structure and financial performance. The study also concluded that the size of a firm increases the ROA while it decreases ROE. Contextually, a gap is clear on need to replicate this analysis to financial performs where the moderating aspect of size is rarely considered. This study filled the gap by targeting the local Kenyan banking sector.

Ochieng (2019) studied the moderating effect of firm size in the relationship between financial leverage and financial performance. The study was done on 47 non-financial firms listed in the NSE, Kenya. The research design adopted correlational research design. The study concluded that the firm size has a negative moderating effect on the relationship between financial leverage and the financial performance of a firm. Gaps are clear in that the need to consider how firm size moderates capital structure as a whole and not just the leverage element. This study addressed this gaps by considering the moderating effect of firm size on capital structure and a range of its components.

Qamar *et al.* (2018) studied the moderating effect of firm size on the leverage-performance relationship in the context of developing countries like Pakistan. The study relied on data from a total of 304 Pakistani non-financial firms. The period captured in the review was between the year 2005 and 2013. The study established that the overall leverage-performance relationship was negative for all types of firms. Nonetheless, the losses associated with leverage was more pronounced for small size firms. In context, the study brings out gaps as rarely have studies have focused on moderating role of firm size on the relationship between capital structure and financial performance of financial firms. This study addressed the aforementioned gap by targeting lower tier commercial

banks and approaching the assessment of firm size as a moderator between capital structure and performance.

Eyigege (2018) studied the influence of firm size on financial performance of deposit money banks quoted on the Nigeria Stock Exchange. The analysis was based on a sample of five deposit money banks. The Taro Yemeni sampling technique was applied in identifying the sample from a population of the entire Nigerian banking industry. Firm size was indicated by total assets. Financial performance on the other hand was measured through return on assets. Results demonstrated that firm size had an insignificant negative effect on financial performance. From an empirical perspective, gaps emerge as the results contradict earlier findings that showed a positive influence on financial performance. This study filled the gap by ensuring a through critique of results against the foundations of theory for justifiable conclusions.

Nzioka (2013) studied the relationship between bank size and financial performance of commercial banks in Kenya. A correlational design was applied on a target population of 43 Kenyan commercial banks. The period of analysis was between 1998 and 2012. The study relied on secondary data collected from Central Bank of Kenya and bank reports and publications. Bank size was indicated through net assets, total loans, total deposit and number of employees. On the other hand, profitability metrics (return on assets) was the choice indicator of financial performance. Correlation and regression analysis results indicated a significant relationship between bank size variables namely; total loans, total deposits, and total assets with return on assets. Total deposits and total loans demonstrated stronger positive effect on return on assets than did total assets. Results indicated no significant association between numbers of employees with performance as indicated by return on assets. The study presents contextual gaps on

need for up to date studies considering that a decade has passed since the results were presented. Gaps to be addressed by updating the span of the secondary data captured to date.

Omar (2015) studied the association between bank size and financial performance of microfinance banks in Kenya. A descriptive survey approach was applied on a population of 9 Micro Finance Banks operational between the year 2010 and 2014. Secondary data was obtained from published financial statements of individual banks as well as reports from the Central Bank of Kenya. Findings indicated no significant relationship between asset quality, total assets and customer deposits and financial performance. Regression analysis results however indicated that total assets had a significant effect on financial performance. Empirically, gaps are unearthed as the findings contradict other findings that showed that size as indicated by total assets has a significant positive relationship with financial performance. This study filled the gap by ensuring a thorough comparison and contrast of results to arrive at justifiable conclusions.

Muhindi and Ngaba (2018) studied the effect of bank size on financial performance of commercial banks in Kenya. The study used a descriptive survey approach was adopted. Size was indicated by branch network, capital base, customer deposits and loan volumes. The study targeted all the 42 large, medium and small banks that excluded the one mortgage finance company in Kenya. Secondary data was obtained from published reports from individual banks and Central Bank of Kenya. The study considered a 5 years span between 2012 and 2016. Results indicated a significant positive correlation between branch network and return on assets. Loans volume demonstrated a strong relationship with return on assets. Customer deposits showed a

positive correlation with return on assets as a measure of financial performance. Finally, capital base showed a strong relationship with return on assets. Contextual gaps emerge on need to consider an up to date empirical study covering the period 2016 to 2020. The time span of this study was updated to ensure better relevance of the results in view of current situation in the regulatory and operating environment.

Hossain and Mohammad (2019) studied the bank size and financial performance of banks in Bangladesh. The study targeted a total of ten (10) banks listed on Dhaka Stock Exchange (DSE) in Bangladesh. The study considered the period between 2011 and 2015. Bank size was indicated through total assets, number of employees and number of branches. Financial performance on the other hand was indicated through return on assets (ROA) and return on equity (ROE). Findings indicate that bank size indicators; total assets, number of employees and number of branches all have a positive effect on both return on assets and return on equity. Contextually, the results presents gap on need to replicate the study in the local banking sector for better applicability of results. The gaps were addressed by targeting the local Kenyan banking sector and specifically the commercial banks in the analysis.

Omenyo and Muturi (2019) assessed the effect of firm size on financial performance of manufacturing firms listed in Nairobi Securities Exchange, Kenya. The study relied on secondary data gathered from the annual financial statements of manufacturing firms operating from year 2012 to 2018. Panel descriptive statistics was used in analyzing the data. Results demonstrated that firm size has a significant effect on financial performance with the most profound of the factors being capital base as an indicator of firm size. Contextually, gaps emerge on need to consider the banking sector where there has been mixed or contradictory results regarding the effect of firm size on

performance. This study filled the gap by targeting the local Kenya's banking sector with a focus on commercial banks whose performance has been an issue of concern among stakeholders recently.

Ngumo *et al.* (2020) considered the determinants of financial performance of microfinance banks in Kenya. A descriptive survey research design was used with the target population comprising of 7 microfinance banks. Secondary data was gathered for a five-year span from 2011 to 2015. Using the Pearson correlation analysis and multiple regression analysis, results showed that bank size has a positive and significant association with financial performance of microfinance banks in Kenya. A conclusion was reached that large micro finance banks were likely to post superior financial performance compared to small ones. Methodologically, gaps are established on need to consider how bank size moderates the effect of capital structure on performance which is a rare approach of past studies. This study filled the gap by considering the moderating effect of bank size on the relationship between capital structure and performance of banks.

Mulwa (2020) considered firm size and financial performance of deposit taking microfinance institutions in Kenya. The study was guided by two key theories: Resource Based View theory and Efficient Structure hypothesis. The study adopted both static and a dynamic panel data model. The study relied on secondary data that covered an eight-year span from 2011 to 2018. The population comprised of six MFIs in Kenya. Results indicated that total assets have a positive impact on financial performance. However, customers' deposits showed no significant effect on financial performance. Conceptually, the study shows gaps as other key indicators of firm size

such as customer deposits were omitted from the analysis. This study filled the gap by considering an expanded framework of firm size indicators.

Shibutse *et al.* (2019) studied the effect of firm size on financial performance of deposit taking savings and credit cooperatives in Kenya. Financial performance was indicated through profitability metric (Return on Assets). Guiding theories included the Tradeoff, Pecking order, and Mogdiliani and Miller capital structure theories. The target population comprised of 174 Deposit Taking SACCOs. Regression analysis results indicated that firm size had a significant and positive effect on financial performance. In concept, the study presents gap on need to expand the metrics of firm size to include other dimensions such as customer deposits. Firm size was measured through an expanded range of metrics to fill this gap.

Important to note, in the review period, 2016 to 2020, there has been many market dynamic impacting on the banking environment and banking business. Key among those changes include the interest rate capping introduced in 2016, entry of a new class of competitors in mobile money dealers, the introduction of agency banking and the covid-19 pandemic. Through the Banking (Amendment) Act of 2016, the interest capping law was introduced and spelt out a ceiling of 4% above the interest rate set by the Central Bank of Kenya. Effectively, the interest rate capping law required the banks not to charge more than 4% of the lending rate above the Central Bank Rate (Central Bank of Kenya, 2018).

According to Kenya Bankers Association (2018), the profitability of banks as indicated by ROA and ROE were greatly affected as they decreased drastically. Empirical studies have also demonstrated that interest rate capping has had serious and negative

impactions on the financial performance and sustainability of the commercial banks (Kavwele *et al.,* 2018; Ng'ang'a, 2017). Nonetheless, in 2019, the High Court of Kenya suspended the Interest Rate Capping law and declared Section 33B (1) and (2) of the Banking Act that had introduced the interest rate cap as unconstitutional. Failure by the national assembly to streamline the law saw that interest rate regime adjourned which saw banks reverting to the earlier system where banks have freedom to set interest rates as they wish. It would be interesting to evaluate the research theme in the different regulatory contexts presented in the review period. It was imperative to understand how the regulatory changes too impacted on financial performance of the banks.

According to Demombynes and Thegeya (2012), mobile money banking has also brought a revolution to the banking business in Kenya by a large extent. Mobile money service providers such as Mpesa and Airtel Money have introduced heightened completion to banks and have taken away a huge chunk of the market share especially with regard to deposits and loans (Coderias, 2017). The banks have, with time, ensured that their customers get all the banks' services through mobile phones. The physical appearance in the bank to get the services have decreased a lot. The people can withdraw cash, get loans through the mobile, confirm their account bank balances, send money, and pay bills. Mobile banking is not only fast but also ensures customers get the service with enhanced efficiency and convenience, anywhere and anytime. In the year 2020, when the lockdown was introduced due to Covid 19, the CBK insisted that the banks improve their money banking services so people would avoid going to the bank and get their services as usual. The technology has greatly been embraced as it is fast due to the introduction of the 4G network, which is fast. The banks have also

reduced the operation cost because they don't require a lot of staff, thus increasing the profit level (Mugane & Njuguna, 2019).

According to Simboley (2017), agency banking has also been a new norm in the banking sector and has grown rapidly over the past half a decade from year 2015. The adoption of agency banking has greatly redefined the profit making avenues for commercial banks beyond the traditional banking halls. According to Central Bank of Kenya (2018), three commercial banks namely Equity Bank, Kenya Commercial Bank, and Cooperative Bank make up 89% of Kenyan banks' agency banking. Notably, and coincidentally, the mentioned banks have remained as the most profitable in the country (Mbugua & Omagwa, 2017). The CBK has also allowed banks in Kenya to operate using agents as long as they follow all the required rules.

According to the literature reviewed, the study formulates a hypothesis that bank size does not statistically moderate the influence of internal equity capital, external equity capital, short term debt capital and long term debt capital on financial performance of lower tier commercial banks in Kenya.

2.4 Summary of Literature Review and Gaps

The empirical literature review sought to establish what has been done regarding the subject matter of the study; the moderating role of bank size on the relationship between capital structure and profitability of banks. The review takes an assessment of both local and foreign studies on the subjects with a view of establish existing gaps and device ways of addressing them. It takes note of the past research problems, methodologies,

findings and recommendations therein. Key gaps are established which include empirical, contextual, methodological and conceptual gaps.

From an empirical perspective, a number of studies present unverified results in view of many inconsistencies and contradictions presented. In a study targeting Nigerian deposit money banks, Eyigege (2018) indicated that bank size had an insignificant negative effect on financial performance. From an empirical perspective, gaps emerge as the results contradict earlier findings that showed a positive influence on financial performance. Results contradict with Muhindi and Ngaba (2018), Hossain and Mohammad (2019) and Omenyo and Muturi (2019) who indicated that bank size has a significant positive influence with financial performance.

Further empirical gaps are established as Nzioka (2013) indicated no significant association between numbers of employees as an indicator of firm size with financial performance as indicated by return on assets. The results conflict with Hossain and Mohammad (2019) who indicated that number of employees have a positive effect on both return on assets and return on equity. Further, in indicating that internal equity has a significant positive effect on profitability, Muigai (2016) contradicts Thuranira (2014) who indicated that internal equity has no significant impact on profitability. On the same note, Mutinda (2015) indicated that capital structure has a weak but insignificant effect on profitability. Empirically, gaps arise as the findings contradict past studies which for instance Koech (2013) which indicated that the effect of capital structure on profitability is strong and significant.

Contextually, gaps exist as most studies on the subject matter are foreign in orientation with scarce empirical evidence locally (Hossain & Mohammad, 2019; Eyigege, 2018;

Maswadeh, 2016). Further, a number of studies did not consider up to date data and there is a considerable period of time that has elapsed since the studies were done (Nzioka, 2013; Muhindi and Ngaba, 2018; Liaqat *et al.,* 2017; Muigai, 2016; Maselle, 2016; Gill, Biger & Marthur, 2011; Koech, 2013; Tailab, 2014). This study considered data for the period 2016 to 2020 to address the study gap. Conceptually, gaps emerge in that a number of studies fell short of a comprehensive assessment of bank size indicators (Mulwa, 2020; Shibutse *et al.,* 2019). Studies have also not adequately capital structure items and there is need to expand the capital structure indicators in the analysis for better comparison of results (Marietta, 2012; Omai, Memba, & Njeru, 2018; Dwilaksono, 2016).

Methodological gaps arise as a number of studies were anchored solely on descriptive statistics presenting need to adopt inferential statistics as well for enhanced generalizations (Koech, 2013). Most studies failed to consider specific dimensions of financing such as internal equity and external equity as well as short term and long term debt which are key items in contemporary discussion on financing structures (Tailab, 2014; Wambua, 2019).

Table 2.1: Summary of Literature Review and Knowledge Gaps

Author (s) and Context		Key Findings	Research Gaps: (Conceptual, Contextual, Methodological or Empirical Gaps)	How the current study filled the gaps
Ochieng (2019)	The moderating effect of firm	The study concluded that the firm	Gaps are clear in that the need to consider how firm	This study addressed this gaps by

Author (s) and Context		Key Findings	Research Gaps: (Conceptual, Contextual, Methodological or Empirical Gaps)	How the current study filled the gaps
	size in the relationship between financial leverage and financial performance.	size has a negative moderating effect on the relationship between financial leverage and the financial performance of a firm.	size moderates capital structure as a whole and not just the leverage element.	considering the moderating effect of firm size on capital structure and a range of its components.
Mboi *et al.* (2018)	The moderating effect of firm size to capital structure and financial performance.	The study established that firm size have a positive moderating effect on the relationship between capital structure and financial performance.	Contextually, a gap is clear on need to replicate this analysis to financial sector where the moderating aspect of size is rarely considered.	This study filled the gap by targeting the local Kenyan banking sector.
Aladwan (2015)	Impact of bank size on	Results established	Past studies, just like this study,	This study filled the gap

Author (s) and Context		Key Findings	Research Gaps: (Conceptual, Contextual, Methodological or Empirical Gaps)	How the current study filled the gaps
	financial performance of listed Jordanian commercial banks.	that bank size has a huge effect on financial performance.	have rarely attempted to analyze bank size as a moderator despite the evidence that it could have huge ramification on performance.	by assessing bank size as a moderator of the relationship between capital structure and performance.
Sari and Sulastri (2019)	The moderating role of firm size on the relationship between capital structure and financial performance for manufacturing firms in Indonesia and Malaysia.	Results established that firm size moderated the effect of capital structure on profitability to show that large firms are more largely negatively affected.	Empirically, gaps are established as past studies have indicated that smaller firms would be more affected by debt uptake than large firms.	To address this gap, the study results were thoroughly compared against past empirical evidence and foundations of theory before arriving at conclusions.

Author (s) and Context		Key Findings	Research Gaps: (Conceptual, Contextual, Methodological or Empirical Gaps)	How the current study filled the gaps
Muigai and Muriithi (2017)	Firm size as a moderator on the relationship between capital structure and financial distress.	Results showed that as debt whether short term or long term increased, the level of financial distress also increased. Interestingly, the study finds that large firms suffer more than small ones when debt is taken.	This finding conflicts that of Qamar, Farooq and Akhtar (2016) who indicated that smaller firms would be more negatively affected by debt uptake.	This study addressed the aforementioned gap by ensuring a through critique of results against the foundations of theory for justifiable conclusions.
Maina *et al.* (2019)	Effect of bank size on financial performance of commercial banks in Kenya.	Results established that bank size has a positive effect on financial performance	Past studies, just like this study, have rarely attempted to analyze bank size as a moderator despite the	This study analyzed the moderating role of bank size on the relationship between capital structure and

Author (s) and Context	Key Findings	Research Gaps: (Conceptual, Contextual, Methodological or Empirical Gaps)	How the current study filled the gaps
		of commercial banks in Kenya.	evidence that it could have huge ramification on performance.	performance hence filling this gap.
Shibutse *et al.* (2019)	The effect of firm size on financial performance of deposit taking savings and credit cooperatives in Kenya.	Regression analysis results indicated that firm size had a significant and positive effect on financial performance.	In concept, the study presents gaps on need to expand the metrics of firm size to include other dimensions such as customer deposits.	Firm size was measured through an expanded range of metrics to fill this gap.
Mulwa (2020)	Firm size and financial performance of deposit taking microfinance institutions in Kenya.	Results indicated that total assets have a positive impact on financial performance. However, customers' deposits showed no	Conceptually, the study shows gaps as other key indicators of firm size such as customer deposits were omitted from the analysis.	This study considered an expanded framework of firm size indicators.

Author (s) and Context		Key Findings	Research Gaps: (Conceptual, Contextual, Methodological or Empirical Gaps)	How the current study filled the gaps
		significant effect on financial performance.		
Ngumo *et al.* (2020)	The determinants of financial performance of Microfinance Banks in Kenya.	Results showed that bank size has a positive and significant association with financial performance of microfinance banks in Kenya.	Methodologically, gaps are established on need to consider how bank size moderates the effect of capital structure on performance which is a rare approach of past studies.	This study considered the moderating effect of bank size on the relationship between capital structure and performance.
Omenyo and Muturi (2019)	The effect of firm size on financial performance of manufacturing firms listed in Nairobi Securities	Results demonstrated that firm size has a significant effect on financial performance with the most profound of	Contextually, gaps emerge on need to consider the banking sector where there has been mixed or contradictory results regarding the effect of firm	This study targeted the local Kenya's banking sector with a focus on commercial banks whose performance has been an issue of

Author (s) and Context		Key Findings	Research Gaps: (Conceptual, Contextual, Methodological or Empirical Gaps)	How the current study filled the gaps
	Exchange, Kenya.	the factors being capital base as an indicator of firm size.	size on performance.	concern among stakeholders recently.
Hossain and Mohammad (2019)	Bank size and financial performance of banks in Bangladesh.	Findings indicate that bank size indicators; total assets, number of employees and number of branches all have a positive effect on both return on assets and return on equity.	Contextually, the results presents knowledge gap on need to replicate the study in the local banking sector for better applicability of results.	The gaps were addressed by targeting the local Kenyan banking sector and specifically the commercial banks in the analysis.
Muhindi and Ngaba (2018)	The effect of bank size on financial performance of commercial	Loans volume, capital base, customer deposits and	Contextual gaps emerge on need to consider an up to date empirical study.	The time span of the current study was updated to cover the

Author (s) and Context		Key Findings	Research Gaps: (Conceptual, Contextual, Methodological or Empirical Gaps)	How the current study filled the gaps
	banks in Kenya.	branch network demonstrated a strong relationship with return on assets.		period 2016 to 2020 to ensure better relevance of the results in view of current situation in the regulatory and operating environment.
Omar (2015)	The association between bank size and financial performance of microfinance banks in Kenya.	Regression analysis results however indicated that total assets had a significant effect on financial performance.	Empirically, gaps are unearthed as the findings contradict other findings that showed that bank size as indicated by total assets has a significant positive relationship with financial performance.	This study ensured a thorough comparison and contrast of results to arrive at justifiable conclusions.
Nzioka (2013)	The relationship between bank size and	Results indicated no significant association	The study presents contextual gaps on need for up to date studies	Gaps to be addressed by updating the span of the

Author (s) and Context	Key Findings	Research Gaps: (Conceptual, Contextual, Methodological or Empirical Gaps)	How the current study filled the gaps
	financial performance of commercial banks in Kenya.	between numbers of employees with performance as indicated by return on assets.	considering that a decade has passed since the results were presented.	secondary data captured to cover the period 2016 to 2020
Eyigege (2018)	The influence of bank size on financial performance of deposit money banks quoted on the Nigeria Stock Exchange.	Results demonstrated that bank size had an insignificant negative effect on financial performance.	From an empirical perspective, gaps emerge as the results contradict earlier findings that showed a positive influence on financial performance.	Gaps to be addressed by a thorough comparison of results against the foundations of theory and past studies.
Muigai (2016)	Equity structure effect on financial soundness of non-financial companies listed in Kenya.	Findings indicated a positive effect of internal equity on firm's financial soundness	The study presents empirical gaps in that results contradict earlier findings by Thuranira (2014) who indicated that internal equity has no significant	Gaps to be addressed by conducting an empirical study anchored on diverse theoretical and empirical perspectives to

Author (s) and Context		Key Findings	Research Gaps: (Conceptual, Contextual, Methodological or Empirical Gaps)	How the current study filled the gaps
		and a negative effect of external equity on financial soundness.	impact on profitability.	guide worthy conclusions.
Thuranira (2014)	Influence of retained earnings as a component of internal equity on the returns of NSE listed firms.	Results showed that retained earnings is a weak and insignificant determinant of stock returns and profitability.	Conceptually, the study presents gaps as it considered a narrow dimension of equity that excluded other key components such as external equity.	This study assessed all key dimensions of capital structure including external equity and various debt elements.
Maswadeh (2016)	Financing structures and firm profitability and dividend payout.	Results indicated a negative effect of liabilities (both short term and long term ones) on profitability.	Contextually, gaps exist as most studies on the subject matter are foreign in orientation with scarce empirical evidence locally.	The gaps were addressed by targeting local lower tier banks.

Author (s) and Context		Key Findings	Research Gaps: (Conceptual, Contextual, Methodological or Empirical Gaps)	How the current study filled the gaps
Liaqat *et al.* (2017)	Capital structure and profitability of the energy and fuel sector in Pakistan.	Results established that external equity has a negative effect on profitability represented by ROE and ROA.	Gaps emerge on need to have the analysis done in the local context as local studies on the subject matter are quite rare.	This study was done in the local banking sector to ensure that empirical data is available.
Marietta (2012)	Capital structure and profitability of Nairobi Securities Exchange listed companies.	External equity was shown to be positively correlated with profitability.	Conceptually, gaps emerge in that the study fell short of a comprehensive assessment of capital structure items besides equity for better comparison of results.	This study focused on all the four dimensions of capital structure including short term debt, long term debt, internal and external equity.
Omai, Memba, and Njeru (2018)	Share capital finance and profitability of Kenyan petroleum	Ordinary share capital financing was reported to yield a	Conceptual gaps exist as the study was narrowly focused on external equity	This study covered an expanded framework of

Author (s) and Context	Key Findings	Research Gaps: (Conceptual, Contextual, Methodological or Empirical Gaps)	How the current study filled the gaps
	marketing firms.	negative but insignificant effect on profitability.	leaving out other key components of capital structure such as short term debt, long term debt and internal equity.	capital structure items.
Dwilaksono (2016)	Short term debt and long term debt on profitability (return on equity) for Indonesian mining firms listed at Indonesia Stock Exchange.	Results established that Short Term Debt has a positive and significant influence on profitability as indicated by Return on Equity.	Contextual gaps as the study like most others on the subject matter are foreign in setting.	This study focused on the local banking sector to address the aforementioned gaps.
Fu, Ke and Huang (2002)	Capital Growth, Financing Source and Profitability of Small Businesses:	Results indicated that equity has a significant positive effect on profitability	Gaps are established on need to split the debt and equity components to represent more dimensions that	Gaps to be addressed by splitting the components of debt and equity to reflect specific

Author (s) and Context		Key Findings	Research Gaps: (Conceptual, Contextual, Methodological or Empirical Gaps)	How the current study filled the gaps
	Evidence from Taiwan Small Enterprises.	while debt has a negative effect on profitability.	have been found to influence profitability differently.	elements that can influence profitability differently.
Tailab (2014)	Capital structure and profitability of American energy firms.	The effect of long term debt on profitability was found to be insignificant.	Empirical gaps are established as the results contradict with findings of other studies that indicated that long term debt has a statistically significant effect on profitability.	Gaps to be filled by anchoring the current study against rich theoretical comparisons for justified conclusions.
Gill, Biger and Marthur (2011)	The effect of capital structure on profitability of United States firms.	Results showed a positive relationship between short-term debt to total assets and profitability.	In context, gaps emerge as most studies on the subject matter are clustered in foreign settings leaving scarce empirical literature available locally.	This study focused on the local banking sector and specifically the lower tier banks.

Author (s) and Context		Key Findings	Research Gaps: (Conceptual, Contextual, Methodological or Empirical Gaps)	How the current study filled the gaps
Koech (2013)	Capital structure and profitability of NSE listed financial firms.	It was also indicated that debt level was inversely related to performance.	Gaps are clear in that the study was anchored solely on descriptive statistics presenting need to adopt inferential statistics as well for enhanced generalizations.	This study used both descriptive and inferential statistics.
Mutinda (2015)	Capital structure and profitability of the real estate firms in Kenya.	Findings indicated that capital structure has a weak but insignificant effect on profitability of real estate firms.	Empirically, gaps arise as the findings contradict past studies which for instance Koech (2013) which indicated that the effect of capital structure on profitability is strong and significant.	This study was anchored on a variety of theories and empirical comparisons to arrive at justified conclusions.
Wambua (2019)	The implications of debt	Findings indicated that debt	Methodologically, the study presents gaps on need to	The current study split the elements of

Author (s) and Context		Key Findings	Research Gaps: (Conceptual, Contextual, Methodological or Empirical Gaps)	How the current study filled the gaps
	financing on financial performance of NSE listed companies.	financing has a weak negative relationship with profitability as a metric of financial performance.	split the debt component to reflect short term, long term and total debts which have been reported to affect profitability differently.	short term debt to improve on comparisons and to enrich the knowledge on the subject matter.

Source: *Author (2020)*

2.5 Conceptual Framework

The conceptual framework signposts the hypothesized links between the variables; dependent and independent variables. The independent variables are the capital structure components that include debt and equity elements. Debt is clustered into short term debt and long term debt. On the other hand, equity is also broken down into internal equity and external equity. The framework also presents bank size as a moderating variable on the relationship between capital structure and profitability.
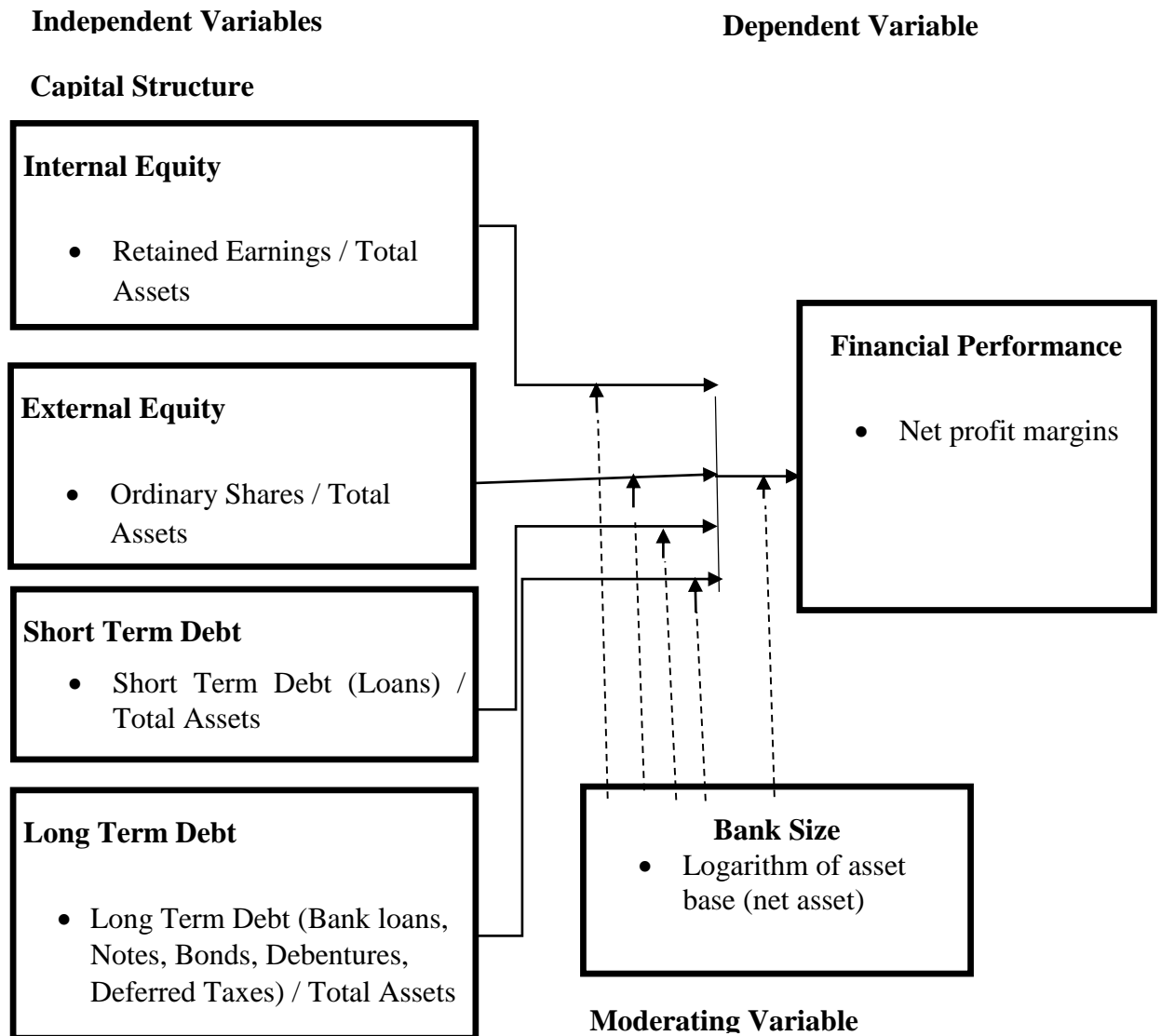
Capital Structure

Figure 2.1: Conceptual Framework
Source: Researcher (2020)

The study is guided by a hypothesis that firm size does not moderate the effect of capital

structure on financial performance of commercial banks. It is hypothesized that internal

equity measured through Retained Earnings to Total Assets does not significantly affect

financial performance. Internal equity represents financing of the firm though internal

/ own sources from retained earnings and reserves (Almaqtari *et al.,* 2019). Retained

earnings consist of least cost of capital and also it is most suitable to those companies

which go for diversification and expansion (Ardalan, 2017). Reserves are into two categories that is revenue and capital reserves. Revenue reserves are obtained from operations of an organization and are divided into general and specific reserves. An organization set aside specific reserves to meet a certain objective while general reserves are not allocated to any purpose. Capital reserves are obtained from capital profits, which are from other activities of a business.

The second hypothesis is made that external equity measured through Ordinary Shares to Total Assets does not significantly determine the level of financial performance. External equity represents the use of share capital financing by way of issuing new shares (ordinary shares) (Brigham *et al.,* 2016). The firm can also do right issue to the existing shareholders. An organization that uses external equity have an added competitive advantage compared to its competitors.

The third hypothesis is that Short Term Debt measured through Loans) to Total Assets would not have a relationship or effect on financial performance. Short term debt represents financing of the firm through short term loans with a repayment of less than one year (Brigham *et al.,* 2016). Short-term debt compared to long-term debt are easy to acquire, they do not require a security and are less risky. Short term debt ratio is calculated by dividing short term debt (loans) by total assets. When the short-term debt keeps declining from one financial year to another, the firm's creditworthiness is sound and vice versa. Short term debt is more suitable for small size companies.

The forth hypothesis is that Long Term Debt measured through bank loans, Notes, bonds, debentures, and Deferred Taxes to Total Assets does not significantly impact on financial performance. Long term debt represents uptake of loans with repayment

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period exceeding one year to finance operations and investments in the firm (Flannery & Hankins, 2007). Common examples of long term debt are bank loans, mortgage bonds or debentures due for more than one year**.** Long term debt an entity can budget for the repayment amount is fixed and the repayment date and period is known. However, the long term debt reduces the cash flows of an organization, hence the retained earnings are low thus the organization cannot invest in new projects. Therefore, the firm's growth is limited and can only be increased if the firm acquires more long-term debt. If an organization funds its growth using long term debts the financial risks are high. Long term debt ratio is calculated by; the total long term debt is divided by the total assets. When the long-term debt keeps increasing from one financial year to another, it indicates the organization's operations and growth are at high financial risk. However, if the long term debt ration decrease from one financial year to another it indicates that the firm cash flow is increasing hence the firm will be in a position to start new projects that will increase its growth.

The fifth hypothesis is that bank size does not statistically moderate the influence of internal equity capital, external equity capital, short term debt capital and long term debt capital on financial performance of lower tier commercial banks in Kenya. Firm size represents how large or small the firms are in terms of the capital base, market share and customer deposits (Sari & Sulastri, 2019). This study assessed the firm size as the natural logarithm of net assets which is presented as; natural logarithm net asset = total assets-total liabilities.

Financial performance indicates that performance denotes the extent to which a firm, institution or organisation attains her goals, aspirations, targets or objectives as planned (Arnold, 2014). The financial performance of lower tier commercial banks was

measured using net profit margins, return on assets and return on equity. However, ROA and ROE were dropped due to multicollinearity and were not used in estimating the regression models. Thus, net profit margin would be appropriate in measuring financial performance of lower tier commercial banks and thus was adopted. In this study, profitability was measured using net profit margin. Net profit margin shows the percentage of profit that the firm makes its sales revenue after all expenses (operating and non-operating) are paid (Velnampy & Niresh, 2012)**.**

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter captures the methodologies, processes, tools, and guidelines used in the current field study. The items presented include the research philosophy, research design, target population, and sampling design. The chapter also elucidates the data collection instruments and procedure, diagnostic tests, data analysis methods and presentation and ethical considerations.

3.2 Research Philosophy

The study adopted pragmatism as the guiding research philosophy. According to Simpson (2017), this research philosophy is founded on the argument that concepts only become significantly relevant if they have the capability to support action. It considers the practicalities in a research realm, considering a wide outlook of information to guide practical solutions of what the situation demands (DeVries *et al.,* 2017). The pragmatism approach seeks to provide a bridge between objectivist and subjectivist considerations. It further strikes a balance between facts and values and considers different contexts. To this end, the pragmatism research philosophy presents a case for consideration of theories, concepts, ideas, hypotheses and research findings (Lohse, 2017). These dimensions are considered not in an abstract form, but in terms of the roles they play as instruments of thought and action, and in terms of their practical consequences in specific contexts.

According to Simpson (2017), the pragmatist approach is useful as it allows use of quantitative and qualitative data. Descriptive and inferential statistics is also possible

with this type of philosophy. This study aims at collecting empirical evidence to justify the conclusions. This makes pragmatism research philosophy very relevant for this study engagement. This is further justified by the fact that this study sought both quantitative and qualitative data and utilized descriptive as well as inferential statistics in the analysis.

3.3 Research Design

Bryman and Bell, (2015) describes a research design as the logic of the research, its framework or structure. This study employed descriptive and explanatory research design. A descriptive survey research design seeks to establish the what, when, how and how many of a research phenomenon (Bulmberg, Cooper & Schindler, 2011). The descriptive research design elucidates already existing situation or relationship between variables. A descriptive survey however limits generalizability of results as it seeks to explain the conditions as they are. This justifies the use of explanatory research design to compliment the descriptive approach. As explained by Ott and Longnecker (2015), an explanatory research design effectively explains the reason why a problem occurs as well as the effect of one or more than one sets of variables on another outcome variable. Thus, the explanatory research design delivers a much detailed understanding of the research problem and why it exists. This combination of research designs is preferred since this study sought to describe the condition of bank size and how that moderates the influence of capital structure on financial performance of lower tier commercial banks.

3.4 Target Population

According to Oso and Onen (2005), target population consists of the complete set of components that share some common characteristics and from which a sample can be

obtained. Ott and Longnecker (2015) describes a target population as the total group of individuals that the research undertaking intends to collect data on and draw conclusions from. The target population for the study consisted of all the 37 commercial banks in the second and third tier classification of the Central Bank of Kenya's tier system. A census approach was used to study all the 37 banks. The choice of the tier II and III of the banks is justified by the fact that they have consistently been poorly performing and even collapse, a phenomenon that has been linked to capital structure and mode of financing operations by these banks (KBA, 2019). Past studies have also rarely made a distinction between the different types of banks in their analysis. In recognition that the lower tier banks profitability is affected most, this study concentrated on these banks. The choice is also justified by the market dynamics of the banking sector with competition made stiffer by non-traditional competitors such as mobile money and internet money dealers.

Table 3.1: Target Population

No	Stratum	Target Population(N)
1	Tier II banks	16
3	Tier III banks	21
	Total	**37**

Source: *Central Bank of Kenya Tier System Classification (2020)*

3.5 Data Collection Instruments

The study applied both primary and secondary data. Secondary data constituted the main data resources. A document review guide or secondary data collection checklist

guided on the collection of secondary data. The secondary data collection template captured the variables of the study that included internal equity capital, external equity capital, short term debt capital, long term debt capital, bank and financial performance of lower tier commercial banks in Kenya using net profit margin. The secondary data collection template covered the period 2016 to 2020.

For purpose of primary data, a structured questionnaire was used in data collection. The 111 target respondents were identified by purposive sampling and included the credit managers, finance managers and accountants of all the 37 commercial banks. The questionnaire captured the demographic information of the respondents and capital structure of the banks under study. The questionnaire comprised two sections. Section I of the questionnaire captured the general information while section II captured the information regarding capital structure of the bank.

Oliver (2010) underlines the significance of testing the research instrument before embarking on data collection indicating that this process makes the data trustworthy, authentic and useful in achieving the intended purpose. Validity and reliability of the research instrument were ensured. To this end, validity and reliability tests were applied to ensure that data collected is consistent and accurate. These included expert opinion and Cronbach's alpha reliability test. According to Kothari (2011), use of secondary data helps the researcher to build on existing research, which yields better results and saves time and money as well. Secondary data is preferred on account of cost, accuracy and time efficiency. A secondary data checklist is key as it ensures that no relevant information is left out (Mugenda & Mugenda, 2003).

3.5.1 Validity of the Research Instrument

According to Rubin and Babbie (2016), validity involves the level to which the research instrument follows scientific guidelines in a bid to research problem. Validity is espoused as a measure of different dimensions of usefulness of the instrument including; content validity, external validity, construct validity and face validity (Oliver, 2010). To achieve this, researcher sought expert opinion to ensure the instrument has the potential to measure the dimensions that are sought. The guidance of the supervisors was taken as sufficient expert opinion for purposes of constructing and improving the research tool. Also known as expert judgment, expert opinion has been applied in assessing the usefulness of research instruments in achieving the research objective. Studies such as Gichuhi and Omagwa (2020), Kinyua and Warui (2020), Kahunyo and Waithaka, 2019) and Nzioka and Waithaka (2021) successfully applied the expert judgment method in assessing and improving the validity of the research instruments. To also enhance validity of the instrument, only data from audited and certified data sources were used.

3.5.2 Reliability of Research Instrument

Reliability is the level to which a research instrument yields fairy similar results when issued more than one time (Mohamad et al., 2015). It is the extent to which the outcome of a measurement, calculation, or specification can be depended on to be accurate. The study evaluated the internal consistency aspect of the primary data collection instrument. The Cronbach's alpha reliability test was applied in assessing the internal consistency of the research instrument. In particular, the method uses split half correlation to determine internal consistency of the instrument. A Cronbach's alpha correlation coefficient of 0.7 is considered acceptable and would infer that the data is

reliable (Gliem & Gliem, 2003). The split half correlation evaluates the degree of internal consistency by testing a half of the results of a set of scaled items against the other half. The test compares the outcomes of one half of a test with the results from the other half (Chakrabartty, 2013). To ensure reliability of secondary data, the researcher collected information from authoritative sources only such as audited reports and management handbooks. Past studies have applied this method in successfully testing research instruments for reliability (Gichuhi & Omagwa, 2020; Kinyua & Warui 2020), Nzioka & Waithaka, 2021). The reliability test results are shown in table 3.2.

Table 3.2 Reliability Test

Variable	Cronbach's Alpha
Internal debt capital	.759
External debt capital	.804
Short term debt capital	.727
Long term debt capital	.962
Bank size	.785
Financial performance of banks	.713

The finding in table 4.1 depicted that reliability test output was above the lower limit of acceptability of 0.7 alpha. The alpha coefficient of internal debt was .759, external debt was .804, short term debt was .727, long term debt was .962, bank size was .785 and financial performance of banks was .713. The Cronbach alpha coefficients were more than 0.7 and so the instruments were suitable to be used in collecting data.

3.5.3 Data Collection, Methods and Instrumentation

Once satisfied that the primary data and research instrument (document review guide) is reliable and valid, the researcher commenced on data collection. Data was collected from management reports, published financial reports, audited financial statements as well as questionnaires. The specific data sources used comprised company specific reports of individual banks. These were sought from individual bank's websites. Additional secondary data was collected from authorities that regulate the banks which include the Central Bank of Kenya and The Kenya Bankers' Association. The information collected included details on financial performance (net profit margins). The study further collected data on the firm's financing structure; internal equity, external equity, short term debt and long term debt. Finally, data on the moderating variable (bank size) was also collected and included the total assets of the bank.

Primary data was also collected for triangulation purposes with secondary data. The collection of primary data was done using a structured questionnaire and occurred between October 2022 to December 2022. One questionnaire was issued to each bank where credit managers, finance managers and accountants filled the questionnaires. These respondents have sufficient knowledge regarding capital structure and its influence on bank profitability. The questionnaire is attached in Appendix III. Table 3.3 captures the variables of interest to the study along with a snapshot of indicators used to define and measure them.

Table 3.3: Operationalization of Variables

Type of Variable	Variable	Indicator	Measure	Measurement Scale
Dependent	Financial Performance	Net Profit Margin (NPM)	Net Profit/ Revenue	Ratio Interval
		Return on Assets (ROA)	Earnings after Tax/ Total Assets	
		Return on Equity (ROE)	Earnings after Tax/ Shareholders' Equity	
Independent	External Equity	Share Capital Financing	Value of Ordinary Shareholding to Total Assets	Ratio Interval
Independent	Internal Equity	Retention ratio	Retained Earnings/	Ratio Interval

			Earnings after Tax	
Independent	Short Term Debt/ Liabilities	Short Term Liabilities to Total Assets	Short Term Debt/ Total Assets	Ratio Interval
Independent	Long Term Debt/ Liabilities	Long term Debt to Total Assets	Long Term Debt/ Total Assets	Ratio Interval
Moderating	Firm Size	Net Asset Ratio	Total Assets-Total Liabilities	Ratio Interval
		Customer Deposits	Annual Customer Deposits	
		Market Share	Annual Market Share	Ratio Interval
				Ratio Interval

Source: *Researcher (2020)*

Financial performance of lower tier commercial banks was measured using net profit margins, return on assets and return on equity. However, ROA and ROE were dropped due to multicollinearity and were not used in estimating the regression models. The computation of net profit margin is net income divided by revenue (revenue less cost divided by revenue). ROA is computed as a ratio of net profits over total assets, and can take two approaches: net profit margin (net income divided by revenue) and asset turnover (revenues divided by average total assets). The second measure revenues divided by average total assets is same measure for net profit margin and thus would bring multicollinearity if it was adopted alongside ROA. Return on equity is measured as the ratio of company's net income to shareholders' equity. However, ROE is not effective in measuring the effectiveness and efficiency of a firm in using its resources to generate revenue (Sukmawati & Garsela, 2016). Thus, net profit margin would be appropriate in measuring financial performance of lower tier commercial banks and thus was adopted.

3.6 Data Analysis and Presentation

Data analysis involves a step by step process that seeks to derive useful information from the raw data obtained from the field (Hair *et al.,* 2010). Mugenda and Mugenda (2003) suggests that data analysis involves the procedure by which raw data is inspected, cleaned, transformed and modeled with a view to discover information, guide conclusions and support decisions. The process of data analysis involved extracting raw data from the data collection form through data extraction tool. The raw data were captured in Microsoft Excel and arranging them in proper format that aided proper analyses of the data. Microsoft Excel is one of basic, commonly used and important spreadsheet program used in collecting, storing and analysing data. By

organizing data using software like Excel, data analysts and other users can make information easier to view as data is added or changed. Adebisi (2013) indicated that Microsoft Excel has the ability to simplify these tasks.

Data was cleaned by removing outliers and incomplete data input. Removing outliers and incomplete data input is important in ensuring that outliers and incomplete data do not affect the credibility and validity of results. After data cleaning, 26 banks were left for analyses. Since the data was for five-year period 2016 to 2020, the total entries were 130 entries and the sample size of 130 eliminated the risk of inadequate population size. The relevant ratios were computed by use of excel. The secondary data collected in Microsoft Excel was then exported to SPSS for data analyses and generation of output. The primary data primary data was captured directly to SPSS, analysed and triangulated with findings from secondary data output. The output results were presented using tables and figures.

The main analysis involved descriptive and inferential statistics. The descriptive analysis delivered means and standard deviations as the main descriptive statistics. Descriptive analysis is the type of analysis of data that helps describe, show or summarize data points in a constructive way such that patterns might emerge that fulfill every condition of the data. According to Kaur, Stoltzfus and Yellapu (2018), calculating descriptive statistics represents a vital first step when conducting research and should always occur before making inferential statistical comparisons. The descriptive results helped the researcher to have a broader view of the performance of the banks. The descriptive statistics employed included the means, standard deviation, Skewness and Kurtosis. The study also presented the inferential output.

However, since descriptive statistics alone cannot justify generalizations to the entire population, inferential statistics too was sought. The inferential analysis techniques included the Hierarchical Multiple Linear models. Hierarchical regression involves theoretically based decisions for how predictors are entered into the analysis. Hierarchical regression can be useful for evaluating the contributions of predictors above and beyond previously entered predictors, as a means of statistical control, and for examining incremental validity (Garson, 2013). Hierarchical Multiple Linear models is a suitable approach to take into account the social contexts as well as the individual respondents or subjects.

Multilevel mixed model analysis was also used in the study. Multilevel mixed model analysis is useful in considering data with nested or hierarchical structures, where observations are grouped within different levels. It accounts for within-group and between-group variations, providing insights into how study variables interact with group-level influences. As indicated by Hamilton (2013) mixed-effects modeling is allows two kinds of effects: fixed effects, meaning intercepts and slopes meant to describe the population as a whole, just as in ordinary regression; and also random effects, meaning intercepts and slopes that can vary across subgroups of the sample. Mixed-effects modeling opens a new range of possibilities for multilevel models, growth curve analysis, and panel data or cross-sectional time series.

A range of model and data diagnostic tests were also conducted before estimating the study's regression models. This included the Mixed ANOVA, autocorrelation, normality tests, heteroscedasticity tests, multicollinearity tests and stationarity. Since the data was collected for different banks for different periods, the first test was to establish whether, the profit by the banks was different between the banks and within

different periods. Thus, Mixed ANOVA helped to check whether, the profit by the banks was different between the banks and within different period (Murrar & Brauer, 2018). The mixed ANOVA analysis was undertaken to control effects of time and bank groups on bank performance.

Mauchly's test of sphericity was used to test whether or not the assumption of sphericity is met in a repeated measures ANOVA. Mauchly's Test of Sphericity tests the null hypothesis that the variances of the differences are equal. Thus, if Mauchly's Test of Sphericity is statistically significant ($p < .05$), we reject the null hypothesis and accept the alternative hypothesis that the variances of the differences are not equal; that is, sphericity has been violated (Gleser, 1966).

Normality tests seek to evaluate whether the data sets are consistently modelled by a normal distribution (Yazici & Yolacan, 2007). The normality test was effected by application of the normality histogram as an effective tool to determine whether statistical data follows a normal distribution (Das & Imon, 2016). Histograms can be useful for identifying a highly asymmetric distribution, but they do not tend to be as useful for identifying normality specifically (versus other symmetric distributions) unless the sample size is relatively large.

Multicollinearity represents a condition where two or more predictor variables are found to be highly linearly related (Montgomery *et al.,* 2015). The Tolerance and Variance of Inflation Factors derived through SPSS was used to evaluate the data for multicollinearity. Tests for multicollinearity were carried out because in severe cases of perfect correlations between predictor variables, multicollinearity can imply that a unique least squares solution to a regression analysis cannot be computed Haitovsky,

(1969). Multicollinearity inflates the standard errors and confidence intervals leading to unstable estimates of the coefficients for individual predictors. Multicollinearity was assessed in this study using the Variance Inflation Factor. The rule of thumb is that, the VIF should be less than 5 for non-collinearity.

Autocorrelation refers to the extent of correlation between values of the same variables across observations. Autocorrelation occurs when the observations in the study are related or when the study model is not correctly specified. A common method of testing autocorrelation is using the Durbin-Watson test. The Durbin-Watson test results range from 0 to 4. Values close to 2 suggest less autocorrelation, values close to 0 suggests greater positive correlation and values close to 4 suggest negative correlation (White, 1992).

A mixed model ANOVA is a combination of a between-unit ANOVA and a within-unit ANOVA. Mixed model ANOVAs are sometimes called split-plot ANOVAs, mixed factorial ANOVAs, and mixed design ANOVAs. They are often used in studies with repeated measures, hierarchical data, or longitudinal data. Mixed ANOVA is used to test for differences between two or more independent groups whilst subjecting participants to repeated measures (Murrar & Brauer, 2018).

Finally, heteroskedasticity represents a condition where the variability of a variable is found to be unequal across a range of values of a second variable that predicts it (Carapeto & Holt, 2003). Heteroskedasticity test therefore evaluates the possibility of presence of differences in the residual variance of the observations over time. The Test Glejser for heteroskedasticity was applied for this evaluation. Heteroskedasticity is useful to examine whether there is a difference in the residual variance of the

observation period to another period of observation. A good regression model is not the case Heteroskedasticity problem. In this study, Glejser Test was used to check for Heteroskedasticity (Glejser, 1969). Under the Glejser Test, if the value sig. > 0.05, there is no problem of heteroskedasticity. However, if the if the value sig. < 0.05, there is a problem of heteroskedasticity.

Since panel data have both cross-sections and time series dimensions, there is need to test for stationarity of the time series because the estimation of the time series assumes that the variables are stationary. Estimating models without considering the non-stationary nature of the data would lead to unauthentic results (Gujarati, 2009). In this study, the researcher employed Fisher-type test of unit root in panel data. Based on the p-values of individual unit root tests, Fisher's test assumes that all series are non-stationary under the null hypothesis against the alternative that at least one series in the panel is stationary. The null hypothesis of this test is that all panels had unit root. The alternative hypothesis is that at least one panel did not have unit roots, or some panels did not have unit root (Choi, 2006). If any of the variables has unit root, the researcher would difference it and run the equations using the differenced variable.

3.7 Empirical Model and Hypothesis Testing

The multiple regression analysis was the key tool for testing the research hypothesis. Of essence was the p-values which was used to determine the significance of the independent variables in explaining the dependent variable. The 5% level of significance was applied in the tests. For analytical purposes, the study was guided by two empirical model (s); the general model and the moderation model. The 5 percent level of significance, that is, $\alpha = 0.05$, has become the most common in practice. Since the significance level is set to equal some small value, there is only a small chance of

rejecting H_0 when it is true (Kim & Choi, 2021). The standard linear regression analysis method was applied in developing the models. Thus, the first equation presents the general model with the second one showing the moderating effect of bank size on the relationship between capital structure and financial performance of lower tier commercial banks in Kenya.

General Model

The first model illustrates the single effect of internal equity on financial performance of commercial banks in Kenya.

$Y_{it} = \beta_0 + \beta_1 X_{1it} + \mathcal{E}$

………………………………………………………………. (i)

$\beta_0 =$ Intercept

Y= Financial Performance of lower tier commercial banks

$X_1 =$ Internal Equity

$\beta_1 =$ Regression Coefficient

t is time period 2016 to 2020

i is the number of lower tier commercial banks under study

$\mathcal{E} =$ error term.

The second model illustrates the single effect of external equity on financial performance of commercial banks in Kenya.

$Y_{it} = \beta_0 + \beta_2 X_{2it} + \mathcal{E}$

………………………………………………………. (ii)

$\beta_0 =$ Intercept

Y= Financial Performance of lower tier commercial banks

X_2 = External Equity

β_2 = Regression Coefficient

t is time period 2016 to 2020

i is the number of lower tier commercial banks under study

ε = error term.

The third model illustrates the single effect of short term debt on financial performance of commercial banks in Kenya.

$$Y_{it} = \beta_0 + \beta_3 X_{3it} + \varepsilon$$

$$\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \text{(iii)}$$

β_0 = Intercept

Y= Financial Performance of lower tier commercial banks

X_3 = Short Term Debt

β_3 = Regression Coefficient

t is time period 2016 to 2020

i is the number of lower tier commercial banks under study

ε = error term.

The fourth model illustrates the single effect of long term debt on financial performance of commercial banks in Kenya.

$$Y_{it} = \beta_0 + \beta_4 X_{4it} + \varepsilon$$

$$\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \text{(v)}$$

$\beta_{0 =}$ Intercept

Y= Financial Performance of lower tier commercial banks

$X_{4=}$ Long Term Debt

β_3 = Regression Coefficient

t is time period 2016 to 2020

i is the number of lower tier commercial banks under study

$\mathcal{E}$ = error term.

The fifth model tests the combined effect of capital structure on financial performance of commercial banks in Kenya.

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \mathcal{E}$$ ……………………………….
(v)

$\beta_{0 =}$ Intercept

X_1 = Internal Equity

$X_{2=}$ External Equity

$X_{3=}$ Short Term Debt

$X_{4=}$ Long Term Debt

$\beta_1 - \beta_4$ = Regression Coefficients

t is time period 2016 to 2020

i is the number of lower tier commercial banks under study

$\mathcal{E}$ = error term.

Moderation Effect of Bank size

The study adopted the Keppel and Zedeck in 1989 method for testing moderating effect of bank size on the effect of capital structure on financial performance of lower tier commercial banks. In the first step, the main effects represented by independent and moderator variables were entered in the equation as shown in equation vi. The Keppel and Zedeck (1989) of testing moderating effect of a variable does not disregard the Memon et al. (2019) technique but builds on it. Keppel and Zedeck (1989) suggested that moderation is captured by estimating first multiple regressions model specified as;

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{ (vi)}$$

Where; Y_{it} = Financial performance of lower tier commercial banks

   β_0 = Intercept

   X_1 = Internal Equity, X_2 = External Equity, X_3 = Short Term Debt, X_4 = Long Term Debt

   BS = Bank Size (moderator variable)

   ε = error term.

   t is time period 2016 to 2020

   i is the number of lower tier commercial banks under study

In the second step, the moderation effects Memon et al. (2019), also known as interaction variables were computed as products of independent and moderator variables were entered in the equation. In addition, equation vii was estimated to give

the direction and effect of the moderator on the independent variables and its total effect on the dependent variable.

$$Y_{it} = \beta_0 + \beta_1 X_{1it}*BS_{it} + \beta_2 X_{2it}*BS_{it} + \beta_3 X_{3it}*BS_{it} + \beta_4 X_{4it}*BS_{it} + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (vii)$$

Where; Y_{it} = Financial performance of lower tier commercial banks

β_0 = Intercept

$X_{1it}*BS_{it}$ = is interaction effect of internal equity and bank size as the moderator.

$X_{2it}*BS_{it}$ = is interaction effect of external equity and bank size as the moderator.

$X_{3it}*BS_{it}$ = is interaction effect of short term debt and bank size as the moderator.

$X_{4it}*BS_{it}$ = is interaction effect of long term debt and bank size as the moderator.

BS = Bank Size (moderator variable)

t is time period 2016 to 2020, i is the number of lower tier commercial banks under study

ε = error term.

According to MacKinnon (2002) if β_1 to β_4 in equation vii are not significant but in model equation vi is significant then bank size is an explanatory variable. However, if β_1 to β_4 in equation vii are significant then bank size is a moderator whose effect and direction are given by the β_1 to β_4. The Keppel and Zedeck (1989) approach for testing moderation was also adopted by in a study by Njuguna et al. (2014) studying the moderating effect of industrial context on the relationship between brand equity and consumer choice in branded bottled water Nairobi, Kenya. Similarly, Walela et al. (2022) adopted the Keppel and Zedeck (1989) technique do determine the moderating

effect of firm size on the nexus between financial risk and financial distress among firms Listed at the Nairobi Securities Exchange, Kenya. The method Keppel and Zedeck (1989) approach also supports the use of hierarchical multiple regression in determining the moderating effect of variable also advocated by Cohen et al. (2003) and adopted by Razi et al. (2012) while estimating the moderating effects of personal characteristics on intention to be involved in knowledge management process in Malaysia.

Hypothesis testing was conducted using p calculated values. The acceptance/rejection criterion was that, if P-value is > than 0.05, we accept the H_o but if it is <0.05, the H_o is rejected. In testing the significance of the model, the study followed the recommendations of Blumberg, Cooper and Schidler (2011) by using the adjusted coefficient of determination (R^2) to indicate the extent to which the variation in the dependent variable (profitability of lower tier commercial banks in Kenya) is explained by the variations in independent variables (capital structure). F-statistic was computed at 95% confidence level to test whether the overall model is statistically significant.

3.8 Ethical Considerations

Kothari (2011) defines research ethics as measures taken to ensure that privacy, confidentiality and rights of others are strictly observed. Research ethics is about ensuring that intellectual property is acknowledged and valued, ensuring informed-consent rules are observed and respecting the confidentiality and privacy. Regarding the materials and resources used, the study refrained from plagiarism and made due acknowledgement of each source. A research permit was obtained from National Commission for Science and Technology as well as Karatina University to assure parties that the research motive is purely academic.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents the research findings, interpretations and discussions as guided by the specific objectives. The specific objectives of the study were to determine the influence of internal equity capital, external equity capital, short term debt capital and long term debt capital on financial performance lower tier commercial banks in Kenya. The moderating influence of bank size on the relationship between capital structure and financial performance of lower tier commercial banks in Kenya was also determined in this chapter. The interpretations of the results are based on the statistical output. The discussions of the findings involve elaborating more about the results found, comparing and contrasting the findings with other empirical studies reviewed in chapter two.

4.2 Data Preparation

The process of data analysis involved extracting raw data from the data collection form through data extraction tool. Secondary data was collected from lower tier commercial bank websites and data bases inform of financial reports which required to be converted through excel. The raw data were captured in Microsoft Excel and arranged in proper a format that aided proper analyses of the data. Microsoft Excel is one of basic, commonly used and important spreadsheet program used in collecting, storing and analysing data. Microsoft Excel enables users to format, organize and calculate data in a spreadsheet. By organizing data using software like Excel, data analysts and other users can make information easier to view as data is added or changed. Adebisi (2013) indicated that Microsoft Excel has the ability to simplify these tasks. Similarly,

Lindquist (2019), argued that Microsoft Excel can be used to make quick and easy financial analysis, analyze data and create presentation with chats, retrieve data from external data sources and use it in worksheets to calculate based on data from multiple worksheets.

Further, data was cleaned by removing outliers and incomplete data input. Removing outliers and incomplete data input is important in ensuring that outliers and incomplete data do not affect the credibility and validity of results. After data cleaning, 26 banks with complete data were left for analyses. Since the data was for five-year period 2016 to 2020, the total entries were 130 entries and the sample size of 130 eliminated the risk of inadequate population size. The relevant ratios were computed by use of excel. The ratio comprised the internal equity capital ratio, external equity capital ratio, short term debt capital ratio, long term debt capital ratio, net asset ratio for bank size and net profit margin for financial performance of lower tier commercial banks in Kenya. The secondary data captured in Microsoft Excel was then exported to SPSS Version 26.0 for data analyses and generation of output. The research also collected primary data for purposes of triangulation. The targeted respondents were credit managers, finance managers and accountants and a total of 111 questionnaires were issued. Out of these, a total of 75 questionnaires were returned translating to 67.6% response rate. This response rate was found to be adequate as it was noted by Thabit (2021) who indicated that a 50% and above response rate is acceptable in social research. The primary data primary data was captured directly to SPSS Version 26.0, for analysis.

Using secondary data collection template, the panel data was collected. There was need to arrange data into proper format for ease in analysing the collected secondary data. The data collected was in wide format, and through SPSS Version 26.0, the data was

converted to long format. The financial performance across the study years could be different between the banks or within different years. To mitigate for fixed effect errors, dummies were created for banks and different periods. This is in line with Garavaglia and Sharma (1998) that dummy variables play an important role in the analysis of data, whether they are real-valued variables, categorical data, or analog signals. The banks were put into two (2) categories depending on their size, tier II and Tier III. This is according to CBK (2020) who categorises commercial banks in tier I, tier II and tier III. However, this study focused on tier II and tier III banks in Kenya. Lower tier commercial banks (Tier II and Tier III) in Kenya are not performing well compared to tier I commercial banks leading to the inquiry if bank size in terms of assets of a bank play any role in this phenomenon.

4.2 General Profile Information of the Respondents and Lower Tier Commercial Banks

The section presents the demographic information of the respondents of lower tier commercial banks. The demographic information investigated include the gender of the respondents and educational attainment of the respondents. For lower tier commercial banks, the key aspects studied included the banks' consideration in making decisions on the proportion of short term and long term debt capital to fund bank operations, choosing the proportion of internal and external equity and financial performance of lower tier commercial banks in Kenya.

4.2.1 Demographic Information of the Respondents

Credit managers, finance managers and accountants participated in answering semi structured questionnaire. The selected respondents had sufficient knowledge regarding

capital structure and its influence on bank performance. The demographic information investigated include their gender and level of education attainment. The results are shown in Table 4.1.

Table 4.1: Demographic Information of the Respondents

Demographic information	Category	Frequency	Percent
Gender of the respondent	Female	31	41.3
	Male	44	58.7
	Total	**75**	**100.0**
Highest Academic Qualification	Undergraduate	63	84.0
	Post graduate	12	16.0
	Total	**75**	**100.0**

Demographic information in Table 4.1 showed that majority of the participants in the study were male (58.7%) while females were (41.3%). It can be concluded that majority of the banks' employees were male despite the increasing proportion of female employees in the banking sector. However, this trend varies globally. According to Mendonca and Ranganathan (2020), female employees in the banking sector in India forms 15-17 percent. However, in Sweden, Ferrary (2017) indicated that female makes up 65 percent of employees in the banks while males make only 35 percent.

In terms of educational attainment, it was established that majority 84.0% of the respondents were undergraduate degree holders while 16.0% were post graduate degree holders. Educational attainment influences the management of banks in terms of financing decisions through capital structure. The results are in tandem with Makinde et al. (2018) who established that employee engagement and educational qualification had significant positive effect on employee productivity in banking industry in Nigeria. Similarly, Rahman and Akhter (2021) established that higher investment in training

factors augments bank performance. More skilled employees contribute to higher performance for banks. It implies that investment in the skilled aspect should be increased. The findings also exposed that the better the knowledge level, the higher the bank performance.

4.2.2 Dimensions of Capital Structure Utilized in Funding Bank Business Operations

The study sought to determine the extent the lower tier banks utilized the various forms of capital structure sources of finance to fund their business operations. The capital structure sources of finance investigated included internal equity, external equity, short term debt and long term debt capital. The responses were rated in a 5 point Likert scale of 1- not at all, 2-small extent, 3- moderate extent, 4- great extent and 5 – very great extent. The results are shown in Table 4.2.

Table 4.2: Dimensions of Capital Structure Utilized in Funding Bank Business Operations

Bank utilized dimensions of	N	Mean	Std. Deviation	Skewness	Kurtosis
Short-term debt capital	75	2.413	.617	.871	.261
Long-term debt capital	75	2.347	.672	-1.554	6.562
Internal equity capital	75	4.453	.703	-.908	-.430
External equity capital	75	4.307	.771	-1.505	3.954

The 75 indicate number of respondents who participated in answering the questionnaire and include the credit managers, finance managers and accountants of all the lower tier commercial banks.

The results of the study showed that short-term debt was employed to small extent as shown by mean of 2.41 and standard deviation of 0.62. The skewness was .871 and Kurtosis of .261 implying that short-term debt data collected from the lower tier

commercial banks were moderately skewed. The Kurtosis of .261 exhibited low disparity. This shows that the data is acceptable for further investigation as per the values of skewness fall between − 3 and + 3, and Kurtosis is appropriate from a range of − 10 to + 10 (Brown, 2006; Kline, 2011).

It was also established that long term debt capital was utilised by banks to small extent as shown by mean response of 2.35 and standard deviation of .67. The skewness was -1.554 and Kurtosis of 6.562 implying that long-term debt data collected from the lower tier commercial banks were moderately skewed. The Kurtosis of 6.562 exhibited low disparity within range of − 10 to + 10.

Further, internal equity capital was utilised by the lower tier commercial banks in Kenya to very great extent as illustrated by mean response of 4.45 and standard deviation of .70. The skewness was -.908 and Kurtosis of -.430 implying that internal equity data were moderately skewed. The Kurtosis also exhibited low disparity within range of − 10 to + 10.

Finally, in regard to external equity, majority of the respondents indicated that external equity was utilised to great extent as shown by mean response of 4.31 and standard deviation of 0.77. The Skewness was -1.505 and Kurtosis of 3.954. based on the skewness, the data for external equity moderately skewed. Kurtosis for external equity capital exhibited low disparity.

4.2.3 Banks' Consideration in Making Decisions on the Proportion of Short Term and Long Term Debt Capital to Fund Bank Operations

The study sought to determine the extent the lower tier banks in Kenya consider the following aspects in making decisions on the proportion of debt to consume. The results

are presented on a Likert scale of 1- not at all, 2-small extent, 3- moderate extent, 4-great extent and 5 – very great extent. The results are shown in Table 4.3.

Table 4.3: Banks' Consideration in Making Decisions on the Proportion of Short Term and Long Term Debt to Fund Bank Operations

	N	Mean	Std. Deviation	Skewness	Kurtosis
Use of debt and need to avert dilution of ownership.	75	1.562	.371	1.871	1.542
Use of debt and need to prevent loss of management control over the firm.	75	1.532	.499	.278	-1.977
Tax benefits of debt as interest payments are tax deductible.	75	1.719	.574	1.446	3.602
Ease of Access to Funds.	75	1.608	.569	.706	2.258
The cost of using debt relative to other sources of finance.	75	1.524	.471	.766	-1.453

The 75 indicate number of respondents who participated in answering the questionnaire and include the credit managers, finance managers and accountants of all the lower tier commercial banks.

The study established that the banks consider use of debt and need to avert dilution of ownership to small extent as shown by mean response of 1.56 and standard deviation of .37. In regard to use of debt and need to prevent loss of management control over the firm, majority of the respondents agreed to small extent as shown by mean response of 1.53 and standard deviation of .49. It was also established that tax benefits of debt as interest payments are tax deductible to small extent as shown by mean response of 1.72 and standard deviation of .57. It was also established that banks considered the of ease of access to funds and the cost of using debt relative to other sources of finance to small extent. Skewness, values for all the variables ranged .706 and 1.871 an indication that the data are moderately skewed. The Kurtosis values exhibited low disparity. The

aggregate mean was 1.60 implying that short term debt was employed by lower tier commercial banks to small extent.

4.2.4 Banks' Considerations in Choosing the Proportion of Internal and External Equity Capital

Further, the study sought to determine the extent the lower tier commercial banks consider the following dimensions in making decisions on the proportion of equity finance to finance their operations. The results were presented on a five point Likert scale of 1- not at all, 2-small extent, 3- moderate extent, 4- great extent and 5 – very great extent. The results are shown in Table 4.4.

Table 4.4: Banks' Considerations When Choosing the Proportion of Internal and External Equity

	N	Mean	Std. Deviation	Skewness	Kurtosis
Need for freedom from debt obligations.	75	4.297	.460	.905	-1.214
Cost of equity finance in relation to other sources.	75	4.541	.502	-.166	-2.028
Increase in business experience and contacts as diverse shareholders jointly own the firm.	75	4.257	.440	1.137	-.728
Provision of an economical sources of finance.	75	4.662	.4762	-.700	-1.553
Accessibility	75	4.178	.385	1.718	.979

The 75 indicate number of respondents who participated in answering the questionnaire and include the credit managers, finance managers and accountants of all the lower tier commercial banks.

It was established that lower tier banks considered the need for freedom from debt obligations to great extent as shown by mean response of 4.29 and standard deviation of .46. The cost of equity finance in relation to other sources was considered by banks

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to great extent as shown as shown by mean response of 4.54 and standard deviation of .50. Further, it was established that lower tier banks considered the increase in business experience and contacts as diverse shareholders jointly own the firm to great extent as shown as shown by mean response of 4.25 and standard deviation of .44. Likewise, provision of an economical sources of finance and accessibility were considered by lower tier banks to great extent. Skewness, values for all the variables ranged -.166 and 1.718 an indication that the data are moderately skewed. The Kurtosis values exhibited low level tail. As indicated by Park and Pincus (2001), firms ten to undertake a proportionate mix of internal and external equity for optimal firm performance so that the firm does not plunge into financial difficulties for over rely or underutilize one for of equity funding.

4.2.5 Financial Performance of Lower Tier Commercial Banks in Kenya

Financial Performance of lower tier commercial banks in Kenya was the dependent variable of the study. The financial performance of lower tier commercial banks was measured using net profit margins, return on assets and return on equity. However, ROA and ROE were dropped due to multicollinearity and were not used in estimating the regression models. The computation of net profit margin is net income divided by revenue (revenue less cost divided by revenue). ROA is computed as a ratio of net profits over total assets, and can take two approaches: net profit margin (net income divided by revenue) and asset turnover (revenues divided by average total assets). The second measure revenues divided by average total assets is same measure for net profit margin and thus would bring multicollinearity if it was adopted alongside ROA. Return on equity is measured as the ratio of company's net income to shareholders' equity.

However, ROE is not effective in measuring the effectiveness and efficiency of a firm in using its resources to generate revenue (Sukmawati & Garsela, 2016). Thus, net profit margin would be appropriate in measuring financial performance of lower tier commercial banks and thus was adopted.

First, the performance of the banks was assessed for five years from 2016 to 2020. It was important to analyse the performance of the lower tier commercial banks to depict any trend of whether the performance has been rising, declining, remaining constant or just fluctuating. The analysis of the financial performance of a financial institution like a bank is critical in comprehending the financial health of the bank over a period, understand their capability to remain operational and generate revenue for the banks shareholders and members.

The banking sector in Kenya is regulated by Central Bank of Kenya and banks are categorized into Tier I, Tier II and Tier III. The performance of the banks sector has a mixed performance with the large banks in Tier I banks controlling close to half of the total assets. Profitability of lower tier II and III banks has remained low. While many banks in the lower tier segments continue to struggle with low profitability, it remains unclear whether capital structure has an undesirable effect on profitability. Some theories attribute low profit levels to over-gearing habits by these small banks. Nonetheless, notable empirical studies demonstrate that borrowed capital is not singularly detrimental to firms. Putting into consideration the dichotomous forms of corporate financing (debt and equity), there is need to determine if in deed debt and equity financing influence corporate profitability, and if so, how it does. The large banks control over two thirds of the market sector profits while lower tier banks profitability has consistently and sharply contrasted that of large banks. This variance

in performance raises the question as to whether size is a contributor to the nexus between capital structure and firm performance.

The financial performance of lower tier commercial banks was measured using net profit margins. Net profit margin is a widely used profitability indicator that gauges a company's financial health. It is the percentage of sales revenue the company is left after deducting operating expenses, depreciation, amortization, interest, and income taxes. Thus, net profit margin would be appropriate in measuring financial performance of lower tier commercial banks and thus was adopted. The results are indicated in Table 4.5 shows the descriptive results for net profit margin.

Table 4.5: Net Profit Margin Descriptive Results in Percentage

Net Profit Margin (%)	N	Mean	Std. Deviation	Skewness	Kurtosis
2016	130	14.216	27.694	(1.107)	4.261
2017	130	16.891	28.271	0.662	0.394
2018	130	16.270	23.832	(0.188)	0.228
2019	130	12.947	54.735	(2.175)	10.839
2020	130	13.961	29.072	(1.728)	6.342

N=130 indicate number of observations of 26 lower tier commercial banks after excusing banks that did not have complete data.

The descriptive results in Table 4.5 showed that the net profit margin for lower tier commercial banks in 2016 was 14.216. The net profit margin of the lower tier commercial banks rose to 16.891 in 2017. However, the was a slight decline to 16.270 of net profit margin in the year 2018. Further decline in the net profit margin of the lower tier commercial banks followed in the year 2019 (12.947). In 2020, a slight

increase to 13.961 in the net profit margin was recorded among the lower tier commercial banks. Profit margin was measured by mean with small standard deviation showing less disparity in the overall rating. This is confirmed by the platykurtic distribution whose value is less than three while the negative skewness show the rating was higher on the scale.

The net profit margin is an important profitability ratio in comparing banks' profits to the total amount of revenue generated. The net profit margin also depicts the efficiency in which a bank is operating. Though a good net profit margin varies from firm to firm, 5% net profit margin is low, 10-19% net profit margin is considered average while 20% net profit margin is considered good (Corporate Financial Institute, 2023). According to Handayani and Winarningsih (2020) studying the effect of net profit margin and return on equity toward profit growth, the higher the value of net profit margin, the higher the company's ability to generate net income from sales, which shows that the company is more effective and efficient. Similarly, Jayathilaka (2020) indicated that operating profit and net profit above 20% is considered good for efficient operational sustainability of a firm. Based on the descriptive results above, the average net profit of 14.856% for all the lower tier commercial banks is considered average compared to tier 1 banks in Kenya, that have been recording net profit margin of over 20% during the same study period. The results thus imply that lower tier commercial banks in Kenya have been reaping average net profit margins.

Further, the performance of lower tier commercial banks was measured using return on equity. Return On Equity is used to measure profits generated from the perspective of shareholders. This ratio shows how much net income the company generates for each value of money for which funds are invested by shareholder. Table 4.6 shows the

performance of lower tier commercial banks in Kenya in Kenya using return on equity as a measure.

Table 4.6: Return on Equity Descriptive Results in Percentage

ROE (%)	N Statistic	Min Statistic	Max Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic	Skewness Std. Error	Kurtosis Statistic	Kurtosis Std. Error
ROE 2016	130	(27.697)	20.424	6.167	11.195	(1.127)	0.456	2.195	0.887
ROE 2017	130	(31.418)	19.380	4.578	11.994	(1.213)	0.456	2.079	0.887
ROE 2018	130	(58.360)	21.111	5.244	15.227	(3.027)	0.456	12.333	0.887
ROE 2019	130	(47.707)	19.396	5.006	14.173	(2.515)	0.456	7.784	0.887
ROE 2020	130	(19.936)	20.048	6.046	9.058	(1.123)	0.456	2.257	0.887

N=130 indicate number of observations of 26 lower tier commercial banks after excusing banks that did not have complete data.

The ROE standard deviations over the study period was showing high disparity from the mean an indication that some lower tier commercial banks were recording higher ROEs while others were recording dismally lower ROEs. In terms of Kurtosis distribution, the average ROE in 2016, 2017 and 2020 recorded Kurtosis<3 indicating low variation between the most profitable and least profitable lower tier commercial banks. The years 2018 and 2019 recorded Kurtosis>3 indicating high disparity between most and least profitable lower tier commercial banks using ROE as the measure. In terms of Skewness, the values ranged between -3.027 and -1.123 an indication that the data are highly skewed.

The mean return on equity in 2016 was 6.167. The ROE declined in 2017 to 4.578 a phenomenon that was attributed to fears brought by the 2017 general elections that were happening in Kenya as indicated by CBK (2018). There was a rise in ROE in 2018 to 5.244, a rise that was linked to calm business environment after the election period. In 2019, the ROE declined to 5.006 and rising again to 6.046 in 2020. Over the study period, the lower tier bank that recorded the lowest ROE was in 2018, recording -58.360 return on equity. In the same period, the most profitable lower tier one bank in terms of ROE recorded 21.111. The higher the return on equity, the better. Investors want to see a high ROE because it indicates that the business is using their funds effectively. Generally, a return on equity of 15-20% is considered good (Investing report, 2021). Pursuing a higher ROE may lead to wealth destruction, which is not in line with the economic principles of shareholder value creation.

Based on the average ROE results above, all the lower tier commercial banks in Kenya were not performing optimally good in terms of return on equity. The results imply that lower tier commercial banks in Kenya are not optimally creating good benefits to their shareholders. The amount of profits earned by the company is also influenced by the company in determining the right type of investment, because the higher ROE shows the position of the owner of the bank is getting stronger due to the banks' effectiveness and efficiency in using its capital to generate profits for shareholders. The results concur with Zhang, Yuan and Zhi (2017) that ROE is useful in showing how good a firm is at generating benefits for its shareholders beyond earnings. However, De Wet and Du Toit (2007), ROE has some serious flaws as a measure of performance. De Wet and Du Toit (2007) argued that with ROE, the earnings can be manipulated legally within the framework of Generally Accepted Accounting Practice through changes in accounting

policy and that ROE is calculated after the cost of debt, but before taking into account the cost of own capital which lies the actual financial health of the firm.

Return on assets is another prominent measure of performance of a firm. In this study, the study return on assets for the lower tier commercial banks was also studied. Return on assets defines the ability of the bank to efficiently and effectively use the banks resources to generate income for the bank. The results are shown in Table 4.7.

Table 4.7: Return On Assets Descriptive Results in Percentage

ROA (%)	N Statistic	Min Statistic	Max Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic	Skewness Std. Error	Kurtosis Statistic	Kurtosis Std. Error
2016	130	(4.295)	3.482	1.135	1.825	(0.894)	0.456	1.717	0.887
2017	130	(2.495)	3.981	0.968	1.801	(0.151)	0.456	(0.381)	0.887
2018	130	(4.190)	3.692	1.120	1.769	(0.865)	0.456	1.945	0.887
2019	130	(4.636)	7.026	1.135	2.313	(0.410)	0.456	2.700	0.887
2020	130	(3.078)	3.548	1.000	1.529	(0.571)	0.456	1.276	0.887

N=130 indicate number of observations of 26 lower tier commercial banks after excusing banks that did not have complete data.

The standard deviations for ROA during the study period was showing low variation from the mean an indication that most lower tier commercial banks were recording ROAs with small deviations. In terms of platykurtic distribution, the average ROA in from 2016 to 2020 recorded Kurtosis<3 indicating some level of variation between the

most profitable and least profitable lower tier commercial banks in terms of ROA. In terms of Skewness, the values ranged between -.894 and -.151 an indication that the data are moderately skewed.

The lower tier commercial banks recorded highest mean return on assets in 2016 and 2019. The lower tier commercial banks in Kenya recorded a drastic fall in ROA in 2017 a phenomenon that has been tied to elections activities that was occurring during that period. From 2018 and 2019, ROA among the lower tier commercial banks in Kenya rose continuously a situation that has been lined to favourable peaceful banking business environment. However, in 2020, there as a fall in ROA among the lower tier commercial banks in Kenya. The fall in ROA may be due to Covid-19 pandemic that brought disruption to many economic sectors including banking sector. Best performing lower tier commercial bank in Kenya recorded a ROA of 7.026 in 2019 while lowest performing lower tier commercial bank in Kenya during the study period recorded ROA of -4.636 in the same period.

A ROA of 5% or better is typically considered good, while 20% or better is considered great (Investopedia, 2022). The higher the ROA, the more efficient the bank is at generating profits while a lower ROA indicates that the bank is not efficiently using its resources to generate revenue for the bank. Based on the results in Table 4.7, the lower tier commercial banks in Kenya have been recording ROA<5% an indication of low efficiency in using their resources to generate profit. Only one lower tier bank recorded ROA of 7.026%>5% in 2019. Return on assets has been termed as a reliable measure of profitability. Return on assets is not susceptible to financial engineering in comparison to other measures like return on equity. Kamruzzaman (2019) argued that ROA is the indicator of how firm is doing relative to its assets by showing how

efficiently a firm is using its assets to generate income. Likewise, Jewell and Mankin (2011) explained that ROA has been used by many organizations and researchers to measure profitability owing to its stability in measuring the effectiveness of a firm is using its resources to generate income.

Financial performance of lower tier commercial banks was the core objective of this study. Thus, the study assessed the financial performance of lower tier commercial banks using three financial parameters that include net profit margin, ROA and ROE. However, the ROA and ROE were dropped further in the regression analysis because of multicollinearity. Thus, net profit margin was adopted as a measure of financial performance of lower tier commercial banks and was regressed with internal equity, extremal equity, short term debt, long term debt capital and bank size as the moderator. In this study, profitability was measured using net profit margin. Net profit margin is more appropriate compared to either ROA and ROE as it depicts banks' financial health after deducting expenses incurred in running the bank day to day activities and other expenses.

4.3 Internal Equity Capital and Financial Performance of Lower Tier Commercial Banks

The first objective of the study was to determine the influence of internal equity capital on financial performance of lower tier commercial banks in Kenya. Internal equity capital was one of the independent variable of the study. The analyses of this variable entailed the descriptive statistics, diagnostic tests and inferential analyses.

4.3.1 Descriptive Statistics of Internal Equity Capital

The study presented the descriptive results for internal equity capital operationalised as profit retention ratio for lower tier commercial banks in Kenya. This is in line with Nguyen and Rugman (2015) who operationalized internal equity capital using profit retained. Descriptive analysis is the type of analysis of data that helps describe, show or summarize data points in a constructive way such that patterns might emerge that fulfill every condition of the data. According to Kaur, Stoltzfus and Yellapu (2018), calculating descriptive statistics represents a vital first step when conducting research and should always occur before making inferential statistical comparisons. Internal equity, are primarily in the form of owner contributions and net worth, for use in sustaining operations of the firm. The characteristics of small firms play an important role in their ability to raise internal equity capital of the firm. The descriptive statistics employed included the means, standard deviation, Skewness and Kurtosis. The internal equity capital descriptive results are shown in Table 4.8.

Table 4.8: Internal Equity Descriptive results

Internal Equity capital (ratio)	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
2016	130	.104	.977	.364	.363	.595	-1.306
2017	130	.000	.986	.400	4.954	-5.141	26.604
2018	130	.377	213.427	8.299	40.999	5.195	26.990
2019	130	2.153	176.101	7.782	33.750	5.142	26.602
2020	130	1.392	9.129	3.081	2.742	1.889	2.905

The standard deviations for internal equity during the study period was showing low variation from the mean an indication that most lower tier commercial banks internal

equity were clustered around the mean. The year 2018 recorded highest Kurtosis of 26.990>3 followed by 2017 (26.604>3) and 2019 (26.602>3) indicating high disparity in internal equity capital among the lower tier commercial banks. In 2016, the Kurtosis was -1.306<3 while in 2020, the Kurtosis was 2.905<3 an indication of lower disparity in internal equity among the lower tier commercial banks (platykurtic distribution). In terms of Skewness, the values ranged between -5.141and 5.195 an indication that the data are highly skewed.

The average internal equity for lower tier commercial banks in Kenya was .364 in 2016. There was a slight increase in the internal equity in 2017 to .400 a phenomenon that has been linked to effects of general election that were occurring during that period in Kenya as indicated by CBK (2018). Thus, in 2017, commercial banks used more of internal equity to finance operations. Further, in 2018, the internal equity sharply rose to 8.299, among the lower tier commercial banks which was followed by small decline to 7.782 in 2019. The results thus signify that in 2018 and 2019, lower tier commercial banks in Kenya employed more of internal equity capital to finance their operations. In 2020, the use of internal equity fell to 3.081. Similarly, in 2017, one lower tier commercial bank recorded internal equity of .000 indicating zero use of internal equity capital to finance its operations.

4.3.2 Diagnostic Tests for Internal Equity Capital

The diagnostic tests conducted included the Mixed ANOVA Test, stationarity test, autocorrelation, normality test, multicollinearity and heteroskedasticity test.

4.3.2.1 Mixed ANOVA Test

A mixed model ANOVA is a combination of a between-unit ANOVA and a within-unit ANOVA. Mixed ANOVA is used to test for differences between two or more independent groups whilst subjecting participants to repeated measures (Murrar & Brauer, 2018). Since the data was collected for different banks for different periods, the first test was to establish whether, the profit by the banks was different between the banks and within different periods. Thus, Mixed ANOVA helped to check whether, the profit by the banks was different between the banks and within different periods. The mixed ANOVA analysis was done in hierarchical manner, where change in bank profits were investigated against time, bank profits against time and banks.

4.3.2.1.1 Time, Bank and Profitability

The tests were conducted using Mauchly's sphericity test. Mauchly's test of sphericity is used to test whether or not the assumption of sphericity is met in a repeated measures ANOVA. Sphericity refers to the condition where the variances of the differences between all combinations of related groups are equal. The Mauchly's sphericity test are shown in Table 4.9.

Table 4.9: Mauchly's Sphericity Test Results for Time Versus Bank Profitability

| Within Subjects Effect | Mauchly's W | Approx. Chi-Square | df | Sig. | Epsilon[b] | | |
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Time	.032						
		80.713	9.000	0.000	0.402	0.426	0.250

Mauchly's Test of Sphericity tests the null hypothesis that the variances of the differences are equal. Thus, if Mauchly's Test of Sphericity is statistically significant ($p < .05$), we reject the null hypothesis and accept the alternative hypothesis that the variances of the differences are not equal; that is, sphericity has been violated (Gleser, 1966).

Mauchly's test of sphericity indicates that the assumption of sphericity has been violated, $X^2(2) = 80.713$, p = .000<0.05. The assumption of normality of difference scores has been met, but the assumption of sphericity has been violated. Since the sphericity has been violated, the study used Greenhouse-Geisser. The corrections that were used to combat the violation of the assumption of sphericity are the lower-bound estimate, Greenhouse-Geisser correction and the Huynh-Feldt correction. The Greenhouse-Geisser is used to assess the change in a continuous outcome with three or more observations across time or within-subjects. In most cases, the assumption of sphericity is violated for this type of within-subjects analysis and the Greenhouse-Geisser correction is robust to the violation (Haverkamp & Beauducel, 2017). The Greenhouse-Geisser output results are shown in Table 4.10.

Table 4.10: Mauchly's Sphericity Test Results

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Time	Sphericity Assumed	285.937	4.000	71.484	0.099	0.982	0.004	0.398	0.070
	Greenhouse-Geisser	285.937	1.609	177.660	0.099	0.865	0.004	0.160	0.063
	Huynh-Feldt	285.937	1.704	167.851	0.099	0.876	0.004	0.169	0.063
	Lower-bound	285.937	1.000	285.937	0.099	0.755	0.004	0.099	0.061
Error (Time2)	Sphericity Assumed	71,875.446	100.000	718.754					
	Greenhouse-Geisser	71,875.446	40.237	1,786.320					
	Huynh-Feldt	71,875.446	42.588	1,687.700					
	Lower-bound	71,875.446	25.000	2,875.018					

a. Computed using alpha = .05

Based on the results above, the corrections have altered the degrees of freedom (df), which in turn altered the Mean Sum of Squares for both the time factor and its error, and also altered the level of significance of the *F*-statistic. The results in table 4.10 indicates that Greenhouse-Geisser, $X^2(2) = 0.099$, p = .865>0.05) is not significant. The p = .865>0.05 is evidence of that a significant main effect does not exist amongst the observations of the outcome or within-subjects meaning that, time has no significant influence on profitability of lower tier commercial banks in Kenya. Based on the Greenhouse-Geisser results (Haverkamp & Beauducel, 2017), time factor did not have effect on profitability of lower tier commercial banks over the study period.

4.3.2.1.2 Profitability of Banks, Time and Bank Group

The study further sought to determine the existence of any significance difference in the profitability of lower tier commercial banks based on time and bank group. The test was conducted using Mauchly's sphericity test. In the second level, bank category was introduced. The results are shown in Table 4.11.

Table 4.11: Mauchly's Sphericity Test Results for Profit, Time and Bank Type

| Within Subjects Effect | Mauchly's W | Approx. Chi-Square | df | Sig. | Epsilonb | | |
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Time	.035	68.333	9.000	0.000	0.414	0.504	0.250

Mauchly's Test of Sphericity tests the null hypothesis that the variances of the differences are equal. Mauchly's test of sphericity indicates that the assumption of sphericity has been violated, $X^2(2) = 68.333$, p = .000<0.05. Since the sphericity has been violated, the study further conducted Greenhouse-Geisser test to combat the violation of the assumption of sphericity. The Greenhouse-Geisser output results for profit, time and bank type are shown in Table 4.12.

Table 4.12: Mauchly's Sphericity Test Results for Profit, Time and Bank Type

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Powera
Time	Sphericity Assumed	570.273	4.000	142.568	0.199	0.938	0.009	0.798	0.091
	Greenhouse-Geisser	570.273	1.655	344.637	0.199	0.779	0.009	0.330	0.077

	Huynh-Feldt	570.273	2.016	282.831	0.199	0.822	0.009	0.402	0.079
	Lower-bound	570.273	1.000	570.273	0.199	0.660	0.009	0.199	0.071
Time2 * Group	Sphericity Assumed	8,961.608	12.000	746.801	1.045	0.417	0.125	12.535	0.563
	Greenhouse-Geisser	8,961.608	4.964	1,805.278	1.045	0.406	0.125	5.185	0.327
	Huynh-Feldt	8,961.608	6.049	1,481.523	1.045	0.410	0.125	6.319	0.369
	Lower-bound	8,961.608	3.000	2,987.203	1.045	0.393	0.125	3.134	0.244
Error(Time2)	Sphericity Assumed	62,913.839	88.000	714.930					
	Greenhouse-Geisser	62,913.839	36.404	1,728.235					
	Huynh-Feldt	62,913.839	44.359	1,418.297					
	Lower-bound	62,913.839	22.000	2,859.720					

Results in table 4.12 indicates that Greenhouse-Geisser, $X^2(2) = 0.099$, p =0.779 >0.05) is not statistically significant for the time factor. The p = 0.779>0.05 is evidence that a significant main effect does not exist amongst the observations of the outcome or within-subjects meaning that, time effect did not have significant influence on profitability of lower tier commercial banks in Kenya. In addition, the Greenhouse-Geisser for (Time2 * Group) is 1.045 and p-value of 0.406 >0.05. Based on the that Greenhouse-Geisser results, time and bank have no effect on profitability of lower tier commercial banks in Kenya. The study further conducted a test between variables to determine any significant difference in the profitability of lower tier commercial banks based on time and bank type. The results are shown in Table 4.13.

Table 4.13: Test Between Time and Bank Type

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Intercept	35444.620	1.000	35,444.62	14.886	0.001	0.404	14.886	0.958
Bank Group	25121.853	3.000	8,373.951	3.517	0.032	0.324	10.551	0.702
Error	52383.037	22.000	2,381.047					
a. Computed using alpha = .05								

The introduction of banks in to the model gave a p-value of 0.032<0.05 which is statistically significant. This indicates the effect of different bank characteristics have a statistically significant influence on the performance of lower tier banks in Kenya. Banks may differ in terms of total assets controlled, capital structure and model of business operations. Thus, different bank characteristics will have significant influence on the profitability of lower tier commercial banks. The result concurs with Das and Amadou (2012) who studied the impact of different bank characteristics on risk and performance and suggested that banks with higher levels of capital, more stable funding and stronger risk controls performed. Further, the study further sought to determine if profit, time and bank size are significant predictors of performance of lower tier banks in Kenya categorized as tier II and tier III. Figure 4.1 shows the net profit margins of tier II and tier III banks.
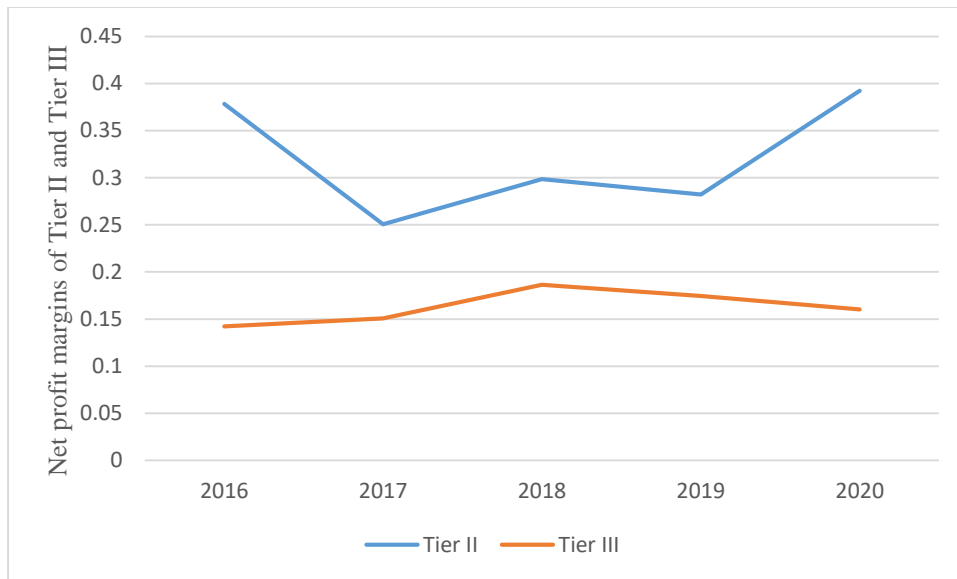
Figure 4.1: Net Profit Margins of Tier II and Tier III Banks in Kenya

As indicated in the trend lines above, the net profit margin for tier II banks were generally higher than the net profit of tier III banks over the study period 2016-2020. This may be an indication that bank size is having a significant impact on the profitability margins of lower tier commercial banks and this tend to differ based on bank sizes. Thus, it can be deduced that profitability and bank size are significantly correlated. The bank size is one of the factors that measure the firms' profitability. Bank size has been remarkably considered as an important determinant of bank's profitability. Larger banks are said to be able to reconfigure their business operations and resources to create more revenue for the bank. The size of the bank is also closely linked with the capital structure because large banks can raise less expensive capital and thus generate huge profits. Based on bank size, a bank can leverage on average cost reduction per unit while enhancing efficiency, capital base and market share thus improved profitability. In addition, bank size uniqueness in terms of assets, capital, deposits and loans influence the quality of decisions on the activities undertaken by a bank, which in effect, affects the strength of financial performance. The results marry

with the results by Maina *et al.* (2019) that firm size has a positive effect on financial performance of commercial banks in Kenya. In the same manner, Aladwan (2015) studying bank size and financial performance of listed Jordanian commercial banks established that bank size has a huge effect on financial performance.

4.3.2.2 Stationarity Test for Internal Equity Capital

Since panel data have both cross-sections and time series dimensions, there was need to test for stationarity of the time series because the estimation of the times series assumes that the variables are stationary. Estimating models without considering the non-stationary nature of the data would lead to spurious results (Gujarati, 2009). The study employed Fisher-type test in testing the stationarity of the data. Stationarity results for internal equity capital are presented in Table 4.14. The hypotheses to be tested were;

H_o: All panels contain unit roots

H_a: At least one panel is stationary

Table 4.14: Stationarity Test for Internal Equity Capital

Variable		Inverse chi-squared (70) P	Inverse normal Z	Inverse logit t (179) L*	Modified inv. chi-squared Pm
Internal equity capital	test statistic	357.6492	-11.949 7	-15.5291	23.8041
	p-value	0.000	0.000	0.000	0.000

The stationarity results test for unit root revealed that, at level internal equity capital was stationary since p-value<0.05 at P, Z, L* and Pm. This means that the results obtained are now not spurious and so panel regression model could be generated

(Gujarati, 2009) between internal equity capital and financial performance of lower tier commercial banks.

4.3.2.3 Autocorrelation for Internal Equity Capital

Failure to identify and account for serial correlation in the idiosyncratic error term in a panel model may result into biased standard errors and inefficient parameter estimates. Autocorrelation was tested by use of Durbin-Watson. The autocorrelation results are shown in Table 4.15.

Table 4.15 Autocorrelation Results for Internal Equity Capital

Profitability of lower tier commercial banks
Durbin-Watson d-statistic (1, 126) =.930
Prob > F = .607

The hypotheses tested while undertaking the autocorrelation test were that;

H_0: There is no serial correlation in the data.

H_1: There is serial correlation in the data

When Serial Correlation was conducted, the test statistic reported F-test of .607. When measuring serial correlation by use of Durbin Watson test, the Durbin-Watson d-statistic should be between 0-4. A value of 0-2 indicates positive autocorrelation while value of 2 to 4 implies negative autocorrelation. The d-statistic of .930 implies that data did not seriously suffer from serial autocorrelation. According to PennSate Eberly College (2023), data not suffering from autocorrelation based on Durbin-Watson should be between 0-4. Thus, data for internal equity capital did not suffer from serial correlations and was fit for regression modeling.

4.3.2.4 Normality test for Internal Equity Capital

The normality test of the data was conducted using a histogram. The null hypotheses were that:

H_0: The data are not normally distributed

H_1: The data are normally distributed

The normality test histogram for internal equity capital is shown in figure 4.2.

Histogram

Dependent Variable: Net Profit Margin 2016-2020

Mean = 2.17E-16
Std. Dev. = 0.988
N = 130
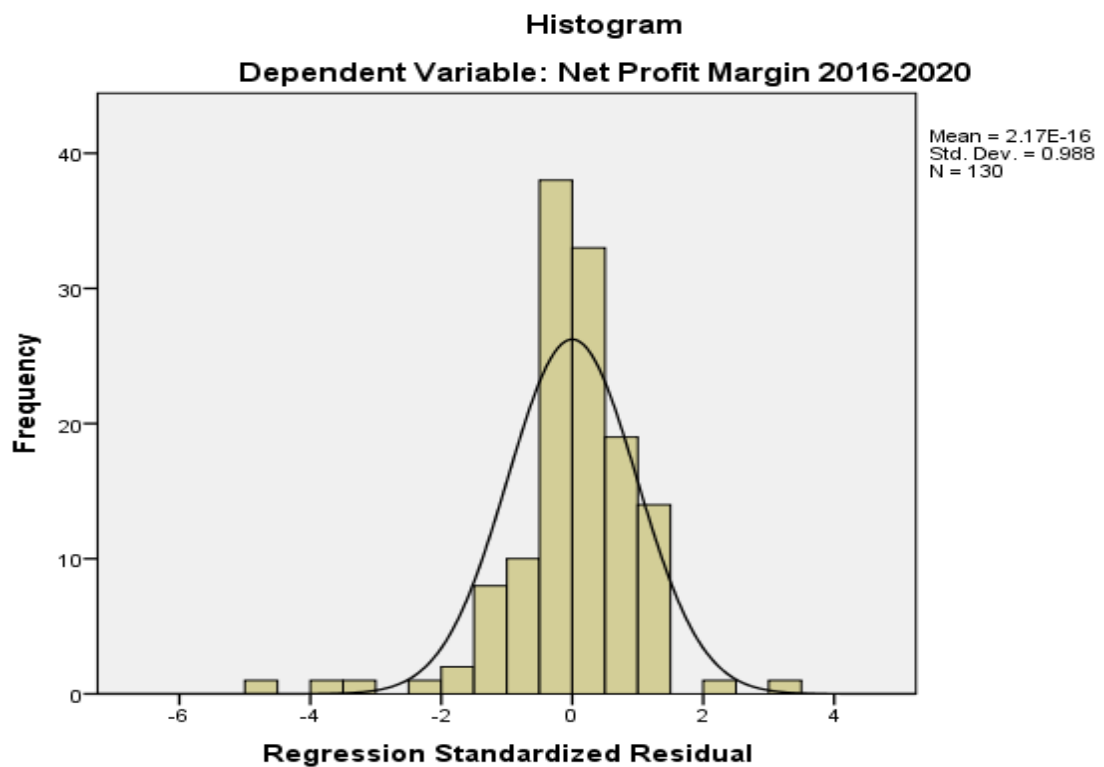
Figure 4.2: Normality test Histogram for Internal Equity Capital

As per the normality test histogram above, the data was exhibiting normal distribution. It was thus concluded that the data is normally distributed. The data thus can be considered not to be violating the normality assumption and is appropriate for linear regression. This is in line with Das and Imon (2016) that a variable that is normally

distributed depicts a bell-shaped, with only one peak, and is symmetric around the mean.

4.3.2.5 Multicollinearity for Internal Equity Capital

The study employed Variance Inflation Factor (VIF) to measure multicollinearity (Gujarati, 2009). Failure to account for perfect multicollinearity results into indeterminate regression coefficients and infinite standard errors while existence of imperfect multicollinearity results into large standard errors. Large standard errors affect the precision and accuracy of rejection or failure to reject the null hypothesis. When VIF $<$ 5; there is no multicollinearity; when VIF $\geq$ 5 presence of multicollinearity. Table 4.16 shows the Multicollinearity results for internal equity capital.

Table 4.16: Multicollinearity Test Results for Internal Equity Capital

Variables	Collinearity Statistics	
	Tolerance	VIF
Internal equity capital	.992	1.008

The collinearity test results show a VIF of 1.008<5 for internal equity capital. This is an indication that the internal equity capital data did not suffer from severe multicollinearity. The data for internal equity capital did not suffer from severe multicollinearity thus suitable for use in model regression analysis. According to Shrestha (2020) VIF less than 5 signifies minimal multicollinearity while $\geq$ 5 to 10 implies severe multicollinearity among the predictors in the regression model.

4.3.2.6 Heteroskedasticity Test for Internal Equity Capital

Glejser Test was used to check for heteroskedasticity. Under the Glejser Test, if the value sig. > 0.05, there is no problem of heteroskedasticity (Glejser, 1969). However, if the if the value sig. < 0.05, there is a problem of heteroskedasticity. The heteroskedasticity test for internal equity capital results are shown in Table 4.17.

Table 4.17: Heteroskedasticity Test for Internal Equity Capital

Model	Sig. value
Internal equity capital	.090

a. Dependent Variable: AbsUt

The sig. value for internal equity capital was .183> 0.05. The data for internal equity capital did not suffer from heteroskedasticity problems. Thus, the data was suitable for use in estimating the regression analysis between internal equity capital and profitability of lower tier commercial banks. This is in line with Glejser (1969) interpretation of acceptable levels of Heteroskedasticity.

4.3.3 Inferential Analysis for Internal Equity Capital

One of the study objective was to determine the influence of internal equity capital on financial performance of lower tier commercial banks in Kenya. The analysis used multilevel mixed model analysis and hierarchical multiple linear regression. Multilevel mixed model analysis is useful in considering data with nested or hierarchical structures, where observations are grouped within different levels. It accounts for within-group and between-group variations, providing insights into how study variables interact with group-level influences. As indicated by Hamilton (2013), mixed-effects modeling allows two kinds of effects: fixed effects, meaning intercepts and slopes

meant to describe the population as a whole, just as in ordinary regression; and also random effects, meaning intercepts and slopes that can vary across subgroups of the sample. Mixed-effects modeling opens a new range of possibilities for multilevel models, growth curve analysis, and panel data or cross-sectional time series. On the other hand, hierarchical multiple linear regression shows if study variables explain a statistically significant amount of variance in the dependent variable after accounting for all other variables. This is a framework for model comparison rather than a statistical method. According to Kioko (2021), hierarchical regression is useful for evaluating the contributions of predictors above and beyond previously entered predictors, as a means of statistical control, and for examining incremental validity.

4.3.3.1 Multilevel Mixed Model Analysis for Internal Equity Capital

Under the multilevel mixed model analysis, analysis was done in the following multilevel. The multilevel entailed regressing profitability and time; profitability, time and bank group; profitability, time, bank group and internal equity capital; profitability, time, bank group, internal equity capital and bank size.

Table 4.18 shows the Type III Tests of Fixed Effects with time, bank group, internal equity capital and profitability using profit retention ratio.

Table 4.18: Type III Tests of Fixed Effects[a] (Profitability, Time, Bank Group and Internal Equity Capital)

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	121.000	2.611	.109
Bank Group	3	121.000	6.066	.001
Time	4	121.000	.420	.794
Internal Equity Capital	1	121.000	65.757	.000

a. Dependent Variable: Profitability (Net Profit Margin)

Time did not have significant influence on profits of lower tier banks. However, bank type had significant influence on the profitability lower tier banks. This is supported by F of 6.066 and p-value of .001<0.05. Moreover, it was also established that internal equity had significance influence on the net profit margin of lower tier commercial banks in Kenya. This is supported by F of 65.757 and p-value of .000<0.05. Internal equity describes the proportion of earnings kept back in a business as retained earnings for sustaining operations of the bank. Some banks prefer to retain more earnings and plow it back into operations especially when they have viable investment opportunities. When banks retain their profit, they have capacity to fund viable projects that yield more capital gain in the long run.

As internal source, retained earnings are readily available for use. Also, retentions are cheaper than external equity, do not cause ownership dilution, and have got a positive connotation as the stakeholders perceive that the company has potential investment opportunities. Retained earnings are considered as a better and cheaper source of finance than raising funds from external sources, which are associated with exorbitant costs. However, they have demerits in that retained earnings are a limited source of financing, and the fact that they have a high opportunity cost since they are a foregone dividend by equity holders. The results are in tandem with that of King'oo (2015) who studied the effect of selected internal factors on the financial performance of commercial banks listed in the Nairobi Securities Exchange and established that internal has a significant positive effect on financial performance. However, the results differ with Altahtamouni et al. (2022) who indicated that retained earnings have no significant impact on the profitability of Saudi banks. Table 4.19 shows the Estimates of Fixed Effects[a] for profitability, time, bank group and internal equity capital.

Table 4.19: Estimates of Fixed Effects^a (Profitability, Time, Bank Group and Internal Equity Capital)

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	4.892	6.82	121	0.718	0.5	-8.603	18.388
[Bank Group=1.00]	-13.3	5.65	121	-2.354	0	-24.485	-2.116
[Bank Group=2.00]	-22.31	5.6	121	-3.981	0	-33.402	-11.214
[Time=1]	4.824	5.55	121	0.869	0.4	-6.168	15.816
[Time=2]	5.728	5.53	121	1.035	0.3	-5.229	16.684
[Time=3]	4.1678	5.53	121	0.754	0.5	-6.777	15.112
[Time=4]	0.767	5.53	121	0.139	0.9	-10.174	11.709
[Time=5]	0b	0	.	.	.	.	.
Internal Equity Capital	0.4417	0.05	121	8.109	0	0.334	0.55

a. Dependent Variable: Net Profit Margin 2016-2020.
b. This parameter is set to zero because it is redundant.

Based on the effects results bank group had significant influence on net profit margin of lower tier banks in Kenya. Time factor did not influence the profit margin of lower tier banks in Kenya. It was also established that internal equity had significance influence on the profit margin of lower tier banks in Kenya. Internal equity refers to earnings that are retained by the bank for use in financing any other investments projects when they arise. Retained earnings are considered as a better and cheaper source of finance than raising funds from external sources, which are associated with exorbitant costs. Banks may prefer capital gains over dividends, because capital gain taxes can be deferred into the future and are taxed at a minimum rate while taxes on

dividends must be paid as soon as they are received and are taxed at a relatively higher rate.

The study further went ahead to investigate the profitability of lower tier commercial banks against time, bank group, internal equity capital and bank size. The study estimated the information criteria are shown in Table 4.20.

Table 4.20: Information Criteria[a] (Profitability, Time, Bank, Internal Equity Capital, Bank Size)

-2 Restricted Log Likelihood	1099.396
Akaike's Information Criterion (AIC)	1109.396
Hurvich and Tsai's Criterion (AICC)	1109.923
Bozdogan's Criterion (CAIC)	1128.334
Schwarz's Bayesian Criterion (BIC)	1123.334

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: Net Profit Margin 2016-2020.

Information criteria output in Table 4.20 showed that the -2 Restricted Log Likelihood goes down further to 1099.396. The -2 Restricted Log Likelihood goes down an indication that profit retention ratio influence the profits of the lower tier commercial banks in Kenya. Thus, further analysis could thus be conducted to determine the relationship between study variables of the study. Table 4.21 shows the Type III Tests of Fixed Effects for time, bank group, internal equity capital and bank size into the equation.

Table 4.21: Type III Tests of Fixed Effects[a] (Profitability, Time, Bank, Internal Equity Capital, Bank Size)

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	120.000	.015	.903
Bank group	3	120.000	4.259	.007
Time	4	120.000	.401	.807
Internal Equity Capital	1	120.000	62.015	.000
Bank size	1	120.000	.003	.954

a. Dependent Variable: Net Profit Margin 2016-2020.

Time and bank size did not have significant influence on profits of lower tier banks. Bank type had significant influence on profits of lower tier commercial banks. The F was 4.259 and p-value of .007<0.05. The results signify that bank features significantly influences the profitability of lower tier commercial banks in Kenya. In addition, internal equity had significant influence on net profit margin of lower tier commercial banks in Kenya. Earnings retained are the most important sources of financing growth of a bank. The level of internal funds conveys information about growth prospects of companies. Growth firms pay lower dividends, reinvest more of their earnings, and provide a greater percentage of their total returns in the form of capital gains.

4.3.3.2 Hierarchical Regression for Internal Equity Capital

Objective one of the study was to determine the influence of internal equity capital on financial performance of lower tier commercial banks in Kenya. The analysis used hierarchical multiple linear regression. Hierarchical multiple linear was conducted targeting time, bank group, profit internal equity capital. Bank profit was regressed against time, bank group, internal equity capital to check if they influence the net profit

margins of the lower tier commercial banks in Kenya. The results are shown in Table 4.22.

Table 4.22: Model Summary^b (Profitability against Time, Bank Group, Internal Equity)

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.006^a	.000	-.008	27.561	.000	.005	1	128	.946	
2	.438^b	.192	.179	24.876	.192	30.117	1	127	.000	
3	.668^c	.446	.433	20.669	.255	57.960	1	126	.000	.930

a. Predictors: (Constant), Time
b. Predictors: (Constant), Time, Bank Group
c. Predictors: (Constant), Time, Bank Group, Internal Equity Capital 2016-2020
d. Dependent Variable: Net Profit Margin 2016-2020

Time did not have any statistical significance on the net profit margin of lower tier commercial banks. Bank group and internal equity capital had significant influence on net profit margin. The reported R Square Change .255 shows that internal equity capital explained a significant portion (25.5 percent) of net profit margins of lower tier banks in Kenya as measured in net profit margins. The reported p-value is .000<0.05 an indication that internal equity capital has a statistical significance on the financial performance of lower tier banks in Kenya. The Durbin-Watson of .930 indicate that the data did not suffer from serial correlation.

Bank profitability and earnings are closely related because retained earnings are undistributed profits accumulated over the years which may be subsequently used for the purpose of enhancing the capital resources of the bank. Without adequate earnings the confidence in the banking system by the public that they should have access to their

funds whenever they need them is eroded. The results are in line with Muigai (2016) who studied equity structure effect on financial soundness of non-financial companies listed in Kenya and indicated that there exists a positive and significant effect of internal equity on firm's financial performance. However, the results contradict the findings by Thuranira (2014) who indicated that internal equity capital has no significant impact on profitability. Table 4.23 shows the ANOVA result for profit against time, bank group and internal equity capital.

Table 4.23 ANOVA[a] (Profitability Against Time, Bank Group and Internal Equity Capital)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.475	1	3.475	.005	.946[b]
	Residual	97227.210	128	759.588		
	Total	97230.685	129			
2	Regression	18640.308	2	9320.154	15.061	.000[c]
	Residual	78590.377	127	618.822		
	Total	97230.685	129			
3	Regression	43401.588	3	14467.196	33.864	.000[d]
	Residual	53829.097	126	427.215		
	Total	97230.685	129			

a. Dependent Variable: Net Profit Margin 2016-2020
b. Predictors: (Constant), Time
c. Predictors: (Constant), Time, Bank Group
d. Predictors: (Constant), Time, Bank Group, Internal Equity Capital 2016-2020

ANOVA results in model 2 shows a F value of 15.061 and p-value of .000<0.05. The calculated p-value of .000<0.05 is an indication that bank group is a significant predictor of net profit margin among the lower tier commercial banks in Kenya. Likewise, model 3 showed a F value of 33.864 and p-value of .000<0.05. The results confirm internal equity capital has significant influence on profit margin of lower tier commercial banks. Table 4.24 shows the coefficient model results between time, bank group, internal equity capital and net profit margin of lower tier commercial banks in Kenya.

Table 4.24: Regression Coefficients[a] (Profitability Against Time, Bank Group and Internal Equity Capital)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	15.863	5.669		2.798	.006					
	Time	-.116	1.709	-.006	-.068	.946	-.006	-.006	-.006	1.000	1.000
2	(Constant)	-8.211	6.740		-1.218	.225					
	Time	-.116	1.543	-.006	-.075	.940	-.006	-.007	-.006	1.000	1.000
	Bank Group	10.609	1.933	.438	5.488	.000	.438	.438	.438	1.000	1.000
3	(Constant)	-8.971	5.601		-1.602	.112					
	Time	-1.421	1.293	-.073	-1.099	.274	-.006	-.097	-.073	.982	1.018
	Bank Group	3.490	1.859	.144	1.878	.063	.438	.165	.124	.747	1.339
	Internal equity capital	.429	.056	.588	7.613	.000	.651	.561	.505	.737	1.357

$$Y = -8.971 + 0.429 \text{Internal equity capital}$$

Where Y is financial performance lower tier commercial banks.

Model 3 coefficients result show that internal equity capital has a positive and statistically significant effect on net profit margin of lower tier banks in Kenya (β=.429, p-value=.000<0.05). The results indicate that one unit change in internal equity capital result to .429 units change on the net profit margins of lower tier commercial banks in Kenya. Earnings retained are the most important sources of financing growth of a bank. The level of internal funds conveys information about growth prospects of companies. Growth firms pay lower dividends, reinvest more of their earnings, and provide a greater percentage of their total returns in the form of capital gains. Earnings retained are the most important sources of financing growth of a bank. Bank profitability and earnings are closely related because retained earnings are undistributed profits accumulated over the years which may be subsequently used for the purpose of enhancing the capital resources of the bank.

Retained earnings are considered as a better and cheaper source of finance than raising funds from external sources, which are associated with exorbitant costs. However, they have demerits in that retained earnings are limited source of financing, and the fact that they have a high opportunity cost since they are a foregone dividend by equity holders. The results are in line with King'oo (2015) who studied the effect of selected internal factors on the financial performance of commercial banks listed in the Nairobi Securities Exchange and established that internal and external equity have a significant positive effect on financial performance. However, the results contradict the findings

by Thuranira (2014) who indicated that internal equity has no significant impact on profitability. The results also differ with Altahtamouni *et al.* (2022) who indicated that retained earnings have no significant impact on the profitability of Saudi banks.

The study further went ahead to investigate the profitability of lower tier commercial banks against time, bank, internal equity capital and bank size. Further, bank size was introduced as moderator in the equation. Profitability of lower tier commercial banks may be influenced by size even when looking at internal equity as an independent variable. This is because, internal equity depends on the retained profit earnings which may vary from bank to bank based on the different bank sizes. This is in line with King'oo (2015) who indicated that internal equity earnings of a bank vary based on the bank size. Thus, it was important to determine the effect of bank size on the relationship between internal equity capital and profitability of lower tier commercial banks in Kenya. The model summary results are shown in Table 4.25.

Table 4.25: Model Summary[d] (Profitability, Time, Bank Group, Internal Equity and Bank Size)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.006[a]	.000	-.008	27.561	.000	.005	1	128	.946	
2	.438[b]	.192	.179	24.876	.192	30.117	1	127	.000	
3	.668[c]	.446	.433	20.669	.255	57.960	1	126	.000	
4	.673[d]	.454	.436	20.617	.007	1.645	1	125	.202	.936

a. Predictors: (Constant), Time
b. Predictors: (Constant), Time, Bank Group
c. Predictors: (Constant), Time, Bank Group, Internal Equity Capital 2016-2020
d. Predictors: (Constant), Time, Bank Group, Internal Equity Capital 2016-2020, Bank size

As indicated above, a R square change of .255 indicates that internal equity capital explained a 25.5 percent of net profit margin of lower tier banks in Kenya. It was also established that internal equity capital is significant predictor of net profit margins in the banks. Upon the introduction of bank size as the moderator, the R square change .007 was reported. The reported R square change 0.007 shows that bank size did not statistically influence the relationship between internal equity capital and the financial performance of lower tier banks in Kenya. The Durbin-Watson of .936 indicate that the data did not suffer from serial correlation. Table 4.26 shows the ANOVA result for profit verses time, bank, internal equity capital and bank size.

Table 4.26: ANOVA[a] (Profitability, Time, Bank, Internal Equity Capital and Bank Size)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.475	1	3.475	.005	.946[b]
	Residual	97227.210	128	759.588		
	Total	97230.685	129			
2	Regression	18640.308	2	9320.154	15.061	.000[c]
	Residual	78590.377	127	618.822		
	Total	97230.685	129			
3	Regression	43401.588	3	14467.196	33.864	.000[d]
	Residual	53829.097	126	427.215		
	Total	97230.685	129			
4	Regression	44100.640	4	11025.160	25.939	.000[e]
	Residual	53130.045	125	425.040		
	Total	97230.685	129			

a. Dependent Variable: Net Profit Margin 2016-2020

b. Predictors: (Constant), Time

c. Predictors: (Constant), Time, Bank Group

d. Predictors: (Constant), Time, Bank Group, Internal Equity Capital 2016-2020

e. Predictors: (Constant), Time, Bank Group,   Internal Equity Capital 2016-2020, Bank size

Based on the results above, model 2,3 and 4 are statistically significant. In model 4, the model reveled a F value of 25.939 and p-value of .000. The calculated p-value of .000<0.05 and indication that bank size influence the relationship between internal equity capital and net profit margin of the lower tier commercial banks. Table 4.27 shows the coefficient model results between time, bank group, internal equity capital and net profit margin of lower tier commercial banks in Kenya.

Table 4.27: Regression Coefficients[a] (Profitability, Time, Bank, Internal Equity Capital and Bank Size)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	15.863	5.669		2.798	.006					
	Time	-.116	1.709	-.006	-.068	.946	-.006	-.006	-.006	1.000	1.000
2	(Constant)	-8.211	6.740		-1.218	.225					
	Time	-.116	1.543	-.006	-.075	.940	-.006	-.007	-.006	1.000	1.000
	Bank Group	10.609	1.933	.438	5.488	**.000**	.438	.438	.438	1.000	1.000

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Model		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
3	(Constant)	-8.971	5.601		-1.602	.112					
	Time	-1.421	1.293	-.073	-1.099	.274	-.006	-.097	-.073	.982	1.018
	Bank Group	3.490	1.859	.144	1.878	.063	.438	.165	.124	.747	1.339
	Internal equity capital	.429	.056	.588	7.613	**.000**	.651	.561	.505	.737	1.357
4	(Constant)	-98.161	69.771		-1.407	.162					
	Time	-1.840	1.331	-.095	-1.383	.169	-.006	-.123	-.091	.923	1.083
	Bank Group	-2.294	4.876	-.095	-.470	.639	.438	-.042	-.031	.108	9.261
	Internal equity capital	.415	.057	.569	7.268	**.000**	.651	.545	.481	.712	1.404
	Bank size	5.933	4.626	.264	1.282	.202	.469	.114	.085	.104	9.659

a. Dependent Variable: Net Profit Margin 2016-2020

Y = -98.161+.415Internal equity capital +5.933Bank size

Where Y is financial performance lower tier commercial banks.

Modelling the effect of time and bank group on the net profit margin of lower tier commercial banks, only bank group was statistically significant. Bank group had a positive and significant effect on the net profit margin of lower tier commercial banks in Kenya. This claim is supported by a p-value of .000<0.05. In the relationship among

time, bank group, internal equity capital and performance of lower tier commercial banks in Kenya, only internal equity capital was statistically significant in explaining net profit margin of lower tier banks in Kenya (β=.429, p-value=0.000<0.05). In model 4 of the hierarchical multiple linear, bank size was introduced to moderate the effect of time, bank group and internal equity capital on the net profit margin of lower tier commercial banks. It was established that internal equity capital had a positive and significant effect on net profit margin of lower tier commercial banks (β=.415, p-value=.000<0.05). The results imply that one-unit increase in internal equity capital results to .415 units increase in net profit margin of lower tier commercial banks.

It was also established that bank size does not moderate the effect of internal equity capital on net profit margin of lower tier commercial banks in Kenya as shown by calculated p-value of .202>0.05. The results imply that size of bank in terms of total assets controlled does not affect the level of internal equity financing and subsequent profitability of lower tier commercial banks. The nexus between profitability and internal equity capital only depends on the agreement among the shareholders and the bank on the manner or formula to be used in calculating retained earnings and thus bank size will not affect this relationship. A small bank or large bank can choose to increase the level of retained earnings irrespective of the size. Thus, bank size has no significant effect on the relationship between internal equity capital and profitability of lower tier banks in Kenya.

4.4 External Equity Capital and Financial Performance of Lower Tier Commercial Banks

The second objective of the study was to determine the influence of external equity capital on financial performance of lower tier commercial banks in Kenya. External

equity capital was one of the independent variable of the study. The analyses of external equity capital comprised the descriptive statistics, diagnostic tests and inferential analyses.

4.4.1 Descriptive Statistics for External Equity Capital

The study presented the descriptive results for external equity capital for lower tier commercial banks in Kenya. External equity capital entails the use of share capital financing by way of issuing new shares or ordinary shares. External equity capital was measured as the ratio of value of ordinary shareholding to total assets. According to Ardalan (2017), external equity capital is represented as the use of share capital financing or issue of new shares as a way of financing the firm. The external equity capital descriptive results are shown in Table 4.28.

Table 4.28: External Equity Capital Descriptive results

External Equity capital (ratio)	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
2016	0.000	0.383	0.175	0.066	.681	4.569
2017	0.079	0.486	0.188	0.079	2.342	7.432
2018	0.071	0.370	0.171	0.060	1.421	3.944
2019	0.078	0.257	0.160	0.048	.338	-.214
2020	0.075	0.238	0.156	0.043	.363	-.535
Valid N (listwise)	130					

The standard deviations for external equity capital during the study period was showing some level of variation from the mean an indication that most lower tier commercial banks external equity capital were clustered around the mean. The year 2017 recorded highest Kurtosis of 7.432>3 followed by 2016 (4.569>3) and 2018 (3.944>3) indicating

high disparity in external equity capital among the lower tier commercial banks. In 2020, the Kurtosis was -.214<3 while in 2020, the Kurtosis was -.535<3 an indication of lower disparity in external equity capital among the lower tier commercial banks (platykurtic distribution). In terms of Skewness, the values ranged between .338 and 2.342 an indication that the data are moderately skewed.

The external equity capital for lower tier commercial banks in Kenya was 0.175 in 2016. There was a slight increase in the external equity capital in 2017 to 0.188 an indication that the banks issued more ordinary shares to finance their operations. However, in 2018, the external equity capital for lower tier commercial banks dropped to 0.171. Further decline of external equity capital for lower tier commercial banks was witnessed in the subsequent years of 2019 (0.160) and 2020 (0.156). The decline signify decline in the issuance of ordinary shares by the lower tier commercial banks to finance their operations. Similarly, during the study period, one lower tier commercial bank recorded highest external equity capital of 0.486 indicating more reliance on external equity to finance its operations. In 2016, one lower tier commercial bank had external equity capital 0.000 an indication that the bank did not seek any external financing in form of ordinary shares.

Through external equity capital, there is the issuance of share capital financing in terms of ordinary shares. Proponents of equity financing cite freedom from debt obligations and increase in business experience and contacts as diverse shareholders jointly own the firm. Equity capital represents funds paid into the enterprise by investors in return for common or preferred stock. It epitomizes the core funding of most business, to which debt funding may be added. A study by Muigai (2016) and King'oo (2015) both established that external equity capital have a significant positive effect on financial

performance. Contrastingly, Kanini (2016) study on the effect of capital structure on financial performance of commercial banks in Kenya established that external equity capital represented by ordinary shareholding showed a negative effect on financial performance.

4.4.2 Diagnostic Tests for External Equity Capital

The diagnostic tests conducted included the stationarity test, autocorrelation, normality test, multicollinearity and heteroskedasticity test.

4.4.2.1 Stationarity Test for External Equity Capital

The study employed Fisher-type test in testing the stationarity of the extrenal equity capital data. Stationarity results are presented in Table 4.29. The hypotheses to be tested were;

H_o: All panels contain unit roots

H_a: At least one panel is stationary

Table 4.29: Stationarity Test for External Equity Capital

Variable		Inverse chi-squared (70) P	Inverse normal Z	Inverse logit t (179) L*	Modified inv. chi-squared Pm
External equity capital	test statistic	198.3579	-3.9093	-6.8028	10.5298

The stationarity results test for unit root revealed that, at level external equity capital was stationary since p-value<0.05 at P, Z, L* and Pm. This means that the results obtained are not spurious and so panel regression models could be generated.

4.4.2.2 Autocorrelation for External Equity Capital

Failure to identify and account for serial correlation in the idiosyncratic error term in a panel model would result into biased standard errors and inefficient parameter estimates.

The hypotheses tested while undertaking the autocorrelation for external equity capital were that;

H_0: There is no serial correlation in the data.

H_1: There is serial correlation in the data

The autocorrelation results are shown in Table 4.30.

Table 4.30: Autocorrelation for External Equity Capital

Variable	Durbin-Watson d-statistic (1, 126)	Prob > F	Interference
External equity capital	2.096	.661	Data does not suffer from serial correlations

The DW-statistic for external equity capital was 2.096 with p-value>0.05 indicating that data did not seriously suffer from serial autocorrelation. Thus, the data was suitable for use in inferential analysis to determine the effect of external equity capital on financial performance of lower tier commercial banks in Kenya.

4.4.2.3 Normality Test for External Equity Capital

The normality test of the data was conducted using histogram. The null hypotheses were that

H_0: The data are not normally distributed

H_1: The data are normally distributed

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The normality test for external equity capital is shown in Figure 4.3.
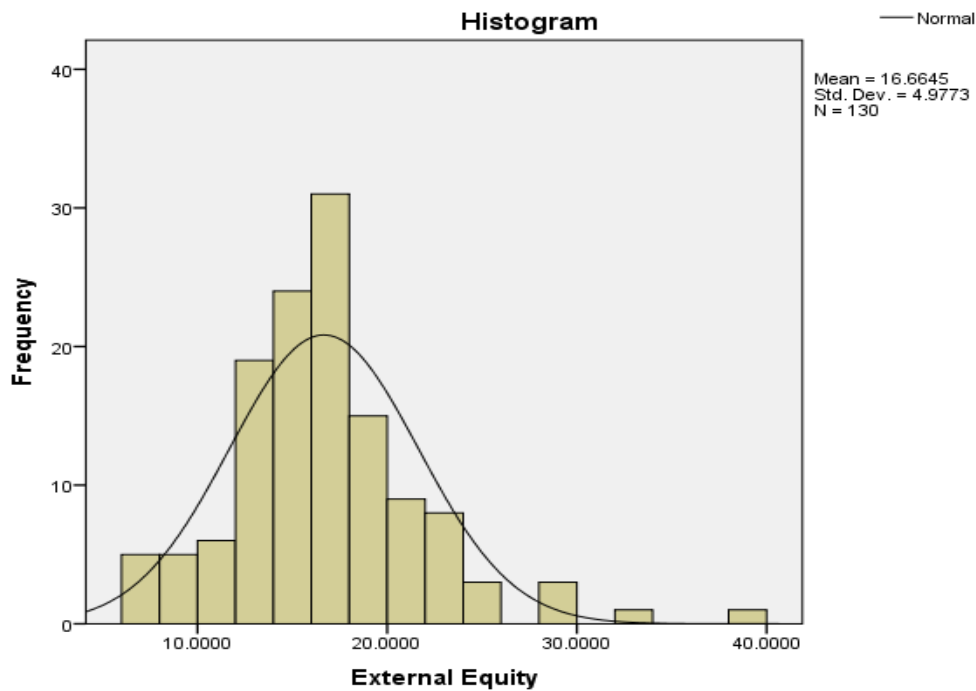
Figure 4.3: Normality Test Histogram for External Equity Capital

Based on the Histogram in Figure 4.3, the data was exhibiting normal distribution. It was thus concluded that the data for external equity capital is normally distributed. With normal distribution, probability distribution of data is symmetric about the mean, showing that data near the mean are more frequent in occurrence than data far from the mean. The data thus can be considered not to be violating the normality assumption and is appropriate for linear regression.

4.4.2.4 Multicollinearity for External Equity Capital

The study employed VIF to tests for multicollinearity as suggested by Alin (2010). Table 4.31 shows the Multicollinearity results.

Table 4.31: Multicollinearity Test Results for External Equity Capital

Variables	Collinearity Statistics	
	Tolerance	VIF
External equity capital	.916	2.030

The collinearity test results show a VIF of 2.030<5 for external equity capital. This is an indication that the data did not suffer from severe multicollinearity. Thus, the data for external equity capital did not suffer from severe multicollinearity thus suitable for use in model regression analysis.

4.4.2.5 Heteroskedasticity Test for External Equity Capital

Glejser Test was used to check for heteroskedasticity. The results are shown in Table 4.32.

Table 4.32: Heteroskedasticity Test for External Equity Capital

Model	Sig. value
External equity capital	.090

a. Dependent Variable: AbsUt

The sig. value for external equity capital was .090> 0.05. The data for external equity capital did not suffer from heteroskedasticity problems. Thus, the data was suitable for use in estimating the regression analysis between external equity capital and profitability of lower tier commercial banks.

4.4.3 Inferential Analysis for External Equity Capital

One of the study objective was to determine the influence of external equity capital on financial performance of lower tier commercial banks in Kenya. The analysis used mul external equity capital and hierarchical multiple linear regression.

4.4.3.1 Multilevel Mixed Model Analysis

Under the multilevel mixed model analysis, analysis was done in the following multilevel. The multilevel entailed regressing profit against time; profit against time and bank; profit against time, bank and external equity capital; profit against time, bank, external equity capital and bank size as a moderator.

4.4.3.1.1 Profit and Time

First, the information on time was investigated to establish if the time factor had any significance influence on profitability of lower tier commercial banks in Kenya. Investigating on the time effect was important since the data collected was a panel data spanning 2016-2020 and across several lower tier commercial banks. Thus, before analyzing profit against time, the study estimated the information criteria. The results are shown in Table 4.33.

Table 4.33: Information Criteria[a] for External Equity Capital

-2 Restricted Log Likelihood	1202.854
Akaike's Information Criterion (AIC)	1206.854
Hurvich and Tsai's Criterion (AICC)	1206.952
Bozdogan's Criterion (CAIC)	1214.510
Schwarz's Bayesian Criterion (BIC)	1212.510
The information criteria are displayed in smaller-is-better forms.	

The results in Table 4.33 showed a -2 Restricted Log Likelihood of 1202.854. The restricted maximum likelihood facilitated the estimation of parameters to be used in the model. Before estimating the multilevel mixed model analysis, the Restricted maximum

likelihood estimation was modeled aimed at maximizing the likelihood over a restricted parameter space to ensure that unbiased estimators are not generated. Transformation of the data enabled the log- likelihood to be split so that variances are estimated from error contrasts. The method has been applied to a random-coefficients model for longitudinal data, and to situations where the parameters satisfy order restrictions. Table 4.34 shows the Type III Tests of Fixed Effects after introducing the time into the equation.

Table 4.34: Type III Tests of Fixed Effects[a] for External Equity Capital

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	125	40.315	.000
Time	4	125.000	.059	.993

Results in Table 4.34 showed a F value of .059. The results also revealed a p-value calculated of .993>0.05. After introducing time, time was not statistically significant. The results imply that time did not have a significant effect on the profitability of lower tier commercial banks in Kenya.

4.4.3.1.2 Profitability, Time and Bank Group

The multilevel mixed model analysis in this section introduced the bank factor into the equation model. The aim of the test was to investigate if bank group has any significant effect on the profitability of lower tier commercial banks. Before analyzing profitability of lower tier commercial banks against time and bank group, the study estimated the information criteria. The results are shown in Table 4.35.

Table 4.35: Information Criteria^a for External Equity Capital

-2 Restricted Log Likelihood	1153.335
Akaike's Information Criterion (AIC)	1159.335
Hurvich and Tsai's Criterion (AICC)	1159.538
Bozdogan's Criterion (CAIC)	1170.747
Schwarz's Bayesian Criterion (BIC)	1167.747

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: Net Profit Margin 2016-2020.

Results in Table 4.35 showed a -2 Restricted Log Likelihood 1153.335. The -2 Restricted Log Likelihood goes down an indication of influence of bank type on profits. The results thus indicate that the introduction of bank category had influence on changes in the profits of lower tier commercial banks. Table 4.36 shows the Type III Tests of Fixed Effects after introducing the time and bank group into the model equation.

Table 4.36: Type III Tests of Fixed Effects (Profitability, Time and Bank Group)

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	219112.725	1.522	.217
Time	4	122	.076	.989
Bank Group	3	122	12.616	.000

Results in Table 4.36 showed a F value of .076. The results also revealed a p-value calculated of .989>0.05. The results indicate that time is not a significant predictor of profitability in banks. However, bank group indicated F-value of 12.616 and p-value=.000<0.05. The results signify that bank type influence the profitability of lower tier commercial banks in Kenya.

The business operation models tend to differ from bank to bank and this confirms the fact that bank group had significant influence on profitability of lower tier banks. In addition, the manner in which a bank capital structure is defined will influence how bank operations and activities are financed. The capital structure decision is crucial for the bank in finding the right combination of debt and equity to deploy in funding its operations. In order to achieve bank's revenue creation objective, the bank take rational financing decisions regarding optimal capital structure which in turn would minimize its cost of capital and thus properly finance its operations. Proper management of capital structure in banks would help banks predict and mitigate potential problems associated with their financing decision helping the bank's achievement of the wealth creation goal.

4.4.3.1.3 Profitability, Time, Bank Group and External Equity Capital

The multilevel mixed model analysis in this section introduced the time, bank group and external equity capital into the equation model. The aim of the test was to investigate if time, bank group and external equity capital had any significant effect on the profitability of lower tier commercial banks. Before analyzing profitability, time, bank group and external equity capital, the study estimated the information criteria. The results are shown in Table 4.37.

Table 4.37: Information Criteria[a] (Profitability, Time, Bank Group and External Equity Capital)

-2 Restricted Log Likelihood	1142.725
Akaike's Information Criterion (AIC)	1150.725
Hurvich and Tsai's Criterion (AICC)	1151.070
Bozdogan's Criterion (CAIC)	1165.908
Schwarz's Bayesian Criterion (BIC)	1161.908
The information criteria are displayed in smaller-is-better forms.	
a. Dependent Variable: Net Profit Margin 2016-2020.	

The results in Table 4.37 showed a -2 Restricted Log Likelihood of 1142.725. The -2 Restricted Log Likelihood goes down an indication of influence of bank group and external equity capital on profits of the lower tier commercial banks. The results thus indicate that the bank group and external equity capital had influence on changes in the profits of lower tier commercial banks. Table 4.38 shows the Type III Tests of Fixed Effects after introducing time, bank group and external equity capital into the equation.

Table 4.38: Type III Tests of Fixed Effects[a] (Profitability, Time and Bank Group)

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	121	.679	.411
Time	4	121	.201	.937
Bank Group	3	121	14.392	.000
External equity capital	1	121	10.769	.001

Time did not have significant influence on profits of lower tier banks. Bank type had significant influence on profits of lower tier commercial banks. In regard to external equity capital, the F was 10.769 and p-value of .001<0.05. The results signify that external equity capital significantly influences the profitability of lower tier commercial banks in Kenya. The external equity capital assesses the market value of the firm from investor's perspective relative to a share's book value. The external equity capital measured as book value of external equity to total assets is a market based valuation ratio that has to do with banks timing the market to know when to issue more equity or repurchase equity and when to incur debt or not in their capital structure. Banks with high market-to-book ratios tend to grow quickly. In a study by Fatoki and Nasieku (2017) on the influence of the market to book value of equity on capital structure choice

in Nigeria, a positive and statistically significant relationship exists between market to book value of equity and capital structure.

4.4.3.1.4 Profitability, Time, Bank Group and External Equity Capital and Bank Size.

The study further went ahead to investigate the profitability of lower tier commercial banks against time, bank group and external equity capital. Further, bank size was introduced as moderator in the equation. Prior analyzing profitability with time, bank group, external equity capital and bank size, the study estimated the information criteria. The results are shown in Table 4.39.

Table 4.39: Information Criteria[a] (Profitability Against Time, Bank Group, External Equity Capital and Bank Size)

-2 Restricted Log Likelihood	1138.766
Akaike's Information Criterion (AIC)	1148.766
Hurvich and Tsai's Criterion (AICC)	1149.288
Bozdogan's Criterion (CAIC)	1167.745
Schwarz's Bayesian Criterion (BIC)	1162.745
The information criteria are displayed in smaller-is-better forms.	
a. Dependent Variable: Net Profit Margin 2016-2020.	

Information criteria output in Table 4.39 showed that the -2 Restricted Log Likelihood goes down further to 1138.766. The -2 Restricted Log Likelihood goes down an indication that bank size influence the effect of time, bank group and external equity capital on profits of the lower tier commercial banks in Kenya. The results thus indicate that bank size has significant moderating influence on changes in the profits of lower

tier commercial banks. Table 4.40 shows the Type III Tests of Fixed Effects after introducing time, bank group, external equity capital and bank size into the equation.

Table 4.40: Type III Tests of Fixed Effects[a] (Profitability, Time, Bank Group,

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	31	6.35	0.017
Time	4	120	0.13	0.97
Bank Group	3	69	1.63	0.191
External equity capital	1	121	15.3	0

a. Dependent Variable: Net Profit Margin 2016-2020.

External Equity Capital and Bank Size)

Results in Table 4.40 showed that bank size has a significant influence on financial performance of lower tier commercial banks. In regard to banks size, the F was 15.289 and p-value of .000<0.05. Introduction of firm size moderates the relationship between performance and time between different banks. The p-value between banks goes up to 0.191 from 0.000<0.05. The results infer that bank size has a significant effect on the profitability of lower tier commercial banks in Kenya. While a bank is contemplating on how to finance its operations, the size of bank in terms of total assets or sale revenue is significantly important in influencing the effect of capital structure on financial performance of lower tier commercial banks.

Firm size represents a justification regarding whether an enterprise is big or small as represented by their total assets, total sales, and market value of equity. The size of a bank is used to assist in capturing economies as well as diseconomies of scale. Large firms often have a stronger asset base and are able to keep expanding their investments as they have necessary collateral for lending. The results concur with Qamar, Farrok and Akhtar (2016) who studied the moderating role of firm size on the leverage-profitability relationship in Pakistan and indicated that the link between leverage and performance relation is nonlinear for medium and large size firms. Similarly, though in a different context, Sari and Sulastri (2019) studied the moderating role of firm size on the relationship between capital structure and profitability for manufacturing firms established that firm size moderated the effect of capital structure on profitability to show that large firms are more largely negatively affected.

4.4.3.2 Hierarchical Regression for External Equity Capital

Further, the study examined the influence of external equity capital on financial performance of lower tier commercial banks in Kenya using hierarchical multiple linear regression. Hierarchical multiple linear was employed to determine the effect of one variable after another on the performance of lower tier commercial banks in Kenya. A hierarchical linear regression is a special form of a multiple linear regression analysis in which more variables are added to the model in separate steps (Woltman *et al.,* 2012). This is often done to statistically "control" for certain variables, to see whether adding variables significantly improves a model's ability to predict the outcome variable (Raudenbush, 1988).

4.4.3.2.1 Profit and Time

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In the first form of hierarchical multiple linear, bank profit was regressed against time. Bank profit was regressed against time to check if time had any significant effect on the profit margins of the lower tier commercial banks in Kenya. The results are shown in Table 4.41.

Table 4.41: Model Summary[b] (Profit and Time)

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | Durbin-Watson |
					R Square Change	F Change	df1	df2	
1	.044[a]	0.002	-0.03	27.9	0.002	0.059	4	125	0.622

a. Predictors: (Constant), Year 5, Year 4, Year 3, Year 2
b. Dependent Variable: Net Profit Margin 2016-2020

The model results in Table 4.41 showed a R^2 of 0.002. This is a negligible R square meaning financial performance of lower tier commercial banks is influence by time at 0 percent. In other words, time does not influence profit margin of lower tie commercial banks. Thus, time is not significant predictor of the financial performance of lower tier banks in Kenya using net profit margin. The Durbin-Watson of .622 indicate that the data did not suffer from serial correlation. Table 4.42 shows the ANOVA result for the model relationship between time and bank profits.

Table 4.42: ANOVA[a] (Profitability and Time)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	184.610	4	46.153	.059	.993[b]
	Residual	97046.075	125	776.369		
	Total	97230.685	129			

The ANOVA results in table 4.42 shows a F value of .059 and p-value of .993. The calculated p-value of .993>0.05 and indication that time factor is not a significant predictor of bank profits among the lower tier commercial banks in Kenya. The ANOVA table results also confirms that the overall model is not statistically significant. Table 4.43 shows the coefficient model results between time and bank profits.

Table 4.43 Regression Coefficients[a] (Profitability and Time)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	15.863	5.669		2.798	.006
	Time	-.116	1.709	-.006	-.068	.946

a. Dependent Variable: Net Profit Margin 2016-2020

The coefficients model results show that time is statistically insignificant in influencing bank profits. This is indicated by a calculated p-vale of .946>0.05. Thus, in the hierarchical linear regression, time has no significant effect on the financial performance of lower tier commercial banks in Kenya measured using net profit margins. The next form of hierarchical linear regression introduces bank as factor in the model.

4.4.3.2.2 Profitability, Time and Bank Group

After it was established that time did not have any significant effect on bank profits of lower tier commercial banks in Kenya, bank group was introduced into the hierarchical linear regression equation. The model summary results are shown in Table 4.44.

Table 4.44: Model Summarya (Profitability, Time and Bank Group)

Model	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	Durbin-Watson
				R Square Change	Sig. F Change
1	0	-0.03	27.9	0.002	0.993
2	0.7	0.611	17.1	0.697	0
a. Predictors: (Constant), Year 5, Year 4, Year 3, Year 2					

The introduction of bank group into the hierarchical linear regression equation led to the rise of R-Square from .002 to .697. The introduction of banks, with their different characteristics, $r^2 = 0.697$ or 69.7 if due to banks characteristics. R Square Change, .697 is due to introduction of banks to the equation. Thus, the study concludes that banks characteristics is a significant predictor of bank profits explaining 69.7 percent of the bank profits using net profit margin as the measure of financial performance. The Durbin-Watson 2.105 indicate that the data did not suffer from serial correlation. Among several internal and external determinants of profitability as previously mentioned, bank-specific characteristics are considered critical to the profitability of banks. In the context of this study, heterogeneity of banks in in terms of total assets and bank capital structure will have significant influence on profit margins. Precisely, total assets of a bank representing bank's size and capital structure representing mode of financing are likely to influence the profitability of lower tier banks in Kenya. Table 4.45 shows the ANOVA result for the model relationship between bank profits against time and bank type.

Table 4.45: ANOVA[a] (Profitability, Time and Bank Group)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	184.61	4	46.153	0.059	.993[b]
	Residual	97046.1	125	776.369		
	Total	97230.7	129			
2	Regression	67920.3	29	2342.08	7.991	.000[c]
	Residual	29310.4	100	293.104		
	Total	97230.7	129			
a. Dependent Variable: Net Profit Margin 2016-2020						

Model 2 of ANOVA results in table 4.45 shows a F value of 7.991 and p-value of .000. The calculated p-value of .000<0.05 and indication that bank group is a significant predictor of bank profits among the lower tier commercial banks in Kenya. The ANOVA results confirms that bank group influences the performance of lower tier banks in Kenya as measured using net profit margin. The business operation models tend to differ from bank to bank and this confirms the fact that bank type had significant influence on profits. In addition, the manner in which a bank capital structure is defined will influence how bank operations and activities are financed. The capital structure decision is crucial for the bank in finding the right combination of debt and equity. In order to achieve bank's revenue creation objective, the bank take rational financing decisions regarding optimal capital structure which in turn would minimize its cost of capital and thus properly finance its operations. Proper management of capital structure in banks would help banks predict and mitigate potential problems associated with their financing decision helping the bank generate revenue. Table 4.46 shows the coefficient model results between time, bank group and net profit margin of lower tier commercial banks in Kenya.

Table 4.46: Regression Coefficients[a] (Profitability, Time and Bank Group)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-8.211	6.740		-1.218	.225
	Time	-.116	1.543	-.006	-.075	.940
	Bank Group	10.609	1.933	.438	5.488	.000
a. Dependent Variable: Net Profit Margin 2016-2020						

The coefficients model results show that bank group are statistically significant in influencing bank profits. This is indicated by a calculated p-vale of .000<0.05. Thus, in the hierarchical linear regression, bank group has significant effect on the financial performance of lower tier commercial banks in Kenya measured using net profit margins. The next form of hierarchical linear regression introduces book value to equity as factor in the model.

4.4.3.2.3 Profitability, Time, Bank and External Equity

In this subsequent hierarchical linear regression equation, the book value to equity as measure of external equity capital is introduced in to the equation. The section attempts to determine if external equity capital jointly with time and bank type have significant effect on bank profits of lower tier commercial banks in Kenya. The model summary results are shown in Table 4.47.

Table 4.47: Model Summary[d] (Profitability, Time, Bank Group and External Equity Capital)

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | Durbin-Watson |
					R Square Change	Sig. F Change	
1	.044[a]	0.002	-0.03	27.8634	0.002	0.993	
2	.836[b]	0.699	0.611	17.1203	0.697	0	
3	.836[c]	0.714	0.608	17.1897	0.012	0.036	2.096

The model 3 shows that upon introduction of external equity capital, R Square Change of .012 was reported. The reported R square change .012 shows that external equity capital explained a certain portion of the financial performance of lower tier banks in Kenya as measured in net profit margins. High external equity capital makes banks relatively safer in the event of liquidation, and reduce dependence on external funding and then to increase profits. The Durbin-Watson of 2.096 indicate that the data did not suffer from serial correlation. Table 4.48 shows the ANOVA result for profit verses time, bank and external equity capital.

Table 4.48: ANOVA[a] (Profitability, Time, Bank Group and External Equity Capital)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	184.61	4	46.153	0.059	.993[b]
	Residual	97046.075	125	776.369		
	Total	97230.685	129			
2	Regression	67920.288	29	2342.08	7.991	.000[c]
	Residual	29310.398	100	293.104		
	Total	97230.685	129			
3	Regression	67977.625	30	2265.92	7.668	.000[d]

Residual	29253.06	99	295.485
Total	97230.685	129	

The ANOVA results in model 3 shows a F value of 7.668 and p-value of .000. The calculated p-value of .000<0.05 and indication that external equity capital is a significant predictor of bank profits among the lower tier commercial banks in Kenya. The ANOVA results confirms that external equity capital influences the performance of lower tier banks in Kenya as measured using net profit margin. Table 4.49 shows the coefficient model results between time, bank group, external equity capital and net profit margin of lower tier commercial banks in Kenya.

Table 4.49: Regression Coefficients[a] (Profitability, Time, Bank Group and External Equity Capital)

Model	Unstandardized Coefficients		Sig.	Correlations
	B	Std. Error		Zero-order
(Constant)	1.759	12.476	0.888	
3 External equity capital	0.229	0.521	0.036	0.217

a. Dependent Variable: Net Profit Margin 2016-2020

Model

Y = 1.759+0.229External equity capital

Where Y is performance of lower tier banks in Kenya measured using net profit margin and external equity measured as book value of equity to total assets. The model coefficients result show that external equity capital has positive and statistically significant relationship with performance of lower tier banks in Kenya (β=.229, p-value=.036<0.05). The results imply that one unit change in external equity capital

results to .229 units increase in the performance of lower tier banks in Kenya. The null hypothesis of the study was that; there is no statistically significant effect of external equity capital on financial performance of lower tier commercial banks in Kenya. Thus, the hypothesis was rejected and concluded that external equity capital has statistically significant influence on profitability of tier II and III banks.

The external equity capital assesses the market value of the firm from investor's perspective relative to a share's book value. The external equity capital is a market based valuation ratio that has to do with banks timing the market to know when to issue more equity or repurchase equity and when to incur debt or not in their capital structure. Banks with high market-to-book ratios tend to grow quickly. Share capital is commonly measured by the book value which compares market of the shares as compared to firm value all as indicated in the financial reports. The book value of equity assesses the market value of the firm from investor's perspective relative to a share's book value. The book value of equity is a major source from which the costly external financing theory draws inspiration to interpret capital structure decisions.

In addition, banks firms with higher book value of equity are more likely to issue equity because a higher market-to-book ratio signals a lower cost of external equity financing. The net book value is a very critical component in the measurement of investor share in the firm. Mostly a consideration is made on the number of shares to portray the net value in terms of investment per share. The results of the study concur with Maina and Ishmail (2014) examined capital structure and profitability of firms listed at Nairobi Securities Exchange and established that share capital finance has a positive effect on profitability. In a study by Fatoki and Nasieku (2017) on the influence of the market to book value of equity on capital structure choice in Nigeria, a positive and statistically

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significant relationship exists between market to external equity capital and capital structure. Nonetheless, the results, the results disagree with the findings by Kanini (2016), Omai, Memba, and Njeru (2018) that showed that external equity capital negatively impacts on profitability of firms.

4.4.3.2.4 Profitability, Time, Bank Group, External Equity Capital and Bank Size.

In this subsequent hierarchical linear regression equation, external equity capital measured as the book value to equity is introduced in to the equation. The section attempts to determine if time, bank and external equity capital have significant effect on bank profits of lower tier commercial banks in Kenya under the moderating effect of bank size. Bank size was introduced as moderator in the equation among profitability, time, bank group, external equity capital. Profitability of lower tier commercial banks may be influenced by size even when looking at external equity as an independent variable. This is because, external equity depends on the number of ordinary shares held by shareholders and the amount of shares the bank can sale to the general public to raise capital for funding the bank. As such, the quantity of shares traded by the bank my dependent on the bank size. This is in line with Sari and Sulastri (2019) who indicated that external equity of a bank vary based on the bank size. Thus, it was important to determine the effect of bank size on the relationship between external equity capital and profitability of lower tier commercial banks in Kenya. The model summary results are shown in Table 4.50.

Table 4.50: Model Summary (Profitability, Time, Bank Group, External Equity Capital and Bank Size)

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | Durbin-Watson |
					R Square Change	Sig. F Change	
1	.044[a]	0.002	-0.03	27.86339	0.002	0.993	
2	.836[b]	0.699	0.611	17.12028	0.697	0	
3	.836[c]	0.711	0.608	17.18969	0.012	0.661	
4	.857[d]	0.746	0.65	16.25326	0.035	0.001	2.236

The model 4 shows that upon introduction of bank size as a moderator, R Square Change .035 was reported. The reported R square change .035 shows that bank size explain 3.5 percent of the financial performance of lower tier banks in Kenya. The reported p-value is .001<0.05 an indication that bank size has a significant moderating effect on the relationship between external equity capital and the profitability of lower tier banks in Kenya. The Durbin-Watson is 2.236 indicating no autocorrelation. It is significant, therefore the size of the firm moderates the relationship between external equity capital and bank performance. The results infer that bank size has a significant effect on external equity capital and profitability of lower tier commercial banks in Kenya. While a bank is contemplating on how to finance its operations, the size of bank in terms of total assets or sale revenue is significantly important in influencing the effect of capital structure on financial performance of lower tier commercial banks.

Bank size represents a justification regarding size of the bank in terms of total assets. The size of a bank capitalizes on the economies of scale in revenue creation. Large firms often have a stronger marketing and resource mobilization ability. The results concur with Qamar, Farooq and Akhtar (2016) who studied the moderating role of bank size on the leverage-profitability relationship in Pakistan and indicated that the link between leverage and performance relation is nonlinear for medium and large size firms. Similarly, Sari and Sulastri (2019) established that firm size moderated the effect

of capital structure on profitability. Table 4.51 shows the ANOVA result for profit verses time, bank, external equity and bank size as a moderator.

Table 4.51: ANOVAᵃ (Profitability, Time, Bank, External Equity Capital and Bank Size)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	184.610	4	46.153	.059	.993[b]
	Residual	97046.075	125	776.369		
	Total	97230.685	129			
2	Regression	-67920.288	29	2342.079	7.991	.000[c]
	Residual	29310.398	100	293.104		
	Total	97230.685	129			
3	Regression	67977.625	30	2265.921	7.668	.000[d]
	Residual	29253.060	99	295.485		
	Total	97230.685	129			
4	Regression	71342.184	31	2301.361	8.712	.000[e]
	Residual	25888.501	98	264.168		
	Total	97230.685	129			

a. Dependent Variable: Net Profit Margin 2016-2020

As indicated in the results above, model 4 shows the ANOVA results of the effect of time, bank, external equity capital and bank size as a moderator on the financial performance of lower tier commercial banks in Kenya. The calculated F value is 8.712 and p-value of .000. The calculated p-value of .000<0.05 and indication that bank size is a significant moderator in the relationship between external equity capital and financial performance of lower tier commercial banks. Table 4.52 shows the coefficient model results on the effect of bank size on the relationship between time, bank group, external equity capital and net profit margin of lower tier commercial banks in Kenya.

Table 4.52: Regression Coefficients[a] (Profitability, Time, Bank Group, External Equity Capital and Bank Size)

Model		Unstandardized Coefficients	Sig.	
		B		VIF
4	(Constant)	1077.73	0.001	
	External equity	2.253	0.003	6.821
	Bank size	57.814	0.001	190.563

a. Dependent Variable: Net Profit Margin 2016-2020

The model is;

Y = 1077.725+2.253External Equity Capital +57.814Bank size

Where Y is financial performance lower tier commercial banks.

The model coefficients result show that bank size has positive and statistically significant effect on the relationship between external equity capital and performance of lower tier banks in Kenya measured using net profit margin ($\beta=57.814$, p-value=.001<0.05). One unit change in bank size result to 57.814 units change on the relationship between external equity capital and net profit margins of lower tier commercial banks in Kenya. The results signify that bank size has positive moderating effect on the relationship between external equity capital and net profit margin of lower tier banks in Kenya. Increasing bank size can increase bank profitability by allowing banks to realize economies of scale. For example, increasing size allows banks to spread

fixed costs over a greater asset base, thereby reducing their average costs. Increasing banks' asset size can also reduce risk by diversifying operations across product lines, sectors, and region.

Banks efficiency, derived from economies of scale is also associated with bank size which could imply that larger banks may experience higher profits. Larger banks are associated with having more diversification capabilities, ability to exploit economies of scale and scope and also being highly formalised in terms of procedures. Further, large banks can seize a profitable opportunity that comes in their way since they have bigger capital resources than smaller sized firms. However, it is also argued that due to organisational rigidity brought about by bigger large size and a lot of unnecessary bureaucracies, profitable opportunities that may want urgent attention will easily pass the firm and thus making them less profitable in relative terms and thus negatively impact on firm performance. The results are in tandem with the findings by Ngware *et al.* (2020) that bank size had a significant moderating effect on the relationship of banks capital structure and financial performance of banks in Kenya.

4.5 Short Term Debt Capital and Financial Performance of Lower Tier Commercial Banks

The third objective of the study was to establish the influence of short term debt capital on financial performance of lower tier commercial banks in Kenya. Short term debt capital was one of the component of the capital structure. As indicated by Brigham *et al.* (2016) short term debt refers to debt borrowing with a repayment of less than one year and may likely demand surety by the borrower to get this form of debt financing. The analyses of short term debt capital entailed the descriptive statistics, diagnostic tests and inferential analyses.

4.5.1 Descriptive Statistics for Short Term Debt Capital

The study presented the descriptive results for short term debt capital operationalised as the ratio of short term debt to total assets. Short-term debts include liabilities with a repayment period of less than one year from initial issue. Short-term debt could be used as permanent source of financing if the debt is continually refinanced as it matures. One reason to use short-term debt as a permanent source financing is to take advantage of an upward sloping yield curve to reduce the firm's interest expense. The short-term debt capital descriptive results are shown in Table 4.53.

Table 4.53: Short-Term Debt Capital Descriptive Results

Short-term debt (ratio)	N	Minimum	Maximum	Mean	Std. Dev.	Skewness	Kurtosis
2016	130	0.000	0.976	0.673	0.193	-1.887	5.178
2017	130	0.000	0.858	0.687	0.179	-2.390	7.775
2018	130	0.000	0.976	0.679	0.222	-1.785	3.383
2019	130	0.303	0.990	0.748	0.131	-1.525	4.459
2020	130	0.475	0.976	0.763	0.112	-0.939	1.528

There was moderate level of variation from the mean as indicated by standard deviation during the study period signifying that most lower tier commercial banks short term debt ratio were clustered around the mean. The year 2017 recorded highest Kurtosis of 7.775>3 followed by 2016 (5.178>3) and 2019 (4.459>3) while in 2018, the Kurtosis was 3.383<3 an indication of high disparity in short term debt capital among the lower

tier commercial banks. In 2020, the Kurtosis was -1.528<3 signifying low disparity in short term debt capital among the lower tier commercial banks. In terms of Skewness, the values ranged between -2.390 and -0.939 an indication that the data are highly skewed.

The average short term debt capital for lower tier commercial banks in 2016 was 0.673 in 2016. There was a slight increase in short term debt capital to 0.687 in 2017 an indication of increased dependence on short term debts for financing the banks operations during that period. There was a drop in the use of short term debt capital to finance bank operations to 0.679 in 2018 among the lower tier commercial banks. However, more use of short term debt to finance the operations of the lower tier commercial banks rose gradually in the year 2019 (0.748) and 2020 (0.763). Thus, during the study period, lower tier commercial banks employed more of short term debt to fund the operations of the bank in 2019 and 2020. From 2016 to 2018, there were lower tier banks that did not at all employ short term debt capital to finance their operations as shown by short term debt ratio of 0.000 implying that the banks may had resorted to other forms of financing their operation including retained earnings and long term borrowings. There were also lower tier commercial banks that they were heavily relying on the use of short term debt capital to finance their operations to the tune of 0.976 and above. Lower tier commercial banks may resort to financing their operations using short term debts due to difficulties in accessing long term credit and the perception that short term debt are relatively cheap compared to long term debt. The components of short term debts include, short term bank loan, accounts payable, lease payment among others.

4.5.2 Diagnostic Tests for Short Term Debt Capital

The diagnostic tests conducted included the stationarity test, autocorrelation, normality test, multicollinearity and heteroskedasticity test.

4.5.2.1 Stationarity Test for Short Term Debt Capital

The study employed Fisher-type test in testing the stationarity of the data. Stationarity results are presented in Table 4.54. The hypotheses to be tested were;

H_o: All panels contain unit roots

H_a: At least one panel is stationary

Table 4.54: Stationarity Test for Short Term Debt Capital

Variable		Inverse chi-squared (70) P	Inverse normal Z	Inverse logit t (179) L*	Modified inv. chi-squared Pm
Short Term Debt capital	test statistic	99.4495	-1.8098	-1.8875	2.2875

The stationarity results test for unit root revealed that, at level short term debt capital was stationary since p-value<0.05 at P, Z, L* and Pm. This means that the results obtained are now not spurious and so panel regression models could be generated.

4.5.2.2 Autocorrelation for Short Term Debt Capital

When measuring serial correlation by use of Durbin Watson test, the Durbin-Watson d-statistic should be between 0-4 (Champion *et al.,*1998). A value of 0-2 indicates positive autocorrelation while value of 2 to 4 implies negative autocorrelation. Autocorrelation was tested by use of Durbin-Watson. The autocorrelation results are shown in Table 4.55.

The hypotheses tested while undertaking the autocorrelation were that;

H_0: There is no serial correlation in the data.

H_1: There is serial correlation in the data

Table 4.55: Autocorrelation for Short Term Debt Capital

Variable	Durbin-Watson d-statistic (1, 126)	Prob > F	Interference
Short term debt capital	.625	.797	Data does not suffer from serial correlations

Short term debt capital results reported a prob > F of .797. The DW-statistic of .625 an indication that data did not seriously suffer from serial autocorrelation. Thus, the data was suitable for use in inferential analyses.

4.5.2.3 Normality Test for Short Term Debt Capital

The normality test of the data was conducted using histogram. The null hypotheses were that

H_0: The data are not normally distributed

H_1: The data are normally distributed

Figure 4.4 shows the normality test Histogram for short term debt capital.
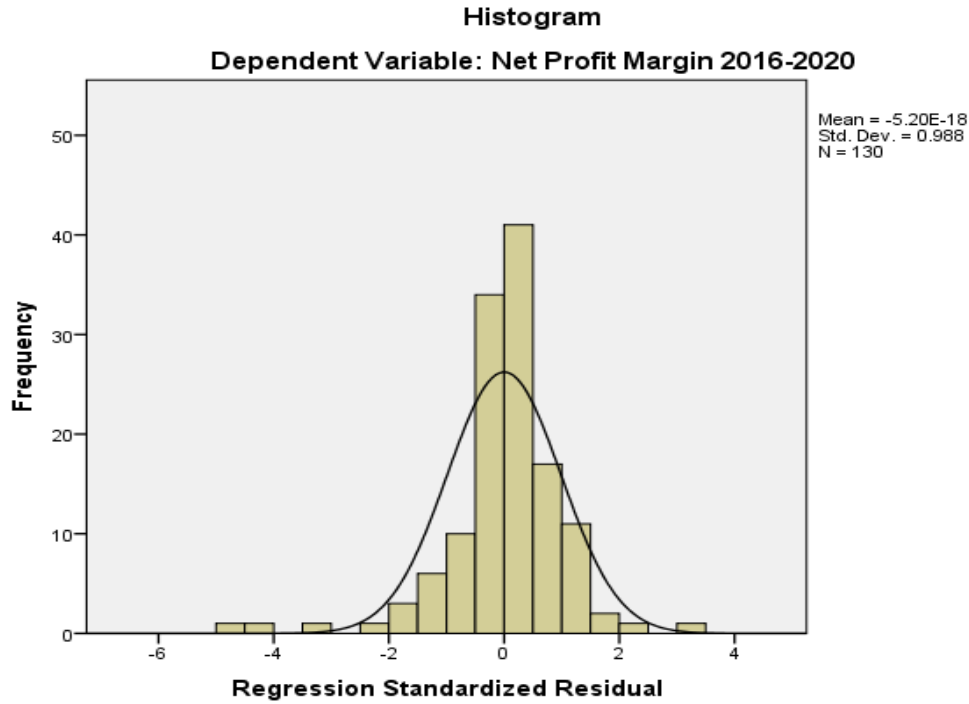
Figure 4.4: Normality Test Histogram for Short Term Debt Capital

Based on the normality test histogram above, the data was exhibiting normal distribution. It was thus concluded that the data is normally distributed. The data thus can be considered not to be violating the normality assumption and is appropriate for linear regression.

4.5.2.4 Multicollinearity for Short Term Debt Capital

The study employed VIF to measure multicollinearity. When VIF < 5; there is no multicollinearity; when VIF ≥ 5 presence of multicollinearity. Table 4.56 shows the Multicollinearity results.

Table 4.56: Multicollinearity Test Results for Short Term Debt Capital

Variables	Collinearity Statistics	
	Tolerance	**VIF**
Short term debt capital	.904	1.107

The collinearity test results show a VIF of 1.107<5 for short term debt capital. This is an indication that the data did not suffer from severe multicollinearity. Thus, the data for short term debt capital did not suffer from severe multicollinearity thus suitable for use in model regression analysis.

4.5.2.5 Heteroskedasticity Test for Short Term Debt Capital

Glejser Test was used to check for heteroskedasticity. The results are shown in Table 4.57.

Table 4.57: Heteroskedasticity Test for Short Term Debt Capital

Model	Sig. value
Short term debt capital	.854

a. Dependent Variable: AbsUt

The sig. value for short term debt capital is .854> 0.05. Thus, the data for short term debt capital did not suffer from heteroskedasticity problems. Therefore, the data was suitable for use in estimating the regression analysis between short term debt capital and profitability of lower tier commercial banks.

4.5.3 Inferential Analysis for Short Term Debt Capital

One of the study objective was to determine the influence of short term capital on financial performance of lower tier commercial banks in Kenya. The analysis used multilevel mixed model analysis and hierarchical multiple linear regression.

4.5.3.1 Multilevel Mixed Model Analysis for Short Term Debt Capital

Under the multilevel mixed model analysis, analysis was done in the following multilevel. The multilevel entailed regressing profitability of lower tier commercial

banks against time; profitability against time and bank group; profit against time, bank group and short term capital; profitability against time, bank group, short term capital and bank size. The study estimated the information criteria are shown in Table 4.58.

Table 4.58: Information Criteria[a] (Time and Bank Group)

-2 Restricted Log Likelihood	1153.335
Akaike's Information Criterion	1159.335
Hurvich and Tsai's Criterion	1159.538
Bozdogan's Criterion	1170.747
Schwarz's Bayesian Criterion	1167.747

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: Net Profit Margin 2016-2020.

Information criteria output in Table 4.58 showed that the -2 Restricted Log Likelihood was 1153.335. The -2 Restricted Log Likelihood increases an indication that time does not influence the profits of the lower tier commercial banks in Kenya. Table 4.59 shows the information criteria for time, bank group and short term debt capital.

Table 4.59: Information Criteria[a] (Time, Bank Group and Short Term Debt Capital)

-2 Restricted Log Likelihood	1155.455
Akaike's Information Criterion	1165.455
Hurvich and Tsai's Criterion	1165.977
Bozdogan's Criterion	1184.434
Schwarz's Bayesian Criterion	1179.434

The information criteria are displayed in smaller-is-better forms.

The information criteria output in Table 4.59 showed that the -2 Restricted Log Likelihood declines from 1153.335 to 1155.455. The -2 Restricted Log Likelihood decline an indication that short term debt capital influence the profits of the lower tier commercial banks in Kenya.

4.5.3.2 Hierarchical Regression for Short Term Debt Capital

Using hierarchical multiple linear regression, the study determined the influence of short term capital on financial performance of lower tier commercial banks in Kenya. Using, hierarchical regression this section presents in nature of relationship between bank profits, time, bank group and short term debt capital.

4.5.3.2.1 Profitability, Time, Bank Group and Short Term Debt Capital

The study analysed if bank profits are influenced by time, bank group and short term debt capital. Table 4.60 shows the model summary results for profit versus time, bank group and short term debt capital.

Table 4.60: Model Summary[d] (Profitability, Time, Bank Group and Short Term Debt Capital)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.006[a]	.000	-.008	27.561	.000	.005	1	128	.946	
2	.438[b]	.192	.179	24.876	.192	30.117	1	127	.000	
3	.440[c]	.193	.174	24.951	.002	.240	1	126	.625	.797

a. Predictors: (Constant), Time
b. Predictors: (Constant), Time, Bank Group
c. Predictors: (Constant), Time, Bank Group, Short Term Debt/ Total Assets 2016-2020
d. Dependent Variable: Net Profit Margin 2016-2020

Durbin-Watson of .797 indicate that the data did not suffer from serial correlation. The model summary results in table 4.60 shows that time factor does not explain any profitability in lower tier commercial banks. Upon the introduction of bank group factor, the R Square change of .192 was reported (model 2). The reported R-square change .192 shows that bank group explained a certain portion of the financial performance of lower tier banks in Kenya. The reported p-value is .000<0.05 an indication that bank group has a statistical significance on the profitability of lower tier banks in Kenya. The introduction of short term debt capital in model 3, a R square change of .002 was reported an indication that short term debt capital has no significant influence on the financial performance lower tier commercial banks. Short term debt capital is made up of any debt incurred by a company that is due within the current fiscal year. The value of short term debt capital is very important when determining a company's financial performance. Additionally, short-term debt capital tends to be less expensive and increasing it with a relatively low interest rate will lead to an increase in profit levels and therefore bank performance. Table 4.61 shows the ANOVA result for profit verses time, bank and short term debt capital.

Table 4.61: ANOVAᵃ (Profitability, Time, Bank Group and Short term debt Capital)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.475	1	3.475	.005	.946[b]
	Residual	97227.210	128	759.588		
	Total	97230.685	129			
2	Regression	18640.308	2	9320.154	15.061	.000[c]
	Residual	78590.377	127	618.822		

	Total	97230.685	129				
	Regression	18789.741	3	6263.247	10.061	.000[d]
3	Residual	78440.944	126	622.547		
	Total	97230.685	129			

a. Dependent Variable: Net Profit Margin 2016-2020

b. Predictors: (Constant), Time

c. Predictors: (Constant), Time, Bank Group

d. Predictors: (Constant), Time, Bank Group, Short Term Debt/ Total Assets 2016-2020

As indicated in the results above, the model shows the ANOVA results of the effect of time, bank group and short term debt capital on financial performance lower tier commercial banks. Time has no effect on net profit margin. It was also established that time and bank group ANOVA test revealed a calculated F value is 15.061 and p-value of .000 (model 2). In addition, the ANOVA results in model 3 for the effect of time, bank group, and short term debt capital on financial performance of lower tier commercial banks revealed a calculated F value is 10.061 and p-value of .000<0.05. Table 4.62 shows the coefficient model results on the effect of time, bank group and short term debt capital on the net profit margin of lower tier commercial banks.

Table 4.62: Regression Coefficients[a] (Profitability, Time, Bank Group, Short Term Debt Capital)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	15.863	5.669		2.798	.006					
	Time	-.116	1.709	-.006	-.068	.946	-.006	-.006	-.006	1.000	1.000
2	(Constant)	-8.211	6.740		-1.218	.225					
	Time	-.116	1.543	-.006	-.075	.940	-.006	-.007	-.006	1.000	1.000

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Bank Group	10.609	1.933		.438	5.488	.000	.438	.438	.438	1.000 1.000
(Constant)	-12.554	11.147			-1.126	.262				
Time	-.237	1.567		-.012	-.151	.880	-.006	-.013	-.012	.975 1.025
3 Bank Group	10.578	1.940		.437	5.452	.000	.438	.437	.436	.999 1.001
Short term debt capital	.067	.136		.040	.490	.625	.052	.044	.039	.974 1.027

a. Dependent Variable: Net Profit Margin 2016-2020

Y = -12.554+.067Short term debt capital

Where Y is financial performance lower tier commercial banks.

In hierarchical equation 1, above time has no significant effect on financial performance of lower tier commercial banks in Kenya. In hierarchical equation 2, time had no significant effect on financial performance of lower tier commercial banks in Kenya while bank group reported a significant positive effect of bank group on financial performance of lower tier commercial banks. This was supported by a p-value of 0.000<0.05. Further, in hierarchical equation 3, bank group reported a significant positive effect of bank group on financial performance of lower tier commercial banks (β=10.578, p-value=.000). However, short term debt capital had a positive but insignificant effect on the financial performance of lower tier commercial banks (β=.067, p-value=.625>0.05). The null hypothesis of the study was that; there is no statistically significant effect of short term debt capital on financial performance of lower tier commercial banks in Kenya. Thus, the study failed to reject the null hypothesis and concluded that short term debt capital has no statistically significant influence on profitability of tier II and III banks.

The results are against the argument that short term debt capital tends to be less expensive and increasing it with a relatively low interest rate will lead to an increase in

profit levels and therefore performance. Short term debt capital such as a bank overdraft and trade creditors are seen as cheap forms of financing bank operations. Short term debt financing has a maturity period of one year or less, they must be re-paid quickly within 90 – 120 days. Short-term term is primarily concerned with the analysis of decisions that affect current assets and current liabilities. Term loans with short maturities help to meet immediate need for financing without long term commitment. The cost of servicing short term debt is less taxing on the firm. Short term loans usually offer lower interest charges, and most lenders do not charge interest until all credit allowance period is breached. The results agree with Yakubu *et al.* (2017) who studied commercial banks performance in Ghana and found insignificant relationship between short term debt capital and financial performance of commercial banks in Ghana. Nonetheless, the results do not agree with Dwilaksono (2016) who studied the effect of short term debt capital on profitability (return on equity) for Indonesian mining firms listed at Indonesia Stock Exchange and established that short term debt capital has a positive and significant influence on profitability as indicated by Return on Equity. Likewise, Tailab (2014) who studied capital structure and profitability of American energy firms showed that short debt capital has a positive effect on profitability.

Furthermore, the results fail to agree with Ranabhat (2019) who studied the effects of internal factors on financial performance of Joint Venture Banks in Nepal and found a significant negative influence of short term debt on financial performance. Similarly, Serwadda (2019) study on the effects of capital structure on performance of the Ugandan banking industry showed a negative relationship between short-term debt capital and return on assets. Short-term debts are liabilities payable within a period of one year and included short-term borrowings, trade payables and other current

liabilities. Short term debt is very appropriate to be included in the measures of leverage ratio due to the important of short term funding to a firm. Theoretically, it is argued that short term dent capital measure is a good measure of leverage ratio in transition economy with less developed debt market where most firms' external debt finance are majorly commercial bank loans. The use of short-term debt capital may be associated with higher quality and may have better incentive properties in terms of less cost in using this form of financing to fund bank operations.

4.5.3.2.2 Profitability, Time, Bank Group, Short Term Debt Capital and Bank Size.

The study sought to determine the nature of relationship among time, bank group, short term debt capital. Further, bank size was introduced as moderator in the model. Bank size was introduced as moderator in the equation among profitability, time, bank group, short term debt capital. The sustenance of the lower tier operations and their impact on profitability may be influenced by size even when looking at short term debt capital as an independent variable. Short term debt involves borrowing for short period of time to fund the operations of the bank or in the event for emergency funding in the bank. Based on the bank size, the chances of being extended short term debt financing like short term debt loans and bank overdraft to finance their operations will depend on the total assets a bank controls as the available security. Lower tier banks are less likely to be given short term debt especially if their asset portfolio is low. As such, it was important to determine the effect of short term debt capital on profitability of lower tier commercial banks with different sizes in terms of total assets. Ngatno et al. (2021) indicated that firm size was an essential element when a firm is seeking for short term debt financing. The model summary results are shown in Table 4.63.

Table 4.63: Model Summary (Profit, Time, Bank Group, Short Term Debt and Bank Size)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.006[a]	.000	-.008	27.561	.000	.005	1	128	.946	
2	.438[b]	.192	.179	24.876	.192	30.117	1	127	.000	
3	.440[c]	.193	.174	24.951	.002	.240	1	126	.625	
4	.474[d]	.225	.200	24.559	.031	5.052	1	125	.026	.849

a. Predictors: (Constant), Time

b. Predictors: (Constant), Time, Bank Group

c. Predictors: (Constant), Time, Bank Group, Short Term Debt/ Total Assets 2016-2020

d. Predictors: (Constant), Time, Bank Group, Short Term Debt/ Total Assets 2016-2020, Total Assets Natural Log

e. Dependent Variable: Net Profit Margin 2016-2020

The model 4 results show that upon introduction of bank size as a moderator, a R square change of .031was reported. The reported R square change .031 shows that bank size explain 3.1% of the change in the profitability of lower tier banks in Kenya as measured in net profit margins. The reported p-value is .026<0.05 an indication that bank size has a significant moderating effect on the relationship between short term debt capital and the profitability of lower tier banks in Kenya. It is significant, therefore the bank size moderates the relationship between short term debt capital and financial performance of lower tier commercial banks. The Durbin-Watson is .849 indicating no autocorrelation. Table 4.64 shows the ANOVA result for profit verses time, bank, short term debt capital, bank size and profitability of lower tier commercial banks.

Table 4.64: ANOVAᵃ (Profitability, Time, Bank Group, Short Term Debt Capital and Bank Size)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.475	1	3.475	.005	.946ᵇ
	Residual	97227.210	128	759.588		
	Total	97230.685	129			
2	Regression	18640.308	2	9320.154	15.061	.000ᶜ
	Residual	78590.377	127	618.822		
	Total	97230.685	129			
3	Regression	18789.741	3	6263.247	10.061	.000ᵈ
	Residual	78440.944	126	622.547		
	Total	97230.685	129			
4	Regression	21836.879	4	5459.220	9.051	.000ᵉ
	Residual	75393.806	125	603.150		
	Total	97230.685	129			

a. Dependent Variable: Net Profit Margin 2016-2020
b. Predictors: (Constant), Time
c. Predictors: (Constant), Time, Bank Group
d. Predictors: (Constant), Time, Bank Group, Short Term Debt/ Total Assets 2016-2020
e. Predictors: (Constant), Time, Bank Group, Short Term Debt/ Total Assets 2016-2020, Total Assets Natural Log

ANOVA results in model 4 shows that the effect of time, bank, short term debt capital and bank size as a moderator on the financial performance of lower tier commercial banks in Kenya. The calculated F value is 9.051 and p-value of .000<0.05. The calculated p-value of .000<0.05 and indication that bank size is a significant moderator in the relationship between short term debt capital and financial performance of lower tier commercial banks in Kenya Table 4.65 shows the coefficient model results on the effect of bank size on the relationship between time, bank group, short term debt capital and net profit margin of lower tier commercial banks in Kenya.

Table 4.65: Regression Coefficients[a] (Profitability, Time, Bank Group, Short Term Debt Capital and Bank Size)

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	15.863	5.669		2.798	.006					
	Time	-.116	1.709	-.006	-.068	.946	-.006	-.006	-.006	1.000	1.000
2	(Constant)	-8.211	6.740		-1.218	.225					
	Time	-.116	1.543	-.006	-.075	.940	-.006	-.007	-.006	1.000	1.000
	Bank Group	10.609	1.933	.438	5.488	.000	.438	.438	.438	1.000	1.000
3	(Constant)	-12.554	11.147		-1.126	.262					
	Time	-.237	1.567	-.012	-.151	.880	-.006	-.013	-.012	.975	1.025
	Bank Group	10.578	1.940	.437	5.452	.000	.438	.437	.436	.999	1.001
	Short Term Debt/ Total Assets 2016-2020	.067	.136	.040	.490	.625	.052	.044	.039	.974	1.027
4	(Constant)	-196.263	82.466		-2.380	.019					
	Time	-1.197	1.600	-.062	-.748	.456	-.006	-.067	-.059	.906	1.104
	Bank Group	-1.758	5.811	-.073	-.303	.763	.438	-.027	-.024	.108	9.270
	Short Term Debt capital	.075	.134	.045	.559	.577	.052	.050	.044	.973	1.027
	Bank size	12.181	5.420	.541	2.248	.026	.469	.197	.177	.107	9.341

a. Dependent Variable: Net Profit Margin 2016-2020

Y = -196.263+.075Short term debt capital +12.181Bank size

Where Y is financial performance lower tier commercial banks.

The model coefficients results (model 4) show that bank size has positive and statistically significant effect on the relationship between short term debt and performance of lower tier banks in Kenya measured using net profit margin (β=12.181, p-value=.026<0.05). One unit change in bank size result to 12.181 units change on the relationship between short term debt capital and net profit margins of lower tier commercial banks in Kenya. The results signify that bank size has positive moderating effect on the relationship between short term debt capital and net profit margin of lower tier banks in Kenya. Increasing bank size can increase bank profitability by allowing

banks to realize economies of scale. Increasing banks' asset size can also reduce risk by diversifying operations across product lines, sectors, and region.

Larger banks can diversify their business operations maximizes on economies of scale. As a consequence, large firms can quickly seek short term debt capital for their operations compared to small banks and thus reap more profits. The results are in concur with the findings by Ngware, et al (2020) that bank size had a significant moderating effect on the relationship of banks capital structure and financial performance of banks in Kenya. Muigai and Muriithi (2017) showed that firm size influence the relationship between capital structure and financial distress. However, the results conflicts that of Qamar, Farooq and Akhtar (2016) who indicated that smaller firms would be more negatively affected by debt uptake.

4.6 Long Term Debt Capital and Financial Performance of Lower Tier Commercial Banks

The forth objective of the study was to find out the influence of long term debt capital on financial performance of lower tier commercial banks in Kenya. Long term debt capital was one of the component of the capital structure. The analyses of long term debt capital entailed the descriptive statistics, diagnostic tests and inferential statistics.

4.6.1 Descriptive Statistics for Short Term Debt Capital

The study presented the descriptive results for long term debt capital operationalised as the ratio of long term debt to total assets. Long-term debt capital is debt that matures in more than one year. Entities choose to issue long-term debt capital with various considerations, primarily focusing on the timeframe for repayment and interest to be paid. According to Flannery and Hankins (2007) long-term debt capital, represent

uptake of loans with repayment period exceeding one year to finance operations and investments in the firm. The long-term debt capital descriptive results are shown in Table 4.66.

Table 4.66: Long-Term Debt Descriptive Results

Long-term debt (ratio)	N	Minimum	Maximum	Mean	Std. Dev.	Skewness	Kurtosis
2016	130	0.000	0.797	0.107	0.174	2.820	9.342
2017	130	0.002	0.792	0.092	0.158	3.616	15.267
2018	130	0.000	0.786	0.103	0.172	2.834	9.360
2019	130	0.001	0.748	0.098	0.163	3.018	9.917
2020	130	0.000	0.758	0.083	0.160	3.357	12.508

A low disparity from the mean as indicated by standard deviation during the study period implying that the long term debt capital for most lower tier commercial banks was clustered around the mean. The year 2017 recorded highest Kurtosis of 15.267>3 followed by 2020 (12.508>3) and 2019 (9.917>3). The long term debt capital Kurtosis for the years from 2016-2020 were >3 an indication of high disparity in the long term debt capital among the lower tier commercial banks. In terms of Skewness, the values ranged between 2.820 and 3.616 an indication that the data are moderately skewed.

The average long term debt ratio for lower tier commercial banks in 2016 was 0.107. In 2017, there was a slight decline in the long term debt ratio for the lower tier commercial banks. However, in 2018, the use of long term debt capital among the lower tier commercial banks increased to 0.103. This is an indication that lower tier commercial banks employed more of long term debt to finance their operations compared to 2017. A decline in the use of long term debt was witnessed in the years 2019 and 2020 implying that the lower tier commercial banks were employing less of

long term debt capital to finance their operation. This can also imply use of short term debt capital resulting to decline in the use of long term debt capital. Over the study period, one lower tier commercial banks employed more of long term debt (0.797) while others did not employ it to finance their operations at all (0.000). Long-term debt capital is used to finance business investments that have longer payback periods. Long term debt capital is advantageous as it is usually less prone to short term shocks as it is secured by formally established contractual terms. Long term debt financing is directly linked to the growth of the company's operating capacity.

4.6.2 Diagnostic Tests for Long Term Debt Capital

The diagnostic tests conducted included the stationarity test, autocorrelation, normality test, multicollinearity and heteroskedasticity test.

4.6.2.1 Stationarity Test for Long Term Debt Capital

The study employed Fisher-type test in testing the stationarity of the data. Stationarity results are presented in Table 4.67. The hypotheses to be tested were;

H_o: All panels contain unit roots

H_a: At least one panel is stationary

Table 4.67: Stationarity Test

Variable		Inverse chi-squared (70) P	Inverse normal Z	Inverse logit t (179) L*	Modified inv. chi-squared Pm
Long Term Debt capital	test statistic	262.0531	-9.6049	-11.3366	15.8378

The stationarity results test for long term debt capital at level was stationary since p-value<0.05 at P, Z, L* and Pm. This means that the results obtained are now not spurious and so panel regression models could be generated.

4.6.2.2 Autocorrelation for Long Term Debt Capital

Serial correlation is a common problem experienced in panel data analysis and must be accounted for in order to achieve the correct model specification (Riffenburgh, 2012). Autocorrelation was tested by use of Durbin-Watson.

The hypotheses tested while undertaking the autocorrelation were that;

H_0: There is no serial correlation in the data.

H_1: There is serial correlation in the data

When measuring serial correlation by use of Durbin Watson test, the Durbin-Watson d-statistic should be between 0-4 (Champion *et al.,*1998). A value of 0-2 indicates positive autocorrelation while value of 2 to 4 implies negative autocorrelation. The autocorrelation results are shown in Table 4.68.

Table 4.68: Autocorrelation for Long Term Debt Capital

Variable	Durbin-Watson d-statistic (1, 126)	Prob > F	Interference
Long term debt capital	.804	.415	Data does not suffer from serial correlations

The DW-statistic for long term debt capital was .804 and Prob > F of .415 implying that data did not seriously suffer from serial autocorrelation. Thus, the data was suitable for use in inferential analyses.

4.6.2.3 Normality Test for Long Term Debt Capital

The normality test of the data was conducted using histogram. The null hypotheses were that

H_0: The data are not normally distributed

H_1: The data are normally distributed

Figure 4.5 shows the normality test Histogram for long term debt capital.
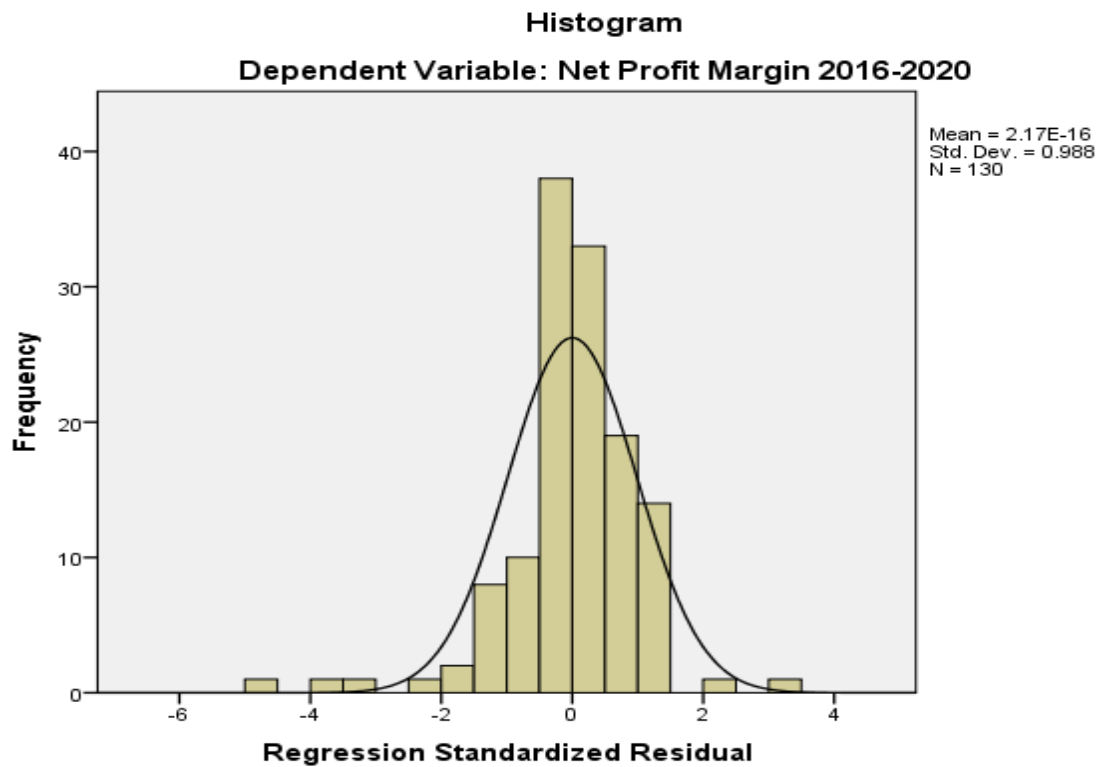
Figure 4.5: Normality Test Histogram for Long Term Debt Capital

As per the normality test histogram above, the data was exhibiting normal distribution. It was thus concluded that the data is normally distributed. The data thus can be considered not to be violating the normality assumption and is appropriate for linear regression.

4.6.2.4 Multicollinearity for Long Term Debt Capital

The study employed VIF to measure multicollinearity. When VIF < 5; there is no multicollinearity; when VIF ≥ 5 presence of multicollinearity (Franke, 2010). Table 4.69 shows the Multicollinearity results.

Table 4.69: Multicollinearity Test Results

Variables	Collinearity Statistics	
	Tolerance	VIF
Long term debt capital	.964	1.037

The collinearity test results show a VIF of 1.037<5 for long term debt capital. This is an indication that long term debt capital data did not suffer from severe multicollinearity. Thus, the data for long term debt capital was suitable for use in model regression analysis.

4.6.2.5 Heteroskedasticity Test for Long Term Debt Capital

Glejser Test was used to check for heteroskedasticity. The results are shown in Table 4.70.

Table 4.70: Heteroskedasticity Test

Model	Sig. value
Long term debt capital	.085

a. Dependent Variable: AbsUt

The sig. value for long term debt capital was .085> 0.05. The data for long term debt capital did not suffer from heteroskedasticity problems. Thus, the data was suitable for use in estimating the regression analysis between long term debt capital and profitability of lower tier commercial banks.

4.6.3 Inferential Analysis for Long Term Capital

One of the study objective was to determine the influence of long term capital on financial performance of lower tier commercial banks in Kenya. The analysis used multilevel mixed model analysis and hierarchical multiple linear regression.

4.6.3.1 Multilevel Mixed Model Analysis

Under the multilevel mixed model analysis, analysis was done in the following multilevel. The multilevel entailed regressing profit verses time; profit verse time and bank; profitability against time, bank group and long term capital; profitability against time, bank group, long term capital and bank size. The study estimated the information criteria are shown in Table 4.71.

Table 4.71: Information Criteria[a] (Time and Bank Group)

-2 Restricted Log Likelihood	1151.021
Akaike's Information Criterion (AIC)	1161.021
Hurvich and Tsai's Criterion (AICC)	1161.543
Bozdogan's Criterion (CAIC)	1180.000
Schwarz's Bayesian Criterion (BIC)	1175.000

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: Net Profit Margin 2016-2020.

Information criteria output in Table 4.71 showed that the -2 Restricted Log Likelihood was 1151.021. The -2 Restricted Log Likelihood increases an indication that time does not influence the profitability of the lower tier commercial banks in Kenya. Table 4.72 shows the information criteria for time, bank group and long term debt capital.

Table 4.72: Information Criteria[a] (Time, Bank Group and Long Term Debt Capital)

-2 Restricted Log Likelihood	1143.327
Akaike's Information Criterion (AIC)	1155.327
Hurvich and Tsai's Criterion (AICC)	1156.071
Bozdogan's Criterion (CAIC)	1178.052
Schwarz's Bayesian Criterion (BIC)	1172.052

The information criteria are displayed in smaller-is-better forms.

a. Dependent Variable: Net Profit Margin 2016-2020.

The information criteria output in Table 4.72 showed that the -2 Restricted Log Likelihood declines from 1151.021 to 1143.327. The -2 Restricted Log Likelihood decline an indication that long term debt influence the profits of the lower tier commercial banks in Kenya.

4.6.3.1.1 Profitability Against Time, Bank Group and Long Term Debt Capital

The study analysed if bank profits are influenced by time, bank group and long term debt capital. Table 4.73 shows the Type III Tests of Fixed Effects of bank profits against time, bank group and long term debt capital.

Table 4.73: Type III Tests of Fixed Effects[a] (Profit Verse time, bank group and long term debt capital)

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	121.000	47.982	.000
Time	4	121.000	.071	.991

Bank Group	3	121.000	11.707	.000
Long term debt	1	121.000	2.010	.159

a. Dependent Variable: Net Profit Margin 2016-2020.

Time did not have significant influence on profits of lower tier banks. However, bank group had significant influence on the profitability lower tier banks. This is supported by F of 11.707 and p-value of .000<0.05. Nonetheless, it was also established that long term debt capital had statistically insignificant influence on the net profit margin of lower tier banks tie commercial banks in Kenya. This is supported by F of 2.010 and p-value of .159>0.05. Long term debt often includes any leasing or financial obligations that have a maturity period exceeding 12 months. This form of financing has many benefits including lower interest rate where the guarantee against debt or long-term loans is made through assets and is often associated with the low cost of loans, especially through central banks, which they maintain low loan rates to support the housing market and the growth of businesses. It also has relatively low financing costs, that is, the interest paid for the assets acquired for the business is generally tax deductible and further reduces the total cost of loans with long-term debt.

4.6.3.2 Hierarchical Regression for Long Term Debt Capital and Financial Performance of Lower Tier Commercial Banks

Further, the study objective was to determine the influence of long term capital on financial performance of lower tier commercial banks in Kenya. Employing, hierarchical regression this section presents in nature of relationship between bank

profits, time, bank group and long term debt capital. Table 4.74 shows the model summary results for profit versus time, bank group and long term debt capital.

Table 4.74: Model Summary[d] (Profitability, Time, Bank Group and Long Term Debt Capital)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.006[a]	.000	-.008	27.561	.000	.005	1	128	.946	
2	.438[b]	.192	.179	24.876	.192	30.117	1	127	.000	
3	.471[c]	.222	.203	24.505	.030	4.879	1	126	.029	.808

a. Predictors: (Constant), Time

b. Predictors: (Constant), Time, Bank Group

c. Predictors: (Constant), Time, Bank Group, Long Term Debt/ Total Assets 2016-2020

d. Dependent Variable: Net Profit Margin 2016-2020

The model summary results above show that time factor does not explain any profitability in lower tier commercial banks. Upon the introduction of bank group factor, the R square change of .192 was reported (model 2). The reported R-square change .192 shows that bank group explained a certain portion of the financial performance of lower tier banks in Kenya as measured in net profit margins. The reported p-value is .000<0.05 an indication that bank group has a statistical significance on the profitability of lower tier banks in Kenya. The introduction of long term debt capital in model 3, a R square change of .222 was reported an indication that long term debt capital has significant influence on the financial performance lower tier commercial banks. Long term source of finance is less expensive as compared to short term debt and as such improves the profitability of the firm. The results suggest that banks will improve their profitability performance if they finance their operations using

long term source of finance as compared to the current short term debt being relied upon. Table 4.75 shows the ANOVA result for profit verses time, bank and long term debt capital.

Table 4.75: ANOVA[a] (Profitability, Time, Bank Group and Long Term Debt Capital)

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	3.475	1	3.475	.005	.946[b]
1	Residual	97227.210	128	759.588		
	Total	97230.685	129			
	Regression	18640.308	2	9320.154	15.061	.000[c]
2	Residual	78590.377	127	618.822		
	Total	97230.685	129			
	Regression	21570.291	3	7190.097	11.974	.000[d]
3	Residual	75660.394	126	600.479		
	Total	97230.685	129			

a. Dependent Variable: Net Profit Margin 2016-2020

b. Predictors: (Constant), Time

c. Predictors: (Constant), Time, Bank Group

d. Predictors: (Constant), Time, Bank Group, Long Term Debt/ Total Assets 2016-2020

As indicated in the results above, the model shows the ANOVA results of the effect of time, bank group and long term debt capital on financial performance lower tier commercial banks. Time has no effect on net profit margin. It was also established that time and bank group ANOVA test revealed a calculated F value is 15.061 and p-value of .000 (model 2). In addition, the ANOVA results for the effect of time, bank group, and long term debt on financial performance of lower tier commercial banks. The calculated F value is 11.974 and p-value of .000<0.05 (model 3). Long term debt capital

often includes any leasing or financial obligations that have a maturity period exceeding 12 months. Table 4.76 shows the coefficient model results on the effect of time, bank group and long term debt capital on the net profit margin of lower tier commercial banks in Kenya.

Table 4.76: Regression Coefficients[a] (Profitability, Time, Bank Group, Long Term Debt Capital)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	15.863	5.669		2.798	.006					
	Time	-.116	1.709	-.006	-.068	.946	-.006	-.006	-.006	1.000	1.000
2	(Constant)	-8.211	6.740		-1.218	.225					
	Time	-.116	1.543	-.006	-.075	.940	-.006	-.007	-.006	1.000	1.000
	Bank Group	10.609	1.933	.438	5.488	.000	.438	.438	.438	1.000	1.000
3	(Constant)	-3.528	6.970		-.506	.614					
	Time	-.269	1.521	-.014	-.177	.860	-.006	-.016	-.014	.998	1.002
	Bank Group	10.569	1.904	.436	5.550	.000	.438	.443	.436	1.000	1.000
	Long Term Debt capital	-.966	.437	-.174	-2.209	.029	-.177	-.193	-.174	.998	1.002

a. Dependent Variable: Net Profit Margin 2016-2020

Y = -3.528+-.966Long Term Debt Capital

Where Y is financial performance lower tier commercial banks.

In hierarchical equation 1, above time has no significant effect on financial performance of lower tier commercial banks in Kenya. In hierarchical equation 2, time had no significant effect on financial performance of lower tier commercial banks in Kenya

while bank group reported a significant positive effect of bank group on financial performance of lower tier commercial banks. This was supported by a p-value of 0.000<0.05. Further, in hierarchical equation 3, bank group reported a significant positive effect of bank group on financial performance of lower tier commercial banks (β=10.569, p-value=.000). Long term debt had a negative and significant effect on the financial performance of lower tier commercial banks (β=-.966, p-value=.029<0.05). The null hypothesis of the study was that; there is no statistically significant effect of long term debt capital on financial performance of lower tier commercial banks in Kenya. Thus, the study rejects the null hypothesis and concludes that long term debt capital has statistically significant influence on profitability of tier II and III banks.

This form of financing has many benefits including lower interest rate where the guarantee against debt or long-term loans is made through assets and is often associated with the low cost of loans, especially through central banks, which they maintain low loan rates to support the housing market and the growth of businesses. It also has relatively low financing costs, that is, the interest paid for the assets acquired for the business is generally tax deductible and further reduces the total cost of loans with long-term debt. The results concur with Tailab (2014) who showed that the effect of long term debt on profitability is insignificant. Nonetheless, the results contrast that of Serwadda (2019) who studied the effects of capital structure on performance of the Ugandan banking industry and showed a positive effect of long-term debts and total debt on financial performance of banking firms. Ranabhat (2019) studying the effects of internal factors on financial performance of Joint Venture Banks in Nepal indicated a significant negative influence of long term debt on financial performance. Likewise,

Dwilaksono (2016) noted that long term debt has a negative and significant influence on profitability.

Long term debt involves strict contractual covenants between the firm and issuers of debt, which is usually associated with high agency and financial distress costs. The strict contractual agreements that span into the future coupled with changes in the business environment may result to negative impacts to the impacts. Debts that span into the future might significantly balloon due to weakening local currency against the dollar for debts involving foreign lenders. This may result to financial burden to the banks that borrowed on long term basis to finance their operations resulting to negative returns. Long term debts are the most preferred sources of debt financing among well-established corporate institutions mostly by their asset base, and collateral is a requirement that many of commercial financial institutions. Access to long term financing is one of the critical financial sector policy challenges facing firms.

4.6.3.2.1 Time, Bank Group, Long Term Debt Capital and Bank Size

Bank size was introduced into the equation as a moderator. The provision of long term debt for firms will depend on the size of a firm in terms of total assets it controls. Long term debt extends longer period of time of more than a year and thus demand more security and contractual agreement between the borrowing firm and lending institution. As such, the lending institution will demand more security before extending the loan to the firm and thus likely to demand more security which in most cases may be in terms of total assets a firm has. According to Ahmed et al. (2023) firm size plays significant role when a firm is seeking long term debt financing. The model summary results are shown in Table 4.77.

Table 4.77: Model Summary[e] (Profitability, Time, Bank Group, Long Term Debt Capital and Bank Size)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.006[a]	.000	-.008	27.56061647	.000	.005	1	128	.946	
2	.438[b]	.192	.179	24.87613047	.192	30.117	1	127	.000	
3	.471[c]	.222	.203	24.50467949	.030	4.879	1	126	.029	
4	.499[d]	.249	.225	24.17123144	.027	4.500	1	125	.036	.848

a. Predictors: (Constant), Time

b. Predictors: (Constant), Time, Bank Group

c. Predictors: (Constant), Time, Bank Group, Long Term Debt/ Total Assets 2016-2020

d. Predictors: (Constant), Time, Bank Group, Long Term Debt/ Total Assets 2016-2020, Total Assets Natural Log

e. Dependent Variable: Net Profit Margin 2016-2020

Durbin-Watson of .848 indicate that the data did not suffer from serial correlation. The model 4 shows that upon introduction of bank size as a moderator, R square change .027 was reported. The reported R square change .027 shows that bank size explain 2.7% of the change in the profitability of lower tier banks in Kenya as measured in net profit margins. The reported p-value is .036<0.05 an indication that bank size has a significant moderating effect on the relationship between long term debt capital and the profitability of lower tier banks in Kenya. It is significant, therefore the bank size moderates the relationship between long term debt capital and financial performance of lower tier commercial banks. Table 4.78 shows the ANOVA result for profit verses time, bank, long term debt capital, bank size and profitability of lower tier commercial banks.

Table 4.78: ANOVA (Profitability, Time, Bank Group, Long Term Debt Capital and Bank Size)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.006ᵃ	.000	-.008	27.56061647	.000	.005	1	128	.946	
2	.438ᵇ	.192	.179	24.87613047	.192	30.117	1	127	.000	
3	.440ᶜ	.193	.174	24.95089532	.002	.240	1	126	.625	
4	.474ᵈ	.225	.200	24.55912145	.031	5.052	1	125	.026	.849

a. Predictors: (Constant), Time

b. Predictors: (Constant), Time, Bank Group

c. Predictors: (Constant), Time, Bank Group, Long Term Debt / Total Assets 2016-2020

d. Predictors: (Constant), Time, Bank Group, Long Term Debt / Total Assets 2016-2020, Total Assets Natural Log

e. Dependent Variable: Net Profit Margin 2016-2020

The model 4 shows that upon introduction of bank size as a moderator, R square change .031was reported. The reported R square change .031 shows that bank size explain 3.1% of the change in the profitability of lower tier banks in Kenya. The reported p-value is .026<0.05 an indication that bank size has a significant moderating effect on the relationship between long term debt capital and the profitability of lower tier banks in Kenya. It is significant, therefore the bank size moderates the relationship between long term debt and financial performance of lower tier commercial banks. The Durbin-Watson is .849 indicating no autocorrelation. Table 4.79 shows the ANOVA result for profit verses time, bank, long term debt, bank size and profitability of lower tier commercial banks.

Table 4.79: ANOVA (Profitability, Time, Bank Group, Long Term Debt Capital and Bank Size)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.475	1	3.475	.005	.946[b]
	Residual	97227.210	128	759.588		
	Total	97230.685	129			
2	Regression	18640.308	2	9320.154	15.061	.000[c]
	Residual	78590.377	127	618.822		
	Total	97230.685	129			
3	Regression	21570.291	3	7190.097	11.974	.000[d]
	Residual	75660.394	126	600.479		
	Total	97230.685	129			
4	Regression	24199.632	4	6049.908	10.355	.000[e]
	Residual	73031.054	125	584.248		
	Total	97230.685	129			

a. Dependent Variable: Net Profit Margin 2016-2020
b. Predictors: (Constant), Time
c. Predictors: (Constant), Time, Bank Group
d. Predictors: (Constant), Time, Bank Group, Long Term Debt/ Total Assets 2016-2020
e. Predictors: (Constant), Time, Bank Group, Long Term Debt/ Total Assets 2016-2020, Total Assets Natural Log

ANOVA results in model 4 shows that the effect of time, bank, long term debt capital and bank size as a moderator on the financial performance of lower tier commercial banks in Kenya. The calculated F value is 10.355 and p-value of .000<0.05. The calculated p-value of .000<0.05 and indication that bank size is a significant moderator in the relationship between long term debt capital and financial performance of lower tier commercial banks in Kenya. Table 4.80 shows the regression coefficient model results on the effect of bank size on the relationship between time, bank group, long term debt capital and net profit margin of lower tier commercial banks in Kenya.

Table 4.80: Regression Coefficients[a] (Profitability, Time, Bank Group, Long Term Debt Capital and Bank Size)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Parti al	Part	Toler ance	VIF
1	(Constant)	15.863	5.669		2.798	.006					
	Time	-.116	1.709	-.006	-.068	.946	-.006	-.006	-.006	1.000	1.000
2	(Constant)	-8.211	6.740		-1.218	.225					
	Time	-.116	1.543	-.006	-.075	.940	-.006	-.007	-.006	1.000	1.000
	Bank Group	10.609	1.933	.438	5.488	.000	.438	.438	.438	1.000	1.000
3	(Constant)	-3.528	6.970		-.506	.614					
	Time	-.269	1.521	-.014	-.177	.860	-.006	-.016	-.014	.998	1.002
	Bank Group	10.569	1.904	.436	5.550	.000	.438	.443	.436	1.000	1.000
	Long term debt capital	-.966	.437	-.174	-2.209	.029	-.177	-.193	-.174	.998	1.002
4	(Constant)	-174.316	80.800		-2.157	.033					
	Time	-1.138	1.556	-.059	-.732	.466	-.006	-.065	-.057	.929	1.077
	Bank Group	-.906	5.726	-.037	-.158	.874	.438	-.014	-.012	.108	9.293
	Long term debt capital	-.903	.432	-.163	-2.090	.039	-.177	-.184	-.162	.993	1.007
	Bank size	11.338	5.344	.504	2.121	.036	.469	.186	.164	.107	9.378

a. Dependent Variable: Net Profit Margin 2016-2020

Y = -174.316+-903Long term debt capital+11.338Bank size

Where Y is financial performance lower tier commercial banks.

Regression coefficient model 4 established that bank size has a positive and statistically significant effect on the relationship between long term debt capital and performance of lower tier banks in Kenya (β=11.338, p-value=.036<0.05). One unit change in bank size result to 11.338 units change on the effect of long term debt capital and net profit margins of lower tier commercial banks in Kenya. The results signify that bank size has positive moderating effect on the relationship between long term debt capital and net profit margin of lower tier banks in Kenya. Increasing bank size increases bank

profitability by allowing banks to realize economies of scale. A large bank reduces cost because of economies of scale and scope.

Larger banks engage more in market activities outside their traditional lending, which of late, has escalated and grown significantly. The results are in tandem with the findings by Ngware, et al (2020) that bank size had a significant moderating effect on the relationship of banks capital structure and financial performance of banks in Kenya. Also, Muigai and Muriithi (2017) shows that firm size influence the relationship between capital structure and financial distress. However, the results conflicts that of Qamar *et al.* (2016) who indicated that smaller firms would be more negatively affected by debt uptake.

4.7 Moderating Effect of Bank Size on Capital Structure and Performance of Lower Tier Commercial Banks

Hierarchical regression was conducted to determine the combined effect of internal equity capital, external equity capital, short term debt capital and long term debt capital on profitability of lower tier commercial banks. Table 4.81 shows the model summary results for capital structure on profitability of lower tier commercial banks in Kenya.

Table 4.81: Model Summary for Combined Effect of Capital Structure on Bank Profitability

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.006[a]	.000	-.008	27.561	.000	.005	1	128	.946	
2	.438[b]	.192	.179	24.876	.192	30.117	1	127	.000	
3	.471[c]	.222	.203	24.505	.030	4.879	1	126	.029	
4	.525[d]	.275	.252	23.742	.053	9.222	1	125	.003	
5	.719[e]	.517	.497	19.462	.242	62.024	1	124	.000	
6	.727[f]	.529	.506	19.300	.012	3.089	1	123	.081	1.083

a. Predictors: (Constant), Time
b. Predictors: (Constant), Time, Bank Group
c. Predictors: (Constant), Time, Bank Group, Long Term Debt/ Total Assets 2016-2020
d. Predictors: (Constant), Time, Bank Group, Long Term Debt/ Total Assets 2016-2020, Book Value of Equity/ Total Assets 2016-2020
e. Predictors: (Constant), Time, Bank Group, Long Term Debt/ Total Assets 2016-2020, Book Value of Equity/ Total Assets 2016-2020, Internal Equity Capital 2016-2020
f. Predictors: (Constant), Time, Bank Group, Long Term Debt/ Total Assets 2016-2020, Book Value of Equity/ Total Assets 2016-2020, Internal Equity Capital 2016-2020, Short Term Debt/ Total Assets 2016-2020
g. Dependent Variable: Net Profit Margin 2016-2020

Durbin-Watson of 1.083 indicate that the data did not suffer from serial correlation. The Adjusted R Square of the combined effect model is .506 (model 6). The results external equity, internal equity, short term debt and long term debt capital explain 50.6 percent of the profitability of lower tier commercial banks. The results imply that external equity, internal equity, short term debt and long term debt capital are critical aspects of capital structure that influence performance of lower tier commercial banks. Capital structure and profitability as a financial management subject has continued to attract growing concern in various finance quotas. Capital structure decisions are important drivers of the ability of business enterprises to deliver profits and value to shareholders. As such, capital structure decisions should reflect a strong degree of care as they have a big impact on the survival of firms. It is therefore imperative for managers to ensure successful selection and application of capital as a key ingredient of the enterprise's

financial strategy. Table 4.82 shows the ANOVA results of the combined effect of capital structure on profitability of lower tier commercial banks.

Table 4.82: ANOVA[a] Results for Combined Effect Capital Structure On Profitability of Lower Tier Commercial Banks

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	3.475	1	3.475	.005	.946[b]
1	Residual	97227.210	128	759.588		
	Total	97230.685	129			
	Regression	18640.308	2	9320.154	15.061	.000[c]
2	Residual	78590.377	127	618.822		
	Total	97230.685	129			
	Regression	21570.291	3	7190.097	11.974	.000[d]
3	Residual	75660.394	126	600.479		
	Total	97230.685	129			
	Regression	26768.775	4	6692.194	11.872	.000[e]
4	Residual	70461.910	125	563.695		
	Total	97230.685	129			
	Regression	50262.138	5	10052.428	26.539	.000[f]
5	Residual	46968.547	124	378.779		
	Total	97230.685	129			
	Regression	51412.712	6	8568.785	23.003	.000[g]
6	Residual	45817.973	123	372.504		
	Total	97230.685	129			

a. Dependent Variable: Net Profit Margin 2016-2020
b. Predictors: (Constant), Time
c. Predictors: (Constant), Time, Bank Group
d. Predictors: (Constant), Time, Bank Group, Long Term Debt/ Total Assets 2016-2020
e. Predictors: (Constant), Time, Bank Group, Long Term Debt/ Total Assets 2016-2020, Book Value of Equity/ Total Assets 2016-2020
f. Predictors: (Constant), Time, Bank Group, Long Term Debt/ Total Assets 2016-2020, Book Value of Equity/ Total Assets 2016-2020, Internal Equity Capital 2016-2020
g. Predictors: (Constant), Time, Bank Group, Long Term Debt/ Total Assets 2016-2020, Book Value of Equity/ Total Assets 2016-2020, Internal Equity Capital 2016-2020, Short Term Debt/ Total Assets 2016-2020

Further, the outcomes of the analysis of variance show that the general model is statistically significant. Further, the results of the combined hierarchical equation (model 6) showed that external equity, internal equity, short term debt and long term debt capital are satisfactory predictors of the performance of lower tier commercial banks in Kenya. The is supported by F-statistics of 23.003 and p-value of .000<0.05. Capital structure plays a pivotal role in determining the ability of the firm to deliver on

the shareholder wealth maximization. By giving attention to the cost of capital in financing corporate undertakings, managers are able to maximize on the benefits accruing from consumption of funds while minimizing on the risks involved. Capital structure decisions are critical to business growth and profitability as they have a ramification on both risk and valuation status of the firm. The regression coefficient results are shown in Table 4.83.

Table 4.83: Combined Regression Model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	15.863	5.669		2.798	.006					
	Time	-.116	1.709	-.006	-.068	.946	-.006	-.006	-.006	1.000	1.000
2	(Constant)	-8.211	6.740		-1.218	.225					
	Time	-.116	1.543	-.006	-.075	.940	-.006	-.007	-.006	1.000	1.000
	Bank Group	10.609	1.933	.438	5.488	.000	.438	.438	.438	1.000	1.000
3	(Constant)	-3.528	6.970		-.506	.614					
	Time	-.269	1.521	-.014	-.177	.860	-.006	-.016	-.014	.998	1.002
	Bank Group	10.569	1.904	.436	5.550	.000	.438	.443	.436	1.000	1.000
	Long term debt	-.966	.437	-.174	-2.209	.029	-.177	-.193	-.174	.998	1.002
4	(Constant)	-29.592	10.921		-2.710	.008					
	Time	.717	1.509	.037	.475	.636	-.006	.042	.036	.952	1.051
	Bank Group	10.897	1.848	.450	5.896	.000	.438	.466	.449	.996	1.004
	Long term debt	-.849	.425	-.153	-1.997	.048	-.177	-.176	-.152	.990	1.010
	External equity	1.312	.432	.238	3.037	.003	.217	.262	.231	.945	1.058
5	(Constant)	-21.611	9.009		-2.399	.018					
	Time	-.895	1.254	-.046	-.714	.477	-.006	-.064	-.045	.926	1.079
	Bank Group	3.770	1.765	.156	2.136	.035	.438	.188	.133	.734	1.362
	Long term debt	-1.088	.350	-.196	-3.107	.002	-.177	-.269	-.194	.982	1.018
	External equity	.922	.358	.167	2.579	.011	.217	.226	.161	.927	1.079
	Internal equity	.423	.054	.580	7.876	.000	.651	.577	.492	.719	1.391
6	(Constant)	-38.435	13.094		-2.935	.004					
	Time	-1.127	1.251	-.058	-.901	.369	-.006	-.081	-.056	.916	1.091
	Bank Group	3.607	1.753	.149	2.058	.042	.438	.182	.127	.732	1.365
	Long term debt	-.948	.356	-.171	-2.662	.009	-.177	-.233	-.165	.933	1.071
	External equity	1.093	.368	.198	2.972	.004	.217	.259	.184	.862	1.159
	Internal equity	.430	.053	.590	8.052	.000	.651	.588	.498	.715	1.399
	Short term debt	.197	.112	.117	1.757	.081	.052	.157	.109	.860	1.163

a. Dependent Variable: Net Profit Margin 2016-2020

Y = -38.435+1.093External equity capital+.430Internal equity capital +.197Short term debt capital -.948Long term debt capital

Where Y is financial performance lower tier commercial banks.

The combined model 6 showed that bank group is a statistically significant predictor of the performance of lower tier commercial banks. External debt capital has a positive and statistically significant effect on financial performance of lower tier commercial banks (β=1.093, p-value=.004<0.05). The results imply that one-unit increase in external equity capital result to 1.093-units increase in the profitability of lower tier commercial banks in Kenya. The null hypothesis of the study was that external equity capital has no significant effect on financial performance of lower tier commercial banks in Kenya was rejected. Thus, the alternative hypothesis is adopted that external equity capital has a significant effect on financial performance of lower tier commercial banks in Kenya.

Further, the coefficient of internal equity capital is positive and significantly related to the financial performance of lower tier commercial banks (β=.430, p-value=.000<0.05). The results imply that one-unit increase in external equity capital result to .430 units increase in the profitability of lower tier commercial banks in Kenya. The null hypothesis of the study was that internal equity capital has no significant effect on financial performance of lower tier commercial banks in Kenya was rejected. Thus, the alternative hypothesis is adopted that internal equity has a significant effect on financial performance of lower tier commercial banks in Kenya.

The coefficient of long term debt capital is negative and statistically significant effect on the financial performance of lower tier commercial banks (β=-.948, p-

value=.009<0.05). The results imply that one-unit change in long term debt results to a decline in the profitability of lower tier commercial banks in Kenya by 948 units. The null hypothesis of the study was that long term debt capital has no significant effect on financial performance of lower tier commercial banks in Kenya was rejected. Thus, the alternative hypothesis is adopted that long term debt capital has a significant effect on financial performance of lower tier commercial banks in Kenya.

However, short term debt capital was found to have a positive and insignificant effect on the related to the financial performance of lower tier commercial banks (β=.197, p-value=.081>0.05). The study fails to reject the null hypothesis that short term debt capital has no significant effect on financial performance of lower tier commercial banks in Kenya and conclusion made that short term debt capital has no significant effect on financial performance of lower tier commercial banks in Kenya. Bank size was added into the relationship between capital structure and financial performance of lower tier commercial banks as a moderator. The model results are shown in Table 4.84.

Table 4.84: Model Summary of Capital Structure, Bank Size and Financial Performance of Lower Tier Commercial Banks

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.006ᵃ	.000	-.008	27.561	.000	.005	1	128	.946	
2	.438ᵇ	.192	.179	24.876	.192	30.117	1	127	.000	
3	.471ᶜ	.222	.203	24.505	.030	4.879	1	126	.029	
4	.525ᵈ	.275	.252	23.742	.053	9.222	1	125	.003	
5	.719ᵉ	.517	.497	19.462	.242	62.024	1	124	.000	
6	.727ᶠ	.529	.506	19.300	.012	3.089	1	123	.081	
7	.741ᵍ	.549	.523	18.968	.020	5.352	1	122	.022	1.115

a. Predictors: (Constant), Time
b. Predictors: (Constant), Time, Bank Group
c. Predictors: (Constant), Time, Bank Group, Long Term Debt/ Total Assets 2016-2020
d. Predictors: (Constant), Time, Bank Group, Long Term Debt/ Total Assets 2016-2020, Book Value of Equity/ Total Assets 2016-2020
e. Predictors: (Constant), Time, Bank Group, Long Term Debt/ Total Assets 2016-2020, Book Value of Equity/ Total Assets 2016-2020, Internal Equity Capital 2016-2020

f. Predictors: (Constant), Time, Bank Group, Long Term Debt/ Total Assets 2016-2020, Book Value of Equity/ Total Assets 2016-2020, Internal Equity Capital 2016-2020, Short Term Debt/ Total Assets 2016-2020
g. Predictors: (Constant), Time, Bank Group, Long Term Debt/ Total Assets 2016-2020, Book Value of Equity/ Total Assets 2016-2020, Internal Equity Capital 2016-2020, Short Term Debt/ Total Assets 2016-2020, Total Assets Natural Log
h. Dependent Variable: Net Profit Margin 2016-2020

Upon the introduction of bank size in the relationship between capital structure and financial performance of lower tier commercial banks, the R square rose to .523 (model 7) from .506 (model 6). This represented a R Square Change of .020 (model 7). The change in R square imply that bank size positively moderates the relationship between capital structure and financial performance of lower tier commercial banks, by explaining 2.0% of the financial performance of lower tier commercial banks in Kenya. The Durbin-Watson of 1.115 indicate that the data did not suffer from serial correlation. Table 4.85 shows the regression coefficients results of the effect of capital structure on profitability of lower tier commercial banks in Kenya.

Table 4.85: Regression Coefficients of Moderating Effect of Bank Size on the Relationship Between Capital Structure and Financial Performance of Lower Tier Commercial Banks

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	39.116	10.824		3.614	.001
External equity capital	1.941	.587	1.878	3.307	.004
Internal equity capital	.239	.074	.205	3.229	.006
Short term debt capital	1.603	1.517	.956	1.057	.293
Long term debt capital	-.723	.176	.677	-4.108	.000
External equity capital*Bank size	2.350	.653	2.084	3.596	.000
Internal equity capital*Bank size	.148	.105	.139	1.409	.600
Short term debt capital*Bank Size	.127	.043	.827	2.953	.019

Long term debt capital*Bank Size	-.695	.269	-.580	-2.584	.024

Based on the results in Table 4.85, it was found that bank size moderates the effect of external equity capital (β=2.350; .000<0.05), short term debt capital (β=.127; .019<0.05) and long term debt capital (β=-.695; .024<0.05) on the profitability of lower tier commercial banks in Kenya. However, bank did not moderate the relationship between internal equity capital and profitability of lower tier commercial banks (β=.148; .600>0.05). The null hypothesis was that there is no significant moderating effect of bank size on the relationship between capital structure and financial performance of lower tier commercial banks in Kenya. Thus, it is clear that bank size moderates the effect of external equity capital, short term debt capital and long term debt capital on the profitability of lower tier commercial banks in Kenya and not internal equity capital.

As per the results, bank size positively moderates the effect of external equity capital on financial performance of lower tier commercial banks in Kenya. It was also found that bank size has positive moderating effect on the relationship between short term debt capital and net profit margin of lower tier banks in Kenya, bank size has negative moderating effect on the relationship between long term debt capital and net profit margin of lower tier banks in Kenya. However, bank size was found not to moderate the effect of internal equity on net profit margin of lower tier commercial banks in Kenya implying that size of bank in terms of total assets controlled does not affect the level of internal equity financing and subsequent profitability of lower tier commercial banks.

Increasing bank size increases bank profitability by allowing banks to realize economies of scale. A large bank reduces cost because of economies of scale and scope.

Increasing bank size can increase bank profitability by allowing banks to realize economies of scale. Increasing banks' asset size can also reduce risk by diversifying operations across product lines, sectors, and region. Banks efficiency, derived from economies of scale is associated with bank size which could imply that larger banks may experience higher profits.

Larger banks are associated with having more diversification capabilities, ability to exploit economies of scale and scope and also being highly formalised in terms of procedures. A small bank or large bank can choose to increase the level of retained earnings irrespective of the size. The results are in tandem with the findings by Ngware, et al (2020) that bank size had a significant moderating effect on the relationship of banks capital structure and financial performance of banks in Kenya. Muigai and Muriithi (2017) studying the moderating effect of firm size on the relationship between capital structure and financial distress showed that firm size influence the relationship between capital structure and financial distress. However, the results conflicts that of Qamar, Farooq and Akhtar (2016) who indicated that smaller firms would be more negatively affected by debt uptake. The researcher finds the study results quite useful in the current analysis as it would be imperative to determine what the conflicting results of past studies mean.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In this chapter the study findings are summarised based on the objectives and discussed. The findings of the study are thereafter used to make conclusions. Recommendations are also discussed based on the study findings and conclusions. The chapter further ends by suggesting areas for further research.

5.2 Summary of Findings

The purpose of the study was to determine the moderating influence of bank size on the relationship between capital structure and financial performance of lower tier commercial banks in Kenya. The specific objectives of the study included: to determine the influence of internal equity capital on financial performance of lower tier commercial banks in Kenya, to examine the influence of external equity capital on financial performance of lower tier commercial banks in Kenya, to establish the influence of short term debt capital on financial performance of lower tier commercial banks in Kenya, find out the influence of long term debt capital on financial performance of lower tier commercial banks in Kenya and to determine the moderating influence of bank size on the influence of internal equity capital, external equity capital, short term debt capital and long term debt capital on financial performance of lower tier commercial banks in Kenya. The objectives were formulated based on critical review and conceptualization of capital structure. The research hypotheses were formulated based on the research objectives and were answered based on the hierarchical regression models.

The study employed a combination of a descriptive and explanatory research design targeting 37 commercial banks in the second and third tier classification of the Central Bank of Kenya's tier system. However, only 26 lower tier commercial banks were retained for further analysis after cleaning data to discard the banks that did not have complete data portfolio required, recorded extreme value (outliers). Removing outliers and incomplete data input is important in ensuring that outliers and incomplete data do not affect the credibility and validity of results. Data analyses involved descriptive statistics and inferential statistics. The descriptive statistics comprised the means, standard deviations, minimum, maximums, skewness and kurtosis. On the other hand, inferential statistics comprised the multilevel mixed model analysis and hierarchical multiple linear regression. Diagnostic tests were also performed in order to validate the research findings. They included: stationarity test, autocorrelation, normality test, multicollinearity and heteroskedasticity test. They were all met and therefore validated the research findings.

5.2.1 Internal Equity Capital and Financial Performance of Lower Tier Commercial Banks

The first objective was to determine the influence of internal equity capital on financial performance of lower tier commercial banks in Kenya. The null hypothesis of the study was that there is no statistically significant effect of internal equity capital on financial performance of lower tier commercial banks in Kenya. The results of the descriptive statistics revealed that internal equity for lower tier commercial banks in Kenya was .364 in 2016 with a slight increase in 2017 to .400 a phenomenon that has been linked to effects of general election that were happening during that period in Kenya. Thus, in 2017, commercial banks used more of internal equity to finance their internal

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operations. Further, in 2018, the internal equity among the lower tier commercial banks sharply rose to 8.299, which was followed by small decline to 7.782 in 2019. This is an indication that in 2018 and 2019, lower tier commercial banks in Kenya employed more of internal equity financing to finance their operations. However, in 2020, the use of internal equity fell to 3.081. Triangulating the secondary descriptive findings with descriptive findings from primary data, it was established that internal equity capital was employed by lower tier commercial banks to very great extent as illustrated by mean response of 4.5. Internal equity financing sources include subsidiary retained earnings, excluding the capital investments from parent firms.

Applying hierarchical regression, it was found that internal equity has positive and statistically significant effect on net profit margin of lower tier banks in Kenya. The results signify that one unit change in internal equity result equivalent units change on the net profit margins of lower tier commercial banks in Kenya. Based on the results, the study rejected the null hypothesis and made an inference that internal equity capital significantly affects the financial performance of lower tier commercial banks in Kenya. The level of internal funds conveys information about growth prospects of companies. Bank profitability and earnings are closely related because retained earnings are undistributed profits accumulated over the years which may be subsequently used for the purpose of enhancing the capital resources of the bank.

5.2.2 External Equity Capital and Financial Performance of Lower Tier Commercial Banks

The second objective was to examine the influence of external equity capital on financial performance of lower tier commercial banks in Kenya. The null hypothesis of

the study was that external equity capital has no significant effect on financial performance of lower tier commercial banks in Kenya. Descriptive results of the study established that in 2016, the external equity capital for lower tier commercial banks in Kenya was 0.175 which was followed by a slight increase in the external equity capital in 2017 to 0.188; an indication that the banks issued more ordinary shares to finance their operations. Further decline in external equity capital for lower tier commercial banks was recorded in the subsequent years of 2018, 2019 and 2020. The findings are supported by primary data findings where it was established that external equity was being employed by a majority of the lower tier commercial to great extent as indicated by mean response of 4.3. The decline signify decline in the issuance of ordinary shares by the lower tier commercial banks to finance their operations. High external equity capital makes banks relatively safer in the event of liquidation, and reduce dependence on external funding and then to increase profits. External financing sources include borrowing loans from banks, venture capitals within the host country and borrowing from international banks outside the host country.

Based on the hierarchical regression model, it was found that external equity capital has a positive and significant effect on financial performance of lower tier commercial banks. The null hypothesis that external equity capital has no significant effect on financial performance of lower tier commercial banks in Kenya was thus rejected. The rejection of the null hypothesis led to the conclusion that external equity capital has a positive and significant effect on financial performance of lower tier commercial banks in Kenya. The book value of equity is a major source from which the costly external financing theory draws inspiration to interpret capital structure decisions. Banks with high market-to-book ratios tend to grow quickly hence high profitability margins

5.2.3 Short Term Debt Capital and Financial Performance of Lower Tier Commercial Banks

The third objective was to establish the influence of short term debt capital on financial performance of lower tier commercial banks in Kenya. The average short term debt ratio for lower tier commercial banks in 2016 was 0.673 in 2016. There was a slight increase in short term debt to 0.687 in 2017 an indication of increased dependence on short term debts for financing the banks operations during that period. There was a drop in the use of short term debt to finance bank operations to 0.679 in 2018 among the lower tier commercial banks. From 2016 to 2018, there were lower tier banks that did not at all employ short term debt to finance their operations as shown by short term debt ratio of 0.000 implying that the banks may had resorted to other forms of financing their operation including retained earnings and long term borrowings. Triangulating the secondary descriptive findings with descriptive findings from primary data, it was established that short-term debt was employed by the lower tier commercial banks to small extent as shown by mean of 2.41. Lower tier commercial banks may resort to financing their operations using short term debts due to difficulties in accessing long term credit and the perception that short term debt are relatively cheap compared to long term debt.

Short term debt has a positive but insignificant effect on the financial performance of lower tier commercial banks. The null hypothesis of the study was that there is no statistically significant effect of short term debt capital on financial performance of lower tier commercial banks in Kenya. The study failed to reject the null hypothesis

and concluded that short term debt capital has statistically insignificant influence on profitability of tier banks. Short-term debt is regarded as an important source of financing for small sized banks because it can be easily accessed and useful during times of emergent working capital shortage.

5.2.4 Long Term Debt Capital and Financial Performance of Lower Tier Commercial Banks

Forth objective opined to find out the influence of long term debt capital on financial performance of lower tier commercial banks in Kenya. The average long term debt ratio for lower tier commercial banks in 2016 was 0.107. In 2017, there was a slight decline in the long term debt ratio for the lower tier commercial banks. However, in 2018, the use of long term debt among the lower tier commercial banks increased to 0.103. This is an indication that lower tier commercial banks employed more of long term debt to finance their operations compared to 2017. A decline in the use of long term debt was witnessed in the years 2019 and 2020 implying that the lower tier commercial banks were employing less of long term debt to finance their operation. This can also imply use of short term debt capital resulting to decline in the use of long term debt capital. Upon the triangulation of secondary data study findings with primary data findings, it was noted that long term debt was utilised by banks to small extent as supported by mean response of 2.3. Long-term debt is used to finance business investments that have longer payback periods. Long term debt financing is advantageous as it is usually less prone to short term shocks as it is secured by formally established contractual terms.

Long term debt had a negative and significant effect on the financial performance of lower tier commercial banks. The null hypothesis of the study that there is no

statistically significant effect of long term debt capital on financial performance of lower tier commercial banks in Kenya was rejected resulting to acceptance of alternative hypothesis that long term debt capital has statistically significant influence on profitability of lower tier commercial banks. Long term debt financing is perceived to be relatively affordable especially for banks struggling to finance their operations. However, long term debt involves strict contractual covenants between the firm and issuers of debt, which is usually associated with high agency and financial distress costs.

5.2.5 Bank Size, Capital Structure and Financial Performance of Lower Tier Commercial Banks

The fifth objective was to determine the moderating influence of bank size on the relationship between capital structure and financial performance of lower tier commercial banks. The study found that bank size moderated the effect of external equity on financial performance of lower tier commercial banks, effect of short term debt and financial performance of lower tier commercial banks, positively moderates effect on the relationship between long term debt and net profit margin of lower tier banks in Kenya. However, bank size was found not to moderate the effect of internal equity on net profit margin of lower tier commercial banks in Kenya implying that size of bank in terms of total assets controlled does not affect the level of internal equity financing and subsequent profitability of lower tier commercial banks. Increasing bank size can increase bank profitability by allowing banks to realize economies of scale. Banks efficiency, derived from economies of scale is associated with bank size which could imply that larger banks may experience higher profits compared to small banks.

Drawing from literature review, hypotheses were derived from the main objectives of the study. Descriptive and inferential statistics were used to test the hypothesis. A summary of the results is presented in Table 5.1.

**Table 5.1   Summary Results of Hypothesis Testing**

Objective	Hypothesis	Results	Hypotheses decisions
Objective 1	There is no statistically significant effect of internal equity capital on financial performance of lower tier commercial banks in Kenya	Internal equity capital has a significant influence on financial performance of lower tier commercial banks in Kenya	Null hypothesis was rejected in favour of alternative hypothesis
Objective 2	External equity capital has no statistically significant effect on financial performance of lower tier commercial banks in Kenya.	External equity capital has a significant influence on financial performance of lower tier commercial banks in Kenya	Null hypothesis was rejected in favour of alternative hypothesis
Objective 3	There is no statistically significant effect of short term debt capital on financial performance of lower tier commercial banks in Kenya.	Short term debt capital has no significant influence on financial performance of lower tier commercial banks in Kenya	The study failed to reject the null hypothesis
Objective 4	Long term debt capital has no statistically significant effect on financial performance of lower tier commercial banks in Kenya.	Long term debt capital has a significant influence on financial performance of lower tier	Null hypothesis was rejected in favour of alternative hypothesis

		commercial banks in Kenya	
Objective 5	Bank size does not statistically moderate the influence of internal equity capital, external equity capital, short term debt capital and long term debt capital on financial performance of lower tier commercial banks in Kenya.	Bank size moderates the effect of external equity capital, short term debt capital and long term debt capital on the profitability of lower tier commercial banks in Kenya and not internal equity capital	Reject the null hypothesis in favour of external equity capital, short term debt capital and long term debt capital and fail to reject for internal equity capital

The results in Table 5.1 indicate that internal equity capital, external equity capital and long term debt capital a have statistically significant influence on financial performance of lower tier commercial banks in Kenya. Short term debt capital has no significant influence on financial performance of lower tier commercial banks in Kenya. Bank size moderates the effect of external equity capital, short term debt capital and long term debt capital on the profitability of lower tier commercial banks in Kenya and not internal equity capital.

5.3 Revised Conceptual Framework

The revised conceptual framework of the study is based on the statistical significance

of the study variables. The revised conceptual framework is shown in Figure 5.1.

Independent variables   **Dependent**

variable

Moderating Variable
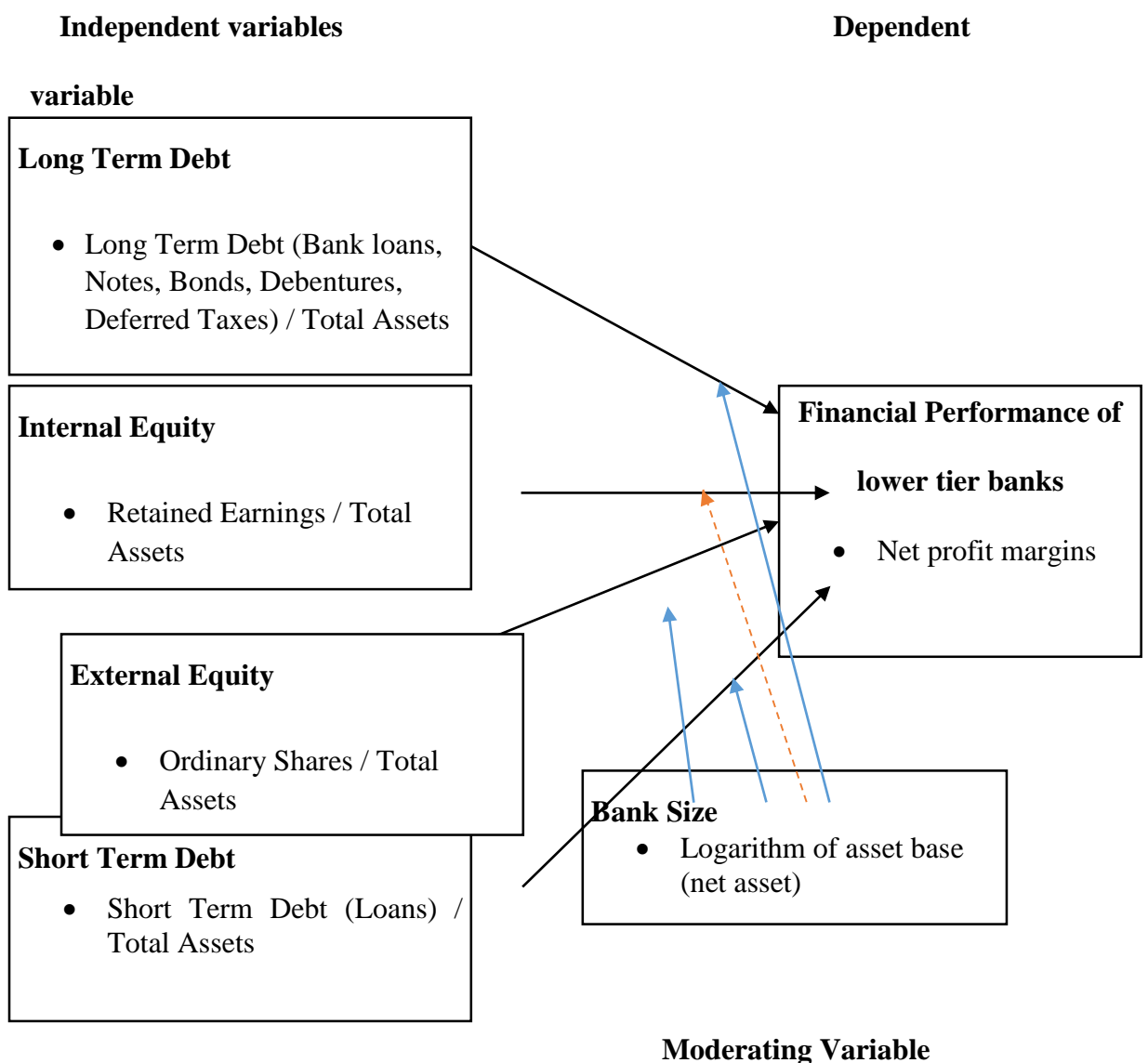
Key: **complete blue line** imply bank size has significant moderating effect. **Dotted red line** imply bank size did not have significant moderating effect

Figure 5.2: Revised Conceptual Framework

Source: Researcher (2023)

Based on the revised conceptual framework, internal equity capital had the highest positive influence on financial performance of lower tier commercial banks followed by external equity capital. Long term debt capital had greatest negative impact on the on financial performance of lower tier commercial banks while short term debt capital did not have any statically significant influence on financial performance of lower tier commercial banks. Bank size positively moderates the effect of external equity capital and short term debt capital on financial performance of lower tier commercial banks, negatively on the nexus between long term debt capital and financial performance of lower tier commercial bank. Bank size does not moderate the effect of internal equity capital on financial performance of lower tier commercial banks.

5.4 Conclusions

The conclusions in this section were deduced from the key findings of the study. Conclusions are based on the strength and nature of relationship between the study variables of the study that include internal equity capital, external equity capital, short term debt capital and long term debt capital as the independent variables and bank size as the moderating variable on the relationship between capital structure and financial performance of lower tier commercial banks in Kenya. Internal equity capital has a significant positive effect on the financial performance lower tier commercial banks in Kenya. The study thus concludes that internal equity capital is an essential form of financing bank operations by mobilizing internal resources through retained earnings to fund bank's operations when need be. The results are in line with the postulation of the Pecking Order Theory. As indicated by Pecking Order Theory, firms prefer internal

sources as they are more productive than external sources of finance. The pecking order model advances that the argument that a firm should prefer internal equity (retained earnings) as this would have the largest impact on profitability. Only upon exhausting the retained earnings should the firm resort to debt, with a preference to short term debt and then long term debt. External equity (share capital financing) should be avoided and used only as a last resort. Internal equity financing occurs where banks retain and reinvest their own earnings to finance continuing expansion and growth. Internal equity financing is particularly beneficial to the banks, where the external form of financing banks operations is generally not developed and quick form of financing is required. In addition, internal equity financing is often considered cheaper than external debt financing. With such internal equity financing sources, lower tier commercial banks do not have to worry about finding external debt financing sources to fund their expansion and growth. The external financing opportunities might be limited due to deficiency in credit availability, and the costs of debts are high.

It was also established that external equity capital positively and significantly affects the financial performance of lower tier commercial banks. The results align with the postulations of the trade –off theory that use of debt to finance companies may enhance their performance. However, the results fail to align to the arguments of the Modigliani and Miller (MM) theory that financing structure is irrelevant in terms of the cost of capital. Modigliani and Miller theory was developed by Modigliani and Miller (1963) with a proposition that firms can enhance the value of the firm by controlling and reducing the overall cost of capital. External financing sources include borrowing loans from banks, venture capitals within the host country and borrowing from international banks outside the host country. The bank will often seek for external equity financing

by selling new ownership shares. In most instances, external equity financing compared to internal equity is associated with costs such underwriting, administrative and interest rates to the borrowing entity.

The study concludes that short term debt does not affect the financial performance of lower tier commercial banks. Short-term term is primarily concerned with the analysis of decisions that affect current assets and current liabilities. The results are against the argument that short term debt financing as short-term debt tends to be less expensive and increasing it with a relatively low interest rate will lead to an increase in profit levels and therefore performance. The use of short-term liabilities such as trade payables and accruals can have a positive effect on a firm's profitability since such sources of financing may be less costly to the firm than the longer-term sources of funds. Further, short term sources of funds may have a positive influence on profitability due to the reduced contractual engagements that are involved.

It was found that long term debt has negative and significant effect on the performance of lower tier commercial banks. Though long term source of finance is less expensive as compared to short term debt and as such improves the profitability of the firm. Long term debt involves strict contractual covenants between the firm and issuers of debt, which is usually associated with high agency and financial distress costs. Long term debts are the most preferred sources of debt financing among well-established corporate institutions mostly by their asset base, and collateral is a requirement that many of commercial financial institutions. Thus, long term debt is likely not most effective for lower tier commercial banks with small asset base to offer as collateral.

The study concluded that bank size moderated the effect of external equity on financial performance of lower tier commercial banks, effect of short term debt and financial performance of lower tier commercial banks, positively moderates effect on the relationship between long term debt and net profit margin of lower tier banks in Kenya. However, bank size was found not to moderate the effect of internal equity on net profit margin of lower tier commercial banks in Kenya implying that size of bank in terms of total assets controlled does not affect the level of internal equity financing and subsequent profitability of lower tier commercial banks. Increasing bank size can increase bank profitability by allowing banks to realize economies of scale. A large bank reduces cost because of economies of scale and scope. Increasing bank size can increase bank profitability by allowing banks to realize economies of scale. Banks efficiency, derived from economies of scale is associated with bank size which could imply that larger banks may experience higher profits.

5.5 Study Recommendations

The study submits recommendations for the banking industry in terms of theoretical, managerial and policy implications.

5.5.1 Theoretical Implications

The study found that internal equity capital significantly positively affects the financial performance lower tier commercial banks in Kenya. Internal equity capital is an essential form of financing bank operations by mobilizing internal resources through retained earnings to fund bank's operations when need be. The results are in line with the postulation of the Pecking Order Theory. As indicated by Pecking Order Theory, firms prefer internal sources as they are more productive than external sources of

finance. The pecking order model advances that the argument that a firm should prefer internal equity (retained earnings) as this would have the largest impact on profitability. Only upon exhausting the retained earnings should the firm resort to debt, with a preference to short term debt and then long term debt. External equity (share capital financing) should be avoided and used only as a last resort.

The pecking order theory also argues that the cost of internal equity is less than that of external equity. The pecking order theory (Myers & Majluf, 1984) predicts the opposite as issuing debt is a costlier option compared with using retained earnings. According to Shahar *et al.* (2015), the advantage of using internal financing through retained earnings is that it attracts no floatation costs. In addition, internal sources of finance need no additional disclosure of financial information that could expose the firm's competitive advantage. Pecking order theory predicts that when information asymmetries are important, a firm will only finance an investment by issuing new securities if the firm is cash-constrained. When information asymmetries are important and a firm is cash-constrained, pecking order theory predicts that the firm will issue debt rather than equity provided the firm has sufficient debt capacity. Internal funds from retained earnings involve no undervaluation and even debt that is not too risky will be preferred to equity.

Also, it was also found that external equity has positive effect on financial performance of lower tier commercial banks. External financing sources include borrowing loans from banks, venture capitals within the host country and borrowing from international banks outside the host country. The bank will often seek for external equity financing by selling new ownership shares. In most instances, external equity financing compared to internal equity is associated with costs such underwriting, administrative and interest

rates to the borrowing entity. According to the study findings, long term debt affects performance of companies whereas short term debt does not. The results align to the arguments of the Modigliani and Miller (MM) theory that financing structure is irrelevant in terms of the cost of capital. Modigliani and Miller theory was developed by Modigliani and Miller (1963) with a proposition that firms can enhance the value of the firm by controlling and reducing the overall cost of capital. Thus, the Modigliani and Miller theory brings a new, much useful argument that incorporates the cost of capital dimension. According to Merriman, (2017), debt is a prudent source of financing and as such, a higher proportion of debt would influence profitability better than external equity finance.

In terms of new knowledge, capital structure has critical impact on the profitability of lower tier banks. However, only external equity, internal equity and long term debt are significant facets of capital structure that impacts the profitability of bank. Short term debt has no significant impact on profitability of lower tier banks. Thus, an optimal mix to finance lower tier banks ought to combine external, internal equity and long term debt forms of financing. Short term debt are relatively expensive and thus likely to negatively impact on the profitability margins of the lower tier banks.

5.5.2 Implications to Practice

The study found that internal equity capital internal equity capital is an essential form of financing bank operations by mobilizing internal resources through retained earnings to fund bank's operations when need be. The study recommends that lower tier commercial banks need to encourage its shareholders to re-invest back their earnings rather than consuming them as dividends. The recommendation is in line with the

postulation of the Pecking Order Theory that firms prefer internal sources as they are more productive than external sources of finance. The use of internal equity capital in form of retained earnings to finance bank's operations is highly recommended when sourcing external funding is expensive. Internal equity capital is viewed as readily accessible source of financing in the event a bank urgently requires funding that to invest into certain projects and external equity funding would hurriedly service. Notably, retained earnings are a sacrifice made by equity shareholders. As an internal source, retained earnings are readily available for use. Also, retentions are cheaper than external equity, do not cause ownership dilution, and have got a positive connotation as the stakeholders perceive that the firm has potential investment opportunities. Since, only few firm financing options are available, firms prefer to retain more earnings and plow it back into operations especially when they have viable investment opportunities.

External equity capital positively and significantly affects the financial performance of lower tier commercial banks. External financing sources include borrowing loans from banks, venture capitals within the host country and borrowing from international banks. The study recommends that a bank should keen evaluate when to use external equity funding at the expense of internal funding bank's operations thought external equity funding may be costlier. The recommendation is in tandem with the postulations of the trade –off theory that use of debt to finance companies may enhance their performance. Nonetheless, the results fail to align to the arguments of the Modigliani and Miller theory that financing structure is irrelevant in terms of the cost of capital. The lower tier commercial banks can borrow from other banks, multilateral lending institutions and venture capital. In addition, the lower tier commercial banks can issue/sale preference shares in order to raise external equity funding. Issuance of preference shares is the

common form of external equity that a bank can engage in. External equity financing is important, if the proceeds are used to invest in projects which eventually bring revenue to the bank. The lower tier commercial banks should use equity financing as a way of raising capital for major expansions, asset growth or acquisitions which may require heavy funding. In this way, the lower tier commercial banks will be assured of improvement in performance as well as high financial growth.

The study found that short term debt does not affect the financial performance of lower tier commercial banks. Short-term term is primarily concerned with the analysis of decisions that affect current assets and current liabilities. Though the results are against the argument that short term debt financing as short-term debt tends to be less expensive and increasing it with a relatively low interest rate will lead to an increase in profit levels and therefore performance, the use of short-term liabilities such as trade payables and accruals can have a positive effect on a firm's profitability since such sources of financing may be less costly to the firm than the longer-term sources of funds. The study recommends that need to balance the use of short term debt with other forms financing as per the financial position and obligations of the lower tier commercial banks. For short-term financing requirements such as working capital, listed firms can borrow funds in the form of bank loans, factor receivables and commercial paper. Short-term debt is less expensive than long-term debt but is riskier because they need to be renewed periodically.

The study established that long term debt positively affects the performance of lower tier commercial banks. Long term debts are the most preferred sources of debt financing among well-established corporate institutions mostly by their asset base, and collateral is a requirement that many of commercial financial institutions. Access to long term

financing is one of the critical financial sector policy challenges facing firms. Long term debts provide small firms with more competitive advantages when compared to large firms. Lower tier commercial banks may employ long term sources like equity shares, debentures, preference shares and public deposits. Long-term debt is used to finance business investments that have longer payback periods. Long term debt financing is advantageous as it is usually less prone to short term shocks as it is secured by formally established contractual terms.

It was established that bank size moderated the effect of external equity, short term debt and long term debt on the financial performance of lower tier banks. In addition, lower tier commercial banks may also need to diversify their product and service portfolio to expand their aggregate asset base and competitiveness in the market so that they can withstand financial and market shocks. Increasing banks asset allows the bank to grow profit margin by allowing banks to realize economies of scale. A large bank reduces cost because of economies of scale and scope. Increasing bank size can increase bank profitability by allowing banks to realize economies of scale. Banks efficiency, derived from economies of scale is associated with bank size which could imply that larger banks may experience higher profits.

5.5.3 Policy Implications

The result findings present policy implication to Central Bank of Kenya and Kenya Bankers association. Commercial banks resort to borrowing from Central Bank of Kenya in case they are financially constraint. Borrowing from Central bank of Kenya may amount to external equity funding that are often costly, the regulator may revise their borrowing costs and policies to support favourable borrowing by lower tier

commercial banks in Kenya. In addition, the study recommends for the review of equity issuance polices by the Central Bank of kenya. The policies regarding equity issuance need to be reviewed in order to focus on how to enhance efficiency in equity funding to lower tier commercial banks.

The government through the Ministry of Finance and Central Bank of Kenya need to promote equity financing by facilitating access to venture capital investment and by creating a policy environment in which lower tier commercial banks can flourish. Stimulating venture capital investment, that is; the supply of venture capital available for investment in firms, is not however sufficient to meet the objective of creating a dynamic enterprise economy. Government must also initiate policies to enhance the understanding of venture capital investment and help lower tier commercial banks become investor ready.

5.6 Suggestions for Future Research Work

The study significant limitation was related to methodological limitation. The study relied on multiple regression model in form of hierarchical models to determine the effect of internal equity, external equity, long term debt and short term debt on the financial performance of lower tier commercial banks treating the data as cross-sectional yet it was panel. Analyzing panel data as cross-sectional data, without controlling effect of time variance may result to incorrect parameter estimates. Future studies may employ dynamic panel models to determine the effect of internal equity, external equity, long term debt and short term debt on the financial performance of lower tier commercial bank.

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APPENDICES

Appendix I: Document Review Guide

Name of Bank…………………………………………...

VARIABLE	MEASURE/INDICATOR	2016	2017	2018	2019	2020
PROFITABILTY	Profit After Tax					
	Shareholders' Equity					
	Sales/ Revenue					
	Total Assets					
	Net Profit Margin= Net Profit/ Revenue					
FIRM SIZE	**Total Assets**					
	Total Liabilities					
	Net Asset = Total Assets- Total Liabilities					
	Ordinary Shareholding (Book Value of Equity)					

EXTERNAL EQUITY	Total Assets					
	Book Value of Equity/ Total Assets					
INTERNAL EQUITY	Retained Profit					
	Profit after Tax					
	Retention Ratio = Retained Profit/ Profit after Tax					
SHORT TERM DEBT	Amount of Short Term Liabilities or Debts < I year					
	Total Assets					
	Short Term Debt/ Total Assets					
LONG TERM DEBT	Amount of Long Term Liabilities or Debts >1 year					
	Total Assets					

	Long Term Debt/ Total Assets					

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10TH AUGUST, 2021

Dear respondent,

RE: <u>DATA COLLECTION FOR A STUDY ON CAPITAL STRUCTURE, FIRM SIZE AND FINANCIAL PERFORMANCE OF LOWER TIER COMMERCIAL BANKS IN KENYA.</u>

I am a PhD student at the school of business at Karatina University School pursuing a Doctor of philosophy degree in business management (finance). I am carrying out a study on capital structure, firm size and financial performance of lower tier commercial banks in Kenya. This is part of the university requirement in partial fulfilment of the said degree. Attached is a questionnaire that seeks to collect different dimensions of data relevant to the study. This letter is to kindly request you to respond to the items as truthfully as possible. Data will solely be used to pursue the academic goal. To this end, information obtained will not be divulged and confidentiality will be guaranteed.

Thanks in advance.

Yours faithfully,

PATRICK KARUKI KINYUA

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Questionnaires

This research instrument seeks data on capital structure, firm size and financial performance of lower tier commercial banks in Kenya. Please respond to the items as truthfully as possible.

SECTION I: GENERAL INFORMATION

1. Name of the bank (Optional) …………….…………………………………

2. Gender of the respondent: Male   ( )   Female   ( )

3. Highest Academic Qualification:

   ( ) Primary   ( ) Secondary   ( ) Certificate

   ( ) Diploma   ( ) undergraduate Degree

   ( ) Post graduate   (   )   others.   State

briefly…………………………………

………………………………………………………………………………………

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SECTION II;

A: CAPITAL STRUCTURE

4. To what extent has the bank utilized the following dimensions of capital in funding business operations?

SCALE: Use; 1- not at all, 2-small extent, 3- moderate extent, 4- great extent and 5 – very great extent.

	1	2	3	4	5
Short-term debt					
Long-term debt					
Internal equity					

External equity.					

5. i) In your opinion, does the funding structure have an implication on the profitability position of banks?

Yes ( ) No ( )

ii) Give a justification for your answer in (i) above.

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6. To what extent does the bank consider the following dimensions in making decisions on the proportion of debt to consume?

SCALE: Use; 1- not at all, 2-small extent, 3- moderate extent, 4- great extent and 5 – very great extent

	1	2	3	4	5
Use of debt in averting dilution of ownership.					
Use of debt in preventing loss of management control over the firm.					
Tax benefits of debt as interest payments are tax deductible.					
Ease of Access to Funds.					
The cost of using debt relative to other sources of finance.					

7. What is your opinion on the usefulness of short debt finance in funding banking investments? Use the space provided below to indicate your response.

……………………………………………………………………………………………

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8. What is your opinion on the usefulness of long debt finance in funding banking investments? Use the space provided below to indicate your response.

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…………………………………………………………………………………………

…………………………………………………………………………………………

9. i) In your opinion, does consumption of short term debt influence the profitability position of banks?

Yes   (   )   No   (   )

ii) Give a justification for your answer in (i) above.

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10. i) In your opinion, does consumption of long term debt influence the financial performance of the bank?   Yes   (   )   No   (   )

ii) Give a justification for your answer in (i) above.

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11. To what extent does the bank consider the following dimensions in making decisions on the proportion of equity finance to consume? Tick appropriately.

SCALE: Use; 1- not at all, 2-small extent, 3- moderate extent, 4- great extent and 5 – very great extent

	1	2	3	4	5
Need for freedom from debt obligations.					
Cost of equity finance in relation to other sources.					
Increase in business experience and contacts as diverse shareholders jointly own the firm.					
Provision of an economical sources of finance.					
Accessibility.					

12. i) Which of the following equity components are largely consumed by the bank in funding their operations. Tick Appropriately.

       1.   Internal Equity   ( )

       2.   External Equity   ( )

  ii) Why do you think the organisation has adopted this equity funding status? Provide your answer in the space below.

………………………………………………………………………………………

………………………………………………………………………………………

………………………………………………………………………………………

13. To what extent do you share with the following statements regarding the financial performance of the bank? Tick appropriately.

SCALE: Use; 1- not at all, 2-small extent, 3- moderate extent, 4- great extent and 5 – very great extent

	1	2	3	4	5
The bank has maintained a growth in profits over the past five years.					

The funding structure has optimised the profitability position of the banks.					

14. Provide, in this section, your suggestions towards improvement of financial performance of the bank.

…………………………………………………………………………………

…………………………………………………………………………………

…………………………………………………………………………………

Thank you

Appendix IV: List of Lower Tier (Tier II and III) Commercial Banks in Kenya

	Tier II Commercial Banks: Medium Sized Banks
1.	Family Bank Limited
2.	Chase Bank (K) Limited
3.	I&M Bank Ltd
4.	NIC Bank Limited
5.	Diamond Trust Bank Kenya Limited
6.	Bank of Africa (K) Ltd
7.	Stanbic Bank Kenya Limited
8.	HFC Limited
9.	Ecobank Kenya Limited
10.	Prime Bank Limited
11.	Bank of Baroda (K) LTD
12.	Citibank N.A Kenya
13.	Guaranty Trust Bank (K) Ltd
14.	National Bank of Kenya Limited
15.	Imperial Bank Limited

16.	Bank of India
	Tier III Commercial Banks: Small Banks
17.	Jamii Bora Bank Ltd
18.	African Banking Corporation Limited
19.	Credit Bank Limited
20.	Development Bank of Kenya Limited
21.	Fidelity Commercial Bank Limited
22.	Spire Bank Ltd
23.	Guardian Bank Limited
24.	Middle East Bank (K) Limited
25.	M-Oriental Bank LTD
26.	Paramount Bank Limited
27.	Trans-National Bank Limited
28.	Victoria Commercial Bank Limited
29.	First Community Bank Limited
30.	Habib A.G Zurich Bank

31.	Habib Bank LTD
32.	Gulf African Bank Limited
33.	Sidian Bank Limited
34.	UBA Kenya Bank Ltd
35.	Consolidated Bank of Kenya Limited
36.	DIB Bank (Kenya) Limited
37.	Charterhouse Bank Limited

Source: Central Bank of Kenya (2020)