FINANCIAL STRUCTURE ANNUAL VOLATILITY, STOCK LIQUIDITY, AND ORDINARY EQUITY SECURITY RETURNS OF PUBLIC LIMITED COMPANIES IN KENYA

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Financial Structure Annual Volatility, Stock Liquidity, and Ordinary Equity Security Returns of Public Limited Companies in Kenya

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DECLARATION

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

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This thesis has been submitted for examination with our approval as the University Supervisors

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DEDICATION

I dedicate this thesis to My Father, Mr. Samson Maroma, My Mother, Mrs. Grace Maroma, all my siblings, My wife, Mrs. Mary Ombae and My children, Fabian and Giovanni. It is because of your unending support and encouragement that I have made it this far.

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ABBREVIATIONS AND ACRONYMS

ACH-VAR	Autoregressive Conditional Hazard VAR
AIC	Akaike Information Criterion
ADF	Augmented Dickey Fuller
AEER	Average External Equity Ratio
AIER	Average Internal Equity Ratio
ALTDR	Average Long Term Debt Ratio
AMEX	American Stock Exchange
ANOVA	Analysis of Variance
AR	Autoregressive
ARMA	Autoregressive Moving Average
ASTDR	Average Short Term Debt Ratio
CDF	Cumulative Distribution Function
CEO	Chief Executive Officer
CLRM	Classical Linear Regression Model
CMA	Capital Markets Authority
CRSP	Center for Research in Security Prices
CV	Coefficient of Variation
EDF	Empirical Distribution Function
EE	External Equity
EEV	External Equity Volatility
EMH	Efficient Market Hypothesis

F.E	Fixed Effects
F.E.M.	Fixed Effects Model
FSA	Firm-Specific Advantage
G7	Group of Seven
GDP	Gross Domestic Product
GMM	Generalized Method of Moment
HPR	Holding Period Return
IE	Internal Equity
IERV	Internal Equity Ratio Volatility
IEV	Internal Equity Volatility
IMF	International Monetary Fund
IPOs	Initial Public Offerings
IQ	Interquartile
JSE	Johannesburg Stock Exchange
KSE	Karachi Stock Exchange
LLC	Limited Liability Company
LTD	Long Term Debts
LTDR	Long Term Debt Ratio
LTDRV	Long Term Debt Ratio Volatility
MM	Modigliani and Miller
NASDAQ	National Association of Securities Dealers Automated Quotations
NSE	Nairobi Securities Exchange
NYSE	New York Securities Exchange

OLS	Ordinary Least Squares
PLC	Public Limited Company
R&D	Research and Development
RE	Retained Earnings
REIT	Real Estate Investment Trust
R.E.M	Random Effects Model
SL	Stock Liquidity
SML	Security Market Line
SoA	Speed of Adjustment
STD	Short Term Debt
STDR	Short Term Debt Ratio
STDRV	Short Term Debt Ratio Volatility
STDV	Short Term Debt Volatility
TVR	Trading Volume Ratio
UK	United Kingdom
USA	United States of America
VIF	Variance Inflation Factor
WACC	Weighted Average Cost of Capital

DEFINITION OF OPERATIONAL TERMS

Capital Structure- It is the proportions of equity and debt in the total long-term finance of a company. It also refers to the makeup of the company's underlying value. In this case, the focus of the capital structure is on balancing equity financing and long-term debt financing. It is presumed that companies are using funds both in order to buy income-generating assets (Chen et al., 2014).

Equity Securities - An equity security represents ownership interest held by shareholders in an entity (a company, partnership, or trust), realized in the form of shares of capital stock, which includes claims of both common and preferred stock (Dunham & Singal, 2014).

Equity Security Returns – these are also called holding period returns and are the unrealized capital gains adjusted for dividend payout as a percentage of the share prices at the beginning of the evaluation period for the companies listed at a stock exchange. They are computed as the ending price less the beginning price as a ratio of the beginning price. Equity Security Returns is the interest realized in capital stock which includes shares of both common and preferred stock (Gorbunova, 2016).

Financial structure – it is the proportions of equity, debt and short-term liabilities in the total equities and liabilities of a firm. This is the share of the total financing accounts of the company and its equities. The total liability plus equity side of the balance sheet is, therefore, involved. The financial structure is therefore sensitive to short-term liabilities as opposed to capital structure (Aharon & Yagil, 2019).

Financial Structure Annual Volatility - Refer to the variability or Changes in a company's financial structure over time that is variability in the proportions of short-term debt, long-term debt and equity in the financial structure of a firm. This is often measured as annual rolling

standard deviations of those fractions. In this context, it could mean fluctuations in the relative proportion of debt and equity in a company's capital over yearly periods on a moving or rolling basis (Campbell & Rogers, 2017).

Long-term debt - a company's loans and other liabilities that will not become due within one year of the balance sheet data. They relate to such liabilities as bonds, debentures, mortgages, notes and long-term loans (Claywell, 2019).

Public Limited Companies - A public limited company designates a company that has offered shares of stock to the general public. The buyers of those shares have limited liability. Meaning they cannot be held responsible for any business losses over the amount they paid for the shares. In Kenya, public limited companies are those listed at the Nairobi Securities Exchange (Kahuthu, 2017).

Stock Liquidity – Ability to quickly purchase or sell large stock volumes without significantly influencing the securities price and at negligible cost. It encompasses dimensions of immediacy, depth, breath, resiliency and tightness. It is usually indicated by the volumes of shared traded for a company within a specified time. Illiquid stocks are seldom traded while the liquid ones move high volumes (Kumar & Misra, 2015).

ABSTRACT

Investors are always concerned about the returns they expect to obtain from public companies yet it is always difficult to pinpoint how various factors influence those returns and the resultant investment strategy of the investors in equity securities. In the context of this study, it is not clear how the annual volatility in the financial structure of public companies in Kenya affect the stock returns of those companies and whether and how stock liquidity affects that relationship. Financial structure relates to the proportions of short-term liabilities; long term debt; internal equity and external equity. The annual volatility is the rolling standard deviations of those proportions on a yearly basis. The study's main objective of this study is to evaluate the effect of financial structure annual volatility on ordinary equity security returns of public companies in Kenya. The specific objectives are evaluating the effects of annual volatility in long-term debt, internal equity, external equity and short-term debt proportions of the financial structure on ordinary equity security returns of public companies in Kenya, and how the relationship is moderated by the liquidity of the stocks. The research was conducted from 67 public companies listed at the Nairobi Securities Exchange (NSE) for the period of eleven years from 2012 to 2022. The study was based on the efficient market hypothesis, asymmetric information hypothesis, the random walk theory, the risk dichotomy theory, firm market activity hypothesis the market timing theory and capital structure irrelevance theory. The study adopted the Philosophy of Positivism, a methodology that looks for quantifiable observations that lead to statistical analyses in the scientific research paradigm. The study adopted a causal or explanatory research design based on a census of all the listed firms at the NSE. Secondary data was obtained from the Nairobi Securities Exchange with respect to liquidity and prices and the annual financial statements of the firms with respect to annual financial structures. The study adopted central tendency, dispersion and distribution descriptive statistics, panel regression evaluation and multiple correlation to carry out the research analysis. Bivariate as well as multiple linear panel regression were adopted after finding the fixed effects panel regression models to be suitable for the regression. A 3-year moving standard deviation was conducted for every financial structure proportion to measure volatility while holding period returns were used to indicate stock returns. In testing the panel regression model, normality; autocorrelation; heteroscedasticity; Akaike Information Criterion; multicollinearity; stationary; cointegration and Granger-causality test were undertaken. The findings reveal that short-term financial structure annual volatility; long-term debt structure annual volatility; internal equity structure annual volatility and external equity structure annual volatility all had a positive effect on security returns of public companies in Kenya. This applied to the overall market as well as its various eleven segments. Further, stock liquidity had a positive moderating influence on this relationship. The conclusion arrived at emphasizes on the significance of long-term debt management, internal equity optimization, and external equity dynamics for maximizing equity security returns in Kenya's capital market. Recommendations are provided for investors, companies, policymakers, and further research initiatives to enhance financial management practices, mitigate risks, and empower stakeholders in the dynamic landscape of equity markets. Finally, areas of further research are identified, including investigations into macroeconomic influences, corporate governance

practices, market conditions, and financial intermediaries' roles in shaping equity security returns, aiming to deepen understanding and inform decision-making in Kenya's financial market.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The financial structure is a mix of short-term liabilities, short-term debt, long-term debt, and equity that a business uses to finance its assets (Visinescu, 2009). Significant dependence on debt financing helps shareholders obtain a higher return on investment because they have a lower cost. Therefore, the financial structure of a company is how the company's assets are funded. The specifics on the left-hand side of the balance sheet list both the long-term and short-term capital sources (Ripamonti, 2019). Arising from the dynamics of variations in financial structures over time, it is expected that there is bound to be volatility in the various proportions of the components of finance in the financial structure of companies and this is bound to have varying effects on risk and return dynamics of the firm over time (Ripamonti, 2019).

Understanding the aspect of financial structure annual volatility of firms is a fundamental issue in finance. It is because both the financial system's valuation and the conventional return and risk trade-off, irrespective of financial leverage, could play a crucial role in on the long-term value of a firm (Chen et al., 2014). There have been few studies of the cross-sectional and time-series properties of financial structure volatility due to the lack of detailed public debt data. Instead, the finance literature focuses almost entirely on examining changes in equity returns as and capital structure (Berggren et al., 2014). This study uses a detailed dataset that includes prices and other information on long-term and short-term equity versus external and internal corporate debt to analyze financial structures' annual volatility across a broad cross-section of publicly traded companies in Kenya. Such a dataset enables the analysis to map significant portions of an organization's financial structure as espoused by Choi and Richardson (2016).

Firms have various funding sources, including debt, retained profits, or external equity (Hiromichi, 2019). The left-hand side of the balance sheet is linked with the

financial structure by combining different sources of funds (Graham, Adam, & Gunasingham, 2020). The financial structure refers to the mix of debt and equity and other sources of funds used by the managers to finance the activities of businesses. It concerns the capital structure but is more sensitive to short-term liabilities in the financial structure (Campbell & Rogers, 2017). If the managers of companies decide to choose a specific mix of the financial structure, they influence the risk exposure of the firm and are likely to have an influence on the resultant market value by changing the pattern of cash flows arising from the financing and operating activities of a firm. To understand the element of risk and return, the financial structure that companies often want to take is therefore essential. When companies rely heavily on their debt to finance their activities, there is a greater risk of bankruptcy. This is likely to adversely affect the returns of stockholders both realized and unrealized (Graham, Adam, & Gunasingham, 2020). Companies prefer all debt to finance their capital structures in countries where debt interest is deductible. A highly leveraged company is the company that uses its financial structure with a high amount of debt. In contrast, an unsolved company is a company that does not use debt in its capital structure (Graham, Adam, & Gunasingham, 2020).

Whereas optimal and stable financial structure is often the target, firms are often faced with financial structure periodic volatility due to fluctuations arising from financing and operating actions of the firms. This is due to changes in current liabilities, equity and debt due to operational changes (Ripamonti, 2019). Since the optimal debt ratio in the real market, which is mainly imperfect, arguably influences a firm's value, different firms determine financial structures at various levels to maximize their value. The question of how financial structure volatility affects returns remains unanswered. Scholars argue that markets are imperfect, and the work of (Modigliani & Miller, 1958a) has been the catalyst to numerous academic works after that to attempt to solve the puzzle of financial structure and consequently its changes. A good deal of the financial decision-making process's effort is centered on determining the optimal financial structure to maximize the value of a firm and minimize the cost of capital (Kimoro et al., 2019).

This section of the study evaluates not only financial volatility, but also how it is related to stock market returns from global, regional, and contextual perspectives. It also appraises public limited companies from the perspectives of the variables of the study. This helps form a basis for stating the problem underlying the research as is stated in section 1.2.

1.1.1 Financial Structure Annual Volatility

Financial structure volatility refers to the variability or Changes in a company's financial structure over time that its variability in the proportions of short-term debt, long-term debt, and equity in the financial structure of a firm. This is often measured as annual rolling standard deviations of those fractions. In this context, it could mean fluctuations in the relative proportion of debt and equity in a company's capital over yearly periods on a moving or rolling basis (Campbell & Rogers, 2017).

One of the main aspects of this research is the understanding of financial structure volatility. The study tests whether the annual volatility of financial structure affect ordinary equity security returns of public limited firms in Kenya that those listed at the Nairobi Securities Exchange (NSE). Security returns of high financial-structure-changing firms belonging to different size groups move together over time, suggesting the existence of a financial-structure-changing factor. Firms experience the changes of financial structure gearing towards their set targets. If there are adverse selection costs associated with asymmetric information, then firms experience financial structure volatility (Chong & Kim (2019).

Firms often face financial deficits or surpluses, and these circumstances provide a convenient time for them to adjust their financial structures with low transaction costs (Choi & Richardson, 2016). Suppose the adverse selection/transaction costs are higher for equity than they are for debt. In that case, firms with financial surpluses are more likely to reduce debt than equity to preserve the debt capacity for future financing needs and to avoid the higher costs of re-issuing equity (Claywell, 2019). Thus, adjustments toward a target can be asymmetric because firms weigh various positive and negative deviations of their leverage ratio from a target.

Specifically, the preference to preserve debt capacity for future financing needs will result in a slower adjustment when the leverage ratio is below target than when it is above target. Firms also experience differential adjustment speeds conditional on the presence of a financial deficit or surplus (Campbell & Rogers, 2017). Firms are likely to make financial structure adjustments much more quickly when facing a financial shortage with below-target debt or financial plenty with above-target debt than when they face a financial surplus with below-target debt or a financial deficit with above-target debt. A constant adjustment speed cannot capture the dynamics of financial structure volatilities (Campbell & Rogers, 2017).

The elements of financial structure volatility begin with long-term debt volatility structure. Firms that value their security returns need to adjust their balance sheet to fair market value (Vintilă et al., 2019). This adjustment is what is referred to as long-term debt volatility structure. The long-term debt should be adjusted to its net present value using the current market rate of interest, not the interest rate provided in the loan agreement (Claywell, 2019).

Long-term debts are those liabilities the company does not have to pay for at least a year (Shikumo et al., 2020). Examples of these debts include Bonds, debentures, term loans, or, in small businesses, mortgages on houses, which are products that can be known as long-term debt. In the current liability segment of the balance sheet, the long-term debt due during the current year is included. A formal long-term promissory note is a bond (Chong & Kim, 2019). It is a commitment made by the company to pay a fixed sum of money with a stipulated interest rate at a determinable future date. A debenture is a kind of debt instrument that is not protected by any collateral and usually has a period of more than ten years. The issuer's creditworthiness and reputation only back up debentures. To collect capital or funds, both companies and governments also issue debentures. A term loan is a bank loan for a particular sum with a given repayment schedule and a fixed loan. A mortgage is a debt instrument guaranteed by the collateral of a specified real estate that the borrower is obliged to repay with a predetermined set of payments (Chong & Kim, 2019).

Internal equity is the second type of financial structure component for a business. Internal equity, a critical facet of corporate finance, pertains to the fair distribution of resources and rewards within an organization (Kamara & Young, 2018). It is a form of funding where companies maintain and reinvest their profits. They include reserves for companies and retained earnings. Both reserves and retained earnings are parts of income a company might set aside to improve its financial position. They provide the number of net profits left over for the company after paying dividends to shareholders (Nguyen & Rugman, 2015).

Nguyen and Rugman (2015) base their foundation on the fundamental distinction between debt and equity. In the trade-off principle, businesses have three different funds: debt, internal equity, and external equity. Internal equity is measured in terms of retained earnings. For tax purposes, internal equity is less expensive than external equity and cheaper than debt (Graham, Adam, & Gunasingham, 2020). It follows that optimum leverage is a function of internal cash flows. Even without knowledge problems or change costs, debt ratios will wander around without a clear goal. The cost of a business's capital will depend on its combination of internal and external finance, not just its mix of debt and equity. In general, the changes of retained earnings and internal equity depends on the tax base of investors' shares compared to the current price (Graham, Adam, & Gunasingham, 2020).

Corporations' ability to raise external equity finance varies with macroeconomic conditions, suggesting that equity issuance cost is time-varying. The recent financial crisis in 2007-2008 is fresh evidence that shocks in the financial sector can be an essential source of business cycle fluctuations and that the impact of the economic shocks on the availability of firms' external finance can be substantial (Belo et al., 2014).

Short-term debts, also referred to as current liabilities, are the financial commitments of a corporation that are supposed to be paid off within a year (Schroeder, Clark, & Cathey, 2022). Popular forms of short-term debt include short-term bank loans, accounts payables, salaries, lease payments, and payable income taxes. The quick ratio crucial to assessing a business's credit rating is the most common indicator of

short-term liquidity - this study, among others, changes of short-term debt funding a company uses in a given financial year. The research takes a lot from the matching theory of finance that correctly estimates how a company operates short-term debt funding. The concept refers to a direct link between short-term indebtedness and the current assets of the company. Other factors which are shown to affect long-term debt financing levels also affect the amount of short-term debt financing a company uses (Schroeder, Clark, & Cathey, 2022).

In a case where short-term debt and other current liabilities are substitute types of short-term financing, the changes of a firm's short-term debt financing may exist. Holding existing assets stable, the company would have less need for short-term debt funding to fund its short-term investments if the amount of a company's current liabilities rises. Conversely, the organization would need to raise the amount of its short-term debt funding if spontaneous short-term financing declines. This is called the substitution effect and suggests an inverse relationship between the financing of short-term debt and other current liabilities (Elliott et al., 2014).

Varying studies have used a variety of methods in measuring volatility in financial structure. In evaluating how the volatility and financial vulnerability influenced the stock returns of companies listed in South Korea, Chong and Kim (2019) used monthly changes in the leverage ratio to determine capital structure volatility. To measure equity volatility for firms in the USA, Bansal, Connolly and Stivers (2015) used 3-period lagged standard deviations of the equity ratios. In establishing how capital structure volatility influenced the dividend policy of publicly listed firms in Thailand, Glilek (2020) used 4-quarter standard deviations of the leverage ratio.

1.1.2 Ordinary Equity Security Returns

Equity security returns are also called holding period returns and are the unrealized capital gains adjusted for dividend payout as a percentage of the share prices at the beginning of the evaluation period for the companies listed at a stock exchange. They are computed as the ending price less the beginning price as a ratio of the beginning price. (Gorbunova, 2016). Holding period returns compare the closing period prices and the opening period prices and adjust for any dividends paid in between these two

periods. These returns are instrumental in the pricing of securities based on the required rates of returns and the various pricing factors like market risk premium.

Whether individuals invest in the stock market, stock market knowledge, such as stock market indices, stock prices, earnings yields, and dividend yield concerns investors given that it relates to widely reported information. Most individuals appear to be aware of shares and stock markets and the inherent returns that arise therefrom (Graham, Adam & Gunasingham, 2020). Issuing shares is the key to a company collecting equity capital, and the primary equity instruments are shares. Companies can give various types of equity securities and classes. Common shares and preferred shares are the two main types of equity securities. Companies may, besides, issue convertible bonds and warrants. Depositary receipts are not provided by a corporation but offer an ownership interest in the business to the holder. In preference shares, owners of preferred stock receive dividends before common shareholders (Dunham & Singal, 2014).

A company's stock returns may explain its equity issuance value. For example, Berggren et al. (2014) provided empirical evidence that high-leverage businesses raised funds in many instances when their valuation is low compared to low-leverage companies that tended to raise funds their valuation is high. There is also evidence that companies raising equity have poor equity returns, consistent with the evidence from Berggren et al. (2014) that notes that companies issue equity when the cost of equity is low. Since businesses generally use more equity funding than debt as stock returns grow, it can be safe to assume that the relationship between stock returns and leverage is expected to be negative. Stock returns are calculated as a ratio of the last monthly security price. The average of all monthly stock prices for each year is used to make the stock returns into the annual stock price (Berggren et al., 2014).

Financial variables are a valuable indicator for future stock returns. Al Salamat and Mustafa (2016) argue that the sales to price ratio and debt to equity explain future stock returns better than the book to market value and firm size. When it came to investing in stocks, analyzing financial statement information was essential in the fundamental analysis process. But the amount of information presented in a

company's financial statement could be confusing and puzzling to many investors. To understand the return, it is important to separate the return on capital from the return on stocks. Return on capital measured a company's profitability. On the other hand, the sum of dividends and increase in stock price represented the return on the stock. Debt to equity is the best indicator for stock returns (Shabib-ul-Hasan et al., 2015)

1.1.3 The Moderating Effect of Stock Liquidity

Stock liquidity is a critical moderating variable that affects the relationship between financial structure volatility and equity security returns. Stock liquidity, defined as the ease with which investors can buy or sell shares without significantly impacting the price, plays a crucial role in how market participants respond to changes in a company's financial health. High liquidity ensures that information regarding a company's financial structure is quickly absorbed and reflected in its stock prices, leading to more immediate and often more pronounced adjustments in returns. Conversely, in markets with low liquidity, the dissemination of financial information is slower, and the impact on stock prices is more gradual, potentially diluting the observable effect of financial structure volatility on returns (Zhang et al., 2021).

The role of stock liquidity as a moderating variable is particularly important in the Kenyan context, where market conditions can vary significantly across different sectors and companies. High liquidity allows for efficient price discovery and reflects the collective assessment of investors about the financial health of a company more accurately. When a company's financial structure shows high volatility, the market's ability to quickly incorporate this information into stock prices depends significantly on liquidity levels. For instance, in a highly liquid market, an increase in financial structure volatility might lead to swift and substantial changes in stock returns as investors rapidly adjust their positions. In contrast, in less liquid markets, the same financial information might lead to slower and less pronounced adjustments, as higher transaction costs and lower trading volumes impede quick market responses (Ali & Xia, 2018).

Justifying the inclusion of stock liquidity as a moderating variable involves recognizing its influence on investment behavior and market efficiency. Empirical evidence suggests that liquidity affects how information is priced into stocks, impacting volatility and returns. In the context of public limited companies in Kenya, where market liquidity can vary widely, understanding this moderating effect is essential. It helps explain why some companies with volatile financial structures experience significant stock return fluctuations, while others do not (Mohnot, 2023).

1.1.4 Financial Structure Volatility and Stock Returns-Global, Regional and Local Views

Various studies have been done globally, regionally, and locally to establish how capital structure volatility in general and financial structure volatility in particular influence the returns of stocks listed in stock markets. From a global perspective, In Indonesia, Chandria et al. (2019) sought to establish the association between capital structure and therefore its volatility on profitability and stock returns of companies quoted on Kompas 10. Relying on a sample of 64 firms and 448 firm-year observations, the evaluation was undertaken based on path analysis. The findings indicated that capital structure and its volatility is not a stock market priced factor for the firms at Kompas 100 and that it had no significant effect on stock returns.

In Jordan, Gharaibeh (2014) appraised the effect of capital structure and liquidity on stock returns for firms listed at the Amman Stock Exchange. The time scope of the study covered four financial periods with a sample of fifteen industrial firms listed on that exchange. Just as observed in Indonesia for Chandria et al. (2019), capital structure and therefore by extension its volatility had no significant effect of stock market returns and was therefore not a stock market priced factor at the Amman Stock Exchange.

Contrary to the findings of Chandria et al. (2019) and Gharaibeh (2014), Ali (2016) in Pakistan found out that changes in capital structure had a positive effect on stock market returns for companies listed at the Tehran Stock Exchange. The study had focused on a ten-year period from 2005 to 2014 and narrowed down on oil and gas companies that operate in that country. Regression analysis was used in that study.

The findings here seem to suggest that the effect of financial structure volatility on stock returns not only depends on the market under study but also on the category of companies under evaluation and that oil companies in Pakistan have capital structure and a market priced information factor.

In Brazil, Sattar (2019) sought to establish the effect of changes in capital structure on stock returns from an emerging market perspective. The study was based on a study period of 7 years running from the year 2000 to 2006. The study was based on the event study approach to analyzing cumulative abnormal returns with time series regression analysis being undertaken of the study panel. Just like the case of Ali (2016) in Pakistan, Sattar (2019) establish that leverage, the indicator of capital structure in that study, had a positive effect of stock returns and that in Brazil, stock markets positively price the changes in leverage.

Using a cross-section of eight countries in the Asia-Pacific region of the world, Tahmoorespour, Ali-Abbar, and Randjbaran (2015) sought to establish the influence of capital structure and their related changes on equity security returns. The time scope of the study was twenty-two years commencing from 1990 through to 2012. The panel regression approach to analysis was adopted in that study. The findings revealed that the impact of variations in capital structure on stock market returns was a function of two factors being the industry of analysis and the nature of the market. Their findings for South Korea, Australia, and China documented that stock market returns are negatively affected by leverage for the companies that fall in the basic material industries. The effect was reported to be positive for non-basic material industry companies in those countries.

In this study, regional perspective is taken as the documented experience of companies in Africa with respect to how financial structure volatility affects stock market returns of companies listed in countries within the continent. This can be seen as an emerging market since the stock markets in Africa belong to developing and emerging countries. In Nigeria, Ayuba et al. (2019) sought to establish the effect of capital structure and its changes among other variables (firm size and firm financial performance) on market value of listed insurance firms at the Nigerian Stock

Exchange. The study was undertaken for a six-year period running from 2012 to 2017. To indicate capital structure, the study used the ratios of short-term debt; long term debt; and total debt to total assets were used while market value was based on Tobin's Q. The findings revealed that capital structure is a priced information factor at the Nigerian Stock Exchange and that it had a positive effect on returns and therefore on market value of the concerned insurance companies.

Still in Nigeria, Ayange et al. (2021) had the objective of finding out how capital structure and its changes affect market performance of nonfinancial firms in Nigeria as listed at the Nigeria Stock Exchange. The study like most in this category of studies used panel regression analysis covering 15 firms over a period of 20 years running from January 1999 to December 2018. The findings revealed that long term debt structure and short-term debt structure and their changes thereof had a positive effect of Tobin's Q, the measure of stock market value of the listed companies. This implies that they also had a positive effect on stock market returns of those companies and that leverage and related changes are market priced information factors.

In South Africa, Sibindi (2020) went out to establish how capital structure of retail firms affects market performance of those companies that are listed at the Johannesburg Stock Exchange. The study used 18 firms in the retail sector attributing the choice to their heavy influence of the country's GDP. The study was conducted over a ten-year period of 2010 through to 2019. Panel data regression analysis was used for the 180 firm year observations. The study established that capital structure had a negative influence on the market performance of the studies and that it was in line the pecking order capital structure theory.

In Egypt, El-Masry, Salah and Abdel-Karim (2024) sought to establish the impact of capital structure and related changes on equity securities returns of companies listed at the Egyptian Stock Exchange. The study was carried out over a six-year period running from 2017 to 2022. The sample was restricted to 75 non-financial firms and thereby formed 450 firm-year observations. The findings revealed that capital structure as indicated by the debt equity ratio and the related changes were stock

market pricing factors and that they had a positive effect on security prices and therefore returns at that market.

In Ghana, Mills and Mwasambili (2022) studied how firm value was impacted by financial structure and related variations. The study relies on 38 firms quoted at the Ghana Stock Exchange over the period 2010 to 2017 which forms 8 years and 304 firm-year observations. The variables related to equity structure, short-term debt structure and long-term debt structure as indicators of financial structure. All these variables and the changes thereof were found to have a positive influence on firm value hence by implication on the firm stock market securities' returns.

In the local context, studies have also been undertaken to relate capital structure, and financial structure with firm market value for companies listed at the Nairobi Securities Exchange. Although not focusing strictly on stock returns, Mukumbi, Eugine and Jinghong (2020) sought to establish how financial performance was impacted upon by capital structure of non-financial firms that are listed at the Nairobi Securities Exchange. The study covered a study period of 5 years running from 2013 to 2017 and was based on a sample of non-financial firms that numbered 16. Indicators of performance were return on equity and return on assets and regression analysis was deployed in establishing the study coefficients for testing the hypotheses. Changes in debt proportion of the capital structure was found to have a positive influence on financial performance metrics.

Still in Kenya, Shikumo, Oluoch and Wepukhulu (2023) sought to find out the influence of financial structure and firm size on the financial growth of non-financial firms listed at the Nairobi Securities Exchange. The research relied on an explanatory research design and was carried out over a study period of 10 years running from January 2008 to December 2017. The findings revealed that short term debt structure, long term debt structure, internal equity structure, and external equity structure all had a positive influence on the financial growth of the non-financial firms listed at the NSE.

While not exclusively focusing on capital structure, Ndua et al. (2023) sought to establish the influence of ownership concentration, capital structure and stock returns

of firms listed at the Nairobi Securities Exchange. In this study, capital structure was used as an intervening variable with respect to ownership concentration and stock market returns. The study period was 14 years covering 2006 through 2019 both years inclusive. It was undertaken as a census study given that the firms listed at the market are very few, numbering only 67. Seven firms did not meet the analysis criteria hence were excluded leaving only 60 firms for analysis and 840 firm-year observations. The study relied on panel data regression using the fixed effects model. The findings revealed that capital structure had a positive mediating effect on the association between ownership concentration and stock market returns.

1.1.5 Public Companies in Kenya

In legal terms, a public limited company designates a limited liability company (LLC) that has offered stock shares to the general public for trading on a public stock market. There is limited liability for the holders of such securities. They cannot be held accountable more than the sum they paid for the shares for any business losses. On the stock exchange, limited public corporations are listed where their shares/stocks are publicly traded. These firms are listed on the Nairobi Securities Exchange (NSE) in Kenya. In Kenya, the NSE, an emerging market, is a self-regulating association that deals with the instruments listed and derives its membership from stockbrokers, dealers, and investment banks. Currently, the NSE is one of Africa's most lucrative and promising markets. Many investors want to benefit from strong growth and favorable economic prospects and invest in the NSE (World Bank, 2006). Trading in shares and stocks in Kenya began in the 1920s when the country was still a British colony.

The Nairobi Securities Exchange (NSE) consists of companies grouped in the following ten sectors: Agriculture, Automobile and Accessories, Finance, Commercial and Services, Construction and Allied Industry, Electricity and Petroleum, Insurance, Investment, Manufacturing and Allied Sector, Telecommunications and Technology (NSE, 2023). Consequently, an adequate financial framework should indicate profitability for the company to fulfill its obligations when necessary and be versatile to adapt to venous difficulties under

economic conditions. Besides, share prices are strongly influenced by the economic or political fundamentals of the company. The business is formal because there are laws and regulations regulating stock broking operations. Trading takes place within this framework that involves regulations of the NSE and those provided by the Capital Markets Authority of Kenya (CMA).

Public companies in Kenya have had volatilities in both debt structure, profitability, and financial structure. Profit impact internal equity such that the higher the profitability, the higher the Internal Equity Volatility. Companies often issue and redeem both long-term and short-term debt instruments that often impact financial structure changes. In the short term, operational changes affect short-term finance, especially creditors, payables, accruals, short-term bank loans, and overdrafts. These changes affect the structure of finance concerning variations in operations and the operating cycle. These changes are bound to affect the financial stability of firms. They, therefore, lead to fluctuations in the demand and supply for their securities among equity investors at the stock market. These demand and supply changes are expected to affect share prices and thereby returns. This could be the reason behind the fluctuations in the NSE-20 share index.

Public Limited Companies (PLCs) in Kenya represent a diverse array of firms operating across various sectors, ranging from agriculture and manufacturing to finance and telecommunications. As key players in the country's economy, PLCs often have extensive operations, significant market presence, and varying degrees of financial sophistication. These companies typically issue shares to the public, allowing for widespread ownership and liquidity in the stock market. PLCs in Kenya are subject to regulatory oversight by bodies such as the Capital Markets Authority (CMA) and the Nairobi Securities Exchange (NSE), ensuring compliance with financial reporting standards and corporate governance practices. Given their public status, PLCs often attract scrutiny from investors, analysts, and regulators, making them important contributors to the overall dynamics of the Kenyan stock market.

The companies listed at the NSE have varying attributes in terms of size (as indicated by market capitalization), returns (as indicated by variations in stock prices and

holding period returns), financial structures (as indicated by variations in proportions of debt and equity in the balance sheets) as well as stock liquidity (as indicated by the variations in the volumes of shares traded for various firms). Koech (2012) sought to establish the relationship between stock liquidity and stock returns at the NSE and established a very weak correlation between the two. Githire and Muturi (2015) established that equity and debt structures have a positive effect on performance of the companies listed at the NSE. Ngome (2016) established that capital structure has a positive effect on the stock returns of companies listed at the NSE.

1.2 Statement of the Problem

Stock returns are critical in evaluating the performance of equity securities on stock markets Wang and Yu (2020). They reflect the Changes in prices arising from the variations in demand and supply of those securities and investors' perception about the financial health of the public companies. At the micro-level, security returns reflect the financial performance and desirability of equity investments in a company and how well a company is managed. It is a critical construct for measuring investor sentiments in public companies. At the macro level, returns are crucial in constructing stock market indices, thereby indicating stock markets' market performance (Zhang et al., 2021). The returns at the Nairobi Securities Exchange have exhibited volatile stock returns and it is not clear if such volatility is impacted upon by the annual variations in the financial structures of these firms and if their inter-relationship is affected by the stock liquidity of ordinary equities listed at the NSE (NSE, 2020).

Ideally, a good market is characterized by moderate levels of volatility in returns. The reality that there are varying levels of volatility in ordinary equity security returns at the NSE market returns have been observed over the period 2012 to 2022, presents a problem that requires evaluation. The volatility observed has ranged from very highly volatile returns like those of Equity Bank, Kenya Re, Uchumi, Kenya Airways; very stable returns like those of Kurwuitu Holdings; to moderate volatility in returns for companies like Housing Finance Company of Kenya (NSE, 2020).

Several studies have attributed annual volatility in returns to the quality of financial reporting (Oluoch et al., 2015); firm characteristics (Kinyua, 2020); economic variables (Mugambi & Oketch, 2016); and risk (Muiruri, 2014; Mukanzi, Mukukanzi & Maniagi, 2016). All these studies are inconclusive given that the return in models always has an error term implying that other factors beyond these influence stock market returns. One of the significant corporate finance concerns is financial structure, yet it has been observed that it has been highly volatile among the public companies in Kenya. Could these annual volatilities explain the variations in stock returns? The conceptual, theoretical, and empirical literature provides confounding explanations of how financial structure volatility impacts stock returns.

Conceptually, studies often focus on capital structure (Tailab, 2014; Berggren et al., 2014; Kimoro et al., 2019) and its impact on returns but fail to evaluate the effect of volatility not only in capital structure but also in financial structure on such returns. Theoretically, there are confounding theories that need to be bridged. Myers and Majiuf's (1984) trade-off theory predicts a positive relationship between financial structure volatility and stock returns. The risk dichotomy theory of Baum et al. (2016) predicts varying relationships based on the equity adjustments. This is also in line with the firm market activity hypothesis of Welch (2004), which pegs changes in market activity in influencing stock returns. It is not clear which theory holds for companies listed at the Nairobi Securities Exchange.

Empirically, there are varying findings on how financial structure and its volatility affect stock market security returns. It is not clear how much financial structure volatility affects equity returns. Some studies reveal that financial structure volatility hardly affects stock returns (Ozkan, 2001), while others show enhanced adverse effects (Ripamonti, 2019). Companies often aim for an optimal financial structure, but the market and corporate dynamics introduce aspects that drive changes in the financial structure over time. Whereas capital structure and financial structure have been an enduring consideration among investors ever since numerous scholars underscored its relevance to firm value hence returns, no attention has been given to the effect of the volatility in such financial structure on the ordinary equity returns of investors in stock markets.

In addition, it is not clear how the liquidity of stocks listed at the NSE moderates the relationship between financial structure annual volatility and the stock market returns. This is particularly because whereas some companies are highly popular short-term and long-term investment prospects with very high daily turnovers, others are not so popular and have low ordinary equity security turnovers over time. It is critical to establish if these varying trade volumes for the listed stocks moderates the interaction between financial structure volatilities and stock returns for NSE companies.

1.3 Research Objectives

In conducting this research, the objectives were divided into two categories which include the general objective and specific objectives as follows:

1.3.1 General Objective

To evaluate the effect of annual financial structure volatility on ordinary equity security returns of public companies in Kenya.

1.3.2 Specific Objectives

i. To evaluate the effect of volatility in long-term debt proportion of the financial structure on ordinary equity security returns of public companies in Kenya
ii. To examine the effect of volatility in internal equity proportion of the financial structure on ordinary equity security returns of public companies in Kenya
iii. To determine the effect of volatility in external equity proportion of the financial structure on ordinary equity security returns of public companies in Kenya
iv. To establish the effect of volatility in short-term debt proportion of the financial structure on ordinary equity security returns of public companies in Kenya

v. To determine the moderating influence of stock liquidity on the effect of annual financial structure volatility on ordinary security returns of public companies in Kenya.

1.4 Research Hypotheses

H_{01}: Volatility in long-term debt proportion of the financial structure has no significant effect on ordinary equity security returns of public companies in Kenya.

H_{02}: Volatility in internal equity proportion of the financial structure has no significant effect on ordinary equity security returns of public companies in Kenya.

H_{03}: Volatility in external equity proportion of the financial structure has no significant effect on ordinary equity security returns of public companies in Kenya.

H_{04}: Volatility in short-term debt proportion of the financial structure has no significant effect on ordinary equity security returns of public companies in Kenya.

H_{05}: Stock liquidity does not moderate the effect of financial structure volatility on ordinary equity security returns of public limited firms in Kenya.

1.5 Scope of the Study

The study looks at the effect of annual financial structure volatility on ordinary equity security returns of public limited companies in Kenya over eleven years running from January 2012 through December 2022. The research was limited to all 67 public companies listed on the Nairobi Stock Exchange. The emphasis on public limited companies is legitimized in that the capital market authority imposes specific prerequisites on these organizations. These specifications include ample information that is necessary for this study.

In the time scope, the study was limited to eleven years. The eleven-year time frame was long enough to give a broad scope of perceptions required to make the effect of annual financial structure volatility estimations. Long time study periods fulfill the information prerequisites for rational analysis (Mugenda & Mugenda, 2013). Further, the period is long enough to provide massive impacts on annual financial structure volatility inside the whole time frame to allow organizations to conclude their ordinary equity returns. Since panel data is used, it is long enough to observe seasonal, cyclical, and trend information. Most importantly, it is when information about annual financial structure volatility and other financial choices can be felt. Furthermore, the period is captured to include critical developments such as the global financial recovery post-2008 global financial crisis. Equally, the study period includes times when technology is advanced. Finally, this period is within the global COVID-19 pandemic. The study aimed to identify the effect of annual financial structure volatility on equity security returns amidst these phenomena.

Conceptually, the scope of the study revolved around four independent variables, one moderating variable and one dependent variable. The independent variables were the 3-year rolling standard deviations in the proportions of long-term debt, short term debt, internal equity and external equity in the total finance of the companies. These were the indicators in annual volatility of the financial structure as indicated by the end-year balance sheet values of this measures. The moderating variable which is stock liquidity was based on annual turnover of ordinary shares at the NSE. The stock returns were based on the holding period returns. These indicators were chosen given that the data is publicly available both for the NSE and the annual published financial reports of these companies listed at the NSE.

1.6 Significance of the Study

The increased demands on organizations and their inclination to work economically have made equity returns, particularly from volatility in their financial structure, an exceptionally debated issue in contemporary society. The scholarly discussion presently cannot seem to put an unequivocal answer on understanding the effect of annual financial structure volatility on firms' equity returns. This study is founded in

the sense of building actions taken by investors to predict returns on their investments. Decision-makers expect the effort or investment to lead to net financial gain. Most investors require stable, predictable equity returns over time or profitability above a given percentage to decide on the investments in equities. If such prediction can be pegged on annual financial structure volatility, this study is likely to go a long way in serving this process.

This study's primary aim was to explore the effect of annual financial structure volatility on the ordinary equity returns of public limited firms in Kenya. Annual financial structure volatility denotes the frequency of change on companies' financial structure formation within a given duration. This study brings in new knowledge on the financing decisions of these firms. It brings a new dimension on the form of financial mix appropriate for a firm to attain the desired equity security returns. It adds to this by evaluating the volatility in such financing mix and how it is expected to influence stock returns. In so doing, the study contributes immensely to the existing theoretical and empirical body of knowledge.

The findings from this study provide a better understanding of financial structural complexities. The suggested connection between timing and targeting behavior is new in deciding on the financial structure of the company. This research adds to the literature by throwing more light on one potential explanation in the previous literature for the otherwise obvious, contradicted findings. The modern understanding indicates that reasons for timing and targeting are likely to coexist, except for companies above and below the target with distinct weights. While overleveraged firms are more likely to adapt faster, better timers are anticipated for underleveraged firms. This asymmetric timing behavior stems from the expense and advantage asymmetry associated with both motivations.

Moreover, this study is likely to help bridge existing theoretical gaps concerning the effect of annual financial structure volatility, capital structure, and respective volatilities on the value of firms. The findings are likely to help provide support or lack of if for existing financial structure and market return theories. The study is likely to help in improving the understanding of how investors make financing

decisions in ordinary securities in the context of varying financial structure annual volatility, stock liquidity and security returns.

There are a number of stakeholders that are likely to benefit from the findings of this study. To investors, the findings of the study are likely to influence how they make their various investing decisions for stocks listed at the NSE in terms of the buying, holding or disposal decisions for those stocks. The established relationship between financial structure volatility and its pricing effect could form a key component in these decisions.

1.6.1 Financial Analysists

To financial analysists, the findings of the study are likely to provide new information on the pricing effect of the volatility in financial structures especially in the context of varying levels of stock liquidity. Accordingly, the information provides a new basis on which financial analysts can predict stock returns and advise their clients on which stocks to buy, which ones to hold and which ones to discard from their investment portfolios.

1.6.2 Capital Markets Authority

Regulators particularly the Capital Markets Authority (CMA) is likely to benefit from the information from a regulatory perspective. Just like other regulators, the objective is always to identify factors that determine stock returns and put in place regulatory measures that prevent discretionary actions that lead to wild fluctuations in returns. In this context, the discretionary actions would relate to activities that increase the volatility of the financial structures of firms listed at the Nairobi Securities Exchange.

1.6.3 Stock Market Participants

To stock market participants like brokers and dealers, the findings of the study are likely to help them when not only advising their clients on which securities to deal in, but also while making the same decisions on their own behalf for the part of the dealers. Just like the individual investors, the ex-ante volatility in financial structure

can form the basis of ex-post buying, holding as well as selling of the shares in companies listed at the NSE. This is especially because the findings from this study are not only provided for the entire NSE, but also for each of the individual segments of the NSE.

1.7 Limitations and Delimitations of the Study

There are several conceptual, contextual, theoretical and empirical limitations that were encountered in the course of carrying out this study. The study used stock liquidity as the moderating variable of the relationship annual volatility in financial structure and share returns for the public companies in Kenya. Whereas this provides useful insights on how the relationship is structured, the limitation arises from the fact that numerous other variables could have acted as moderators but due to scope limitation, only liquidity was used. Alternative moderators that were no studied are firm size, firm age, asset structure, and even firm profitability.

The availability and quality of financial data for public limited companies in Kenya present a significant limitation. Due to incomplete data for all the 67 listed companies in Kenya, or inconsistent reporting standards, the study faced challenges in obtaining comprehensive and reliable information for all the companies involved. This limitation led to biased results as the analysis did not fully capture the financial dynamics of the entire market. Incomplete data undermined the robustness and reliability of the study's findings.

The study's analysis was confined to the period from 2012 to 2022. While this timeframe allowed for a decade-long overview, it did not account for longer-term trends or the impacts of economic cycles that extended beyond this period. As a result, the findings could not be fully generalizable to different economic conditions or past periods. Significant events outside this timeframe, such as financial crises or substantial regulatory changes, could have profound impacts on financial structures and stock returns that the study did not address.

The study focused exclusively on public limited companies listed on the Nairobi Securities Exchange (NSE), excluding private companies and other types of

organizations. This delimitation ensures that the analysis is relevant to a specific subset of the market, which helped in providing targeted insights for stakeholders of these companies. However, it also means that the findings were not generalizable to private firms or other types of securities, limiting the broader applicability of the results.

On the other hand, by restricting the study to companies in Kenya, the findings were specifically relevant to the Kenyan market. This geographical focus allows for a detailed analysis of local market conditions but limits the external validity of the results. Insights gained from this study might not be applicable to other regions with different economic, regulatory, and market conditions.

Furthermore, the study concentrated on ordinary equity securities, thereby excluding other financial instruments such as derivatives. This focus ensured a detailed examination of a particular type of security but meant that the results were not generalizable to all other forms of financial instruments. This delimitation was crucial for maintaining the study's scope but narrowed the range of its applicability.

These limitations and delimitations collectively impacted the study's results. Issues with data quality and external factors could introduce biases and affect the reliability of the findings, potentially skewing the analysis in a case where certain companies or periods were not accurately represented. The fixed timeframe limited the generalizability of the results to different economic periods, and external factors may confound the observed relationships, making it challenging to isolate the intrinsic effects of financial structure volatility and stock returns. On the other hand, the narrow focus on public limited companies in Kenya ensured targeted insights but restricted the broader applicability of the findings. The specific focus on ordinary equity securities and the use of annual data helped maintain a clear scope but missed out on more complex, intra-year dynamics.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Before developing the researchable hypotheses of this study in Chapter 3, this chapter appraises the conceptual, theoretical, and empirical literature in the realm of financial structure, annual financial structure volatility, and stock market ordinary equity returns. It is based on this appraisal that literature gaps are identified, and therefore research hypotheses are developed. It is also on this basis that the problem statement identified in Chapter One is concretized. All these are described in the following subsections.

2.2 Theoretical Framework

Theories are intended to explain, envision, and get phenomena and, a significant part of the time, challenge and expand existing data inside the cutoff purposes of fundamental ricocheting assumptions (Kerlinger & Lee, 2000). The theoretical framework is the structure that can contain or support an exploratory hypothesis. The theoretical framework shows and defines the idea why the exploration problem under evaluation is present (Abend, 2008). On the other hand, a theory indicates standards concocted to clarify a gathering of actualities or phenomena, especially one that has been attempted or comprehensively recognized and can be used to make assumptions regarding common phenomena (Sekaran & Bougie, 2016).

In this manner, a theoretical review is an accretion of consistent articulations or standards (Abend, 2008). Then again, a theory is an insightful and sane sort of dynamic or summing up speculation or the consequences of such reasoning. It is a reasonable social event of attempted general proposals, typically seen as right, that can be used as models of explanation and desire for a class of phenomena (Pandey & Pandey, 2021). A theoretical framework is then an accretion of interconnected ideas, similar to a theory.

As per Pandey and Pandey (2021), a theoretical framework makes sense of what variables to evaluate and what accurate associations with the quest for concerning the issues under assessment. Theoretical frameworks are fundamental in deductive, hypothesis testing sorts of studies. Analysts use a theoretical framework when performing exploration concentrates to calculate a hypothesis. The theoretical framework is a foundation for the parameters or breaking points of an examination. The following theories will guide this study.

2.2.1 Efficient Market Hypothesis

The efficient market hypothesis (EMH) of Fama (1970) asserts that the information reported on a company's returns entails the demand and supply forces of the company's share price. This study expects that if investors analyze the fluctuations in the financial structure, it should be reflected ultimately in the share prices, translating to a company's equity returns. It will affect the expected returns on equity of the companies concerned if the financial structure is adjusted. This view is based on the efficient market hypothesis (Bakas & Triantafyllou, 2020). According to Kantos and diBartolomeo, (2020), the study of factor anomalies, which describe persistent excess returns associated with security attributes in violation of the Efficient Market Hypothesis, is crucial in understanding equity asset pricing. The Efficient Market Hypothesis posits that all available information is reflected in asset prices, yet anomalies suggest otherwise, indicating potential inefficiencies in the market. This highlights the importance of considering factors beyond traditional models like the Capital Asset Pricing Model to better capture the complexities of equity returns, especially during extreme events like the COVID-19 pandemic.

Based on Ali et al. (2021), EMH makes several assumptions. Firstly, the investment participants in the market assume that there is information homogeneity. This means that insiders, as well as externals, are provided with the same information. Because the insider traders and noise traders cannot be perfectly aware, it can be assumed that the proportions are not so significant that they influence the overall security return trend. Secondly, EMH assumes that there are so many participants (both buyers and

sellers of securities). The implication of this is that none of the traders can individually influence the prices or quantity of shares or securities traded.

Haryanto and Mawardi (2021), also assumes that there are negligible transaction costs in the stock markets. If the costs were to be considered, they will influence the nature of transactions and distort information on trading. This could bias the pricing effect expected by EMH. The fourth assumption of EMH is that there is a high degree of rationality among the market players. This removes investor sentiments on pricing and leaves only the share information about the company to affect its shares, affecting the stock returns.

Fama (1970) persuasively argued that securities should be priced appropriately and therefore reflect all available information on that security in an active market involving many well-informed investors. No data or further analysis can reveal additional information not already adjusted in security prices if a market is efficient. The data concerning income smoothing should be adapted rapidly at the security prices in the context of the study and thus influence the stock returns of the companies involved. In a nutshell, this assumption implies that any available information that can lead to fluctuations in the financial structure will eventually attract Changes in the expected equity security returns of the affected company.

The three primary forms of the hypothesis, according to (Fama, 1970) are weak, semi-strong, and strong. The weak-form EMH states that prices on traded stocks already reflect all past publicly available information; therefore, technical analysis is of no use. The semi-strong-form EMH states that prices reflect all past publicly available information and rapidly change to reflect new public information. Thus, fundamental analysis is of no use. The strong-form EMH states that prices instantly change to reflect both hidden or insider information.

EMH is a way to quickly adapt security prices to the effect of new information, enabling investors to make profit optimized. While price adjustments may be imperfect, they are impartial. In other words, the market sometimes over-settles and sometimes its under-settles, but it is impossible to predict which one would happen at any time. The combined effect of random, independent, unpredictable information

and the quick adjustment of stock price by many competing investors to reflect this new data means that price changes are expected to be independent and uncertain. Fama (1970) argues that because security prices adjust to all new information, the security prices should reflect all publicly available information at any point in time.

Therefore, the security prices that prevail at any time should be a fair reflection of all currently available information, including the earnings smoothing data. Thus, in an efficient market, the expected returns implicit in the current price of the security should reflect its risk, which means that investors who buy at these informationally efficient prices should receive a rate of return consistent with the smoothness of the earnings data.

Incorporating new information into securities is crucial to market efficiency. It helps to provide corporate managers with the right signals as shareholder wealth maximization can be represented by safety pricing in an economic market, sound financial decisions rely on correct pricing of the securities of the company. The Manager will have to ensure that the implication of the decision is precisely indicated to shareholders and management through increased security prices in the implementation of a shareholder wealth-enhancing decision. Managers must receive feedback on their choices from the share market to encourage them to pursue shareholder wealth strategies (Woo et al., 2020),

The EMH is based on a rational investor, which forms the basis of its criticism. If the concept of informed and rational traders is disregarded, the pricing mechanism will fail to explain the changes experienced by market prices in securities markets. However, in the absence of appealing theories, EMH has continued to form the theoretical basis of most studies on financial markets. Security prices will reflect all publicly available information about firms and their securities at any point in time since they react swiftly to new information. The availability of this new information will lead to the adjustment of the financial structure. Therefore, investors are advised not to waste time trying to find and capitalize on mispriced securities (Owido et al., 2013).

2.2.2 Asymmetric Information Hypothesis

This theory was proposed by Easley and O'Hara (2004). The hypothesis is rooted in the orientation that information is heterogeneous between company insiders and the equity market participants from the public. According to Easley and O'Hara (2004), the differences in the content of information held by the public investors and the company insiders separately affect share prices and, therefore, returns. According to theory, the informed insiders have different portfolio weights from the uninformed public, leading to additional attributes of their portfolios and their affinity for demand or supply of the same securities and their returns as reflected by the Changes in share prices. In context, the information about the actual financial structure of the firm is skewed towards insiders who have up-to-date information as opposed to outsiders in the investing public who have to wait for financial report information. Accordingly, the weights the insiders and the public place on financial structure information in general and the changes, in particular, would vary and affect the share prices in different ways, which affects the share returns. It in this expected that the insiders are better informed about the volatility of the financial structure of a company than the outsiders. In a nutshell, the theory presupposes that information, in this case financial structure volatility, can have a positive, negative or zero effect on stock market returns depending on the level of asymmetry between information held by outsiders and the information held by the corporate insiders.

According to this argument, private information has implications about information risk for the uninformed investors. Accordingly, Easley and O'Hara (2004) show that the relative sizes of public and private information among investors feed this information risk reflected in the share prices. The insiders have more access to private information than the uninformed ones, and they adjust their portfolios accordingly while the uninformed investors do not. In the context of this research, the information relates to not only the financial structure but also to the changes in the same.

The relative disadvantage of non-systematic information risk faced by uninformed investors causes them to good underweight information about the financial Structure

volatility while overweighting the inadequate, poor information about the same, and influencing their demand for the related securities. Inevitably, investors demand a higher return than average to hold a portfolio of stocks with a high level of private information, in this respect, information about changes of the financial structure (Easley & O'Hara, 2004).

Still based on information asymmetry, Leuz and Verrecchia (2005) hold a different argument that investors consider an information risk premium arising out of the inability of financial statement information to align firms and investors concerning their financial structure expectations perfectly. The magnitude of the information risk premium depends on investors' perception of the degree of this non-alignment.

In yet a different postulation on how information asymmetry influences share returns, Lambert et al. (2011) theorize that it is the level of competition in the capital market that influences how information asymmetry affects share prices and, therefore, equity security returns. Their empirical tests show that in a perfectly competitive market, information asymmetry (in this context about the financial structure and its changes), through information precision, is irrelevant in determining equity security returns. They further show that information asymmetry influences share prices and share return when they are less than perfectly efficient. Investors are expected to bear exogenous risk in such a market structure. In tandem with Lambert, Leuz, and Verrecchia (2012), Armstrong et al. (2011) had earlier examined the association between information asymmetry among investors and returns above standard risk factors. They show that in perfectly competitive equity markets, equity returns are irresponsive to information asymmetry.

Various scholars have empirically tested the theory. In the oil market, Abdel-Latif et al. (2018) tested information asymmetry and its influence on oil prices in the market. Using the Value at risk model to detect the asymmetry, the study fails to support the theory and its anticipated effect on market prices and therefore returns. When the study focused on the impact of the Saudi Arabia Exchange prices, some levels of asymmetry were detected for the year 2013.

Despite the usefulness of the theory in explaining how the difference between information held by insiders and that held by the public about a corporate entity (in this respect about annual Financial Structure Volatility), it fails on a few grounds. Firstly, it is more relevant to a less efficient market since, in more developed markets, the degree of asymmetry is so diminished that it is largely insignificant. It is also only relevant for short-term changes because, in the long run, all information is available to both insiders and the investing public. Further, in some markets, insider trading is prohibited such that the available information was homogenous based on published financial reports.

2.3.3 Random Walk Theory

This theory was proposed by Malkiel (1973). It suggests that the adjustment of market prices and market return changes follows no particular pattern but is instead random following the arrival of information on the market, which also follows a Brownian motion. Taken in the context of the financial structure volatility information, it can be assumed that the Changes in the financial structure of a firm do not follow any pattern and that the arrival of such information in the equity securities market will also be random. This will influence the Changes in prices and therefore returns similarly.

This, in reality, is logical mainly because the financial structure is a function of components that randomly change for the organization. Whereas share capital and long-term debt components of the financial structure are largely stable, the short-term components like trading profits and current liabilities fluctuate on a short-term periodic basis. Therefore, incorporating this information in the share prices is expected to follow these short-term patterns that are predominantly random. This is how they influence prices and, therefore, the equity returns in the capital markets.

The theory is based on several assumptions. Firstly, it presupposes that the stock market prices take a random walk in the Brownian motion fashion. Secondly, the theory assumes that the market cannot be outperformed unless the additional risk is considered since the prices assume a formless trend and move randomly. In addition, it is assumed prices capture that information as it arrives in the market in line with

the efficient market hypothesis Fama (1970). Since the information is random, the forces of demand and supply to exploit the information are also expected to lead to erratic variations in prices randomly. This is in line with the expectation that investors and market analysts can are agile at evaluating and analyzing new information and instantaneously help absorb the information in the prices through the signals from the buy and the sale sides of the market. In a nutshell, historical prices are not reliable predictors of future prices, and instead, intermediate conditions like financial Structure volatility

The theory has been empirically tested over time with confounding findings. Frennberg and Hansson (1993) tested the random walk hypothesis on the Swedish Stock Market over 1919 through 1990. Using the variance ratio and testing auto regressions of multi-period returns, they found strong evidence of mean reversion for short-term horizons, which discounts the random walk theory and implies that historical price patterns can be replicated in the future. Chitenderu et al. (2014) tested the random walk theory using stock prices at the Johannesburg stock exchange in South Africa from 2000 to 2011. The study was based on the monthly time series of the All-Share Index at the market. Their finding indicated that the stock market followed the random walk at least over this study period.

Its assumptions limit the theory. The expectation of randomness of information is, to some extent, limited by the scheduled financial reporting, which is often annual in line with Internal Financial Reporting Standards. In addition, the theory is more persuasive concerning short-term changes, for instance, current liabilities. When Long term financial aspects like equity and long-term debt volatility are considered, the randomness is less evident.

2.3.4 Risk Dichotomy Theory

The risk dichotomy theory advanced by Baum et al. (2016) postulates that risk can be categorized into a duality of macroeconomic and business-specific risks. These have a differential effect on capital structure and, therefore, financial structure changes. The theory explains that the adjustment process is highly asymmetrical and is a function of the category of risk, its size, its existing leverage, and its financial status.

It can be deduced that equity returns are also to be priced in the same pattern because of the differential adjustments. Accordingly, financial structure volatility is directly related to equity returns in the stock markets.

Baum et al. (2016) extend the risk dichotomy model to consider risk's role as leverage above or below its target proportion in conjunction with financial imbalances. They found that companies with financial surpluses and excessive leverage are likely to adapt their use of resources faster to their goals when macroeconomic risks are high, but firm risks are low. This shows that, during macro-economic periods, an enterprise with leverage over the target has a financial surplus that quickly adjusts its capital structure to prevent costs and the chance of bankruptcy. In contrast, companies with financial surpluses and undertakings do not strive to achieve their objective capital structure. In a risky environment, cash managers use the opportunity to wait and not adjust the company's financial structure inadvertently. It is also observed that undertakings with over-target financial deficits tend to equity, especially in times of low macroeconomic risk, to reach their target leverage. For such companies, the increase of corporate risk accelerates the capital adjustment process, given the level of macroeconomic risk. Lastly, companies with lower-target financial deficits are more likely to adapt their capital structure when both business-specific and macroeconomic risks are relatively low. An increase in any risk delays the adjustment process.

Cook and Tang (2011) hypothesize the varying risk source and variance in costs and benefits of equalizing capital structures and speed at which companies adapt leverage according to their goals. They examine the role of risk in the rate of leverage adjustment while considering companies' financial situation (financial surpluses and deficits) and companies' actual leverage (above or below target leverage), thereby emphasizing the risk dichotomy model. They take into account two empirical models in this context. This first model examines the adjustment speed's risk role when the leverage deviation from the objective is considered. The second model considers the company's financial status and the difference in leverage from the target to examine the effect of risk on the adjustment speed. Compared to when there is no risk, the first model shows that the risk effect should differ as the firm's real leverage exceeds

or falls beneath its target. The second model indicates the financial structure's changes in a risky environment will take place more quickly than in a risk-free environment.

Kim et al. (2015) investigate the relationship between the capital structure and the Korean market economic conditions. To deduce adjustment behavior, they use the risk dichotomy model to estimate adjustment speeds to the sound financial structure, depending on macroeconomic circumstances. As the data were analyzed, non-financial companies listed in Korea's stock exchange were adopted. The empirical test found evidence consistent with Cook and Tang (2011)'s arguments that firms tend to adjust their leverage faster toward the target level in economic expansion. Thus, their findings support the pecking order, market timing, and risk dichotomy theories regarding corporate finance theories on capital structure.

2.2.5 Firm Market Activity Hypothesis

The hypothesis was postulated by Welch (2004), which inferred that financial structure volatility is a function of firm security issuance activity. The promoters decompose Changes in the financial structure caused by the corporate issuance net of pension activities and stock returns. Although any equity growth in share income can explain some 40% of the financial structure dynamics, all issuing activities together can explain the rest of the dynamics. Long-term debt issuance is the most significant corporate business in terms of capital structure, which explains about 30 percent of the corporate debt ratio changes.

However, Welch (2004) pointed out that corporate motives remain largely a mystery themselves. Terms of activity are not used to offset stock return, which induced Changes in capital value. The more well-known variables of the proxy, such as the tax cost, the expected cost of bankruptcy, income, profitability, market ratios, uniqueness, time frames, or undervalue, also fail to account for much of the dynamics of capital structure. These proxies correlated passively with debt rates mainly indirectly because they connected with the neglected stock return that led to the financial structure's dynamics. In other words, these proxies have made managers not so much involved as they allowed companies to experience different

equity values and consequently different financial structures actively, altering their financial structures. The proactive financial structure management component remained largely unexplained.

Ripamonti (2019) Opines that corporations' issuing activities are not inactive. More surprisingly, it is not used to counteract external and substantial impacts of stock return on its financial structures with the net issuing activities. That's why the problem. Why does that happen? The answer must be the trade-off of cost-benefit to reverse Changes in stock returns. The advantages are the hypothetical change in the optimal debt ratio with stock revenues without friction. These costs involve direct transactions or indirect changes that are caused by a variety of distortions. The study notes that companies react to poor performance by increasing indebtedness and good performance by increasing equity-generating changes.

2.2.6 The Market Timing Theory

The Market Timing Theory was developed by two economists Verrecchia and Scholes (1980) Their work, often referred to as the Market Timing Theory, was presented in the paper titled "Market Timing and the Corporation's Financing Decision," published in the Journal of Financial Economics in 1980. The Market Timing Theory posits that firms attempt to time the market by strategically choosing when to issue securities, particularly equity, based on their perceptions of market conditions and the valuation of their securities. This theory suggests that companies may alter their financial structure, including the long-term debt proportion, in response to changing market conditions, aiming to capitalize on perceived favorable times for issuing securities.

The Market Timing Theory could be relevant in understanding how public companies in Kenya adjust their long-term debt proportions in response to perceived market opportunities or risks. Companies may choose to issue long-term debt or adjust their existing debt structures based on their assessments of the cost of debt, prevailing interest rates, and overall market conditions (Tamara et al., 2022). For instance, during periods of low interest rates or when the market conditions are favorable, companies might prefer issuing long-term debt as a means of taking

advantage of lower borrowing costs. Conversely, in periods of economic uncertainty or high-interest rates, companies might be more inclined to rely on equity financing or reduce their long-term debt exposure to avoid higher financing costs.

Examining how Long-term debt volatility proportion correlate with market conditions and security returns in the Kenyan context provides a valuable insight into the strategic decision-making of public companies. The theory can help explain the dynamic nature of corporate financing decisions, shedding light on whether companies in Kenya engage in market timing behavior and how such strategic choices impact their security returns.

2.2.7 Capital Structure Irrelevance Theory

Franco Modigliani and Merton Miller, proposed the Capital Structure Irrelevance Theory in a series of seminal papers (Modigliani & Miller, 1958). Their work earned them the Nobel Prize in Economic Sciences in 1985. The theory emerged during a time when there was a growing interest in understanding the relationship between a firm's capital structure (the mix of debt and equity financing) and its market value. Modigliani and Miller's groundbreaking contributions challenged conventional wisdom by suggesting that, under certain conditions, the capital structure of a firm has no impact on its overall value.

Modigliani and Miller's theory is based on the assumption of perfect capital markets, where there are no taxes, bankruptcy costs, or information asymmetry. In such an idealized scenario, they argued that the value of a firm is determined solely by its underlying assets and the expected future cash flows. The capital structure – whether financed by debt or equity – is irrelevant to the firm's overall value. The theory also contends that investors can create their desired mix of debt and equity independently, and the weighted average cost of capital (WACC) remains constant regardless of the capital structure. This groundbreaking perspective challenged traditional views on the optimal capital structure and provided a theoretical foundation for understanding how Internal Equity Volatility might or might not influence the value of a firm.

The Capital Structure Irrelevance Theory is relevant to the study on the effect of volatility in internal equity on security returns of public companies in Kenya. By considering Modigliani and Miller's insights, the study can investigate whether alterations in the internal equity structure of Kenyan public limited companies, in the absence of factors like taxes and bankruptcy costs, have a discernible impact on the market value and subsequently on security returns. If the theory holds in the Kenyan context, it suggests that the market efficiently incorporates these changes into stock prices, potentially affecting the study's findings on the relationship between internal equity volatility and security returns.

While the Capital Structure Irrelevance Theory provides valuable insights, its application to the study should be approached with caution. The ideal conditions assumed by Modigliani and Miller rarely exist in the real world. Factors such as taxes, transaction costs, and information asymmetry, which the theory neglects, can significantly influence the actual impact of Internal Equity Volatility on security returns. The study should acknowledge these limitations and explore whether, in the presence of real-world complexities, the theory still holds or if adjustments need to be made to account for the specific conditions of the Kenyan market.

2.3 Conceptual Framework

The researchers' synthesis of the literature on explaining a phenomenon is termed as a conceptual framework. Because of its knowledge of other researchers' perspectives and his observations regarding the research topic, it describes the actions required during the study. In other words, the researchers understand the connection between the specific variables in their research. It, therefore, identifies the necessary variables in the study. It is the map and direction of the researcher to conduct the study (Pandey & Pandey, 2021).

In this study, three sets of variables are identified. First are the independent variables relating to the financial structure volatility. They are the 3-year rolling standard deviations of the proportions of shortterm debt, long term debt, internal equity and external equity in the financial structures of firms listed at the NSE. Next is the moderating variable that is stock liquidity. The final variable is the dependent

variable which is the stock returns of the firms listed at the NSE. The schematic representation of the conceptual framework and how these three sets of variables are interacting is provided in figure 2.1. The figure provides for each variable the indicators used to measure it and finally the actual measure used in the conceptualization. All the conceptualizations provided in figure 2.1 are based on secondary data given that financial structure, stock liquidity and stock returns are measures that are indicated by data obtained from the Nairobi Securities Exchange (stock volumes and share prices) as well as from the annual financial reports of the study companies (current liabilities, long-term liabilities, internal equity and external equity).

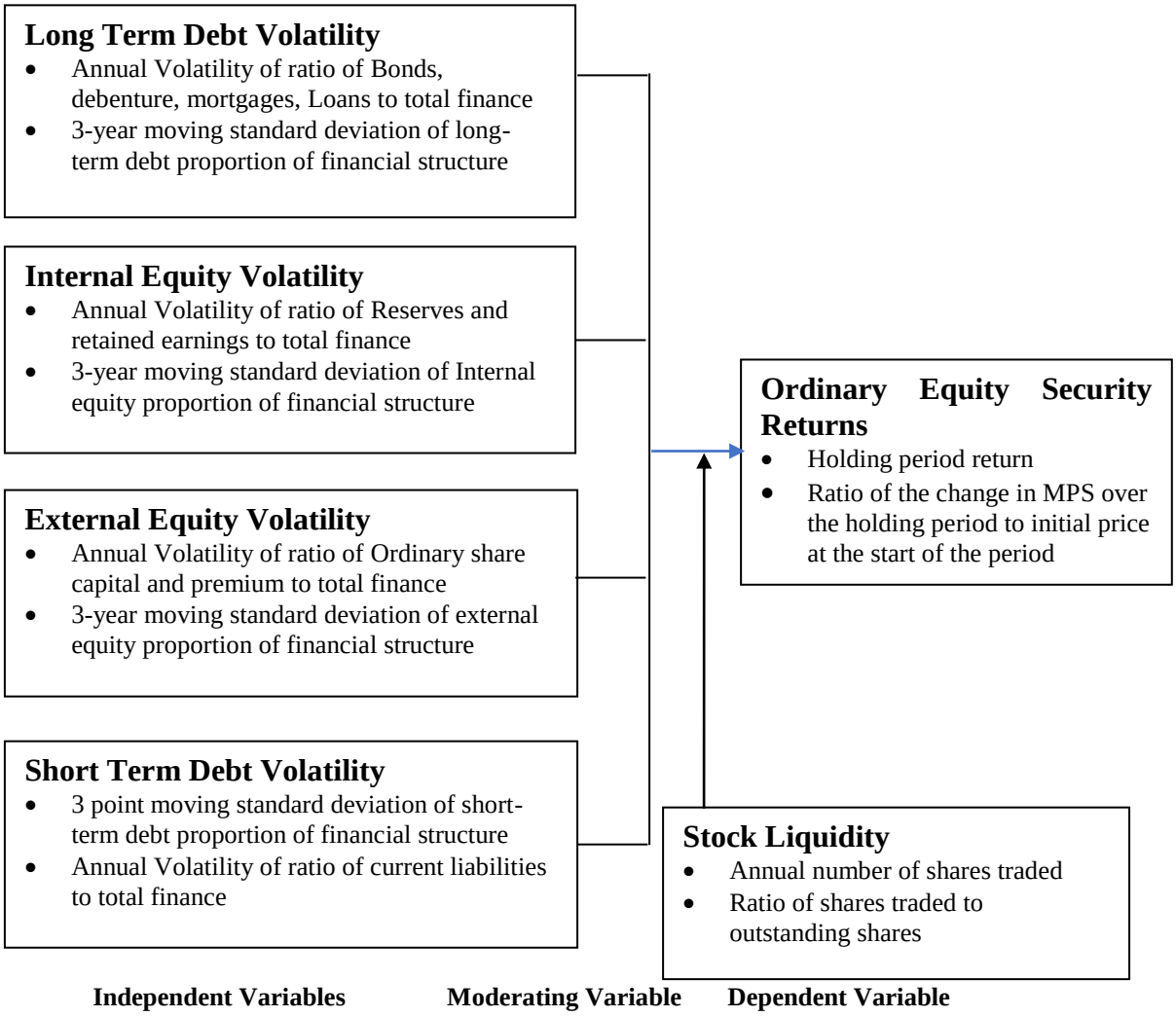

Figure 2.1: Conceptual Framework

2.3.1 Long-Term Debt Volatility

The long-term debt proportion of the financial structure is crucial in the financing operations of various companies. It is usually employed as a facilitator for acquiring a company's equipment, land, machinery, buildings, and other significant assets, including mergers and acquisitions. (Kamau, 2010). However, it is imperative to identify why many firms experience long-term debt financial structure volatility. A study on long-term debt determinations by the enterprises coded in the Nairobi Securities Exchange between 2000 and 2009 was carried out by Kamau (2010). The study showed that most enterprises used long-term debt to finance their businesses. The study found that long-term debt change was influenced by corporate size changes and corporate tax, which affected the company's borrowing decision and borrower status. Interest rate changes were also very significant over time, as they were the source of a threat of liquidation for the long-term debt volatility financing structure. Kamau (2010) also noted that managers considered stock and bonds market conditions before deciding upon a long-term debt financing structure; however, the organization should utilize the funds available effectively and efficiently.

The measurement of long-term debt volatility in companies has been approached through various methodologies in the literature. Sivalingam and Kengatharan (2018) conducted a study on commercial banks in Sri Lanka, focusing on the capital structure and financial performance. A ratio of total loans to total finance was used as a measure of long-term debts. Nenu et al. (2018) applied multivariate fixed-effects regressions and dynamic panel-data estimations (two-step system generalized method of moments, GMM) to analyze the impact of capital structure on risk and firm performance for companies listed on the Bucharest Stock Exchange. Thompson Tan et al. (2021) utilized the debt-to-equity ratio and the issuance of long-term debt as a percentage of total long-term debt to identify co-occurrences with the leverage to equity ratio, demonstrating the use of statistical measures to capture long-term debt volatility. Furthermore, Tekin and Polat (2021) employed the least square dummy variable correction to examine the adjustment speed of long-term debt over time for

East Asian firms, providing insights into the dynamics of long-term debt adjustments.

Most of the studies employ a moving or rolling statistical indicator of variability to measure volatility. In this respect, the studies largely employ an odd number standard deviation of the long-term debt structure ratios. Bansal, Connolly and Stivers (2015) for instance used a 3-period lagged standard deviations to measure capital structure volatility. Glilek (2020) on the other hand used 4-quarter standard deviations of the leverage ratio to measure the volatility of the long-term debt structure.

2.3.2 Internal Equity Volatility

Most of the studies employ a moving or rolling statistical indicator of variability to measure volatility. In this respect, the studies largely employ an odd number standard deviation of the long-term debt structure ratios. Bansal, Connolly and Stivers (2015) for instance used a 3-period lagged standard deviations to measure capital structure volatility. Glilek (2020) on the other hand used 4-quarter standard deviations of the leverage ratio to measure the volatility of the long-term debt structure.

In line with Graham, Adam and Gunasingham (2020), internal equity relates to reserves and retained earnings generated from operations of firms and the profit re-invested back in to the business. Jonathan and Katharina (2006) argue that the simple theory of the trade-off is incomplete as companies have three, rather than two, distinct sources of funds: debt, internal equity, and external capital. Internal equity (retained earnings) is usually less expensive for tax reasons than external equity and may be cheaper than debt. It follows that optimal leverage is a function of internal cash flows even without problem information or adjusting costs, debt ratios can move around without a particular objective, and company costs of capital are dependent on its internal and external financing combination, rather than just on its debt and equity combination. The trade-off between debt income and foreign equity depends on the investment shares' tax base compared with the current price. Jonathan and Katharina (2006) estimate how the transactions for a large sample of American companies vary across sections and over time. The results showed that the

trade-off between retained profit and foreign debt leads to internal equity structure change measures.

In line with the foregoing, volatility in internal equity structure reflects the annual fluctuations in the retained earnings ratios of firms' financial structures. The higher the fluctuations the greater the volatility of that portion of financial structures. Varying studies have used a variety of methods in measuring volatility in the internal equity financial structure. Bansal, Connolly and Stivers (2015) for instance used 3-period lagged standard deviations of the equity ratios.

Various studies have operationalized volatility in internal equity proportion of the financial structure through various methodological approaches and empirical analyses. For instance, Diantimala et al. (2021) operationalized the proportion between debt and equity as a key component of capital structure choice, emphasizing the management's effort to consider the appropriate balance between debt and equity. Similarly, Rahman and Tania (2021) examined the mean equity-financing proportion of domestic companies and multinational corporations, highlighting the differences in the proportion of equity between these entities. Furthermore, Abubakar (2020) emphasized the maintenance of the proportion of equity and debt capital under the guidance of financial policy as a financing decision, indicating the strategic consideration of the internal equity proportion in capital structure decisions. Lucky and Michael (2019) employed panel data analysis and theoretical modeling to investigate the impact of leverage and internationalization of the boardroom on capital structure, highlighting the interplay between corporate governance mechanisms and the proportion of equity in financial decision-making.

2.3.3 External Equity Volatility

External equity is also called the contributed capital of a firm and relates to ordinary share capital at par in addition to the ordinary share premium (Graham, Adam & Gunasingham, 2020). The volatility in internal equity is bound to be affected by a firm's dividend and reinvestment policies. Firms that retain most of the profit are likely to build very high reserves as opposed to those that give out most of the profits in dividends. On the other hand, firms that have stable dividend policies are likely to

experience less volatility in retained earnings financial structure as opposed to those with fluctuating dividend policies (Graham, Adam & Gunasingham, 2020).

Rashid (2014) examines how peculiar and macro-economic risks affect UK manufacturing firms' external financial decisions. The paper examines the impact of both kinds of risk on the debt and equity options of companies. The study uses panel data from the data stream from the firm level for the period 1981-2009. The impact of risk on companies' likelihood of decisions to issue and retire export capital and liabilities versus equity decisions is estimated at multinomial logit and probit models. The results suggest that companies consider both company-specific and economic risks when adjusting external finance and debt-equity decisions. Specifically, multinomial logit results show that companies are less likely to make external financing adjustments when company-specific risks are high. The probit model results show that the propensity to borrow from equity issues decreases considerably in uncertain times. Instead of existing repurchasing equity, companies are more likely to pay back their outstanding debt in the face of either kind of risk. The company-specific risk appears to be more economically important to the company external funding decisions of the two types of risk.

Allini et al. (2018) on the other hand examined the pecking order and market timing theory in emerging markets, emphasizing that the most profitable firms are less likely to resort to external financing, thereby operationalizing the External Equity Volatility proportion within the context of firm profitability and financing decisions. Similarly, Naranjo et al. (2020) investigated the pecking order and financing decisions, highlighting that firms will raise external financing first in the form of debt and then, as the cost of raising additional debt increases, in the form of equity capital, thereby operationalizing the External Equity Volatility proportion within the framework of the pecking order theory.

Just like for long term debt and internal equity, the volatility in external equity structure can be measured using statistical measures of volatility particularly a rolling standard deviation. Such rolling values of standard deviation are expected to show volatility over time. Odd number of years for such standard deviations is often

chosen for computational ease. Graham, Adam and Gunasingham (2020) indicate that external equity structure is bound to show less volatility than internal equity structure because annual operational activities affect retained earnings but hardly have any effect on contributed capital until firms engage in such activities and secondary public issues of stocks, rights issues and stock repurchases, which are rare.

2.3.4 Short-term Debt Volatility

Short term debt in the context of this study is synonymous with current liabilities. Graham, Adam and Gunasingham (2020) characterize current liabilities as those financial obligations whose maturity period is short term and not exceeding one year. In this study, current liabilities are added to the traditional elements of debt and equity as the components of capital structure so as to form financial structure. The volatility in current liabilities emanates from the variations in the operational activities of the financial period and is therefore expected to be more enhanced than the volatility anticipated in the long-term debt structure in the financial structure of a business.

Several studies have tried to evaluate the relationship of short-term debt structure and its changes with other financial parameters including market value of companies. Serrasqueiro et al. (2020) for instance sought to analyze the family firm's capital structure decisions. The study focuses on the Speed of Adjustment (SoA) and the effect of the distance to short-term ratios in undiscounted small and medium-sized family businesses between the target capital structure and the SoA. Dynamic panel data estimators were used methodologically to estimate the effects of distance on speeds for adjustment to those objectives. Data were collected from 2006–2014 for two sub-process samples: one for 398 household enterprises and one for 217 for non-family enterprises. The results show that the deviation from the target debt ratio adjusted speeds in non-listed family businesses negatively affects the target short-term debt ratios. These results suggest that, in contrast to the target debt ratio, family businesses are lower than adjustment costs in relation to deviation costs, including insolvency costs. Family businesses, therefore, remain a long way off the target debt ratio than non-family businesses.

To demonstrate short-term debt volatility, studies have employed various statistical techniques and analyses. Memon et al. (2018) For instance provided evidence on the impact of cash flow volatility on firm leverage and debt maturity structure, revealing the association between cash flow volatility and leverage levels, thereby operationalizing Short-term debt volatility proportion within the context of cash flow dynamics and financing decisions. Furthermore, Adeniyi et al. (2020) concluded that debt can be significantly influenced by liquidity and shareholders' wealth, demonstrating the operationalization of Short-term debt volatility proportion within the broader context of financial constraints and wealth considerations. Additionally, Poursoleyman et al. (2021) highlighted the positive impact of financial leverage and short-term debt on future financing and investment, indicating the operationalization of Short-term Debt Volatility proportion within the context of investment dynamics and financial performance.

It is conceivable that volatility as a statistical measure can be indicated using standard deviation of an appropriate measure of short-term debt structure. In the context of this study, the measure of debt structure at the end of every year is computed as the ratio of current liabilities to the total finance in line with Graham, Adam and Gunasingham (2020). A rolling standard deviation has often been used as an indicator of volatility as was done in the case of Bansal, Connolly and Stivers (2015).

2.3.5 Stock Liquidity

Stock liquidity is the ability to quickly purchase or sell large stock volumes without significantly influencing the securities price and at negligible cost. It encompasses dimensions of immediacy, depth, breath, resiliency and tightness. It is usually indicated by the volumes of shared traded for a company within a specified time. Illiquid stocks are seldom traded while the liquid ones move high volumes (Kumar & Misra, 2015).

Liquidity plays an essential role in the performance of firms listed on the Stock Exchange (Singh et al., 2015). When there is a good flow of trading stocks, people could expect more financing through absorbing investors on the market. Singh et al.

(2015) examines the relationship between stock market liquidity and firm performance. To check the relationship between stock market liquidity and firm performance, the ordinary least sequence and general linear models were applied on Gretl and SPSS, respectively. This study showed a positive relationship between independent variables, return, and age on dependent variable Tobin's Q. Further, the relationship between stock market liquidity and firm performance was also checked. It was found that stock market liquidity was correlated with higher firm performance as measured by Tobin's Q.

Naik and Reddy (2021) identify the critical aspects studied on the stock market's liquidity, collect actual results, and provide for further research a quantitative categorization of the literature reviewed. The study analyzes relevant research papers published after the 2008 financial crisis and concludes that stock market liquidity measurement, liquidity influencing factors, liquidity relation, and market liquidity risk, and the relationship to expected returns have been explored. Among these, the liquidity factors have been investigated prominently in the study examined. The survey concludes that the areas identified in emerging markets may be potentially analyzed by considering the multidimensional quality of market liquidity. There is a further evaluation of the interrelationships between emerging-market liquidity with global equity markets.

Kahuthu (2017) determine whether stock market liquidity affects stock returns of companies listed at the Nairobi Securities Exchange from 2012 - 2016. This study looks at both the width and depth aspects of liquidity measured by bid-ask spread and turnover rate, respectively. The study adopted a quantitative research design with the study population of all the 64 firms currently listed at the Nairobi Securities Exchange and the 23 trading participants registered by the CMA. Purposive sampling was adopted, and a panel regression model was used to analyze data from 50 companies listed on the NSE selected. Descriptive analysis was used to analyze data on the perception of market participants on liquidity collected through questionnaires. Empirical findings show that market depth was insignificant to stock returns while market width was found significant.

Most market participants on the other hand, perceived both market width and depth to be significant to stock returns but only to a moderate extent. Generally, from inferential analysis, liquidity was substantial but not the main predictor of stock returns. These findings were further supported by the descriptive research on market participants' perceptions. These findings should be of interest to investment managers and policy makers on stock investments on the NSE (Kahuthu, 2017).

2.3.6 Ordinary Equity Stock Returns

Ordinary equity stock returns these are also called holding period returns and are the unrealized capital gains adjusted for dividend payout as a percentage of the share prices at the beginning of the evaluation period for the companies listed at a stock exchange. They are computed as the ending price less the beginning price as a ratio of the beginning price. Ordinary equity security returns are the interest realized in capital stock which includes shares of both common stock (Gorbunova, 2016). Security returns are an indicator of the market performance of the stocks under scrutiny and are a result of the demand and supply of those securities by investors in response to fundamental information arising from the firms, their industry and the market at large (Gorbunova, 2016).

Al Salamat and Mustafa (2016) argue that financial leverage is one of the most critical factors that explain stock return. This study examines, after monitoring the market per share ratio to the stock value per share as a projection of growth opportunities, the size, the turnover ratio, as a proxy for stock liquidity, return per share, and the relationship between capital structure and stock income in all industries listed on the Amman stock exchange (2007–2014). The study used unbalanced panel data statistical approach for analysis. The empirical results indicated that the negative effect of the capital structure on stock returns was statistically significant. Furthermore, stock liquidity and asset return had a statistically significant positive impact on stock returns.

Uremadu and Efobi (2012) explore the impact of liquidity on corporate returns by taking ten companies in Nigeria (2002–2006) from capital structures and liquidity. They use OLS for analysis, including the lowest-square log-linear application. The

outcomes reveal a negative relation between long-term debt returns, the ratios of long-term debt to overall liability and the ratios of short-term liability to overall liability and short-term debt ratios to overall liability, and equity capital to overall liability.

Ahmad et al. (2013) explore the co-determinants of capital structure and stock return of 100 non-financial companies in the Karachi stock exchange (KSE) over the period (2006-2010). The findings show that stock returns and leverages influence each other, while cash, growth and profitability affect both the leverage and stock returns significantly. Chiang and Zheng (2015) review relations in the US, Canada, France, Germany, Italy, Japan and the United Kingdom (1990-2009) between liquidity and expected excess returns. The results were obtained from the panel data regression of the monthly data of 20 years. The results indicated a positive relationship between market liquidity risk and stock excess returns, while a negative relationship between corporate liquidity and stock excess returns is observed.

2.4 Empirical Literature Review

The main focus of this section is to present empirical findings from previous studies of the financial structure volatility to identify its effect on ordinary equity return of public limited companies in Kenya. This section highlights the strengths, shortcomings, and corresponding literature gaps in the current empirical research. Precisely concerning the particular aims of this study, the following subsections concisely contain prior studies.

2.4.1 Long-Term Debt Volatility and Stock Returns

Long term debt volatility, which is commonly measured by rolling or moving standard deviations, has received a great deal of attention in the literature (Aharon & Yagil, 2019). Long-term debt is part of the financial structure. Financial structure is how a firm finances its assets through some combination of debt and equity that a firm deems appropriate to enhance its operations (Shikumo et al., 2020). Long-term debt involves strict contractual covenants between the firm and issuers of debt, usually associated with high agency and financial distress costs (Tailab, 2014).

Numerous empirical studies have endeavored to establish the link between financial structure, its changes (volatility) and the stock market returns and valuation of publicly listed companies.

Using food and beverages industry in Indonesia, Salim and Susilowati (2019) sought to examine the influence of internal factors and capital structure changes on firm market valuation of the companies listed at the Indonesia stock exchange in that industrial segment. In total, the study incorporates a sample of seventeen firms and was carried out over a study period of 5 years of 2013 through 2017. Capital structure was measured using the debt equity ratio. This purposive sample of 85 firm-year observations was subjected to panel data regression analysis. The findings revealed that leverage and the corresponding changes have no influence on market value for the food and beverage companies at the Indonesia stock Exchange. This implies that leverage and its volatility is not a priced information factor at that market and that they have no impact on stock market returns for that segment of companies.

Shalaby (2020) sought to establish the how debt structure and the changes thereof affected stock returns in four Arab countries. These were Jordan, Egypt, Kuwait and Saudi Arabia as represented by the Amman Stock Exchange, Egypt Stock Exchange, Kuwait Stock Exchange and Tadawul (Saudi Stock Exchange) respectively. The study was focused on non-financial firms given the highly regulated nature of financial firms in the Arabian countries. The samples were Egypt (162 firms); Jordan (123 firms); Kuwait (116 firms); and Saudi Arabia (135) firms. The study was carried out over a period of 14 years that ran from January 2006 to December 2019. To test the hypothesis, the study not only relied on a single factor asset pricing model (CAPM) but also multi factor asset pricing models being the Fama and Franch 3-factor model and the Fama and Frech 5-factor models. In the findings, neither leverage at level or the changes in leverage had any significant effect on stock returns. This is in line with the expectation of the Modigliani and Miller (1958) capital structure irrelevance theory.

Mustafa, Saeed and Zafar (2017) sought to establish the influence of the variations in financial leverage on equity security returns at the Karachi Stock Exchange in Pakistan. The research covered a study period of 12 years that ran from January 2004 to December 2015. The study was based on non-financial firms listed on that bourse. The study relied on panel regression analysis. The findings indicated that there is no significant effect of variations in leverage on stock returns. This is in line with the capital structure irrelevance theory of Modigliani and Miller (1958).

Ezirim, Ezirim and Momodu (2017) sought to establish the effect of capital structure and its changes on firm market valuation for companies listed at the Nigeria Stock Exchange. The study was fashioned as a census survey using panel data from 1980 to 2013 forming 34 years of study. The research relied on the generalized moments regression and carried all diagnostic tests needed to implement the model. Market value was based on company market capitalizations. The findings revealed that debt structure and its changes, fashioned as leverage in the study, had a positive effect on stock market value of the companies in Nigeria. This implies that changes in leverage are a market priced factor that are a reliable positive predictors of stock returns in that market.

Olaniyan, Oyinloye and Agbadua (2020) investigated the interrelationship between long term debt structure and its changes on equity security returns in Nigeria, considering a dynamic business environment. The study was focused on insurance companies listed at the Nigeria Stock Exchange and relied on a census of 18 of those companies. The analysis was based on GMM, which is the Generalized Method of Moments. Secondary data from both published financial statements and stock prices from the stock market were used in the study. The findings indicated that leverage and the attendant changes have a negative effect on stock returns and that the higher the level of changes, the lower the returns and vice versa. This sems to agree with the Easley and O'Hara (2004) negative effect postulation. The study suggests that debt in the financial structure and its changes should be kept at a low level to avoid the negative influence on stock returns.

Tangut (2017) sought to find out how debt structure and its changes as represented by leverage affected the stock returns of companies listed at the Nairobi Securities Exchange, focusing on the non-financial stocks on that bourse. The secondary data for the study was sourced from both the Nairobi Securities Exchange and from the published financial statements of the target companies. The study period covered 15 years running from January 2002 to December 2016. Leverage was based on debt ratio, and debt equity ratio. The findings revealed that leverage structure and the relevant changes had a negative effect on stock returns. They are in line with the negative effect theorization of Easley and O'Hara in the asymmetric information hypothesis.

Cai and Zhang (2009) investigated the association among deb structure changes, the capacity of debt and the stock prices hence stock returns. The study was carried out over the period 1975 to 2002 thereby leading to 28 years. The sample of firms used in the study was based on CRSP (Center for Research and Security Prices). The debt structure changes in this study were based on the variations in the debt ratio. The findings revealed that there is a strong negative effect of changes in leverage of a firm on the ordinary equity security returns. This effect was found to be especially strong for the firms that were determined to have low capacity for extra long-term debt. This again agrees with the postulations of Asymmetric information Hypothesis of Easley and O'Hara (2004) in its negative effect formulation.

Hong and Dung (2021) sought to find out how debt structure as indicated by financial leverage, the corresponding changes therein affected stock returns for public limited companies in Vietnam. The study was carried out over a six-year period that ran from 2014 all the way to 2019. Using panel regression analysis, the study revealed that debt structure and its changes had a negative effect of stock returns for the Vietnamese firms. This on the overall scale was in line with the expectations of risk dichotomy theory of Baum et al. (2016) as well as the efficient market hypothesis of Fama (1970). When separated to the short term and the long-term components of debt in the financial structure, the study found out that long term debt structure, just like its short term variation both had negative effects on stock

returns as expected by the negative version of the Easley and O'Hara asymmetric information hypothesis.

Dalbor and Upneja (2002) evaluated the impact of previously theorized factors on the changes on long-term debt ratio of publicly traded restaurant firms. They reviewed the financial literature to identify variables linked to three capital structure theories, including debt costs, signaling effects, and tax effects. Their findings essentially confirmed Barclay and Smith's findings based on a wide range of industrial firms using the cross-sectional pooled regression model for publicly traded restaurant firms. Company size and the likelihood of failure were related to higher long-term debt volatility ratios. Companies with growth opportunities use less long-term debt and therefore do not experience more increased chances of long-term debt volatility. But the use of long-term debt and effective tax rates were not significantly linked with this.

Khaldoun (2014) conducted a study on factors influencing long-term debt volatility structure in industrial companies. For the period 2000 - 2010, substantial information was gathered from Amman Stock Exchange. A non-parametric regression analysis was used. The study included all the listed companies in Jordan selected on the Internet from Amman Stock Exchange. The results showed that profitability is adverse, whereas fixed assets and company age positively impacted long-term debt volatility. On the other hand, the company's growth and non-debt tax did not impact change in long-term debt.

Van Rixtel et al. (2015) Investigate European banks' determinants of bond issuance. The study used a unique database of around 50,000 bonds issued by 63 banks from 14 European countries to distinguish between various long-term debt volatility. The study was explicitly able to test a broad spectrum of hypotheses from corporate finance and banking literature on bond issuance drivers through an investigation at the individual bank level. As explanatory variables, they used country and financial characteristics specific to banks. As far as country determinants are concerned, the results suggest that the timing of long-term debts (low-interest rates) decreased changes before, but not during, the crisis, as long-term debt access became more

important than its cost. During the crisis years, country risk characteristics became the driving force behind bond issuance, while liquidity was replaced by long-term unsecured debt by banks in the euro area. Besides, the study showed that increased tensions on the financial market prejudice bond issuance and, especially, the Long-term debt volatility in times of financial crisis. The results provide strong coefficients for the banking variables, with signs as expected. The survey also revealed the leverage of long-term debt issuance during crisis years. The positive and significant ratio coefficient supports the hypothesis of risk absorption, suggesting that large capital buffers enhance and increase banks' risk-bearing capacity. Besides, both before and since the crisis years, banks with limited deposit supplies and relatively large loan portfolios issued more bonds. The research showed that high-ranking banks, including in the crisis period, are more likely to issue bonds. In particular, stronger banks issued long-term debt unsecured, while weaker banks issue covered bonds more.

Micah et al. (2014) concluded that companies' debt financing decisions affect firm-specific and macroeconomic factors. The company's specific factors include profitability, corporate size, asset nature, growth chance, corporate risk, corporate tax rate, liquidity, non-debted tax shield, and the possibility of bankruptcy, corporate age, and the perceived corruption index. The macroeconomic factors include the GDP, inflation, interest rates, industry influence, and market conditions on the financial market. This will positively or negatively impact corporate long-term debt financing decisions, thus creating their changes. The majority of empirical studies found a positive link between companies' long-term debt finance and features such as size, the tangibility of assets, the probability of bankruptcy, the gross domestic product, middle industries, and financial markets. As a result, most empirical studies have found a negative relationship between corporate long-term debt volatility financing and profitability, growth, risk, tax rate, liquidity, and inflation. The literature has also analyzed long-term debt financing theories, which explain, in response to how the debt funding strategy is identified.

The long-term bond price can be unanchored following the monetary policy rule by the expected fast rate development. As it is not likely that the bond's price will react

to the expected discounted sum of future policy rates, the anticipated future interest rates' autonomy will decrease. Thus, in response to changes in the output gap and inflation, the central bank must move its current policy rate more aggressively to stabilize aggregate demand. The degree that the current monetary policy can respond to changing economic conditions is restricted to the potential instability of long-term bond prices. This contradicts significantly with the rational analysis of such policies' expectations, ensuring a balance of output and inflation dynamics (Khaldoun, 2014).

Chen et al. (2014) investigate the determinants of capital structure using a cross-section sample of 1,481 non-financial firms listed on the Chinese stock. The purpose of this paper is to examine the determinants of capital structure using a cross-section sample of 1,481 non-financial firms listed on the Chinese stock exchange in 2011. Employing four leverage measures (total leverage and long-term leverage in terms of both book value and market value, respectively), this study examines the effects of factors with proven influences on capital structure in literature, along with industry effect and ownership effect. The authors find that large firms favor debt financing while profitable firms rely more on internal capital accumulation. Intangibility and business risk increase debt financing, but tax has little impact on capital structure. The authors also observe strong industrial effect and ownership effect. Real estate firms borrow considerably more, and firms from utility and manufacturing industries use more long-term debt than commercial firms. On the other hand, firms with state ownership tend to borrow more, while firms with foreign ownership choose more equity financing.

Seo et al. (2017) aim to find alternative explanations for the use of long-term debt in the US restaurant industry from a behavioral perspective. The three-fold purpose of the present study is to examine the impact of CEO overconfidence on the use of long-term debt; explore how CEO overconfidence moderates the relationship between growth opportunities and long-term debt; and analyze the moderating role of CEO overconfidence based on cash flow levels in the context of the restaurant industry. Using a sample of publicly traded US restaurant firms between 1992 and 2015, this study used generalized moments with variable instrumental technique to analyze the panel data. The findings of this study highlight the importance of

considering behavioral traits of CEOs, such as overconfidence, to better understand the US restaurant firms' financing behaviors. This study found that overconfident CEOs tend to use more long-term debt when firms have more significant growth opportunities and low cash flow.

Upneja and Dalbor (2009) examine the choice of long-term debt in the U.S. casino industry using the three significant theories of capital structure: tradeoff, pecking order, and free cash flow. We use multiple regression models for the overall sample as well as for casinos and casino hotels. The results for all three sets of regressions are similar, with firm risk and firm size being positively related to long-term debt. However, when looking at different measures of growth opportunities, we find contradictory results. Some growth measures are positively related to long-term debt, while others are negatively related.

2.4.2 Internal Equity Volatility and Stock Returns

Yemi and Seriki (2018) sought to establish the effect of changes in retained earnings on the market value (hence stock returns) of companies listed at the Nigeria Stock Exchange. The study wanted to establish this influence having controlled for financial leverage and the dividend paid out by those companies. It restricted itself to non-financial companies over a twelve-year period that ran from 2003 to 2014. This led to a sample that consisted of 75 firms. The study relied on regression analysis using unbalanced data that was obtained from the published annual reports of the companies and the trading prices over the identified study period. The findings revealed that internal equity and its changes as indicated by retained earnings ratio had a positive influence on stock returns and firm market values unlike leverage which was found to have no effect on market returns. The findings of this study are in line with the efficient market hypothesis which internal equity is identified as a positively priced information at the Nigeria stock Market.

Thuranira (2014) set out to research on how internal equity (as reflected by retained earnings) and the related changes affected the stock returns of companies listed at the Nairobi Securities Exchange. The study was over to cover a period of 5 years

running from January 2009 to December 2013. The secondary data used in the study was derived from stock prices at the NSE and the published annual reports of the listed companies at that exchange. Panel regression analysis was used in the study to check if the effect of the internal equity structure was statistically significant at 95% confidence interval. The findings indicated that retained earnings had no significant effect on stock returns of companies listed at the NSE. This is contrary to the expectations of the efficient market hypothesis of Fama (1970) and the risk dichotomy theory of Baum et al. (2016). They were however consistent with the expectations of Modigliani and Miller (1958) that capital structure has no bearing on firm market value and therefore no bearing on stock market returns.

Adeniji (2023) sought to establish the influence of internal equity and its changes as reflected by retained earnings of the market to book value of listed corporations at the Nigeria Stock Exchange. The study period was 11 years running from 2008 to 2018. The research design that was used in that research was descriptive survey. The secondary data used in the research was not only obtained from the Nigeria stock market with respect to share prices but also the published financial companies with respect to book values and retained earnings. The study narrowed down to manufacturing companies which totaled to 78 firms. The approach used in identifying the size of the sample was purposive sampling. The randoms effects model of panel data regression was found to be the most suitable in carrying out the analysis. The null hypothesis was rejected with the finding that retained earnings structure and its related changes had a positive effect on market value and therefore on stock returns of manufacturing firms listed at the Nigeria Stock Market.

Dahmash et al. (2023) set out to establish the interrelationship between the changes in retained earnings as an indicator of internal equity structure and the firm market value (hence stock returns) of companies in Jordan. The study period was 12 years that run from 2010 to 2021 and examined both financial and non-financial firms. The study relied on an unbalanced panel data using secondary data from the stock market in that country and also from the published financial statements of the study companies. The number of firm year observations for the study totaled to 2,281. Testing of the study hypotheses was at 95% confidence interval with the coefficients

being generated by pooled regression analysis. The study rejected the null hypothesis with the finding that retained earnings and the changes thereof had a negative effect on stock returns and stock market valuation of the relevant firms. This is contrary to the expectations of Modigliani and Miller (1958) hypothesizing that financial structure and therefore the relevant changes in such structure have no effect on firm market value and therefore no effect on stock returns.

Pontoh and Budiarso (2018) conducted a study to show how companies adjust their internal corporate equity structure in trade-off and pecking order theory. In the 2010 to 2015 period observed, the study analyzes logistic regression with 138 Indonesian public companies as a sample regarding hypothesis testing. This study examines the sample by median by size and age to distinguish the results. The study reports internal equity volatility preferences compared to other corporate funding forms based on capital cost, internal conflict, and corporate maturity that indicate Changes in its internal capital structure. Basing on Indonesian firms, a single model or combination of a trade-off model and a pecking order model and the market's timing can illustrate internal equity financial structure volatility in the developing countries.

To understand the quantitative and qualitative development of financial systems for central and eastern European firms, Haas and Peeters (2006) examine the capital structure dynamics with more emphasis on the changes internal equity structure. The dynamic model employed indigenizes both the internal equity structure and the speed of its adjustment. It was applied in 10 countries to microeconomic data. The study revealed that companies generally strengthened their internal equity financial structure during the transition process, reducing the gap between actual and objective leverage. The most robust determinants of internal equity financial structure volatility were found to be profitability and age. While the development of the banking system had allowed companies to move closer to their leverage targets, there were still relatively large asymmetries of information between companies and banks. In consequence, companies favor internal equity over bank debt and only slowly adjust leverage.

Fischer et al. (2018) develops a formal strategy for calculating current retained earnings (RE) accounts on equity investment, and its adjustment is analyzed during the financial crisis. RE is the part of the profits of companies reinvested and not distributed as dividends to shareholders. RE can therefore be the most effective form of internal equity. International statistical standards treat RE differently on foreign direct investment and RE on portfolio investment: the latter do not enter the current and the financial accounts. The study shows that this difference in treatment significantly impacts current accounts of many advanced economies with high equity (portfolio) investments, often called financial centers. The differential treatment of RE changes the interpretation of current account adjustment in the face of the global financial crisis.

Thirumalaisamy (2013) believed that retained earnings financed the growth of companies in India substantially. He alludes to no transaction and bankruptcy costs associated with retained earnings that make retained earnings a significant company internal equity source. The study concludes that potential growth opportunities would increase domestically produced funds' demand. The study analyzed possible variables that could influence income conservation. Changes in retention behavior of companies that differ in growth levels have been driving the significance of corporate income retention in increasing business growth. The sample size includes 149 profitable Indian businesses in seven branches. Correlation and multiple regression data collected for the period 1996-2010 were examined. The results show that cash flow and dividends are the variables most influential for retained earnings across sample companies' classifications. Companies with low growth and expansion investment opportunities prefer financing their operations through retained earnings. The study assumes that in the future, these companies will have potential investment opportunities far away. Profit is retained and remains unused in the long-term or used in short-term investment opportunities, resulting in low investment returns. Such firms prefer paying out income and raising capital whenever necessary. The retained earnings are therefore greatly influenced by the growth rate of the company.

Ahmed and Hla (2019) Study the effects of the different financial structure measures of non-financial companies on changes in stock return on a model dynamic panel.

For non-financial sector data from Pakistan Stock Exchange over the period 2001–2014, a two-stroke system widespread method of moment dynamic panel estimator is applied. The results suggest that changes in stock returns negatively affects the book leverage and internal equity financial structure ratios. However, an increase in total market leverage and financial structural internal equity ratios is caused by inventory changes. Furthermore, corporate book leverage and the long-term leverage on the market decrease in different classifications due to increased stock return changes. In contrast, changes in the stock return have a significant positive effect on companies' overall market leverage ratios. Decisions concerning the capital structure are more sensitive to the changes in stock revenues as deficiency risk increases. Based on the high changes in stock return and avoiding possible default consequences, firms significantly reduce their debt financing. The results are strong in the context of alternative measures like the changes in cash flow and changes in revenues.

Khan et al. (2020) conducted a study on the effect of commercial bank's internal equity financial structure in the Saudi Arabia Kingdom. The study used annual data from 11 Saudi national banks listed on the Saudi Börse. In creating an equilibrated panel, this study examined the relationship between internal equity financial structure adjustment as a dependent variable and bank-specific explicative variables, including profitability, tangibility, growth opportunities, and bank size, while monitoring the macroeconomic size, together with fixed effects and random effects. This study shows that Saudi banks are highly leveraged and support the fact that they are different from non-banking companies. Internal equity Financial Structure Volatility, growth, and bank size earnings show positive and significant book leverage relationships. The benefits and tangibility of the book leverage are negatively linked. Empirically, explanatory variables such as profitability, changes in earnings, tangibility, growth, and size of banks significantly impact Saudi commercial banks' internal equity financial structure decisions.

Nguyen and Rugman (2015) examine the multinational subsidiary's internal equity financing, which retains and reinvests its earnings. Internal equity financing is a type of firm-specific advantage (FSA) and other traditional FSAs in innovation, research and development, brands, and management skills. It also reflects subsidiary-level

financial management decision-making. Here we test the contributions of internal equity financing and subsidiary-level financial management decision-making to subsidiary performance, using original survey data from British multinational subsidiaries in six emerging countries in the South East Asia region. Their first finding is that internal equity financing acts as an FSA to improve subsidiary performance. The second finding is that over 90% of financing sources (including capital investment by the parent firms) in the British subsidiaries come from internal funding. The third finding is that subsidiary-level financial management decision-making has a statistically significant positive impact on subsidiary performance. Their findings advance the theoretical, empirical, and managerial analysis of subsidiary performance in emerging economies.

2.4.3 External Equity Volatility and Stock Returns

Tangut (2017) sought to find out how equity structure and its changes as represented by debt equity ratio affected the stock returns of companies listed at the Nairobi Securities Exchange, focusing on the non-financial stocks on that bourse. The secondary data for the study was sourced from both the Nairobi Securities Exchange and from the published financial statements of the target companies. The study period covered 15 years running from January 2002 to December 2016. Equity structure was based on debt equity ratio. The findings revealed that equity structure and the relevant changes had a negative effect on stock returns. They are in line with the negative effect theorization of Easley and O'Hara in the asymmetric information hypothesis.

In Bangladesh, Hossine (2019) set out to find out the influence of capital structure and its changes on ordinary equity security returns of pharmaceutical and chemical firms listed at the Dhaka Stock Exchange. The study was done over 9 years that ran from 2010 to 2018. Using Hausman model specification test, the study settled on the fixed effects panel regression model as the appropriate model for generating the capital structure coefficients for testing the study hypotheses at 95% confidence interval. The sample size for the study was 21 firms. Capital structure and the corresponding changes were evaluated using the debt-to-equity ratio. The null

hypothesis was rejected in the results with the finding that debt-equity ratio negatively impacts stock returns of pharmaceutical and chemical firms listed at the Dhaka Stock Exchange.

El-Masry, Salah and Abdel-Karim (2024) set out to find out the influence of equity structure and its changes in financial structure of Egyptian firms on stock returns of those firms. The study period was six years running 2017 through 2022. The study focused on non-financial firms and excluded financial ones like commercial banks and insurance companies leading to a sample size of 75 and 450 firm-year observations. The null hypothesis of zero effect of equity structure changes on stock returns was tested at 95% confidence interval using the t-statistic. Panel regression analysis was deployed in the appraisal of the results. The null hypothesis was rejected with the finding that capital structure as indicated by the debt equity ratio had a positive influence on stock returns. High debt equity ratio (low equity debt ratio) and the increases (decreases) thereof corresponds with increases in stock returns and that debt equity ratio is a positively priced information factor at the Egypt Stock Exchange.

Nguyen et al. (2020) examined the connection between capital structure and firm market valuation using stock market listed food and beverages companies in Vietnam as quoted on the Hanoi and Ho Chi Minh stock markets. The study period was 9 years spanning 2010 to 2018 inclusive. 22 companies were used in the sample leading to 198 firm-year observations. Capital structure was based on leverage and market capitalization and multiple linear regressions were utilized in the analysis. The findings from the research established that capital structure has a positive influence on firm market value. It can be deduced that capital structure has a positive effect on market prices and thereby has a positive effect on firm stock market returns in line with the efficient market hypothesis and the corresponding relevance theories of capital structure like the signaling effect theory.

Al-Manaseer (2020) sought to find out the association between capital structure and the related fluctuations and stock returns of commercial banks in Jordan. The study period was 10 years running from 2009 through to 2018. The analyzed commercial

banks were those quoted on the Amman Stock Exchange and they totaled to a census of 13 commercial banks. Among other variables, the regression-based study found out that capital structure and its changes have a positive effect on stock returns. This is in contravention of the capital structure irrelevant theory of Modigliani and Miller (1958) and in support of the efficient market hypothesis of Fama (1970) as well as the risk dichotomy theory of Bau et al. (2016).

Bairagi and Dimovski (2012) investigate the total direct costs of raising external equity capital for US real estate investment trust (REIT) initial public offerings (IPOs). The study provides evidence on total direct costs for a comprehensive dataset of 125 US REIT IPOs from 1996 until June 2010. A multivariate OLS regression is performed to determine significant factors influencing total direct costs and underwriting fees, and non-underwriting direct expenses. The study finds economies of scale in total direct costs, underwriting fees, and non-underwriting expenses. The study finds a declining trend of total direct costs attributed to the declining trend in underwriting fees and non-underwriting direct costs, thereby affecting external equity financial structure adjustments. Offer size is a critical determinant for both total direct costs and their components and inversely affects these costs. The total direct costs are significantly higher for equity REITs than for mortgage REITs and are also considerably higher for offers listed in the New York Stock Exchange (NYSE). Underwriting costs seem to be affected negatively by the bid price, the number of representative companies involved, the Changes in the industry return, and the number of potential risk specific factors but are positively affected by the dividend yield and ownership limit for the industry in the previous quarter as outlined in the prospectus. After checking for time trends, REIT IPOs incur higher direct costs due to higher changes in returns to the industry before the offer.

Theory suggests that financing frictions can have significant implications for equity changes by shaping firms' exposure to economic risks. This paper provides evidence that an essential determinant of higher equity changes among research and development (R&D) -intensive firms is fewer financing constraints on firms' ability to access growth options. I provide evidence for this effect by studying how persistent shocks to the value of firms' tangible assets (real estate) affect their

subsequent equity changes. The analysis addresses concerns about identifying these balance sheet effects and shows that these effects are consistent with broader patterns on the equity Changes in R&D-intensive firms (Carvalho, 2018).

Bolton and Freixas (2000) propose a financial markets model and corporate finance, with asymmetric information and no taxes, where equity issues, bank debt, and bond financing coexist in equilibrium. The relationship banking aspect of financial intermediation is emphasized: firms turn to banks as a source of investment mainly because banks are good at helping them through times of financial distress. This financial flexibility is costly since banks face capital costs themselves (which they attempt to minimize through securitization). To avoid this intermediation cost, firms may turn to bond or equity financing, but bonds imply an inefficient liquidation cost and equity an informational dilution cost. In equilibrium, we show that the riskier firms prefer bank loans, the safer ones tap the bond markets, and the ones in between prefer to issue both equity and bonds. This segmentation is broadly consistent with stylized facts.

Financing is one of the significant issues affecting the success and survival of entrepreneurial ventures. Theory suggests that due to information asymmetry between owners and investors or lenders, there is a "pecking order" of financing preferences, whereby retained earnings are preferred to debt, and outside equity is seen as a last resort. In high-tech ventures, however, external equity financing is more commonly used than debt, but the reasons for this are not yet well-understood. We develop hypotheses to examine this theory-practice gap, which we test using a sample of private high-tech firms of various ages. The greater the owner's perception of information asymmetries in debt markets, the more significant the proportion of external equity in the firm's capital structure. As our sample firms age, their use of external equity relative to other sources of finance diminishes. We also find a positive relationship between the use of external equity and the firm's initial investment. Last, we show that the greater the perception amongst founders that obtaining external equity sends a positive signal, the greater its use. We discuss the implications of these findings and suggest future research and practice (Hogan et al., 2017).

2.4.4 Short-Term Debt Volatility and Stock Returns

In the USA, Friewald, Nagler and Wagner (2022) set out to investigate how debt structure and the related changes (both short term debt and long-term debt) affect stock returns. The sample was chosen from NYSE, AMEX and NASDAQ and comprised non-financial firms that were levered. The study period was 44 years and covered January 1976 through December 2019. Returns were obtained from CRSP data (Center for Research in Security Prices). Panel regression analysis was used and hypotheses tested at 95% confidence interval. The findings from the study revealed that short term debt structure and the related changes had a positive effect on stock returns and had a positive stock return premium. Accordingly changes in the short-term debt structure are positively priced by the stock markets in America.

Jakobsen and Engebakken (2022) set to find out how debt maturity and the related changes in such maturity affect stock returns on the Japanese Stock Market. The study evaluates both short term debt structure and long-term debt structure and hypothesizes that none of them has any influence on stock returns testing this hypothesis at 95% confidence interval. Panel regression analysis is used in this study that focuses on non-financial firms. The findings from the study reveal that short term debt structure has a positive effect on stock returns and has a positive return premium. From the findings, portfolios that ad a large proportion of short-term debt exhibited higher than average stock returns and vice versa.

Shikumo, Oluoch and Matanda (2020) sought to establish the effect of short-term debt structure and its changes on growth of non-financial firms listed at the Nairobi Securities Exchange. Though not strictly focusing on market returns, the study used market capitalization as one of the indicators of growth and since capitalization is a function of market prices, it has a direct bearing and relationship on stock returns. The study covered a study period of ten years that ran from January 2008 to December 2017.Short term debt as a fraction of total finance was used to indicate the short term debt structure. The census study of 45 firms and 450 firm-year observations was fashioned as an explanatory study and tested the null hypothesis of no effect at 95% confidence interval. The null hypothesis was rejected with the

finding that short term debt and its changes have a positive effect on growth in market capitalization. This in the context of the current study implies that short term debt structure has a positive effect on stock returns for non-financial companies listed at the Nairobi Securities Exchange.

In Nigeria, Ahmad, Bakar and Islam (2020) sought to find out the influence of debt financing in the capital structure of firms and the corresponding changes in firm value. In the study, both long-term debt structure and short-term debt structures were appraised over a ten-year period that covered 2008 through 2017 both years inclusive. The study had a sample of three hundred firm year-observations. Secondary data was utilized in the study and panel data regression was utilized to generate coefficients for testing the null hypotheses at 95% confidence interval. The hypothesis was not rejected with respect to short term debt structure which was found not to have any effect on firm market valuation (which is positively correlated with firm stock market returns). The hypothesis was however rejected for the changes in the long-term debt structure whereby it was found to have a positive effect on firm value and therefore on stock returns for firms listed at Nigeria Stock Exchange.

Despite balanced budget requirements, most states carry short-term debt (STD) across fiscal years each year. Logit analysis results suggest structural fiscal stress causes states to move STD across fiscal years. This strategy may not be rational because STD is a tool for smoothing short-term shortfalls, and not correcting structural fiscal stress. Cross-sectional time series analysis results suggest both structural and cyclical factors influence the amount of year-end STD. Findings suggest STD amounts fluctuate as a rational temporary replacement for long-term debt, growing when long-term rates rise and decreasing when they fall (Trogen, 2015).

Eldomiaty and Azim (2008) examine firms' strategies to change long- and short-term debt financing in Egypt. It aims to investigate a list of capital structures. The purpose of this paper is to examine firms' strategies to change long- and short-term debt financing in Egypt. It aims to explore a list of capital structure

determinants that include the basic assumptions of the three well-known capital structure theories: trade-off, pecking order, and free cash. The paper utilizes the partial adjustment model's properties for three heterogeneous systematic risk classes: high, medium, and low. The sensitivity analysis is carried out using the "extreme bound analysis." The results indicate that Egyptian firms adjust short- and long-term debt according to the class of systematic risk; long-term debt is a source of financing at all courses of systematic risk; firms have an apparent tendency to extent short- to long-term one; medium risk firms adjust long-term debt according to the average industry debt, and depend heavily on long-term debt financing; firms depend significantly and constantly on the liquidity position to adjust short-term debt levels, and medium risk firms are relatively affected by the basic assumptions of free cash flow and low-risk firms are somewhat influenced by the beliefs of the pecking order theory.

Farai and Merle (2014) analyze short-term debt financing determinants using the generalized method of moment (GMM) estimation to attest whether it follows a partial adjustment process. The study analyses data collected for 92 firms listed on the JSE Securities Exchange (JSE) from 2001 to 2010. The evidence obtained from the study suggests that firms have a target level of short-term debt and follow an adjustment process towards the target level. Spontaneous and internal resources, investment opportunities, and the economy's state play an essential role in using short-term debt as a short-term financing instrument among the listed companies. The study recommends that managers pay particular attention to the key factors that drive the use of short-term debt because of its importance in financing working capital.

The financial crisis of the late 2000s had a significant effect on the capital and lending markets in the United States and overseas. Fosberg (2013) shows that the financial crisis caused firms to increase the amount of short-term debt they employed from 1.3% of assets in 2006 to 2.2% in 2008. This increase in short-term debt financing was entirely reversed by the end of 2009, suggesting that the rise in short-term debt financing was undesired and was changed as soon as the financial crisis abated. The proximate causes of the spike in short-term debt financing include a

reduction in accounts payable financing from suppliers and a decline in long-term debt and equity financing. A significant decrease in asset sales also contributed to the need for more short-term debt financing. A regression analysis indicated that almost all of the increase in short-term debt financing was caused by the financial crisis and not the simultaneous recession.

Gupta et al. (2008) contend that weak legal regimes discourage lender enforcement of contracts by making it either costly or ineffective. However, Diamond observes that this lender passivity can be overcome by structuring debt as a short-term loan. He argues that the arrival of bad news in the presence of short-term debt can result in externalities that will trigger a run on the firm and that this, in turn, creates ex-ante incentives for lenders to enforce their contracts. We examine whether short-term debt creates an incentive for borrowers to delay the recognition of bad news through earnings management. Using a sample of firm-level data from 33 countries over ten years, we find that short-term debt induces more outstanding earnings management. This impact of short-term debt is significantly more significant in countries with weak legal regimes. This evidence is consistent with the hypothesis that borrowers will manage earnings to circumvent lender enforcement.

It has been widely argued that excessive short-term debt has been a significant cause of recent financial crises. (Saravia, 2013) finds evidence that IMF lending programs, on average, serve to reduce the maturity of sovereign bond issues, which is undesirable. However, the impact of IMF interventions varies significantly across countries that differ according to their fundamental macroeconomic soundness: countries with weak fundamentals tend to lengthen their debt maturities following the heels of an IMF lending program. This suggests that the IMF should ensure that its interventions do not increase incentives for short-term debt issuance in countries not at risk of imminent crisis but might put themselves at risk through imprudent borrowing practices.

In light of its mandate, the recent credit crisis has raised several interesting issues concerning the Federal Reserve Bank's role and the efficiency of its anticipated and unexpected financial markets intervention. Dunbar and Amin (2012) examines the

impact on credit risk premium of anticipated and unexpected changes in the federal fund rate objectives. The paper's main innovation is to generate the Fed's expected and unexpected monetary policy shocks, which are then used to determine the effects of a Federal Reserve policy change on counterparty credit risk and more importantly short-term firm debt financing. The findings answer the long-standing question researchers wanted about the impact on firm debt financing of policymakers' announcements. This shows that, for the expansionary and contractionary monetary policies, the Federal Reserve influences debt financing through the credit channel. We find that the growth of counter-party risk is less responsive than the unanticipated growth in the federal fund rate to anticipated responses in the Fed.

2.4.5 Stock Liquidity and Stock Returns

Chiang and Zheng (2015) sought to find out how stock liquidity affects stock market returns. They relied on international data from G7 countries. Their study was carried out over a study period of twenty years and it relied on panel data regressions to test the null hypothesis that liquidity had no significant effect of firm stock market returns. The study analyzed liquidity at two levels being the market level liquidity and the firm level liquidity. The findings revealed that market illiquidity had a positive effect on stock market returns at the macro level but had a negative effect at the firm level. This implies that the pricing effect of illiquidity or liquidity for that matter depends on whether analysis is happening at the firm level or at the market level and in either case, it is a market priced factor in the G7 countries. The findings further revealed that the macro level illiquidity had the greatest impact on large capitalization stocks, high growth firms as well as stocks with an enhanced level of liquidity.

Violita and Soeharto (2019) sought to establish how stock returns were impacted upon by stock liquidity at the Indonesia Stock Exchange. The study was carried out over a study period of 5 years that run from 2013 to 2017. The study units of focus were manufacturing firms on that particular market. Using purposive sampling of the market secondary data, the hypothesis that stock liquidity had no influence on market returns was tested at 95% confidence interval using the t-statistic and the coefficients

were obtained via the multiple linear regressions. The findings led to the rejection of the null hypothesis with the conclusion that stock liquidity had a positive influence on stock returns. This means that in line with market risk premium of the capital asset pricing model, stock liquidity can also be added as a security pricing factor in a multi-factor asset pricing model particularly for manufacturing stocks in Indonesia.

In the United States of America (USA), Li and Luo (2019) sought to establish the interrelationship between stock liquidity, financial constraints and stock market returns on companies listed at the NYSE, AMEX and NASDAQ. The study period was 43 years spanning from 1975 to 2017. The findings indicated that for liquid stocks, the influence on returns was negative. This revised to be a positive influence when illiquid stocks were considered. The results further indicated that when firms are constrained financially, the liquidity risk is enhanced leading to excessive illiquidity return premium when weighed against firms that did not have financial constraints. The other interesting finding from the study was that stock liquidity was a pricing factor for the firms that were facing financial constraints irrespective of whether the pricing was done during harsh financial periods of successful financial eras.

Stereńczak, Zaremba and Umar (2020) sought to find out if there is any stock illiquidity return premium among 22 frontier markets. These were companies from Argentina, Bahrain, Bangladesh, Croatia, Estonia, Ivory Coast, Jordan, Kazakhstan, Kenya, Kuwait, Lebanon, Lithuania, Mauritius, Morocco, Nigeria, Oman, Romania, Serbia, Slovenia, Sri Lanka, Tunisia and Vietnam. The study period covered 29 years which spanned from 1991 to 2019. The study findings found no illiquidity premium for the frontier markets unlike the popular momentum pricing effect where it is a priced factor by the stock markets. They conclude that contrary to developed and emerging markets, for the fronter markets, the dissipation of the illiquidity return premium in the frontier markets is due to the effects of portfolio diversification.

Batten and Vo (2019) sought to examine the relationship between the liquidity of a firms ordinary shares and the valuation of that firm in the stock market. The study was carried out in Vietnam. The study used the companies quoted on the Ho Chi

Minh City Stock Exchange. The study period was 9 years covering January 2006 to December 2014. Panel data regression analysis was used in the study. The null hypothesis that stock liquidity has no significant effect on firm stock market value was tested at 95% confidence interval. The study established that firm stock market liquidity is a market priced factor and that the liquidity is negatively priced at the Ho Chi Minh City Stock Exchange such that the higher the stock liquidity, the lower the firm market capitalization and vice versa.

2.5 Critique of Literature

The critical review of the existing empirical studies concerning objectives, study variables, methodology, conclusions, and research gaps revealed many associated methodological questions, requiring further investigations. On this basis, this subsection discusses the questions for further investigation, which are emphasized in various studies, which have been concisely reviewed concerning financial structure volatility and ordinary equity security returns of public limited companies in Kenya.

There was no priority in the review to theoretical foundations like some of the hypothetical drive employed by most studies. According to Kothari (2009), a cause-and-effect hypothesis must drive the empirical tests to be carried out to justify an excellent theoretical connection between the variables and the hypothesis before the conclusion. The theories on which the hypotheses were based and selecting small samples to come out with a decision were not demonstrated by Aharon and Yagil (2019), which could hinder its logical significance. Similarly, Chen et al. (2014) failed, notwithstanding the determinative effects in the study, to demonstrate any theoretical foundation upon which to anchor their statements.

Moreover, Seo et al. (2017) provided neither a theoretical structure to support their empirical and long-term studies. It is imperative that the study had to present the theoretical background to illustrate how CEO overconfidence moderated the relationship between growth opportunities and long-term debts. The high level of compliance with existing empirical findings was demonstrated by Nguyen & Rugman (2015), but no theoretical base was available. This could serve as a basis for perforating the empirical impact on internal equity financing. As a result, the link

between the various explanatory variables used and the response variable for the studies was not established in this study.

The heterogeneity problem was found rampant among many studies that focused on financial structure volatility and expected equity returns, mainly through the various backgrounds of the studies. The heterogeneity of different features and sample units is an essential part of the panel data regression analysis (Greene, 2012). The Housman test should be carried out to help choose between a fixed-effects model and a random-effects model. Notwithstanding the multi-dimensional approaches of Bolton and Freixas (2000), the standard test of the parametric distribution of data has not been established; hence, its generalization could be punctured due to the heterogeneity problem.

Suppose the ordinary least square (OLS) is used in a study, to be efficient and consistent in regressions estimates, the assumptions of classical linear regression models should be observed for relevant diagnostic tests (Gujarati & Porter, 2010). This ensures that the estimated model is appropriate and that the best linear unbiased estimate is indicated. Hogan et al. (2017)'s failure to accept the OLS assumptions and adequate diagnostic checks and the possibility of a variable measurement problem affect their submissions' validity. The researchers are also expected to prioritize the specification effect to prevent bias in risk measurement-based studies and avoid fundamental technical estimation problems, especially when sample units are heterogeneous.

Failure to put more emphasis on the study variables employed in this study was seen in most studies. The studies on the effect of financial structure volatility on ordinary equity returns were scanty. Most studies Dunbar and Amin (2012), Carvalho (2018) have deliberately ignored relating their factors of financial structure to their effect on ordinary equity security return. None of the studies focused on elements of Financial Structure Volatility. On the other hand, these studies address concerns about the identification of balance sheet effects and show that these effects are consistent with broader patterns on the equity Changes in R&D-intensive firms instead of a focus on

Financial Structure Volatility. Finally, the existing literature has focused on the effect of capital structure on returns, avoiding Financial Structure Volatility.

2.6 Research Gaps

The existing theoretical, conceptual and empirical literature review has been enriching in explaining how financial structure volatility influences share prices and therefore share returns. Some gaps have, however, been established. The outstanding ones are identified in the following paragraphs.

Firstly, the existing empirical studies Tailab (2014), Kamau (2010) and Van Rixtel et al. (2015) have failed to evaluate how financial structure in general and financial structure volatility influence stock returns. They, however, fail to take into account the moderating effect of market liquidity. This is a severe literature gap because it has been shown that the return in the market is a function of market liquidity with respect to how easy it is to trade, in particular security with minimum effort and cost. In line with the efficient market hypothesis of Fama (1970), the level of efficiency has a direct impact on the degree of stock liquidity. If this is the case, it would be interesting to determine how the liquidity of stocks in a weak-form efficient market like the Nairobi Securities Exchange moderates the relationship between financial structure volatility information and equity security returns.

Another prominent gap that emerges from extant literature illustrates that it focuses on capital structure and financial structure to exclude their changes. The studies like those of Khan et al. (2020), Kim et al. (2015), and Welch (2004) focus on capital and financial structure, yet it is expected the Changes in the structure should have a more profound effect than the structure itself. In essence, the changes in the structure reflect financial information with variation in time, yet financial structure in itself is seen at a static time level. Therefore, it is paramount to explore how the fluctuations in the financial structure affect the share prices and thereby the share returns.

From a theoretical perspective, the existing gap is that various theories explain the interrelationship between financial structure volatility and share price returns. All these arrive at confounding explanations of the phenomenon. Whereas the efficient

market hypothesis of Fama (1970) predicts that the effect on share returns was dependent on the level of market efficiency, the random walk theory, on the other hand, predicts that share prices are unpredictable in line with the random nature of financial structure information. The asymmetrical information theory of Easley and O'Hara (2004) agrees with EMH and is only applicable in inefficient markets. Therefore, there is no single unifying theory that thoroughly explains how financial structure volatility influences share prices and returns. Findings from such a study as this one will help bridge the gap among the competing theories.

From a contextual perspective, the overriding literature gap is that over the period 2011 to 2020, the equity markets have experienced all the phases of the market cycle raging from decline (2013), depression (2011 – 2012 and 2020), recovery (2016 - 2017) to boom (2018 - 2019). Yet, no study points out the bull and bear market effects of these changes alongside the fluctuations in financial structure on the share returns.

2.7 Research Summary

This chapter involved the review of theoretical, conceptual and empirical literature from around the globe, from Africa and from Kenya. The study was based on 7 theories that tried to explain how volatility in financial structure affected the market returns of stocks listed in publicly trading exchanges. These theories are identified as the Efficient Market Hypothesis; the Random Walk theory; the Firm Market Activity Theory; the Capita Structure Irrelevance Theory; the Asymmetric Information Theory; Risk Dichotomy Theory; and the Market Timing Theory.

Conceptually, the study related the annual volatility in financial structure to the stock market returns f companies listed on the stock market as well as the moderating influence of stock liquidity. It emerged from the review that components of financial structure were proportions of short-term debt, long term debt, internal equity and external equity to the total finance. Measurement of volatility is done suing standard deviation on a moving basis also called a rolling basis while liquidity is reflected by the volumes of stocks sold in the stock markets. Market return is indicated by holding period returns for each of the evaluation periods under review.

Eventually was done the empirical literature review in which there were confounding findings as to whether financial structure and its volatility had any pricing effect and whether they had any influence on stock returns. Some studies predicted a positive effect (for example, Ezirim, Ezirim and Momodu, 2017); Nguyen et al., 2020; Ali, 2016); Sattar, 2019) while others predicted a negative effect (for example, Ali-Abbar & Randjbaran, 2015; Sibindi, 2020). Some others revealed results that indicated lack of any statistically significant influence (for example, Salim & Susilowati, 2019; Chandria et al., 2019; Gharaibeh, 2014)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter looked at the methodological issues related to research design, target population, sample and sampling techniques, the data collection instruments, data analysis, and presentation. The methodology is the organized, theoretical analysis of methods applied to a specific study. It encompasses the theoretical exploration of the body of approaches and ideologies related to a particular branch of knowledge. The methodology comprises archetype, theoretical model, phases, and quantitative or qualitative techniques (Ishak, 2005). This chapter aimed to provide the basis for the research methods used to understand annual Financial Structure Volatility, stock liquidity, and ordinary equity security returns of public limited companies in Kenya. The chapter explored the details of variables used to test the hypotheses and to pretest their validations. Finally, the techniques used to analyze the data and the study models were also presented.

3.2 Research Philosophy

Research philosophy is the scientific research approach upon which inclinations of any study are based (Crowther & Lancaster, 2009). The decision of a research philosophy decides the research structure. Research philosophy refers to a system of beliefs and assumptions about developing a particular phenomenon (Saunders et al., 2009). Two philosophical customs that manage social science research are positivism and phenomenological. Positivism adheres to the view that only factual knowledge gained through observation, including measurement, is trustworthy. In positivism studies, the role of the researcher is limited to data collection and interpretation in an objective way (Ryan, 2018). The phenomenological approach does not start from a built-up hypothesis. The researcher only creates thoughts through acceptance and maybe a member eyewitness and endeavors to comprehend what's going on and explores little examples top to bottom after some time (Saunders et al., 2007).

The study adopted the Philosophy of Positivism, a methodology that looks for quantifiable observations that lead to statistical analyses. Positivism relates to the philosophical stance of the natural scientist and entails working with an observable social reality to produce law-like generalizations (Saunders et al., 2009). The choice of this philosophy is anchored on the motivation behind this study, the kind of research, the degree of researcher association, the timespan over which information is gathered, and the sort of investigation required. By embracing a positivism philosophy, this study concentrated on hypothesis testing, wherein hypothesis was initially adopted as the system for creating and testing speculations. This highlighted the logical direction that this research adopted.

3.3 Research Design

Research design is characterized as a structure of strategies and systems picked by the researcher to join different research segments in a sensibly way to empower him/her to handle the research issue proficiently. A research design gives bits of knowledge about direct research in a specific philosophy (Bhat, 2018). It can be said to be the general technique that the researcher incorporates the various segments of the study in a sound and coherent manner, guaranteeing that he/she successfully addresses the research problem. It establishes the outline for the accumulation, estimation, and investigation of data. The research problem decides the kind of design to be utilized and not a different way. The research design guarantees that the proof acquired empowers you to adequately address the research problem coherently and as unambiguously as could be allowed (David, 2001).

This research aimed to describe and explain the causal effect of financial structure annual volatility on ordinary equity stock returns. The study therefore adopted a causal or explanatory research design. This design showed the impact and explanation of causes of such effect between variables (Kerlinger & Lee, 2000). Additionally, Kothari (2009) further supports this research design since explanatory research design aims to establish the causal relationship between variables. Mugenda and Mugenda (2013) assert that explanatory research is intended to explain, rather than describe, the phenomena being studied, as this study further supporting the

choice of the design. According to Cooper and Schindler (2003), an explanatory research design is mainly used where some essential information, primarily quantitative on a study, is a variable and whose independent variables are not subject to manipulation in analysis. Therefore, this guideline fits this study since the data used in the variables measuring the effect of annual financial structure volatility on ordinary equity stock returns was easily verified.

3.4 Study Population

Pandey and Pandey (2021) alluded that the target population employed in research is the comprehensive set of components for which data is collected and used to build inferences regarding a particular phenomenon. Thus, the target population describes those components for which the findings of the study are meant. Sekaran (2003), on the other hand, defines the target population as the total cluster of people, events, or things of attention that the researcher proposes to examine. Owing to this fact, therefore, the target population for this study was all public limited companies over the period from January 2012 to December 2022 (Appendix I). Public limited companies were chosen due to the nature and availability of authentic data. This is because they are public and are therefore bound by the public need through their regulators, to generate information that is accurate, objective, uniform, and reliable.

Since there were 67 listed firms at the Nairobi Securities Exchange as of the end of the year 2022, a census study was employed. A census is a procedure of scientifically obtaining and recording data about the elements of a specific population (Pandey & Pandey, 2021). Census is also the study where data is collected from the whole population (Kumar, 2011). It can also be termed as a situation where it is possible to collect and analyze data from every possible case or group member of the entire population (Saunders et al., 2009). By including all the information for all the subjects in the research, a census study eradicates the possibilities of sampling errors. Also, it enhances the validity of the data collected and even the results (Saunders et al., 2009).

3.5 Data and Data Collection Techniques

According to Burns and Grove (2005), Data collection can be defined as a systematic approach to gathering and measuring information from various sources to get a complete and accurate picture of an area of interest. It enables a person or organization to answer relevant questions, evaluate outcomes, and make predictions about future probabilities and trends. Only secondary data obtained from the Nairobi Securities Exchange was relied upon in this study in the spirit of achieving the set objectives. Since the study adopted a census form of populating data, the procedure involved then includes obtaining data from NSE handbooks and the audited financial statements from individual company websites in determining the effect of annual financial structure volatility on ordinary equity stock returns. The data obtained from the audited financial statement of the quoted companies were compared with the documentation of the Nairobi Securities Exchange to ensure correctness in data collection. The study, therefore, involved the use of secondary data collected from the companies' financial statements for the period of eleven years from January 2012 to December 2022 as shown in table 3.1.

Table 3.1: Data Measure and Source

Variable	Measure	Data	Source
Long-term Debt Volatility	3-year moving standard deviation of long-term debt proportion of total finance	Bonds, debenture, mortgages, Loans and total finance	Balance Sheet
Internal Equity Volatility	3-year moving standard deviation of Internal equity proportion of total finance	Reserves, retained earnings to total finance	Balance Sheet
External Equity Volatility	3-year moving standard deviation of external equity proportion of total finance	Ordinary share capital to total finance	Balance Sheet
Short-term debt Volatility	3-year moving standard deviation of short-term debt proportion of total finance	Creditors, accruals, deferrals to total finance	Balance Sheet
Stock Liquidity	Trade volumes	Number of shares traded Outstanding shares	NSE
Ordinary Equity Security Return	Holding Period Return	Period end and start equity prices	NSE

3.6 Data Analysis and Processing

Pandey and Pandey (2021) suggest that data analysis is the processing of data collected to make meaningful information out of them since raw data may convey little or no meaning. This study employed secondary data collected from public limited companies listed in the Nairobi Securities Exchange from January 2012 to December 2022. Therefore, in this research endeavor, the data collected was analyzed using descriptive and inferential statistics. The study employed causal or explanatory research design as explained in Section 3.3, which typically examined the effect of annual Financial Structure Volatility, stock liquidity, and ordinary equity security returns of public limited companies in Kenya.

3.6.1 Model Specification

The model specification of this study was to examine the effect of annual financial structure volatility on ordinary equity security returns of public limited firms in Kenya. The stock liquidity was examined on how it moderated this relationship. The study adopted panel data to carry out the research analysis for eleven years from January 2012 to December 2022. Using panel data, it was possible to include time effects and control for individual heterogeneity, captured by firm-specific fixed or random effects components, leading to biased results when neglected in cross-section or time-series estimations (Baltagi, 2005). The assumption of the fixed-effect model includes homogeneity of the estimates across the entities, and the error term between the entities μ_{it} is equal to zero.

On the other hand, a fixed-effect model assumes a correlation between the error term μ_{it} and the predictor variables. However, in a random-effect model, the variation across entities is considered to be random. The error term between the entities μ_{it} is equal to zero and is estimated (Biørn, 2016). However, this study adopted the Biørn (2016) version based on the study's modified inferential statistical analysis and discussion. The panel regression models used in the study are presented as follows:

The panel regression model without the moderating variable

$$HPR_{i,t} = \beta_0 + \beta_1 LTDRV_{i,t} + \beta_2 IERV_{i,t} + \beta_3 EERV_{i,t} + \beta_1 STDRV_{i,t} + e_{i,t} - - - - - - - (3.1)$$

The panel regression model with the moderating variable is as follows:

$$HPR_{i,t} = \beta_0 + \beta_{i,t} X_{i,t} + \beta_m (X_{i,t} * M_{i,t}) + e_{i,t} - - - - - - - - - - - - - - (3.2)$$

Substituting $M_{i,t}$ the moderator variable for TVR_{it} (trading volume ratio, the indicator of liquidity) the resultant equation is therefore:

$$HPR_{i,t} = \beta_0 + \beta_{i,t} X_{i,t} + \beta_m (X_{i,t} * TVR_{i,t}) + e_{i,t} - - - - - - - - - - (3.3)$$

Where:

β_0 = The intercept of the model

$\beta_1 - \beta_4$ = Coefficients of the indicators of financial structure annual volatility

$X_{i,t}$ =Measures of Independent Variables (LTDRV, IERV, EERV, STDRV)

$M_{i,t}$ = Moderator variable, the Stock Liquidity (SL) as indicated by trading volume ratio (TVR)

LTDRV = Long Term Debt Ratio Volatility

IERV = Internal Equity Ratio Volatility

EERV = External Equity Ratio Volatility

STDRV = Short Term Debt Ratio Volatility

TVR = Trading Volume Ratio

i = Individual firm

t = Individual year in each of the 11 years in the period of study

e_{it} = Stochastic term

Panel data typically refer to information containing time-series observations of several study units (Pandey and Pandey, 2021). Therefore, observations in panel data involve at least two dimensions; a cross-sectional size, indicated by subscript *i*, and a time-series extent, indicated by subscript t (Pandey & Pandey, 2021). The collection of panel data is much more costly than the collection of cross-sectional or time-series data. However, panel data have become widely available in developed and developing countries (Biørn, 2016). Panel data are better able to study the dynamics of adjustment. Cross-sectional distributions that look relatively stable hide a multitude of changes. Panel data are also well suited to study the duration of economic states, and if these panels are long enough, they can shed light on the speed of adjustments to monetary policy changes (Baltagi, 2005). In this study the individual units are the companies listed at the NSE while the time period in the panel data is the 11 years of study covering 2012 through 2022.

They generate more accurate predictions for individual outcomes by pooling the data rather than developing individual results using the data on the individual in question. If individual behaviors are similar conditional on specific variables, panel data provide the possibility of learning an individual's behavior by observing the behavior of others. Thus, it is possible to obtain a more accurate description of an individual's behavior by supplementing observations of the individual in question with data on other individuals (Greene, 2012).

3.6.2 Variable Operationalization

The main objective of this study was to examine the effect of annual financial structure volatility on ordinary equity security returns among public limited companies in Kenya. Consequently, the study adopted holding period equity security returns as the dependent variable and annual financial structure volatility elements as the independent variables. In contrast, stock liquidity was adopted as the moderating

variable as measured by the trading volume ratio (TVR). The measurement of these variables was adopted as follows:

The study began by examining the effect of long-term debt volatility on ordinary equity security returns. Long-term debts are those liabilities the company does not have to pay for at least a year (Claywell, 2019). They include bonds, debentures, and term loans. Continuous time-series data was collected concerning long-term debts from firms listed in the Nairobi Securities Exchange. Before examining the annual long-term debt volatility, the study determined an annual ratio of long-term debts to total finance. This ratio identified as long-term debt ratio (LTDR) was computed as:

$$LTDR_{i,t} = \left[\frac{Long\ Term\ Debt}{Long\ Term\ Debt + Internal\ Equity + External\ Equity + Short\ Term\ Debt}\right]$$

$$LTDR_{i,t} = \left[\frac{Long\ Term\ Debt}{Total\ Finance}\right]$$

Following Bansal, Connolly and Stivers (2015), the study went on to determine the volatility in LTDR based on a 3-year moving standard deviation of LTDR to examine the annual long-term debt volatility. Standard deviation is a statistical tool that checks how far a variable on average deviates from the average. In this case the three-year rolling average of LTDR was established and named Average Long Term Debt ratio (ALTDR).

$$ALTDR_{i,t} = \frac{1}{3}\sum_{t=1}^{3} LTDR_{i,t}$$

The second independent variable of the study was internal equity structure annual volatility. This was used to subsequently examine the effect of internal equity volatility on ordinary equity security returns. Internal equity funding sources included a company's retained earnings, start-up and additional tranches of investor funding, a company's stock and fixed assets on hand, and its collection of debt or money owed to the company. Continuous time-series data was collected from public limited companies listed in the Nairobi Securities Exchange for 11 years of 2012 to

2022. To measure A ratio of internal equity, which includes reserves and retained earnings to total finance, was established. This ratio was identified as the Internal Equity Ratio (IER) computed as:

$$IER_{i,t} = \left[\frac{Internal\ Equity}{Long\ Term\ Debt + Internal\ Equity + External\ Equity + Short\ Term\ Debt}\right]$$

$$IER_{i,t} = \left[\frac{Internal\ Equity}{Total\ Finance}\right]$$

After determining the proportion of internal equity in financial structure of the firms listed at the NSE, a 3-year moving standard deviation of the IER was established as the indicator of internal equity volatility. This is called the internal Equity Ratio Volatility (IERV). The volatility was indicating how individual IER were on average far away from the three-year rolling average of those IER values. The rolling means of IER were computed on a 3-year basis and identified as average internal equity ratio (AIER) as:

$$AIER = \frac{1}{3}\sum_{t=1}^{3} IER_{i,t}$$

The third independent variable of the study was external equity financial structure annual volatility. Forms of external equity include ordinary share capital and ordinary share premium (Graham, Adam, & Gunasingham, 2020). In operationalizing external equity volatility, the study first measured external equity structure for each firm on an annual basis. This was identified as the ratio of external equity to the total finance of the ratio which was called external equity ratio (EER) as indicated below:

$$EER_{i,t} = \left[\frac{External\ Equity}{Long\ Term\ Debt + Internal\ Equity + External\ Equity + Short\ Term\ Debt}\right]$$

$$EER_{i,t} = \left[\frac{External\ Equity}{Total\ Finance}\right]$$

To determine the volatility in EER, a 3-year rolling standard deviation of EER was established and identified as EERV (external equity ratio volatility). The standard deviation was based on the 3-year rolling arithmetic means of EER for each firm (Average External Equity Ratio – AEER) computed as:

$$AEER = \frac{1}{3}\sum_{t=1}^{3} EER_{i,t}$$

The last independent variable of the study aimed to examine the effect of Short-term debt volatility on ordinary equity security returns. Short-term debts are those liabilities that fall due for payment within a short period of time, usually within one financial period. They relate to such liabilities as creditors, short term loans, bank overdraft, unearned income, payables for expenses and other similar accruals (Graham, Adam, & Gunasingham, 2020). Before examining the annual short-term debt volatility, the study determined an annual ratio of short-term debts to total finance. This ratio identified as short-term debt ratio (STDR) was computed as:

$$STDR_{i,t} = \left[\frac{Short\ Term\ Debt}{Long\ Term\ Debt + Internal\ Equity + External\ Equity + Short\ Term\ Debt}\right]$$

$$LTDR_{i,t} = \left[\frac{Short\ Term\ Debt}{Total\ Finance}\right]$$

Following Bansal, Connolly and Stivers (2015), the study went on to determine the volatility in STDR based on a 3-year moving standard deviation of STDR to examine the annual long-term debt volatility. Standard deviation is a statistical tool that checks how far a variable on average deviates from the average. In this case the three-year rolling average of STDR was established and named Average Song Term Debt ratio (ASTDR).

$$ASTDR_{i,t} = \frac{1}{3}\sum_{t=1}^{3} STDR_{i,t}$$

The moderating variable in the study was stock liquidity. Stock liquidity describes the degree to which an asset or security can be quickly bought or sold in the market at a price reflecting its intrinsic value at negligible explicit and implicit cost (Graham, Adam, & Gunasingham, 2020). In other words, the ease of converting it to cash. This variable was measured by examining the trade/stock volumes. Trading Volume is the total number of securities that are traded during a given period. In the context of a single stock trading on a stock exchange, the volume is commonly reported as the number of shares that changed hands during a given day. The transactions were measured on the total number of stocks traded. The variable was measured using the trading volume ratio (TVR) taken as the annual number of securities traded as a fraction of a firms outstanding shares.

$$TVR_{i,t} = \left[\frac{Annual\ Volume\ of\ Ordinary\ Shares\ Traded\ at\ the\ NSE}{Total\ NUmber\ of\ Outstanding\ shares\ of\ the\ Company}\right]$$

Finally, the dependent variable of the study was ordinary equity security returns. This was taken as the holding period returns in line with (Graham, Adam, & Gunasingham, 2020). This is the dividend adjusted unrealized capital gains of a period as a fraction of the price of an ordinary share at the beginning of a trading period, in this case the beginning if ever financial period in January. The gains are measured over the financial year with the prices at the end of the year being deemed to be cum-dividend. Holding period returns (HPR) Stock returns were therefore calculated as a ratio of the last annual security price.

$$HPR_{i,t} = \left[\frac{P_t - P_{t-1}}{P_{t-1}}\right]$$

In the above formulation, Pt is the market price per share (MPS) of a specified firm at the end of the year while Pt-1 is the MPS of that share at the beginning of the year. HPR indicates the returns that accrue to equity security investors at for a specified period, in this case, the year. IN line with Efficient Market Hypothesis of Fama (1970), the expectation of the study is that the annual volatility in the financial structure of a firm is a priced information factor and should therefore influence stock

prices and thereby have an effect on the stock returns at the NSE. The variables identified in this study have a summary of their measurements and analysis presented in table 3.2

Table 3.2: Measurement and Operationalization of Study Variables

Variable	Measurement	Formulation
Ordinary equity Security Returns	Holding period return (HPR)	$HPR = \left(\frac{P_t - P_{t-1}}{P_{t-1}}\right)$
Long term debt structure Annual Volatility	3-year moving standard deviation of long-term debt structure as measured by long-term debt ratio volatility (LTDRV)	$LTDRV = \sqrt{\frac{1}{n}\sum_{t=1}^{3}(LTDR_i - ALTDR)^2}$
Internal equity structure Annual Volatility	3-year moving standard deviation of Internal equity structure as measured by internal equity ratio volatility (IERV)	$IERV = \sqrt{\frac{1}{n}\sum_{t=1}^{3}(IER_i - AIER)^2}$
External equity structure Annual Volatility	3-year moving standard deviation of external equity structure as measured by external equity ratio volatility (EERV)	$EERV = \sqrt{\frac{1}{n}\sum_{t=1}^{3}(EER_i - AEER)^2}$
Short term debt structure Annual Volatility	3-year moving standard deviation of Short-term debt structure as measured by short-term debt ratio volatility (STDRV)	$STDRV = \sqrt{\frac{1}{n}\sum_{t=1}^{3}(STDR_i - ASTDR)^2}$
Stock liquidity	Stock volumes as a ratio of outstanding shares = TVR	$TVR = \frac{Annual\ Number\ of\ Shares\ Traded}{Total\ Outstanding\ Shares}$

Key:

- **HPR= Holding Period Return**
- **LTDR = Long-term debt ratio**
- **LTDRV = Long-term debt ratio Volatility**
- **ALTDR = Average long-term debt ratio**
- **IER = Internal equity ratio**
- **IERV = Internal equity ratio volatility**
- AIER = Average Internal equity ratio
- EER = External equity ratio
- EERV = External equity ratio volatility
- AEER = Average external equity ratio
- TVR = Trading Volume Ratio

3.6.3 Model Diagnostic Tests

The study began with a normality test. The test was essential for the data to demonstrate that the standardized residuals are normally distributed to guarantee the validity of inferences and reliability of the regression assessment (Alejo et al., 2015). The significant normality tests to be employed include Shapiro-Wilk W Test, and Kolmogorov-Smirnov Test. In the Shapiro-Wilk W Test, the ratio of two estimates of the variance of a normal distribution is based on a random sample of a number of observations. Kolmogorov-Smirnov Test is based on the supreme variance between the observed distribution and expected cumulative-normal distribution. In both cases, if p-value is less than the chosen alpha level, then the null hypothesis that the variables are not normally distributed is rejected. Simultaneously, if p-value is greater than the desired alpha level, it fails to reject indicating that the data came from a normally distributed population (Gujarati & Porter, 2009). This was to show if the data was normally distributed. These tests were in addition to the distribution measures of skewness and kurtosis.

The second diagnostic test was the autocorrelation Test. Autocorrelation test, also called serial-correlation, and determines the similarity between observations as a function of the time lag between the data. According to Gujarati and Porter (2009), serial correlation can be defined as a correlation between affiliates of a series of observations ordered in time or space. The autocorrelation test can be seen as one of the Classical Linear Regression Model (CLRM). An autocorrelation test was performed to ensure that the model parameter estimates are efficient. This test is usually conducted through Durbin Watson (D), as considered by this study. It, therefore, means that a value of D = 2 means there is no statistically significant autocorrelation. A value significantly below two implies that the data is positively correlated, which means, on average, a data element is close to the subsequent data element. A value of "D" significantly above 2 signifies that the data is negatively auto correlated. This would show no serial autocorrelation for the study (Gujarati & Porter, 2009).

The third diagnostic test was the heteroscedasticity test: A heteroscedasticity test was performed to deliberate on the association between the mean and average and detect whether the random error terms have different variances or not or there is unequal spread or variance. According to Pandey and Pandey (2021), to perform effective regression analysis, the random error term must be homoscedastic (variance equal variances). The test for homoscedasticity was therefore performed to check whether the variance of the error term is constant. Heteroscedasticity is one of the properties of a classical linear regression model to indicate that the estimators are efficient (Gujarati & Porter, 2009). The study used the Breusch Pagan Godfrey test. According to Gujarati and Porter (2009), heteroscedasticity is common in cross-sectional data and not in time series, which was assumed this study. The decision rule states that if the computed t-value exceeds the critical t-value, the researcher accepts the stated hypothesis of heteroscedasticity, otherwise reject (Greene, 2012).

The Fourth diagnostic test was Multicollinearity Test. When conducting a regression analysis, multicollinearity occurs when predictors are correlated with other predictors. Multicollinearity occurs when the study model includes multiple factors correlated to its response variable and each other. In other words, it results when the study has factors that are a bit redundant (Hsiao, 2008). Multicollinearity increases the standard errors of the coefficients. Increased standard errors mean that coefficients for some independent variables may be found not to be significantly different from 0. In other words, by overinflating the standard errors, multicollinearity makes some variables statistically insignificant when they should be significant. Without multicollinearity, those coefficients might be significant (Biørn, 2016). Multicollinearity was measured using Variance Inflation Factor (VIF), which assesses how much the variance of an estimated regression coefficient increases if your predictors are correlated. If no factors are correlated, the VIFs will all be approximately 1. If the VIF is equal to 1, there is no multicollinearity among factors, but the predictors may be moderately correlated if the VIF is greater than 1. A VIF between 5 and 10 indicates a high inter-correlation that may be problematic. And if the VIF goes above 10, you can assume that the regression coefficients are poorly estimated due to multicollinearity (Pandey & Pandey, 2021). The Inverse of VIF is Tolerance which has the same interpretation as VIF.

The fifth diagnostic test was Stationary test. Based on the nature of cross-sectional and time-series data, there is the need to test for stationarity. Unit root tests were used to detect nonstationary for all the variables (Gujarati & Porter, 2009). If variables are nonstationary, the tendency for the estimates to change over time exists. The study employed a unit root test described by Levin et al. (2002). This test's choice was based on the fact that it is best suitable for most micro and macro time series data with two hypotheses: pi identical and negative because pi is fixed across i. It also functions well as a test statistic when N is between 10 and 250 and when T is between 5 and 250 hence suitable for the study since N=15 and T=10.

The sixth diagnostic test was Cointegration Test and Granger Causality Test. These tests were also conducted to determine the long-run relationship among the variables using Engle-Granger Test. According to (Gujarati & Porter, 2010), an individual economic variable in a time series exhibits the probability of wandering extensively in panel data. There is the like hood of some series not drifting apart. As a result, the economic theory proposes the objective of forces that binds such series together. Consequently, upon this, testing for market integration and the Granger causality model was conducted. Gujarati and Porter (2010) illustrated that the cointegration model's application had reduced multicollinearity issues in estimation and specification effects. This test indicates whether the data are stationary. In practice, panel data are stationary.

3.6.4 Descriptive Statistics

A descriptive statistical analysis was employed for the study. It described the basic features or predict the nature of the data collected and provide simple summaries of the population (Saunders et al., 2009). According to Kothari (2014), descriptive research includes surveys and fact-finding enquires of different kinds that describe the state of affairs as it exists at present. Descriptive statistics as adopted by this study was measured with graphic illustrations that include tables, graphs, charts, trend analysis, percentages, frequency distribution, mean and standard deviations, and coefficients of variation that tend to capture the basis of further quantitative research for this study.

Three categories of descriptive statistics were carried out in this study. The first was measures of central tendency for all the variables in all the sectors of the NSE. This was indicated by the arithmetic mean of the various measures being LTDRV, IERV, EERV, STDRV, TVR and HPR. The second category of descriptive statistics was the measures of dispersion that indicate how far away from the means the actual measures are. Standard deviation was used to indicate the dispersion in the data for all the variables. The final categories of describing the nature of the data were the measures of distribution of the variable. In this case, Skewness and Kurtosis were used in the measurements.

3.6.5 Tests of Hypotheses

The study tested the hypothesis formulated to establish the effect of financial structure annual volatility on equity security returns of public limited companies in Kenya using the P-Value approach at a 95% level of confidence. The study aimed to test the statistical significance of the various models as indicated in the model 3.1 reproduced as:

$$HPR_{i,t} = \beta_0 + \beta_1 LTDRV_{i,t} + \beta_2 IERV_{i,t} + \beta_3 EERV_{i,t} + \beta_1 STDRV_{i,t} + e_{i,t}$$

The corresponding Hypotheses to be tested statistically in line with those presented in chapter 1 are established as:

$H_{01}: \beta_1 = 0;$ $H_{A1}: \beta_1 \neq 0 ----------(1)$

$H_{02}: \beta_2 = 0;$ $H_{A2}: \beta_2 \neq 0 ----------(2)$

$H_{03}: \beta_3 = 0;$ $H_{A3}: \beta_3 \neq 0 ----------(3)$

$H_{04}: \beta_4 = 0;$ $H_{A4}: \beta_4 \neq 0 ----------(4)$

The fifth null hypothesis is based on model 3.3 reproduced here as:

$$HPR_{i,t} = \beta_0 + \beta_{i,t}X_{i,t} + \beta_m\left(X_{i,t} * TVR_{i,t}\right) + e_{i,t}$$

In that case the fifth hull hypothesis presented as:

$$H_{05}: \beta_m = 0; \qquad H_{A5}: \beta_m \neq 0 \text{ - - - - - - - - - - - - - - - - (5)}$$

All the 5 hypotheses at the bivariate level, multivariate level and moderated level were tested using the t-statistic at the 95% confidence level and 0.05 level of significance. The tests are summarized in Table 3.3.

Table 3.3: Hypothesis Test

No.	Objective	Hypothesis	Analytical Tools	Criteria
1	To evaluate the effect of annual volatility in long-term debt proportion of the financial structure on equity security returns of public companies in Kenya	**H_{01}**: Long-term debt structure annual volatility has no significant effect on ordinary equity security return among public companies in Kenya.	Descriptive statistics, panel regression and correlation coefficients $H_{01}: \beta_1 = 0$	Reject $H0_1$, if $p<0.05$, otherwise fail to reject $H0_1$
2	To examine the effect of annual volatility in internal equity proportion of the financial structure on equity security returns of public companies in Kenya.	**H_{02}**: Internal Equity structure annual volatility no significant effect on ordinary equity security return among public companies in Kenya.	Descriptive statistics, panel regression and correlation coefficients $H_{02}: \beta_2 = 0$	Reject $H0_2$, if $p<0.05$, otherwise fail to reject $H0_2$
3	To determine the effect of external equity structure annual volatility on ordinary equity security returns among public companies in Kenya	**H_{03}**: External Equity structure annual volatility has no significant effect on ordinary equity security return among public companies in Kenya.	Descriptive statistics, panel regression and correlation coefficients $H_{03}: \beta_3 = 0$	Reject $H0_3$, if $p<0.05$, otherwise fail to reject $H0_3$
4	To establish the effect of volatility in short term debt proportion of the financial structure on equity security returns of public companies in Kenya.	**H_{04}**: Short-term debt structure annual volatility has no significant effect on ordinary equity security return among public companies in Kenya.	Descriptive statistics, panel regression and correlation coefficients $H_{04}: \beta_4 = 0_t$	Reject $H0_4$, if $p<0.05$, otherwise fail to reject $H0_4$
5	To determine the moderating influence of stock liquidity on the effect of annual financial structure volatility on ordinary security return among public companies in Kenya.	**H_{05}**: Stock liquidity does not moderate the effect of financial structure volatility on ordinary equity security returns of public limited firms in Kenya.	Descriptive statistics, panel regression and correlation coefficients $H_{05}: \beta_m = 0$	Reject H_{05}, if $p<0.05$, otherwise fail to reject $H0_5$

The decision rule encompassed a rejection of the null hypothesis (and adoption of the alternative hypotheses $H_{A,i}$) if the calculated p-value is less than 0.05 with the conclusion that the variable under evaluation has a specified effect on ordinary equity security returns as indicated by the Holding Period Return (HPR). If the calculated P-Value is greater than 0.05, the null hypothesis fails to be rejected affirmed. This was supplemented by t-test at 95% confidence interval. Coefficients of variation for the population were equally be determined to compare the degree of dispersion relative to the distribution's mean.

The overall model was tested for the goodness of fit of the balanced panel data. R^2 was employed as coefficient of determination. The degree of variation between financial structure volatility and the ordinary equity security returns indicated that the balanced panel data fit the overall model. Table 3.3 Summarizes the tests of hypotheses

CHAPTER FOUR

FINDINGS AND DISCUSSIONS

4.1 Introduction

The study investigated the effect of long-term debt structure annual volatility, internal equity structure annual volatility, external equity structure annual volatility, and short-term debt structure annual volatility on security returns of public companies in Kenya. The analysis was conducted using panel data from publicly traded companies listed on the Nairobi Securities Exchange for the period between 2012 and 2022. This chapter outlines the data analysis output, the research findings and their analysis thereof. Data was obtained from the audited financial statements collected from company website as well as the trading results on prices and trading volumes from the NSE as obtained from the NSE handbooks. Out of the total population of 65 companies quoted at the Nairobi Securities Exchange, secondary data for the 49 firms was gotten representing 75.38% response rate which was viewed reasonable for the subsequent statistical analysis. The secondary data was subsequently analyzed by aid of regression analysis (Gujarati & Porter, 2010).

4.2 Descriptive Statistics

Descriptive statistics is a subfield of statistics that pertains to the process of condensing and characterizing the fundamental attributes of a given dataset (Pandey & Pandey, 2021). The utilization of quantitative measures and visual representations facilitates the comprehension and communication of data characteristics among researchers. Descriptive statistics aims to arrange, exhibit, and condense data in a significant manner with the purpose of simplifying data analysis and comprehension (Kaliyadan & Kulkarni, 2019). Moreover, descriptive statistics comprises a range of measures, such as measures of central tendency (for instance, mean, median, mode) that portray the typical value of a variable, measures of dispersion (such as range, variance, and standard deviation) that depict the extent or variability of the data, and measures of shape (such as Skewness and Kurtosis) that illustrate the distributional characteristics of the data. Moreover, visual aids such as histograms, bar charts, and

scatter plots are frequently utilized to offer graphical overviews of the data (Murphy, 2021).

The significance of descriptive statistics in research cannot be overemphasized. Descriptive statistics is a method used by researchers to condense extensive data into essential summary measures that offer a brief representation of the dataset. The aforementioned abstract facilitates the acquisition of preliminary comprehension of the data for researchers prior to engaging in more intricate analyses. Through the utilization of graphical representations, scholars can detect patterns, trends, and relationships present within the data. Scatter plots have the ability to unveil correlations between variables, whereas histograms are capable of exhibiting the distributional characteristics of a variable (Lesko, 2022). Moreover, descriptive statistics enable the comparison of distinct groups or conditions by furnishing condensed measures for each group. Scholars have the ability to utilize statistical measures, such as means or proportions, to conduct comparisons between various groups and derive significant inferences. Furthermore, descriptive statistics is a valuable tool for researchers as it offers evidence-based insights that can support decision-making processes. Descriptive statistics can aid in the identification of outliers or atypical observations that may necessitate additional inquiry or indicate the necessity for data cleansing (Kaliyadan & Kulkarni, 2019). The statistics for the parameters in the study are revealed and analysed in the subsections that follow.

4.2.1 Descriptive Statistics for Long-Term Debt Volatility

Long term debt was viewed as the financial instruments which had their maturities exceeding a year. Long term debt metrics were collected from the non-current liabilities section of the balance sheet which included deferred income tax liability, retirement benefit obligations, long term bank loans and bonds. The study examined the long-term Debt Volatility across firms listed in the Nairobi securities exchange according to their classification. This classification included telecommunication, Manufacturing and allied firms, Investment services, insurance firms, Energy and petroleum firms, construction and allied, agricultural firms, Automobiles & Accessories, Banking and Commercial & Services industries. The descriptive

statistics conducted for the various segments of the NSE are summarized in table 4.1 using long term debt ratio volatility (LTDRV) as the measure.

Table 4.1: Long-Term Debt Volatility (LTDRV) Descriptive Statistics

Sectors	Mean	Median	Std. Dev.	C.V.	Skew	Ex. kurto	5% Perc.	95% Perc.	IQ range
Agricultural	0.22	0.17	0.21	0.96	-0.25	0.40	-0.11	0.59	0.30
Automobiles & Acces	0.18	0.12	0.15	0.82	0.59	-0.41	0.00	0.00	0.20
Banking	0.23	0.23	0.21	0.88	-0.02	-0.45	-0.10	0.61	0.29
Commercial & Servs	0.24	0.23	0.22	0.90	0.02	-0.48	-0.13	0.58	0.31
Construction Allied	0.33	0.36	0.21	0.64	-0.01	-0.10	-0.04	0.78	0.27
Energy & Petroleum	0.26	0.30	0.15	0.58	-0.03	-0.48	0.01	0.51	0.20
Insurance	0.21	0.21	0.20	0.96	-0.09	-0.43	-0.13	0.54	0.28
Investment	0.27	0.28	0.20	0.72	-0.38	-0.12	-0.17	0.57	0.28
Manufacturing	0.24	0.22	0.18	0.76	0.01	-0.23	-0.10	0.53	0.24
Telecommunication	0.32	0.37	0.22	0.70	-1.55	1.86	0.00	0.00	0.22
Overall	0.28	0.33	0.24	0.85	-0.06	-0.52	-0,01	0.56	0.29

The descriptive statistics in table 4.1 presented a comprehensive overview of the Long-term debt volatility (LTDVR) across various sectors in Kenya. Each sector exhibited distinct characteristics that could potentially influence the equity security returns of public companies. In the agricultural sector, the mean long-term debt ratio volatility was 0.22, with a relatively high standard deviation of 0.21, indicating notable volatility. Investors in this sector needed to exercise caution due to the wide dispersion of data points, suggesting that some companies experienced significant fluctuations in long-term debt. The positive skewness in the Automobiles & Accessories sector at 0.59 hinted at a rightward tail in the distribution, implying that certain companies in this sector witnessed larger increases in long-term debt compared to decreases, potentially impacting equity returns.

The Banking sector displayed a distribution with a slight leftward kew (Skewness: -0.02), indicating that more companies experienced decreases in long-term debt. Moreover, the negative excess Kurtosis (-0.45) suggested a distribution with lighter tails, contributing to the sector's stability. Commercial & Services, on the other hand,

exhibited a high coefficient of variation (C.V.) of 0.90 and a wide interquartile range (IQ range) of 0.31, highlighting substantial variability. Investors needed to scrutinize the factors influencing financial Structure volatility in this sector, recognizing the potential diverse impact on equity returns.

Construction allied had a distribution close to normal, with a slightly negative Skewness (-0.01) and low excess Kurtosis (-0.10), indicating a more stable pattern in long-term debt volatility. Energy & Petroleum showed a slightly negative skewness (-0.03), suggesting a tendency for more companies to experience decreases in long-term debt. Insurance, akin to the agricultural sector, displayed a high coefficient of variation (C.V.) of 0.96, underlining potential volatility in long-term debt ratio volatility. Investors were advised to exercise caution and conduct thorough risk assessments. The Investment sector, with a skewness of -0.38, indicated a leftward skew in the distribution, suggesting more companies experienced decreases in long-term debt. In Manufacturing, the distribution was close to normal (Skewness: 0.01), implying a relatively balanced distribution of long-term debt volatility and providing a more stable environment for equity returns.

In contrast, the Telecommunication sector raised concerns with highly negative Skewness (-1.55) and positive excess Kurtosis (1.86), indicating a distribution with a heavy left tail and heavier tails than a normal distribution. This suggested a potential for extreme long-term debt volatility proportions, demanding careful consideration by investors. In conclusion, the descriptive statistics served as valuable tools for investors to assess the risk and potential returns associated with equity investments in different sectors. Sectors with higher volatility, Skewness, or Kurtosis required more careful evaluation, while those with more stable patterns were deemed less risky for equity security returns. Understanding the factors influencing long-term debt ratio volatility proportions proved crucial for making well-informed investment decisions in the dynamic financial landscape of Kenya.

The overall descriptive statistics for Long Term Debt Ratio Volatility (LTDRV) across sectors listed in the Nairobi Securities Exchange reveal that the mean LTDRV is 0.28, with a median of 0.33, indicating a slightly right-skewed distribution with a

slight negative skewness of -0.06. The standard deviation of 0.24 suggests moderate variability around the mean LTDRV value. The coefficient of variation (C.V.) of 0.85 highlights the relative variability of LTDRV compared to its mean, while the excess kurtosis value of -0.52 indicates a slightly platykurtic distribution. The 5th percentile (5% Perc.) and 95th percentile (95% Perc.) values are -0.01 and 0.56, respectively, suggesting the range within which most LTDRV observations fall.

EL-Ansary and Ahmed (2023) analyzes how cultural variations impact the relationship between long-term debt use and managerial overconfidence in Middle East and North African countries. The aim of the study was to examine if the utilization of long-term debt moderated managerial overconfidence especially in commercial firms. Their study was in tandem with this study because commercial firms had greatest long term debt ratio volatility. Managerial confidence was boosted by the link between long term debt and growth potential of firms with limited internal funding. Overreliance on long term debt was seen to moderate the agency conflict between shareholders and debt holders.

The study results also concur with Liu et al. (2018) who investigate whether government interference replaces laws and institutions in influencing businesses' decisions to finance their long-term debt on the Chinese capital market. Commercial and services industry was found to have a highest mean in long term debt ratio volatility. This industry has an overreliance of long-term debt because of its need for higher investment capital. Liu et al. (2018) found that long term debt ratios are actually related to government intervention. As the legal climate has improved, public non-state-owned businesses have more access to long-term bank finance in areas with low levels of government engagement. This is practically the case from the findings of this study which alludes confidence in the use of long-term debt for non-state-owned firms in Kenya.

Similar to this study also, Khaw (2019) studied the connection between long-term debt and internalization when agency costs of debt and business risk were present. The findings indicated that most corporations were more likely to sustain less long-term debt than domestic corporations the findings also indicated that commercial and

services sector registered a high change in long term debt as compared to other sectors in the Chinese economy. Yazdanfar and Öhman (2015) on the other hand sustained the fact long term debt volatility is always higher to firms to larger firms as compared to small and medium size firms.

4.2.2 Descriptive Statistics for Internal Equity Volatility

Internal equity financing was viewed as a situation where Kenyan public limited firms retain and reinvests on its own earnings. The metrics used included capital reserves, revenue reserves and retained earnings. The study examined the effect of internal equity annual volatility on ordinary equity security returns in Kenya. Descriptive statistics on the volatility of internal equity structure as represented by internal equity ratio volatility for the various segments of the companies listed at the Nairobi Securities Exchange are shown in table 4.2.

The detailed examination of the descriptive statistics table (Table 4.2) sheds light on the internal equity volatility within various sectors in Kenya, offering valuable insights into potential implications for equity security returns of public companies. Beginning with the agricultural sector, the mean internal equity volatility of 0.27 reveals a notable average shift. However, the substantial coefficient of variation (C.V.) of 3.27 reflects a considerable degree of dispersion among companies in the sector. This wide variability, as indicated by the interquartile range (IQ Range) of 1.08, suggests a diverse range of financial structures within the agricultural sector. Investors should tread cautiously due to the elevated volatility, recognizing the potential for significant fluctuations in equity returns.

Table 4.2: Internal Equity Volatility Descriptive Statistics

Sectors	Mean	Median	Std. Dev.	C.V.	Skew	Ex. kurto	5% Perc.	95% Perc.	IQ range
Agricultural	0.27	0.42	0.88	3.27	-0.43	-0.27	-1.24	1.60	1.08
Automobiles & Access	0.35	0.17	0.75	2.14	0.41	-1.11	0.00	0.00	1.16
Banking	0.28	0.29	0.65	2.37	0.04	-0.02	-0.90	1.29	0.90
Commercial & Serv	0.28	0.22	0.73	2.59	0.43	0.20	-0.86	1.81	0.82
Construction Allied	0.26	0.21	0.75	2.95	0.16	-0.11	-1.04	1.93	0.97
Energy& Petroleum	0.40	0.39	0.57	1.40	0.08	-0.31	-0.55	1.35	0.93
Insurance	0.37	0.35	0.68	1.83	0.36	0.04	-0.69	1.83	0.96
Investment	0.10	0.18	0.64	6.26	-0.44	-0.46	-1.12	0.95	0.95
Manufacturing	0.20	0.09	0.72	3.51	0.27	-0.32	-1.01	1.55	1.06
Telecommunication	0.26	0.33	0.72	2.81	-0.13	0.47	0.00	0.00	0.89
Overall	0.27	0.34	0.66	2.54	0.07	-0.33	-0.01	1.77	0.98

In the Automobiles and Accessories sector, the positive skewness of 0.41 signifies a rightward tail in the distribution, emphasizing that certain companies experienced pronounced increases in internal equity. The wide interquartile range of 1.16 further accentuates the variability, prompting investors to delve into the underlying factors contributing to these changes. A thorough analysis is imperative to understand the specific dynamics at play and their potential repercussions on equity returns. The Banking sector, while displaying a relatively stable mean and median, reveals moderate variability with a coefficient of variation (C.V.) of 2.37 and an interquartile range (IQ Range) of 0.90. This suggests a degree of fluctuation in internal equity within the sector, demanding a vigilant approach from investors. Understanding the drivers behind these changes becomes crucial for assessing the associated risks and potential impacts on equity security returns.

Similarly, the Commercial and Services sector presents a mean and median that are close, yet the elevated coefficient of variation (C.V.) of 2.59 and the wide interquartile range (IQ Range) of 0.82 point to significant variability. Investors should exercise caution, recognizing the potential for diverse financial structures and the impact they may have on equity returns. The Construction allied sector, akin to the agricultural sector, exhibits high variability with a coefficient of variation (C.V.)

of 2.95 and an interquartile range (IQ Range) of 0.97. Investors are advised to closely scrutinize the factors influencing these changes, considering the potential implications for equity security returns.

In contrast, the Energy and Petroleum sector demonstrated lower variability, as reflected by the modest coefficient of variation (C.V.) of 1.40 and an interquartile range (IQ Range) of 0.93. This suggested a more stable pattern in internal equity ratio volatility within the sector, potentially lowering the level of risk for investors. In the Insurance sector, the moderate variability was evident with a mean of 0.37, a median of 0.35, a coefficient of variation (C.V.) of 1.83, and an interquartile range (IQ Range) of 0.96. Investors should carefully consider these metrics in their risk assessment, recognizing the balance between stability and variability within the sector.

The Investment sector stood out with an exceptionally high coefficient of variation (C.V.) of 6.26, indicating substantial variability in internal equity ratio volatility. This heightened level of fluctuation emphasizes the need for a cautious and well-considered investment approach to mitigate potential risks. Moving to the Manufacturing sector, the high coefficient of variation (C.V.) of 3.51 and an interquartile range (IQ Range) of 1.06 underscore significant variability. Investors are urged to conduct a thorough analysis of the contributing factors, recognizing the potential impact on equity returns within this sector.

Lastly, the Telecommunication sector displays moderate variability with a coefficient of variation (C.V.) of 2.81 and an interquartile range (IQ Range) of 0.89. While not as volatile as some other sectors, investors should be cognizant of potential fluctuations and their implications for equity security returns. In conclusion, the elaboration of these findings highlights the intricate dynamics within each sector. Investors were encouraged to go beyond the mean values and consider measures of variability, such as the coefficient of variation and interquartile range, thus shedding more understanding of the potential risks and returns associated with equity investments in the diverse landscape of Kenya’s financial markets.

Fror the overall across sectors, the mean and median values of 0.27 and 0.34 respectively suggest that, on average, the volatility of internal equity ratios is relatively moderate. However, the relatively high standard deviation of 0.66 indicates a considerable degree of variability around this average level of volatility. The coefficient of variation (C.V.) of 2.54 highlights that this variability is substantial relative to the mean, suggesting that some sectors may exhibit significantly higher or lower internal equity volatility compared to others. The skewness value of 0.07 suggests a slightly right-skewed distribution, indicating that there may be more occurrences of lower volatility levels compared to higher ones. Furthermore, the excess kurtosis value of -0.33 implies that the distribution is slightly platykurtic, indicating a distribution with thinner tails and a flatter peak compared to a normal distribution. The percentiles indicate that the majority of observations fall within a range from -0.01 to 1.77, with an interquartile range of 0.98, suggesting that most sectors experience internal equity volatility within this range.

Ndirangu and Ochiri (2018) in their study about the effect of financial structure on the performance of listed firms in Kenya also discovered that investment and commercial firms relied on many sources of internal equity to finance their operations. Due to the fact that internal equity is less costly, commercial and services firms will tend to rely on it to finance their operations (Jonathan & Katharina, 2006). Internally produced funds were found to be less expensive than money raised by issuing common shares because of transaction costs and investor information asymmetry. This implies that when firms use more internal funds in comparison to external equity, their costs of equity capital will decrease and the market's discount rate for these firms' unexpected earnings will decrease (Park & Pincus, 2022).

The spread or variation of the data points around the mean is represented by the standard deviation value for internal equity ratio volatility which ranged from 0.0056 for the telecommunication industry to the highest which was 4.4798 for commercial and services industry. Commercial and services industry indicated again a wide spread of data for internal equity ratio volatility around the mean as compared to other firms listed in the Nairobi securities. Internal equity ratio volatility also registered a kurtosis ranging from -1.2464 for energy and petroleum to 11.769 for

manufacturing and allied industry. The highest skewness for Internal equity ratio volatility was experienced by commercial and services industry (3.2999) which exhibited data that was disproportionately skewed towards the right.

4.2.3 Descriptive Statistics for External Equity Volatility

External Equity encompass the funds that organizations raise from sources that are not part of their organizational structure. The study was to examine the effect of external equity structure annual volatility as part of the financial structure volatility. The study's aim was to look at the value of the annual volatility in share capital of the firms as a financing source. External equity is represented by contributed capital being the ordinary share capital and the ordinary share premium (Graham, Adam, & Gunasingham, 2020). The share capital ratio demonstrates how much of a company's assets are financed through the issuance of stock as opposed to borrowing money. The more assets that a company has financed with stock rather than debt, the closer its ratio result is to 100%. Share capital is the total capital of a firm divided into shares. Financial structure plays a pivotal role in ensuring there is proper equity returns. Part of the financial structure is the external equity. External equity varies from one industry to the other. The ability of corporations to raise external equity finance varies with macroeconomic conditions, suggesting that the cost of equity issuance is time-varying (Belo et al., 2014).

With this regard therefore, the study examined the descriptive statistics from the data obtained on external equity volatility from firms listed in the Nairobi securities from the period of 2012 to 2022. The statistics included the mean, standard deviation, kurtosis, skewness, minimum value and the maximum value. The summary statistics provided light on the nature and scope of the data set on external equity volatility variable (as measured by external equity ratio volatility – EERV). The descriptive statistics was summarized on table 4.3.

Table 4.3: External Equity Volatility Descriptive Statistics

Sectors	Mean	Median	Std. Dev.	C.V.	Skew	Ex. kurto	5% Perc.	95% Perc.	IQ range
Agricultural	0.13	0.09	0.43	3.24	0.47	0.26	-0.55	0.99	0.56
Automobiles & Access	0.13	0.11	0.32	2.53	0.30	-0.50	0.00	0.00	0.42
Banking	0.15	0.16	0.39	2.55	-0.46	0.49	-0.51	0.77	0.50
Commercial & Serv	0.14	0.14	0.44	3.03	0.18	-0.19	-0.62	0.81	0.62
Construction Allied	0.12	0.12	0.47	3.90	-0.25	-0.02	-0.86	0.92	0.59
Energy & Petroleum	0.19	0.12	0.42	2.19	-0.16	-0.25	-0.65	0.92	0.52
Insurance	0.23	0.16	0.45	1.98	0.48	1.02	-0.39	1.15	0.55
Investment	0.18	0.22	0.39	2.13	-0.09	-0.44	-0.51	0.86	0.57
Manufacturing	0.22	0.27	0.42	1.90	-0.46	-0.05	-0.71	0.86	0.50
Telecommunication	0.07	0.20	0.52	7.09	-0.29	-0.43	0.00	0.00	0.88
Overall	0.13	0.15	0.43	2.19	-0.27	-0.24	-0.02	0.99	0.78

Descriptive statistics in Table 4.3 offers valuable insights into the external equity ratio volatility within various sectors in Kenya, providing a clear perspective on how these findings may have influenced equity security returns of public companies in the past. Starting with Agricultural sector, the mean external equity change was 0.13, with a median of 0.09. The coefficient of variation (C.V.) stood at 3.24, indicating significant variability. The skewness of 0.47 suggests a rightward tail in the distribution, implying that some companies experienced larger increases in external equity. The interquartile range (IQ Range) of 0.56 emphasizes the diversity within the sector. Investors in the Agricultural sector needed to consider this variability, recognizing the potential for substantial fluctuations in external equity and their impact on equity returns.

Similarly, in the Automobiles & Accessories sector, the mean and median external equity ratio volatility were 0.13 and 0.11, respectively. The moderate coefficient of variation (C.V.) of 2.53 and the skewness of 0.30 indicated a degree of variability and a rightward tail in the distribution. Investors should have carefully assessed the reasons behind these changes to anticipate potential impacts on equity returns. The Banking sector displayed a mean external equity change of 0.15, with a median of 0.16. The skewness of -0.46 suggested a leftward skew, indicating that more

companies in this sector experienced decreases in external equity. The moderate coefficient of variation (C.V.) of 2.55 and the interquartile range (IQ Range) of 0.50 implied a certain level of variability. Investors needed to weigh the stability of external equity ratio volatility within the Banking sector and its potential effects on equity returns.

In the Commercial & Services sector, the mean external equity ratio annual volatility was 0.14, with a median of 0.14. The skewness of 0.18 suggested a rightward tail, indicating larger increases in external equity for some companies. The coefficient of variation (C.V.) of 3.03 and the wide interquartile range (IQ Range) of 0.62 highlighted notable variability. Investors should have been attentive to the diverse financial structures within this sector, recognizing the potential for fluctuations in external equity impacting equity returns. In the Construction allied sector, the mean external equity change was 0.12, and the median was 0.12. The sector exhibited high variability with a coefficient of variation (C.V.) of 3.90 and a skewness of -0.25, suggesting a leftward skew in the distribution. Investors should have closely examined the factors contributing to these changes and evaluated their potential impact on equity returns.

The Energy and Petroleum sector had a mean external equity change of 0.19 and a median of 0.12. The moderate coefficient of variation (C.V.) of 2.19 and the skewness of -0.16 indicated a relatively stable pattern with a slight leftward skew. Investors might have perceived this sector as having a more predictable external equity structure, potentially influencing their expectations for equity returns. In the Insurance sector, the mean external equity change was 0.23, with a median of 0.16. The skewness of 0.48 suggested a rightward tail, indicating larger increases in external equity for some companies. The relatively low coefficient of variation (C.V.) of 1.98 and the skewness suggested a more stable pattern compared to some other sectors. Investors may have considered the Insurance sector as exhibiting a more predictable external equity environment.

The Investment sector displayed a mean external equity change of 0.18 and a median of 0.22. The skewness of -0.09 suggested a slightly leftward skew, and the

coefficient of variation (C.V.) of 2.13 indicated a moderate level of variability. Investors needed to assess the factors influencing external equity volatility and their potential implications for equity returns. In the Manufacturing sector, the mean external equity change was 0.22, with a median of 0.27. The skewness of -0.46 indicated a leftward skew, and the coefficient of variation (C.V.) of 1.90 suggested moderate variability. Investors should have carefully analyzed the reasons behind these changes, considering the potential impact on equity returns.

Lastly, in the Telecommunication sector, the mean external equity change was notably lower at 0.07, with a median of 0.20. The skewness of -0.29 and the high coefficient of variation (C.V.) of 7.09 indicated significant variability, with a slight leftward skew. The wide interquartile range (IQ Range) of 0.88 emphasized the diversity within the sector. Investors needed to approach the Telecommunication sector with caution, recognizing the potential for extreme fluctuations in external equity and their influence on equity returns. In summary, the detailed examination of External Equity Volatility across sectors in Kenya provides investors with critical insights into the historical patterns of these fluctuations. Sectors with higher variability and pronounced skewness may have presented increased risks and potential rewards, requiring investors to adopt a careful and strategic approach to navigate the dynamics of the Kenyan equity market.

Amo-Yartey and Abor (2013) echoes this study in their investigation about the importance of financial market development and financial structure in explaining financial policies of firms in emerging market countries. Their findings indicated that stock market development was associated with higher use of external equity which could change from time to time and from one source to the other to suit their financial need. The findings of this study also indicate that stock market development tend to shift the policies of firms towards less debt and more external equity. To the contrast, Kupp et al. (2019) opines that firms are reluctant to consider external equity as a source of financing because they fear loss of control. Marciukaityte and Szewczyk (2011) suggest that managers are more optimistic about their firms around external debt financing.

Belo et al. (2014) explains why there appears to be low change in external equity for the telecommunication industry. They view that external equity is costly and that these costs vary over time and therefore telecommunication industry tend to avoid fluctuations in the external sources of equity. Rashid (2014) explores the effect of both internal and external debt financing. The findings suggest that forms considerably take into account both firm specific an economic risk when making external equity decisions to finance their operations. Meng et al. (2021) on the other hand agrees to the fact that external debt is vital to commercial and services industry because it helps organizations keep up with the competition within the market place. They further advise that firms should embrace varied sources of external equity to enable their sustainability.

4.2.4 Descriptive Statistics for Short-Term Debt Volatility

Short term debt is viewed as the financial obligations that are expected to be paid off within or less than a year (Graham, Adam, & Gunasingham, 2020). On the short-term debt, the study focused on the elements that comprise the current liabilities of the balance sheet. They included short term bank loans, accounts payables, income taxes payables and lease payments. The study was to examine the effect of short-term debt volatility on ordinary equity security returns among public limited firms in Kenya from 2012 to 2022. When assessing a company's financial structure, the value of the short-term debt account is very crucial. That explains reasons why the study focused on short term debts as an element of financial structure. Short term debt annual volatility was considered as the fluctuations and frequency of changes in the adoption of various types of short-term debts to finance organizational functions. In examining this, the study began with a descriptive statistic of the indicator of short-term debt annual volatility which was short term debt ratio volatility (STDRV) as illustrated in table 4.4.

For short term debt annual volatility across various sectors in Kenya, descriptive statistics sheds more light on historical patterns that may have influenced equity security returns for public companies. In the Agricultural sector, the mean short term debt ratio volatility was 0.35, with a median of 0.28. The relatively high standard

deviation of 1.02 and the coefficient of variation (C.V.) of 2.89 indicated notable variability, suggesting a diverse range of short-term debt structure volatility within the sector. The positive Skewness of 0.08 suggested a slight rightward tail in the distribution, while the excess Kurtosis of -0.35 indicated a distribution slightly less peaked than a normal distribution. Investors should have taken note of the potential for significant fluctuations in short-term debt, as evidenced by the wide interquartile range (IQ Range) of 1.67, and considered how these variations may have impacted equity returns.

Table 4.4: Short term Debt Volatility Descriptive Statistics

Sectors	Mean	Median	Std. Dev.	C.V.	Skew	Ex. kurto	5% Perc.	95% Perc.	IQ range
Agricultural	0.35	0.28	1.02	2.89	0.08	-0.35	-1.54	1.99	1.67
Automobiles & Accs	0.24	0.23	1.00	4.19	-0.38	0.30	0.00	0.00	1.00
Banking	0.21	0.23	1.05	5.06	0.21	-0.14	-1.42	1.97	1.44
Commercial & Serv	0.15	0.25	1.01	6.66	-0.09	0.27	-1.86	1.99	1.19
Construction Allied	0.18	0.30	0.85	4.65	-0.32	0.00	-1.45	1.72	1.16
Energy & Petroleum	0.47	0.55	1.01	2.14	0.28	-0.32	-1.17	2.42	1.20
Insurance	0.34	-0.02	1.08	3.16	0.53	-0.23	-1.16	2.50	1.33
Investment	0.25	0.22	0.88	3.50	0.28	0.28	-0.95	1.99	1.08
Manufacturing	0.01	0.04	0.97	102.01	-0.32	-0.19	-2.00	1.38	1.31
Telecommunication	0.53	0.28	0.75	1.42	0.18	-0.33	0.00	0.00	1.59
Overall	0.19	0.31	1.01	4.21	0.25	-0.22	-0.16	1.99	1.58

Similarly, in the Automobiles & Accessories sector, the mean short term debt ratio volatility was 0.24, with a median of 0.23. The elevated standard deviation of 1.00 and the high coefficient of variation (C.V.) of 4.19 signaled substantial variability. The negative skewness of -0.38 indicated a leftward tail in the distribution, suggesting that more companies experienced decreases in short-term debt. Investors should have been cautious of the potential risks associated with these fluctuations and their implications for equity returns, especially considering the wide interquartile range (IQ Range) of 1.00. In the Banking sector, the mean short term debt ratio volatility was 0.21, with a median of 0.23. The high standard deviation of 1.05 and the elevated coefficient of variation (C.V.) of 5.06 underscored considerable variability within the sector. The positive skewness of 0.21 indicated a slight

rightward tail, suggesting larger increases in short-term debt for certain companies. Investors should have considered the potential impact of these fluctuations on equity returns, given the wide interquartile range (IQ Range) of 1.44.

The Commercial & Services sector displayed a mean short term debt volatility of 0.15, with a median of 0.25. The notably high standard deviation of 1.01 and the elevated coefficient of variation (C.V.) of 6.66 suggested significant variability, raising concerns about potential fluctuations in short-term debt. The negative skewness of -0.09 indicated a leftward tail, emphasizing the potential for more companies to experience decreases in short-term debt. Investors needed to carefully assess the factors influencing these changes and their implications for equity returns, considering the wide interquartile range (IQ Range) of 1.19. In the Construction allied sector, the mean short term debt ratio volatility was 0.18, with a median of 0.30. The standard deviation of 0.85 and the coefficient of variation (C.V.) of 4.65 suggested moderate variability within the sector. The negative skewness of -0.32 hinted at a leftward tail, signaling the potential for more companies to experience decreases in short-term debt. Investors should have taken a prudent approach, recognizing the potential impact on equity returns, especially with the wide interquartile range (IQ Range) of 1.16.

The Energy & Petroleum sector exhibited a mean short term debt ratio volatility of 0.47, with a median of 0.55. The standard deviation of 1.01 and the coefficient of variation (C.V.) of 2.14 indicated moderate variability. The positive skewness of 0.28 suggested a slight rightward tail, and the excess Kurtosis of -0.32 hinted at a distribution less peaked than normal. Investors may have perceived this sector as exhibiting a relatively stable pattern in short term debt ratio volatility, especially with the narrow interquartile range (IQ Range) of 1.20. In the Insurance sector, the mean short term debt ratio volatility was 0.34, with a median of -0.02. The standard deviation of 1.08 and the coefficient of variation (C.V.) of 3.16 suggested notable variability. The positive skewness of 0.53 indicated a rightward tail, and the excess Kurtosis of -0.23 suggested a distribution slightly less peaked than normal. Investors should have been aware of the potential for significant fluctuations in short-term

debt, especially with the wide interquartile range (IQ Range) of 1.33, and assessed their impact on equity returns.

The Investment sector displayed a mean short term debt ratio volatility of 0.25, with a median of 0.22. The standard deviation of 0.88 and the coefficient of variation (C.V.) of 3.50 indicated moderate variability. The positive skewness of 0.28 suggested a rightward tail, and the excess kurtosis of 0.28 hinted at a distribution slightly more peaked than normal. Investors needed to carefully assess the potential impact of short-term debt fluctuations on equity returns, considering the wide interquartile range (IQ Range) of 1.08. Also in the Manufacturing sector, the mean short term debt structure volatility was notably lower at 0.01, with a median of 0.04. The standard deviation of 0.97 and the exceptionally high coefficient of variation (C.V.) of 102.01 indicated extreme variability. The negative Skewness of -0.32 indicated a leftward tail, and the excess Kurtosis of -0.19 suggested a distribution slightly less peaked than normal. Investors should have approached this sector with caution, recognizing the potential for extreme fluctuations in short-term debt and their potential impact on equity returns, especially with the wide interquartile range (IQ Range) of 1.31.

In the Telecommunication sector, the mean short term debt ratio volatility was 0.53, with a median of 0.28. The standard deviation of 0.75 and the coefficient of variation (C.V.) of 1.42 indicated moderate variability. The positive skewness of 0.18 suggested a rightward tail, and the excess kurtosis of -0.33 hinted at a distribution slightly less peaked than normal. Investors may have perceived this sector as exhibiting a relatively stable pattern in short term debt structure volatility, especially with the narrow interquartile range (IQ Range) of 1.59. In conclusion, the historical patterns of short-term debt ratio volatility within different sectors in Kenya reveal varying levels of variability. Sectors with higher coefficients of variation and wider interquartile ranges may have presented increased risks and potential rewards, demanding a careful and strategic approach from investors to navigate the dynamics of the Kenyan equity market.

Using a generalized method of moment of estimation, Farai and Merle (2014) concurs with this study's finding about short term debt volatility. Their research supports this study by claiming that businesses have a target level of short-term debt and go through a process of adjustment to get there. Current asset expansion may be financed by unforeseen financial resources. Additional short-term funds are therefore required to sustain the rise of current assets as the spontaneous sources might not be enough to cover the entire increase in current assets. Further, Fosberg (2012) concurs that the size impact or the substitution effect causes change in the amount of short-term debt financing. According to the substitution effect, there is a negative correlation between spontaneously produced resources and short-term debt financing.

4.2.5 Descriptive Statistics for Ordinary Equity Security Returns

The study's dependent variable was ordinary equity security returns. Equity securities represent ownership claims on a company's net assets (Graham, Adam, & Gunasingham, 2020). The study's aim was to examine the effect of financial structure volatility on ordinary equity security returns. The study was specific on holding period security returns because of its historical nature as opposed to asset pricing which is futuristic in nature. Holding period return is a fundamental metric in investment management. Ordinary equity security returns on the other hand referred to the financial gain or loss an investor experiences from holding and trading common shares of a company over a specific period. These returns are driven by changes in the share price and may also include any dividends paid to shareholders (Graham, Adam, & Gunasingham, 2020). Ordinary equity securities represent the most common type of ownership in a company and typically come with voting rights and a proportional claim on the company's assets and earnings.

Ordinary equity security returns, from a company's perspective, refer to the financial gains or losses experienced by investors who hold ordinary equity securities of that particular company. Ordinary equity securities are commonly known as common stock or common shares, and they represent ownership interests in the company. When investors purchase ordinary equity securities, they become partial owners of the company and have the potential to earn returns through dividends and capital

appreciation Table 4.5 illustrates the descriptive statistics for the ordinary equity security returns as indicated by holding period returns (HPR).

Table 4.5: Ordinary Equity Security Returns Descriptive Statistics

Sectors	Mean	Median	Std. Dev.	C.V.	Skew	Ex. kurto	5% Perc.	95% Perc.	IQ range
Agricultural	0.96	1.10	1.02	1.06	-0.34	-0.09	-1.11	2.56	1.41
Automobiles & Acce	1.58	1.58	0.91	0.58	0.09	-1.06	0.00	0.00	1.48
Banking	0.97	0.79	1.02	1.06	-0.09	-0.28	-0.42	2.65	1.41
Commercial & Serv	1.10	0.96	1.06	0.96	0.28	-0.39	-0.48	3.06	1.51
Construction Allied	1.08	1.12	1.08	1.00	0.00	-0.37	-0.82	2.78	1.54
Energy & Petroleum	0.89	1.06	0.93	1.04	-0.02	-1.08	-0.67	2.34	1.58
Insurance	1.11	0.95	1.11	1.00	0.32	-0.48	-0.45	3.28	1.61
Investment	1.04	1.21	1.29	1.25	-0.17	-0.12	-0.19	3.13	2.11
Manufacturing	1.07	1.22	0.91	0.85	0.23	0.00	-0.34	2.69	1.27
Telecommunication	0.59	0.58	0.82	1.38	-0.35	-0.40	0.00	0.00	1.04
Overall	1.10	1.90	1.07	1.00	0.01	0.06	-0.35	2.60	1.51

In Table 4.5, the ordinary equity security returns across various sectors are presented, offering a comprehensive overview of key statistical measures. The data encompasses sectors such as Agricultural, Automobiles and Accessories, Banking, Commercial & Services, Construction Allied, Energy and Petroleum, Insurance, Investment, Manufacturing, and Telecommunication. The mean returns, representing the average performance within each sector, varied across the sectors. For instance, the Agricultural sector exhibited a mean return of 0.96, while the Automobiles and Accessories sector had a slightly higher mean return of 1.58. The Banking sector recorded a mean return of 0.97, with Commercial and Services at 1.10, Construction allied at 1.08, Energy & Petroleum at 0.89, Insurance at 1.11, Investment at 1.04, Manufacturing at 1.07, and Telecommunication at 0.59. Median returns, another central measure of central tendency, were also diverse across sectors. The Automobiles & Accessories sector, for instance, had a median return matching its mean at 1.58, while the Banking sector exhibited a lower median return of 0.79. Other sectors, such as Agricultural, Commercial & Services, Construction Allied,

Energy and Petroleum, Insurance, Investment, Manufacturing, and Telecommunication, showed variations between mean and median returns.

The standard deviation, a measure of the dispersion of returns, varied across sectors. Sectors such as Commercial and Services, Energy and Petroleum, Insurance, Investment, and Manufacturing displayed lower standard deviations, indicating relatively less variability in returns, while others, including Agricultural, Automobiles and Accessories, Banking, Construction allied, and Telecommunication, showed higher standard deviations. Coefficient of variation (C.V.), a normalized measure of dispersion, revealed relative stability in some sectors, like Commercial and Services, Energy and Petroleum, Insurance, Investment, Manufacturing, and Telecommunication, as they displayed C.V. values less than 1. Sectors with C.V. values exceeding 1, such as Agricultural, Automobiles and Accessories, Banking, and Construction allied, indicated higher relative volatility.

Skewness, a measure of the asymmetry of the return distribution, provided insights into the shape of the distribution. Negative skewness, as observed in sectors like Agricultural, Banking, and Telecommunication, suggested a longer left tail, indicating the presence of more extreme negative returns. Sectors with positive skewness, such as Commercial and Services, Construction Allied, Energy and Petroleum, Insurance, Investment, and manufacturing, implied a longer right tail, signifying the occurrence of more extreme positive returns. Excess kurtosis, indicating the tails' thickness and the likelihood of extreme events, was generally within a moderate range across sectors. Sectors like Banking, Construction Allied, Energy & Petroleum, Insurance, Investment, Manufacturing, and Telecommunication exhibited excess kurtosis values that were close to 0, suggesting a distribution with moderate tails. The Automobiles & Accessories sector, however, displayed negative excess kurtosis, indicating thinner tails.

The 5th and 95th percentiles provided additional insights into the distribution of returns, offering a measure of the extreme values. Sectors like Commercial and Services, Energy and Petroleum, Insurance, Investment, Manufacturing, and

Telecommunication demonstrated wider ranges between the 5th and 95th percentiles, suggesting a greater dispersion of returns. Sectors with narrower ranges, such as Agricultural, Automobiles and Accessories, Banking, Construction allied, displayed a more concentrated distribution of returns. The interquartile (IQ) range, representing the spread between the 25th and 75th percentiles, varied across sectors. Sectors like Commercial & Services, Construction Allied, Insurance, Investment, Manufacturing, and Telecommunication displayed relatively wider interquartile ranges, indicating greater variability in the middle 50% of returns. Sectors with narrower interquartile ranges, such as Agricultural, Automobiles & Accessories, Banking, and Energy & Petroleum, suggested more concentrated variability within the middle 50% of returns. In summary, Table 4.5 provides a detailed overview of ordinary equity security returns, capturing the central tendency, dispersion, skewness, kurtosis, and percentiles across various sectors. This comprehensive analysis aids in understanding the risk and return profiles of different sectors in the financial market.

4.3 Trend Analysis

This section presents the analysis of the trends of the variables. The study conducted a trend analysis to establish the movement of the variables overtime. This technical analysis was vital to understand and monitor various developments over time. The study adopted this analysis to help organizations understand what happened so that they can figure out about their future. Trend analysis for long term debt, internal equity, external equity, short term debt, stock liquidity and ordinary equity security returns was conducted.

4.3.1 Trend Analysis for Long Term Debt Volatility

The study conducted a trend analysis for the mean for long term Debt volatility across the study period. The findings were summarized in figure 4.1.

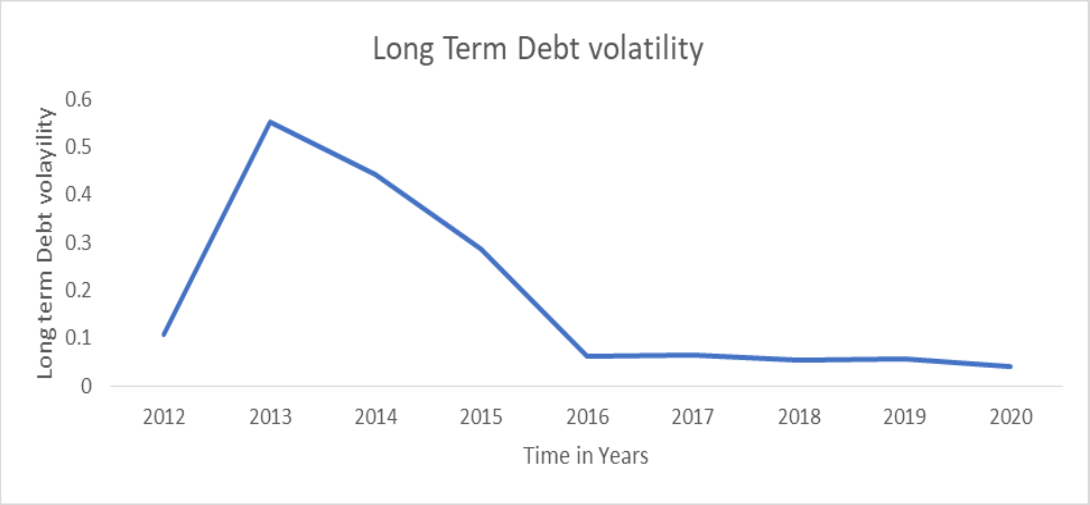

Figure 4.1: Long term Debt Volatility Trend

Long term Debt Volatility rose drastically from 2012 to peak in 2013. This indicated that long term debt became attractive across firms listed in the Nairobi securities during this period. However, there was a sharp decline to 2016, which also reduced to reach its lowest point in 2020. Long-term debt refers to sums owed to creditors over a time frame longer than a year from the date of the current balance sheet. Due to their extensive asset base and the fact that many financial institutions that accept deposits require security, long-term debts are the preferred source of debt financing for well-established corporate entities. One of the main obstacles to increased investment and the firm's financial growth is the lack of long-term financing. One of the most important financial sector policy difficulties that businesses face is gaining access to suitable long-term funding solutions a seen from 2016 to 2020.

4.3.2 Trend Analysis for Internal Equity Volatility

Internal Equity is the value of a company's assets that are attributable to its shareholders or owners. It represents the portion of the company's total assets that is financed through retained earnings and reserves (Graham, Adam, & Gunasingham, 2020). Internal Equity Volatility was an essential metric for analyzing a company's financial health and stability. A higher change in internal equity value indicated that the company had a more substantial financial cushion and was less reliant on debt to finance its operations and growth. It also signified that shareholder had a higher stake

in the company's assets. On the other hand, a lower change in internal equity value suggested that the organizations were highly leveraged, relying more on debt financing to operate, which was seen to increase financial risk. Internal Equity Volatility was used by the researcher to assess a company's financial performance, solvency, and overall financial health. It provided insights into the company's financial structure and its ability to meet its financial obligations. The study examined the trend of Internal Equity Volatility and figure 4.2 had the representation.

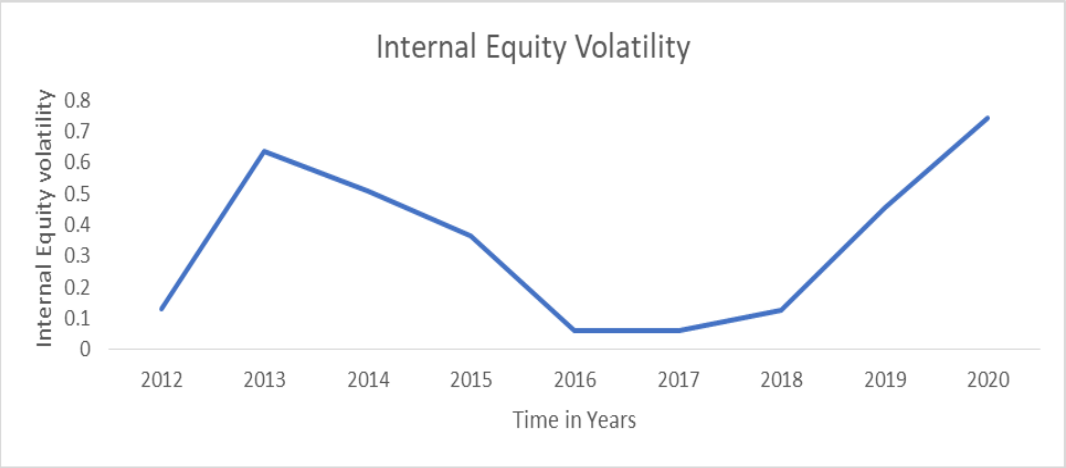

Figure 4.2: Internal Equity Volatility Trend

Internal equity volatility among listed firms in Nairobi securities was highest in 2020 and lowest in 2016. It was low in 2012, had a sharp increase in 2013 and then fallen lowest in 2016 and 2017 then began to increase to highest in 2020. (Park & Pincus, 2022) affirms that increasing internal equity means that a larger portion of the company's assets is financed through equity contributions such as retained earnings or additional capital from shareholders. This enhances the company's financial stability and reduces its reliance on external debt. A stronger equity base can better withstand financial shocks and economic downturns. Thirumalaisamy (2013) on the other hand states that with higher internal equity, the company's debt-to-equity ratio decreases. A lower debt-to-equity ratio indicates lower financial leverage, reducing the company's financial risk. A less leveraged firm is generally less exposed to interest rate fluctuations and has a reduced risk of defaulting on its debt obligations.

Finally, Jonathan and Katharina (2006) opined that as the reliance on external debt decreases, the company's interest expenses may decline. This was seen in most of the times during the study period. With less interest to pay, the company can allocate more funds to investments, dividends, or other growth initiatives, ultimately benefiting shareholders. Even though the company may rely less on external financing, a stronger equity base can enhance its creditworthiness. This can lead to improved access to credit facilities, better terms for loans, and a higher borrowing capacity when needed for future investments.

4.3.3. Trend Analysis for External Equity Volatility

External equity is one of the elements that was considered in the financial structure. It was considered as the portion of a company's financing that comes from issuing new shares of common stock or equity securities to external investors. It represented the capital raised by a company through the sale of ownership stakes in the business to individuals, institutional investors, or the public (Graham, Adam, & Gunasingham, 2020). The study conducted a trend analysis for external equity volatility to gain insights, make predictions, and better understand the underlying dynamics in datasets for external equity volatility. This analysis was represented in figure 4.3.

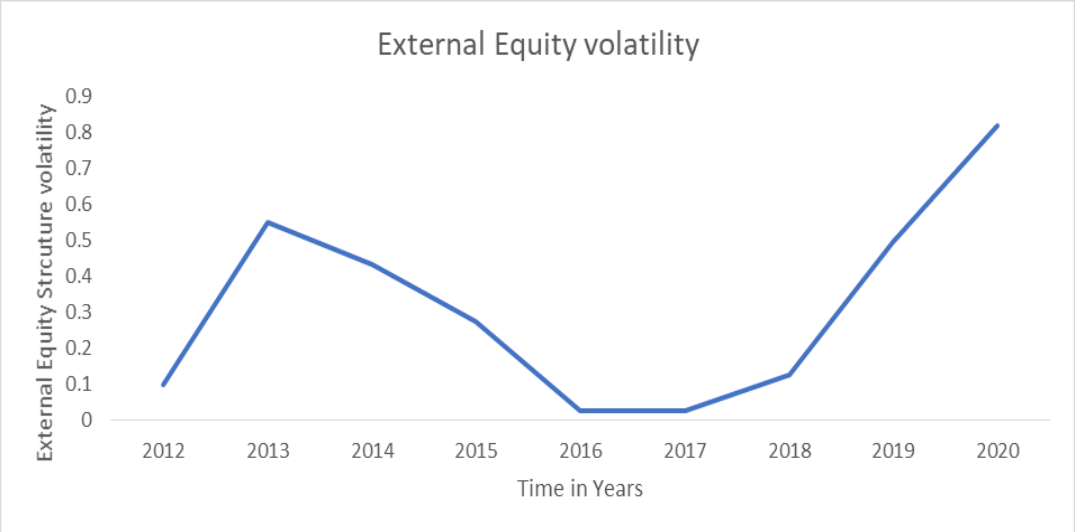

Figure 4.3: External Equity Volatility Trend

Figure 4.3 illustrates the trend for external equity structure volatility from 2012 to 2022 for firms listed in the Nairobi securities exchange. External equity structure volatility was higher in 2020 and lowest in 2016 and 2017. However, External Equity Volatility increased in 2018 showing an increasing trend to more up to the year 2020. This increase in external equity ratio volatility indicated that listed firms could consider to adopt external equity when they needed additional capital to finance their growth or entered into new projects. This was particularly beneficial when internal equity, such as retained earnings, were insufficient to meet the firm's needs. Rashid (2014b) indicated that External equity financing allows companies to take advantage of lucrative investment opportunities that require substantial capital. By raising funds from external investors, firms can pursue these opportunities without relying solely on their own resources.

During 2016 and 2017, external equity volatility was minimal. This means that firms experienced minimal variation in the adoption of external equity. It was important to note that while external equity financing offers numerous benefits, it also comes with some drawbacks making firms at some point not to adopt external equity. Hogan et al. (2017) opines that issuing external equity means diluting ownership, as new shareholders have a claim on the company's future earnings. Additionally, maintaining good relationships with external shareholders and meeting their expectations for returns can be challenging. As such, firms carefully consider their financing options and strike a balance between external and internal equity financing based on their specific needs and circumstances.

4.3.4 Trend Analysis for Short Term Debt Volatility

Short term debt volatility was considered as the fluctuation or instability of a firm's short-term debt levels over a period from 2012 to 2022. It consisted of financial obligations and liabilities that were due within a year or less. It was a crucial aspect considered in the study because it illustrated the company's overall financial health and liquidity position. During this period, the company's short-term debt levels were monitored to assess how they changed or varied over time. This was represented in figure 4.4.

Figure 4.4: Short term Debt Volatility Trend

Short term debt volatility was highest in the year 2020 and lowest in 2016. It was equally low in 2012 but increased sharply in 2013, took a uniform level to 2015 and then slightly low in 2016. Short term Debt Volatility had a sharp increase from 2018 to 2020. A number of factors were seen to have been a reason for this variation. Fosberg (2012) discourses that a company might rely on short-term debt to meet its working capital requirements, pay off maturing obligations, or fund immediate operational needs. Economic conditions, business cycles, industry dynamics, and Changes in interest rates were seen as factors that may impact a company's short-term borrowing patterns hence such variations.

Yazdanfar and Öhman (2015) stipulates that high short term debt volatility can indicate financial instability or potential liquidity risks. Frequent fluctuations in short-term debt levels may suggest that the company is struggling to manage its financial obligations efficiently. Investors, creditors, and analysts closely monitor short term debt volatility to assess the risk associated with a company's debt management practices. High changes may raise concerns about the company's ability to meet its short-term obligations and could signal potential financial distress. This was seen in 2020. Khaw (2019) advises that companies may implement strategies to

mitigate short term debt ratio volatility and improve their financial stability. This includes negotiating better credit terms with suppliers, optimizing inventory management, establishing lines of credit, or exploring more stable long-term financing options.

4.3.5 Trend Analysis for Ordinary Equity Security Returns

In line with Graham, Adam, and Gunasingham (2020), ordinary equity security returns were considered to be the gains or losses an investor realizes from holding and investing in ordinary shares or common stock of a company. They represented ownership in a corporation and provided investors with the opportunity to participate in the company's financial success. Trend analysis for ordinary equity security returns was essential for several reasons as it provided valuable insights into the historical performance and potential future direction of a particular stock or a portfolio of stocks.

On the other hand, trend analysis for ordinary equity security returns was essential since it helps identify patterns and trends in the historical price movements of a stock or the overall market. It allows investors to observe if the stock has been consistently trending upward, downward, or moving in a sideways fashion. Identifying trends can help investors make more informed decisions about buying, holding, or selling a stock. By understanding historical trends in equity security returns, investors can make educated forecasts about the stock's future performance. While past performance does not guarantee future results, trend analysis can provide valuable insights into potential price movements. This analysis was done from 2012 to 2022 as illustrated in figure 4.5.

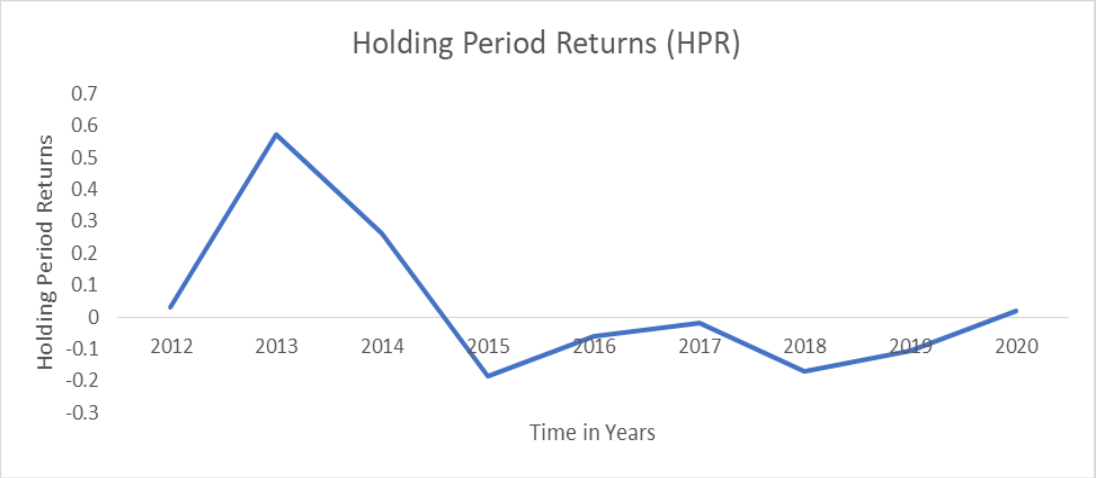

Figure 4.5: Security Returns Trend

Figure 4.5 illustrates the trend analysis for ordinary equity security returns for the period 2012 to 2022. From the illustration, it can be deduced that at some point within the study period, the returns were positive and negative at some point. The years 2012 up to 2014 and 2020 to 2021 registered a positive return while the rest indicated a negative return.

4.4 Correlation Analysis

Correlation analysis is a statistical method used to evaluate the strength and direction of the relationship between two variables. Correlation analysis refers to extent to which research variables are related (Gujarati & Porter, 2010). Correlation analysis was employed to establish the strength of the relationship which exists among dependent and independent variables whereby long-term debt volatility, internal equity volatility, external equity volatility and short-term debt volatility were the independent variables while the security returns was the dependent variable. Pearson correlation varies from -1.00 to +1.00 with positive values indicating positive relations while negative values suggest negative relations among study variables (Newman, 2002).

These correlations show the strength and direction of the relationship between various financial variables. The table shows Pearson correlation coefficients between security returns, internal equity volatility, external equity volatility, short-term equity

volatility, and long-term debt volatility. The Pearson correlation coefficient ranges from -1 to +1, where a value of +1 indicates a perfect positive correlation (when one variable increases, the other also increases), 0 indicates no correlation, and -1 indicates a perfect negative correlation (when one variable increases, the other decreases). The study adopted Pearson correlation type of correlation. This is because the Pearson correlation is sensitive to outliers and assumes that the data are normally distributed and homoscedastic (having constant variance).

Table 4.6: Correlation Analysis

		HPR	IERV	EERV	STDRV	LTDRV
HPR	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	539				
IERV	Pearson Correlation	.492**	1			
	Sig. (2-tailed)	.000				
	N	539	539			
EERV	Pearson Correlation	.419**	.653**	1		
	Sig. (2-tailed)	.000	.000			
	N	539	539	539		
STDRV	Pearson Correlation	.623**	.742**	.512**	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	539	539	539	539	
LTDRV	Pearson Correlation	.711**	.004	.078	.282**	1
	Sig. (2-tailed)	.000	.935	.071	.000	
	N	539	539	539	539	539

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

In this table, all variables have a positive correlation with security returns, indicating that as these variables increase, security returns also tend to increase. The strength of the correlation varies, with long term debt volatility having the highest positive correlation with security returns (0.711) and internal equity volatility having the lowest positive correlation (0.419). There is a strong positive correlation between all the measures of financial structure volatility with each other, with correlation coefficients ranging from 0.512 to 0.742.

As pertains to the correlation between long term debt volatility and equity security returns, the study obtained a positive significant association between the variables with a Pearson correlation of .711 and a significant value of .000. Long term debts are most preferable sources of debt financing among well-established corporate institution, mostly by virtue of their asset base and collateral is a requirement by many deposits taking financial institutions. Firms listed in the Nairobi securities exchange are well established firms. Long-term debt volatility can alter a firm's financial leverage. Increasing debt levels may enhance financial leverage, potentially magnifying returns for shareholders if the return on assets exceeds the cost of debt. Conversely, decreasing debt levels might reduce financial leverage, which could impact returns in the opposite direction.

The study confirms the finding from Frank and Goyal (2003) who tested the pecking order theory of financial structure and found that financing investments on long term debts and putting efficient management practices will always enhance financial returns. The study still posits that if a firm uses additional debt to finance profitable investments that generate higher returns than the cost of debt, it could positively impact stock returns. Conversely, if the firm is taking on debt to address financial difficulties or cover losses, it may have a negative impact. The finding is also in support of the risk dichotomy theory of Baum et al. (2016) indicating that debt structure and its volatility is positively associated with equity returns. This also confirms the efficient market hypothesis which expects debt structure volatility to be an information factor that s priced by the stock market.

With respect to existing empirical studies, the findings are in line with those of Ezirim, Ezirim and Momodu (2017) who found similar results for stocks listed on the Nigeria Stock Market. This could be due to both Nairobi Securities Exchange and Nigeria Stock Exchange falling among those in the developing world hence possible facing similar market dynamics.

On correlation between internal equity volatility and ordinary equity security returns, the study obtained a Pearson correlation of .492 which was an indication of a positive significant association between the variables. Internal equity was considered as the

portion of a company's equity that is generated through retained earnings and the issuance of new shares to existing shareholders. Internal equity volatility by public limited companies was seen as a signal to the financial health and confidence of the company. A share buyback program might signal that the company believes its shares are undervalued, potentially leading to positive investor sentiment and higher stock returns. A study by Ndei et al. (2019) confirms this finding by an indication that share repurchases or issuances may be perceived as a signal of management's assessment of market conditions. For instance, if a company repurchases shares when its stock is undervalued, it is seen as a positive signal therefore having a positive impact on security returns.

Equally, a correlation between external equity volatility and equity security returns of firms listed in the Nairobi Securities exchange has a positive significant Pearson correlation of .419. External equity provides a way for companies to access fresh capital from the public markets, enabling them to pursue strategic initiatives and contribute to their long-term growth. A positive Pearson correlation coefficient of 0.419 between external equity volatility and security returns indicates a moderate positive linear relationship between these two variables. The positive correlation indicates that as external equity volatility increases, security returns also tend to increase. In other words, there is a tendency for the two variables to move in the same direction. This relationship implies that firms' decisions to raise external equity capital are associated with subsequent positive movements in security returns, reflecting potential investor confidence and positive market sentiment. Lavery et al. (2022) confirms this result by providing empirical evidence that bank-affiliated investors use the private external equity market to create relationships, indicating a potential positive impact on security returns.

Finally, concerning a correlation between short term debt volatility and security returns, the study obtained a positive significant Pearson correlation statistic of .623. A positive significant Pearson correlation coefficient of 0.623 between short-term debt volatility and security returns implies a moderate to strong positive linear relationship between these two variables. The positive sign of the correlation coefficient indicates that, on average, when short-term debt volatility increases,

security returns also tend to increase. The correlation coefficient of 0.623 is relatively high, indicating a strong positive linear relationship. The magnitude of the correlation coefficient suggests that there is a substantial degree of association between Short-term Debt Volatility and security returns. This implies that companies that increase their short-term debt levels experience higher security returns. This could imply that investors view short-term debt financing positively, perhaps as a means to capitalize on opportunities or fund profitable projects.

Lee (2021) supports this study by indicating that the short-term debt (STD) has positive and significant effects on return on asset (ROA), suggesting that an increase in short-term debt will lead to an increase in the return on assets and eventually a substantial increase in security returns. Contrary to this finding, Appiah et al. (2020) found that due to the exposure of a firm to refinancing risk, short-term debts exhibit adverse effects on corporate performance. Nur (2019) found Short Term Debt volatility had a positive significant effect, indicating a potential positive relationship between short term debt volatility and security returns.

4.5 Normality Test

Normality test was considered to assess whether the variables, long-term debt structure annual volatility, internal equity structure annual volatility, external equity structure annual volatility, short term debt structure annual volatility and equity security returns of public companies in Kenya, exhibited distributions that could be considered approximately normal. These tests were used to evaluate the Skewness and Kurtosis of each variable, providing insights into their symmetry and tail behavior relative to a standard normal distribution. The findings were shown in table 4.7.

Table 4.7: Skewness/Kurtosis Tests for Normality

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	Adj chi^2	Prob>chi^2
LTDRV	539	0.4911	0.0428	4.58	0.1013
IERV	539	0.5387	0.9259	0.39	0.8229
EERV	539	0.2411	0.7282	1.50	0.4724
STDRV	539	0.1403	0.0564	5.81	0.0547
SL	539	0.1731	0.0684	4.86	0.7165
HPR	539	0.2163	0.2761	2.61	0.8156

For Long-term debt volatility, the Skewness test yielded a p-value of 0.4911, indicating in line with Pandey and Pandey (2021) that the Skewness of this variable was not significantly different from that of a normal distribution. In other words, long-term debt volatility's distribution appeared to be approximately symmetric. However, the Kurtosis test produced a p-value of 0.0428, suggesting that the Kurtosis of long-term debt structure annual volatility was significantly different from that of a normal distribution. This indicated that long-term debt volatility's distribution might have heavier tails than a typical normal distribution. The combined chi-squared test for both Skewness and Kurtosis, with a p-value of 0.1013, showed that long-term debt volatility's distribution did not significantly deviate from normality when considering both aspects.

Moving on to internal equity structure annual volatility, the skewness test resulted in a p-value of 0.5387, implying that the Skewness of internal equity structure annual volatility was not significantly different from that of a normal distribution in line with Pandey and Pandey (2021). In this regard, internal equity structure annual volatility's distribution was considered approximately symmetric. Additionally, the kurtosis test produced a p-value of 0.9259, indicating that the kurtosis of internal equity structure annual volatility was not significantly different from a normal distribution. This meant that internal equity structure annual volatility's distribution had a Kurtosis similar to a standard normal distribution. The adjusted chi-squared test for both Skewness and Kurtosis, with a p-value of 0.8229, confirmed that

internal equity structure annual volatility's distribution did not significantly depart from normality.

Regarding external equity structure annual volatility, the skewness test provided a p-value of 0.2411, suggesting that the skewness of external equity structure annual volatility was not significantly different from a normal distribution. In essence, external equity structure annual volatility's distribution displayed approximate symmetry. The Kurtosis test yielded a p-value of 0.7282, indicating that the Kurtosis of external equity structure annual volatility was not significantly different from a normal distribution. This finding supported the notion that external equity structure annual volatility's distribution had Kurtosis characteristics similar to those of a standard normal distribution. The combined chi-squared test, with a p-value of 0.4724, indicated that external equity structure annual volatility's distribution was not significantly different from normality, considering both skewness and kurtosis.

Regarding the annual volatility for short term debt proportion of the financial structure, the skewness test produced a p-value of 0.1403, suggesting that the skewness of short-term debt structure annual volatility was not significantly different from that of a normal distribution. Therefore, short term debt structure annual volatility distribution exhibited approximate symmetry. The Kurtosis test yielded a p-value of 0.0564, indicating that the Kurtosis of short-term debt volatility was not significantly different from a normal distribution. While the kurtosis p-value was close to the significance threshold, it still suggested that short term debt volatility distribution had Kurtosis characteristics similar to those of a standard normal distribution. The combined chi-squared test, with a p-value of 0.0547, implied that short term debt structure annual volatility distribution was not significantly different from normality when considering both Skewness and Kurtosis, although the Kurtosis result was borderline.

On the other hand, stock liquidity has been examined for its adherence to a normal distribution. With 539 observations, the tests reveal a p-value of 0.1731 for skewness and 0.0684 for kurtosis. These values suggest that the data does not significantly deviate from a normal distribution in terms of skewness and kurtosis. Furthermore,

the adjusted chi-square value of 4.86 with a probability of 0.7165 for stock liquidity lends additional support to the notion that the data conforms reasonably well to a normal distribution. Hence, based on these findings, it is reasonable to assume that the stock liquidity meets the assumption of normality, which was essential for various statistical analyses and interpretations.

Finally, Holding Period Returns (HPR), with 539 observations, the tests reveal a p-value of 0.2163 for skewness and 0.2761 for kurtosis. These values indicate that the data does not significantly deviate from a normal distribution in terms of both skewness and kurtosis. Additionally, the adjusted chi-square value of 2.61 with a probability of 0.8156 for the HPR variable further supports the conclusion that the data conforms reasonably well to a normal distribution. Therefore, based on these findings, it is reasonable to assume that the Holding Period Returns variable meets the assumption of normality.

4.5.1 Kolmogorov-Smirnov and Shapiro-Wilk test for Normality

Apart from Skewness and Kurtosis tests for normality, the study went further to adopt both the Kolmogorov-Smirnov and Shapiro-Wilk tests for normality. Both the Kolmogorov-Smirnov test and the Shapiro-Wilk test are statistical methods used to assess whether a given sample comes from a normally distributed population (Gujarati & Porter, 2010). The Kolmogorov-Smirnov test compares the cumulative distribution function (CDF) of the sample data with the theoretical cumulative distribution function of a normal distribution. If the p-value associated with the test is greater than the significance level (0.05), then the null hypothesis (the sample comes from a normal distribution) is not rejected. The Shapiro-Wilk test assesses the null hypothesis that a sample is drawn from a normally distributed population. If the p-value is greater than 0.05, the null hypothesis is not rejected. The findings are shown in table 4.8.

Table 4.8: Kolmogorov-Smirnov and Shapiro-Wilk Test for Normality

Variables	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
LTDRV	.023	539	.200*	.997	539	.576
IERV	.021	539	.200*	.998	539	.640
EERV	.023	539	.200*	.998	539	.794
STDRV	.031	539	.200*	.996	539	.181
SL	.022	539	.200*	.996	539	.172
HPR	.024	539	.200*	.996	539	.178

The analysis conducted on the dataset reveals several key findings regarding the normality of distribution for various variables, as assessed by both the Kolmogorov-Smirnov and Shapiro-Wilk tests in table 4.8. Long-term debt volatility exhibited a Kolmogorov-Smirnov statistic of 0.023 with 539 degrees of freedom, yielding a significance level of 0.200. Similarly, the Shapiro-Wilk test produced a statistic of 0.997 with the same degrees of freedom, resulting in a significance level of 0.576. These results collectively suggest that the distribution of long-term debt volatility does not significantly deviate from normality at the 0.05 significance level.

For internal equity structure annual volatility, both tests revealed similar outcomes. The Kolmogorov-Smirnov statistic was 0.021, with 539 degrees of freedom and a significance level of 0.200. Meanwhile, the Shapiro-Wilk statistic yielded 0.998 with the same degrees of freedom, resulting in a significance level of 0.640. Thus, there is no significant departure from normality observed for internal equity volatility based on these findings. External equity volatility also demonstrated consistency in results between the two tests. The Kolmogorov-Smirnov statistic was 0.023 with 539 degrees of freedom and a significance level of 0.200, while the Shapiro-Wilk statistic was 0.998, also with 539 degrees of freedom, and a significance level of 0.794. These findings indicate no significant departure from normality for external equity volatility. This is in line with the recommendations of

On the other hand, the analysis of short-term debt volatility revealed somewhat divergent outcomes. While the Kolmogorov-Smirnov test indicated no significant deviation from normality, with a statistic of 0.031 and a significance level of 0.200, the Shapiro-Wilk test suggested a slight deviation. The Shapiro-Wilk statistic was 0.996 with 539 degrees of freedom, resulting in a significance level of 0.181, indicating a slight departure from normality.

Kolmogorov-Smirnov test for stock liquidity, the statistic value was reported as .022, with 539 degrees of freedom, and a significance level (Sig.) of .200. The significance level indicates that the data is normally distributed. In this case, the significance level is greater than the common threshold of .05, suggesting that there is insufficient evidence to reject the null hypothesis. Thus, the data does not significantly deviate from a normal distribution according to the Kolmogorov-Smirnov test. Similarly, for the Shapiro-Wilk test, the statistic value is .996, with 539 degrees of freedom, and a significance level of .172. Again, the significance level is greater than .05, indicating that there is no significant departure from normality based on the Shapiro-Wilk test.

Finally, ordinary equity security returns exhibited consistency in results, akin to the majority of variables analyzed. Both tests yielded statistics and significance levels that did not indicate a significant departure from normality. The Kolmogorov-Smirnov statistic was 0.024 with a significance level of 0.200, while the Shapiro-Wilk statistic was 0.996 with a significance level of 0.178. These findings collectively suggest no significant deviation from normality for ordinary equity security returns.

4.5.2 Q-Q Plot (Quantile-Quantile Plot)

A Q-Q plot is a graphical tool to compare the distribution of a sample to a theoretical normal distribution (Gujarati & Porter, 2010). In a Q-Q plot, the quantiles of the observed data are plotted against the quantiles of a normal distribution. If the points fall approximately along a straight line, it suggests that the data is approximately normally distributed. The plots were conducted on all the variables as follows:

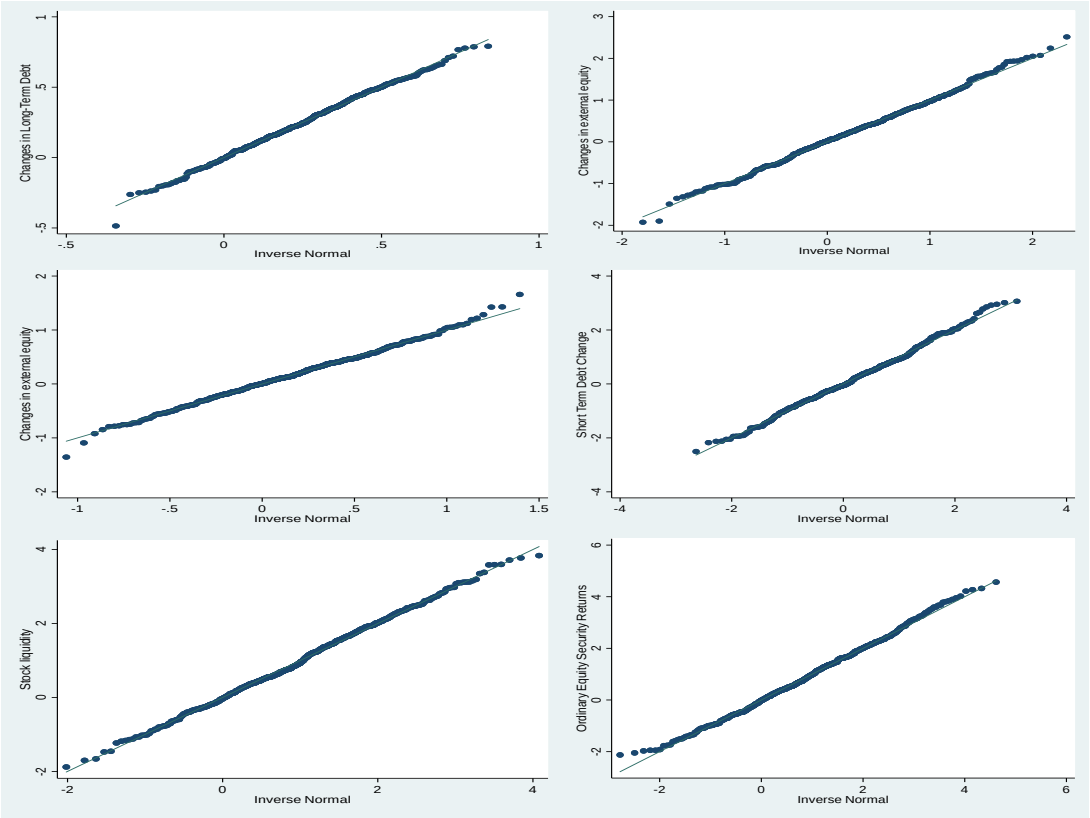

Figure 4.6: Q-Q Plot (Quantile-Quantile Plot)

In examining the Q-Q plots for various financial structure variables, including long-term debt ratio volatility, internal equity ratio volatility, external equity ratio volatility (in two instances), short term debt ratio volatility, and ordinary equity security returns (holding period returns – HPR), the observed plots exhibited a consistent linear pattern. The Q-Q plot for Long-term debt volatility showed a straight line, indicating that the distribution of these changes was in line with a theoretical normal distribution. Similarly, the Q-Q plot for internal equity ratio volatility exhibited a linear pattern, suggesting that the distribution of internal equity volatility was approximately normal.

For external equity volatility, observed Q-Q plots in both instances displayed a linear trend. This indicates that the distribution of external equity volatility, whether in the first or second instance, closely followed a normal distribution. The Q-Q plot for short term debt volatility also formed a straight line, signifying that the distribution of short-term debt volatility was consistent with a normal distribution. In the case of

ordinary equity security returns (HPR), the observed Q-Q plot revealed a linear pattern, suggesting that the distribution of returns from ordinary equity securities was approximately normal.

Throughout these analyses, the consistent linear trends observed in the Q-Q plots across all variables provided visual evidence of the normality of the respective distributions. However, the study noted that the Q-Q plot is a graphical tool, and while it offers valuable insights, additional statistical tests were considered for a comprehensive assessment of normality. In retrospect, these findings contribute to a better understanding of the distributional characteristics of the examined financial variables.

4.6 Bivariate Analytical Findings

This section entails the analysis relating the effect of the various volatilities on financial structure on equity security returns of the firms listed at the Nairobi Securities Exchange. Bivariate analysis was done on each independent variable against dependent variable before multivariate analysis. The diagnostic findings of the bivariate models and the resultant panel regression output were presented and discussed in this section.

4.6.1 Bivariate Analysis on Effect of LTDV on Equity Security Returns

The first independent variable of the study was the effect of long-term debt volatility (as measured by long term debt ration volatility -LTDRV) on equity security returns of firms listed in the Nairobi securities exchange. It was measured by a 3-year moving standard deviation of LTDR. The 3-year moving standard deviation was used to assess volatility in line with Bansal, Connolly and Stivers (2015). This approach smooths out short-term fluctuations and provided a clearer picture of the longer-term volatility. By calculating the standard deviation over successive 3-year intervals, the researcher was able to identify patterns and trends in volatility over time. The effect of this variable on security returns was undertaken using panel regression for the 49 qualifying firms over the 11 qualifying financial periods that

provided 539 firm-year observations. Before undertaking the panel regression analysis, model diagnostic tests were conducted.

The study began with test on Bivariate Panel Autocorrelation for long term debt ratio volatility. Independent of error terms in regression model is one of the most important assumptions commonly considered. Independency of error terms simply imply circumstances where error terms are not related with each other that is serial correlation does not exist (error terms are independent of each other). This assumption can be tested using the Durbin-Watson test. Durbin-Watson tests for serial correlations between error terms is a test which indicate whether the adjacent residuals are correlated. A value of two of Durbin Watson indicates that the residuals are uncorrelated, a value more than 2 indicates a negative correlation between adjacent residuals, whereas a value below two indicates a positive correlation (Field, 2009). However, Durbin-Watson statistical values less than 1 or greater than 3 are definitely cause for concern. The findings from this study were indicated in table 4.9.

Table 4.9: Bivariate Panel Autocorrelation for Long Term Debt Volatility

Model	**D.W F.E (No moderator)**	**D.W F.E (with moderator)**	**D.W R.E (No moderator)**	**D.W R.E (with moderator)**
HPR=β_0 +β_1*LTDRV	1.921088	1.936223	1.921088	1.957228

Predictor: *Long-term debt ratio volatility (LTDRV)*

In the findings provided from table 4.9, four distinct regression models were examined, each incorporating Long-term debt volatility as the predictor variable. The D.W values reported for these models offered valuable clues regarding the presence and magnitude of autocorrelation. Durbin-Watson (D.W) statistic values falling within the range of approximately 1.5 to 2.5 typically suggest the absence of significant autocorrelation in the residuals of a regression model as suggested by Gujarati and Porter (2010). The reported D.W values for all four regression models fall within this range, indicating that there is likely no significant autocorrelation that is present in the residuals.

The fixed effects (F.E) model without a moderator yields a D.W value of 1.921088, which falls within the acceptable range. This suggests that there is no substantial autocorrelation present in the residuals of this model. Similarly, the fixed effects model with a moderator exhibits a D.W value of 1.936223, still within the acceptable range, indicating the absence of significant autocorrelation. Both random effects (R.E) models, with and without a moderator, also demonstrate D.W values within the acceptable range. The R.E model without a moderator yields a D.W value of 1.921088, while the model with a moderator has a slightly higher D.W value of 1.957228. Despite this slight difference, both values suggest the absence of substantial autocorrelation in line with Gujarati and Porter (2010).

Overall, with D.W values falling within the acceptable range of approximately 1.5 to 2.5 for all regression models, it is reasonable to conclude that there is likely no significant autocorrelation presents in the residuals. This implies that the assumptions of independence among observations and the absence of autocorrelation in the regression models are met, enhancing the reliability and validity of the regression results.

This was followed by bivariate sectoral unit root test on the effect of long-term debt volatility on equity security returns. This study conducted a unit root test to uncover fundamental characteristics within the panel data under examination. These characteristics pertain to the presence of stationarity or nonstationary features within the observed data. In essence, a time series without unit roots signifies data stationarity, indicating that variations within the data remain consistent. Conversely, the presence of unit roots in a time series suggests nonstationary, signifying that data variations continuously change, and, as a result, stochastic trends within the data can be identified (Gujarati & Porter, 2010). For economic forecasting, it is crucial to determine the stationarity of time series data, as time series containing unit roots often follow a random walk pattern. The most commonly used methods for testing unit roots in time series data involve the application of Dickey-Fuller tests, primarily associated with AR (1) models introduced by Dickey and Fuller (1979). These tests have been extended to augmented Dickey-Fuller (ADF) tests by (Said & Dickey, 1984), which are primarily associated with ARMA (p, q) models.

However, the application of the ADF test to panel data, which combines cross-sectional data and time series, can be challenging (Gujarati & Porter, 2010). Panel data often comes with complexities, including time-invariant and unobserved heterogeneity across the cross-section. These complexities may lead to dependent cross-section units, contrary to the assumption of independent cross-sectional components. Additionally, making inferences regarding the acceptance or rejection of the null hypothesis can be problematic. The asymptotic theory is also more intricate in the panel framework compared to the time series framework (Gujarati & Porter, 2010).

To address these complexities, robust methodologies have been developed and categorized as first and second-generation unit root tests for panel data. First-generation tests consider cross-sectional units as independent, including the Fisher-type test methodology proposed by Maddala and Wu (1999) and methodologies by Levin et al. (2002), Im, Pesaran, and Shin (2003), and Choi (2001). Second-generation tests, such as the approach by Chang (2002, 2004) that leverages the covariance matrix structure of residuals, have also been considered. Other methods by Bai and Ng (2004), Phillips and Sul (2003), Moon and Perron (2004), Choi (2002), and Pesaran (2003) are based on the factor structure. In this study, Fisher-Type Unit Root Tests Based on Augmented Dickey-Fuller Tests which is associated with the first generation was conducted. The findings are as shown in table 4.10.

Table 4.10: Long-Term Debt Volatility Unit Root

	Based on augmented Dickey-Fuller tests			
	H_0: All panels contain unit roots		*Number of panels = 49*	
	H_1: At least one panel is stationary		*Number of periods = 11*	
	AR parameter: Panel-specific		*Asymptotic: T -> Infinity*	
	Panel means and Time trend Included			
	Drift term: Not included		*ADF regressions: 0 lags*	
Long-term debt volatility			Statistic	p-value
	Inverse chi-squared (66)	P	560.6260	0.0000
	Inverse normal	Z	-17.4935	0.0000
	Inverse logit (64)	L*	-21.8667	0.0000
	Modified inv. chi-squared	Pm	33.0447	0.0000

The findings presented in table 4.10 are based on augmented Dickey-Fuller (ADF) tests conducted to assess the stationarity of panels containing long-term debt volatility proportion data. The null hypothesis (H_0) posits that all panels contain unit roots, implying non-stationarity, while the alternative hypothesis (H_1) suggests that at least one panel is stationary. The ADF test results are summarized in terms of statistics and p-values for various distributions, including inverse chi-squared, inverse normal, inverse logit, and modified inverse chi-squared.

The ADF test statistics for all distributions were highly significant, with p-values of 0.0000. This indicates strong evidence against the null hypothesis of unit roots in all panels. Based on these results, it appeared that the long-term debt volatility proportion data exhibited a stationary behavior across the panels. Stationarity was a desirable property in time series analysis as it implied that the statistical properties of the data, such as mean and variance, remain constant over time. In contrast, non-stationarity can lead to spurious regression results and unreliable forecasts.

Given the strong evidence of stationarity in the long-term debt volatility data, it was reasonable to continue with the analysis involving these panels. The stationary nature of the data suggested that valid inferences can be drawn from statistical models and analyses, and any trends or patterns observed are more likely to reflect true underlying relationships rather than artifacts of non-stationarity.

In addition to normality, autocorrelation and stationarity, the study went ahead to perform Heteroscedasticity. Heteroscedasticity is a statistical term used to describe a situation in which the variance of errors or residuals in a regression model is not constant across all levels of the independent variable(s). In the context of statistical analysis, detecting and addressing heteroscedasticity was crucial, as it can lead to biased parameter estimates, incorrect standard errors, and, ultimately, unreliable model inferences. One common way to test for heteroscedasticity was through the Breusch-Pagan test, which was applied to regression models to determine whether the variance of residuals was related to the values of the independent variables. In this analysis, we performed the Breusch-Pagan test and its robust variant to assess

the presence of heteroscedasticity in different regression models and the results were as shown in table 4.11.

Table 4.11: Long Term Debt Volatility Test for Heteroscedasticity

Test		**Breusch-Pagan Test**	**Breusch-Pagan Test (Robust Variant)**
Hypothesis		H_0: Heteroscedasticity not present	H_0: Heteroscedasticity not present
Regression for LTDRV	Model 1	Test statistic: LM = 3.20909 with p-value = P(Chi-square (1) > 3.20909) = 0.23134	Test statistic: LM = 6.97974 with p-value = P(Chi-square (5) > 6.97974) = 0.34212

The test statistics for the Breusch-Pagan test were presented in the table 4.10. The robust variant of the test was also provided, which takes into account potential violations of the assumption that residuals are normally distributed. The test statistics are compared to the chi-square distribution with degrees of freedom equal to the number of independent variables being tested. In the case of Model 1, which represents Long-term debt volatility, the test statistic for the Breusch-Pagan test was 3.20909, with a p-value of 0.23134. Similarly, the robust variant of the test in Model 1 yields a test statistic of 6.97974 with a p-value of 0.34212. The p-values were important indicators of whether we can reject the null hypothesis of no heteroscedasticity. A small p-value (typically less than 0.05) suggests that we have evidence to reject the null hypothesis and conclude that heteroscedasticity is present in the model. Conversely, a large p-value indicates that we do not have enough evidence to reject the null hypothesis.

In order to determine whether a fixed-effect model or a random-effect model was the most appropriate model for this particular model, a Hausman model specification test was conducted against long term debt volatility and equity security returns. This was summarized in table 4.11.

Table 4.12: Hausman Model Specification Test between LTDRV and HPR

HPR and LTDRV	**(b)**	**(B)**	**(b-B)**			
H_0: Random effect model is the most appropriate Model		**F.E.M.**	**R.E.M.**	**Difference**	**S.E.**	**Chi^2**	**P-value**
	LTDRV	.031232	.03179	-.000561	.00072	1.603	.0437
	b = consistent under H_0 and Ha; obtained from xtreg						
	B = inconsistent under H_1, efficient under H_0; obtained from xtreg						
H_1: Fixed effect model is the most appropriate Model							

The Hausman model specification test is a statistical test used to determine whether a fixed-effects model or a random-effects model is the most appropriate model for a particular dataset. In this case, the null hypothesis (H_0) in the Hausman test was that the random-effects model was the most appropriate model for the data, while the alternative hypothesis (H_1) suggests that the fixed-effects model was more appropriate. For the variable Long-term debt volatility, the results of the Hausman test indicate that the fixed-effects model had a coefficient of 0.031232, while the random-effects model had a coefficient of 0.03179. The difference between these coefficients (b - B) was approximately -0.000561. This difference is an estimate of the systematic difference in the coefficients between the two models.

The standard error (S.E.) of this difference is 0.00072, and the Chi-squared (Chi^2) statistic was 1.603. To determine whether the fixed-effects model was more appropriate, the p-value associated with the Chi-squared statistic was used in line with the recommendations of Gujarati and Porter (2010). In this case, the p-value was 0.0437. This p-value represents the probability of observing a Chi-squared statistic as extreme as the one calculated (1.603) if the null hypothesis were true (that is., if the random-effects model were the most appropriate). A low p-value (typically below a significance level, for example, 0.05) suggests that the null hypothesis should be rejected in favor of the alternative hypothesis.

According to the results, the p-value was 0.0437, which was less than the common significance level of 0.05. Therefore, the conclusion was that the fixed-effects model was more appropriate for the variable Long-term debt volatility because the p-value was below the chosen significance level. This means that there was evidence to suggest that the fixed-effects model provides a better fit for the data in this case. It's important to note that the Hausman test assesses the appropriateness of the model specification and whether the fixed-effects model was superior to the random-effects model for the data based on the estimated coefficients. Having done the diagnostic tests, a bivariate regression analysis for long-term debt volatility (LTDV) and the dependent variable equity security returns as indicated by holding period returns (HPR) of public companies in Kenya was conducted and the results were shown in table 4.13.

The output in table 4.13 included results from fixed effects regression between the independent variable long-term debt volatility as indicated by LTDRV and the dependent variable equity security returns as indicated by HPR of public companies in Kenya. The findings were from fixed effect model with 539 observations and 49 groups (panels). For Fixed Regression model the R-squared values recorded indicated that within-group variation explains approximately 24.01% of the variance in equity security returns of public companies in Kenya, while between-group variation accounts for 30.39%. The overall R-squared was 24.57%. The F-statistic recorded shows the overall significance of the model. For this model, F-statistic of 154.55 and a very low p-value (0.000) was recorded indicating that the model was statistically significant.

Table 4.13: Bivariate Panel Regression for LTDRV & HPR

Fixed-effects (within) regression			Number of obs			539
Group variable: panels			Number of groups			49
R-sq:			Obs per group:			
Within	0.2401		Min			11
Between	0.3039		Avg			11.0
Overall	0.2457		Max			11
			F(1,489)			154.55
Corr(u_i, Xb) = 0.0349			Prob > F			0.000
	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Cons	0.4622997	0.0044805	103.18	0.0000	0.4534963	0.4711031
LTDRV	0.0312316	0.0025123	12.43	0.0000	0.0262954	0.0361678
rho	0.0885480					
F(48, 489)	1.07				Prob > F = 0.3574	
Sum squared resid		5.154826		S.E. of regression		0.102672
rho		−0.043718		Durbin-Watson		1.921088

Fitted Model:

$$HPR = 0.4622997 + 0.0312316LTDRV$$

Where:

HPR = Holding Period Returns

LTDRV = Long Term Debt Ratio Volatility

The coefficient for long-term debt ratio volatility was established to be 0.0312316 with a standard error of 0.0025123. This suggested that for each unit increase in long-term debt volatility, equity security returns of public companies in Kenya were expected to increase by approximately 0.0312 units. The t-statistic recorded was 12.43, indicating that this coefficient was statistically significant at a very high level of confidence (p-value < 0.0001). The constant coefficient was 0.4622997 with a standard error of 0.0044805. This represents the intercept of the regression line. It's highly statistically significant with a t-statistic of 103.18 (p-value < 0.0001). IN this respect, the null hypothesis that long term debt structure volatility has no significant effect on equity security returns is rejected and the conclusion arrived at that they positively affect returns.

The Bivariate regression analysis conducted provides valuable insights into the relationship between long-term debt volatility and equity security returns. The positive coefficient for the long-term debt volatility variable (0.0312316) suggests that, on average, an increase in long-term debt is associated with a rise in equity security returns. This result aligns with the conventional understanding that debt can serve as a financial lever, amplifying returns to equity holders when the return on assets exceeds the cost of debt.

The statistical significance of the coefficient is supported by the low p-value (0.0001), indicating a high level of confidence that the observed relationship is not due to random chance. This strengthens the credibility of the finding that long-term debt volatility has an apparent impact on equity security returns within the public limited companies in Kenya. Furthermore, the F statistic of 154.55 with a p-value of 0.000 suggests that the overall model is statistically significant. In other words, the inclusion of long-term debt volatility as an independent variable significantly improves the model's ability to explain the variance in equity security returns. This reinforces the importance of considering long-term debt volatility as a relevant factor when analyzing and predicting equity performance.

There are various reasons for the positive relationship observed in the long-term debt volatility and equity security returns. First, organizations who take on long-term debt can finance investments and projects that could yield larger volumes of returns than the debt's cost. Equity investors may receive larger returns as a result of this financial leverage if profitability rises. The efficient use of debt finance for strategic investments and business operations is one other tenable explanation for the positive relationship shown between long-term debt volatility and equity security returns. Long-term debt is frequently used by businesses to finance asset purchases, research and development, investments, and expansion projects. The valuation of equity securities may be positively impacted, drawing investors and maybe increasing the returns on equity securities, if these investments result in higher profitability and cash flows.

Additionally, the use of long-term debts may signal confidence in future cash flows and the ability to service debt obligations. Investors may interpret a company's strategic use of debt as a positive signal, especially if the cost of debt is lower than the return on investment. This favorable perception can contribute to higher demand for the company's equity securities, leading to increased returns.

Theoretically, the study finds out that volatility of long-term debt structure is a priced information factor in line with the expectations of the efficient market hypothesis of Fama (1970) and the random walk theory of Malkiel (1973) assuming that the arrival time of the volatility information in the market follows a random unpredictable walk.

A number of studies who have conducted similar studies actually concurs with the study's findings. The findings reveal a statistically significant relationship between long-term debt volatility and equity security returns in public limited companies in Kenya and therefore supported by existing literature. Abor (2005) investigated the relationship between capital structure and profitability of listed firms on the Ghana Stock Exchange. The study found that capital structure has a significant effect on profitability. This finding suggests that long-term debt volatility, as a component of capital structure, has a positive impact on equity security returns.

Similarly, Adeniyi et al. (2020) examined the relationship between capital structure and commercial banks' performance. The study recommended that commercial bank managers should consider long term debt as the least alternative for financing the capital structure, indicating that long-term debt volatility may have implications for equity security returns. Finally, Kipyego et al. (2022) explored the relationship between public debt and financial development in Kenya. Although the focus of the study was on financial development, it provides insights into the association between debt and financial outcomes. This suggests that long-term debt volatility have implications for the financial performance of companies in Kenya, including equity security returns. The findings from Olangun, Oyinloye and Agbadua (2020) however provided contrary findings that the volatility in long term debt and leverage negatively affected stock returns. This could be because Olangun, Oyinloye and

Agbadua (2020) focused on insurance companies listed in Nigeria as opposed to all companies at the Nigeria Stock Exchange as was done in this study.

4.6.2 Bivariate Analysis on Effect of IEV on Equity Security Returns

The second specific objective of the study was to determine the effect of internal equity volatility on equity security returns of firms listed in the Nairobi Securities Exchange. Equally, it was measured by a 3-year moving standard deviation of the 49 qualifying firms over the 11-year period that also provided 539 firm year observations. This deviation was identified as internal equity ratio volatility (IERV). As usual, before conducting the panel regression, various diagnostic tests were conducted to test the suitability of the desired model.

The study commenced this process by conducting a bivariate panel autocorrelation for internal equity volatility. Autocorrelation, also known as serial correlation, is a statistical concept that refers to the degree of correlation between a time series and a lagged version of itself. In other words, it measures the extent to which the values of a variable at different time points are correlated. The Durbin-Watson statistics was used. A common rule of thumb is that if the Durbin-Watson statistic is less than approximately 1.5, there may be positive autocorrelation, and if it is greater than 2.5, there may be negative autocorrelation. Durbin-Watson test was used to check for autocorrelation in the residuals and adjust the models accordingly. If autocorrelation is present, it may lead to inefficient parameter estimates and inaccurate statistical inference. The findings were shown in table 4.14.

Table 4.14: Bivariate Panel Autocorrelation for Internal Equity Structure Volatility

Model	D.W for F.E.M (No moderator)	D.W for F.E.M (with moderator)	D.W for R.E.M (No moderator)	D.W for R.E.M (with moderator)
HPR=β_0 +β_1*IERV	1.952675	1.996601	1.952875	1.986503

Predictor: *Internal Equity Ratio Volatility (IERV)*

A Durbin-Watson (DW) statistic of 1.952675 in the study on the effect of internal equity volatility on equity security returns suggests a moderate level of positive autocorrelation in the residuals of the model. The DW value falling below the critical range of 1.5 to 2.5 implies the potential presence of positive serial correlation, indicating that equity security returns may exhibit persistence or trends over time not fully captured by the model (Gujarati & Porter, 2010). This result underscores the importance of careful interpretation and consideration of the implications for the reliability of the regression estimates indicating absence of autocorrelation in the model.

This was followed by bivariate sectoral unit root test on the effect of internal equity structure volatility on equity security returns. A unit root test is a statistical method used to determine if a time series variable is non-stationary. Non-stationarity implies that the statistical properties of the variable, such as the mean or variance, change over time, making it challenging to analyze the data using traditional statistical methods.

Table 4.15: Internal Equity Volatility Unit Root

	Based on augmented Dickey-Fuller tests			
	H_0: All panels contain unit roots		*Number of panels = 49*	
	H_1: At least one panel is stationary		*Number of periods = 11*	
	AR parameter: Panel-specific		*Asymptotic: T -> Infinity*	
	Panel means and Time trend Included			
	Drift term: Not included		*ADF regressions: 0 lags*	
IERV			**Statistic**	**p-value**
	Inverse chi-squared (66)	P	532.3138	0.0000
	Inverse normal	Z	-15.8834	0.0000
	Inverse logit (64)	L*	-20.6316	0.0000
	Modified inv. chi-squared	Pm	31.0224	0.0000

The most commonly test conducted here was Augmented Dickey-Fuller (ADF) tests by Said and Dickey (1984). The ADF test was typically conducted by regressing the

differenced time series on its lagged values and possibly additional lagged differenced values. The test statistic was then compared to critical values to make a decision about the stationarity of the series. The findings were summarized in table 4.15.

Findings from table 4.15 for the internal equity ratio volatility (IERV) indicate that very low p-values (0.0000) were established for all four types of Fisher-type unit root statistics, indicating strong evidence against unit roots and confirming stationarity. Internal equity structure volatility exhibited p-values of 0.0000 for all four types of Fisher-type unit root statistics, confirming stationarity as suggested by Gujarati and Porter (2010).

In addition to the foregoing tests, the study went ahead to perform Heteroscedasticity test on volatility in internal equity and its effect on ordinary equity security returns. As previously indicated, heteroscedasticity refers to the situation in which the variability of the errors (residuals) in a regression model is not constant across all levels of the independent variable(s). In simpler terms, it means that the spread or dispersion of the residuals is not consistent throughout the range of the predictor variables (Pandey & Pandey, 2021). In a well-behaved regression model, the assumption of homoscedasticity is met, meaning that the variance of the errors is constant. However, when heteroscedasticity is present, the spread of the residuals may exhibit patterns or trends, leading to unequal variability. This violation of the homoscedasticity assumption can affect the efficiency and reliability of statistical inferences drawn from the regression model. The findings for this model on heteroscedasticity were summarized in table 4.16.

Table 4.16: Internal Equity Structure Volatility Test for Heteroscedasticity

Test		**Breusch-Pagan test**	**Breusch-Pagan test (Robust variant)**
Hypothesis		H_0: Heteroscedasticity not present	H_0: Heteroscedasticity not present
Regression for IERV	Model 2	Test statistic: LM = 28.0134 with p-value = P(Chi-square	Test statistic: LM = 37.9348 with p-value = P(Chi-

	(1) > 28.0134) = 0.141853	square (1) > 37.9348) = 0.314526

The test statistics for the Breusch-Pagan test were presented in the table 4.16. The results of the Breusch-Pagan tests for heteroscedasticity in the study on the effect of internal equity volatility on equity security returns suggest that there is no strong evidence to reject the null hypothesis of homoscedasticity. The p-values of 0.141853 and 0.314526 for the standard and robust variants, respectively, exceed conventional significance levels, indicating that there is no statistically significant departure from homoscedasticity. This implies that the variability in equity security returns, concerning internal equity volatility, is relatively consistent across the range of the independent variable. Consequently, the assumptions of homoscedasticity in the regression model as suggested by Gujarati and Porter (2010) appear to be tenable, enhancing the reliability of standard errors and the validity of statistical inferences drawn from the bivariate regression analysis.

In a bid to determine whether to adopt the fixed or random effect, a Hausman model specification test was conducted. The findings were summarized in table 4.17. For the variable IERV, the results indicated that the fixed effects model had a coefficient of approximately 0.0286923, while the random effects model yielded a coefficient of approximately 0.028929. The difference between these coefficients (b - B) was approximately -0.000236. This difference represented an estimate of the systematic distinction in the coefficients between the two models. The standard error (S.E.) of this difference was 0.000725. The Chi-squared (Chi^2) statistic approximately 0.110.

Table 4.17: Hausman Model Specification Test between IEV and ESR

Variable: HPR and IERV	**(b)**	**(B)**	**(b-B)**			
H_0: Random effect model is the most appropriate Model	**F.E.M**	**R.E.M**	**Difference**	**S.E.**	**Chi^2**	**P-value**
	IE 0286923	.028929	-.000236	.000725	.110	.7446
	b = consistent under H_0 and H_1; obtained from xtreg					
H_1: Fixed effect model is the most appropriate	B = inconsistent under H_1, efficient under H_0; obtained from xtreg					

Model

To decide whether the fixed effects model was more appropriate, the p-value associated with the Chi-squared statistic was used. In this instance, the p-value was 0.7446. This p-value indicated the probability of observing a Chi-squared statistic as extreme as the one calculated (0.110) if the null hypothesis were accurate, that is., if the random effects model were the most appropriate. A higher p-value suggested that the null hypothesis should not be rejected in favor of the alternative hypothesis as suggested by Gujarati and Porter (2010). In these results, the p-value was 0.7446, which was considerably higher than the commonly chosen significance level of 0.05. As a result, it would be concluded that there was insufficient evidence to reject the null hypothesis. Therefore, the random effects model appeared to be the more appropriate choice for modeling the relationship between IE and ESR based on these findings. The coefficients from both models were consistent under the null hypothesis, further supporting the selection of the random effects model.

After the diagnostic tests, a bivariate regression analysis for Internal Equity Volatility and the dependent variable equity security returns of public companies in Kenya was conducted and the results were shown in table 4.18. In the random effects regression analysis between Internal Equity Volatility (IEV) and Equity Security Returns (ESR) of public companies in Kenya, the following findings were noted: The within-group R-squared was approximately 0.1787, indicating that the model explained around 17.87% of the variation in equity security returns of public companies in Kenya. The overall R-squared was also 0.1775. The Wald chi-squared test was conducted to assess the significance of the random effects model. The test yielded a statistic of 116.05, and the associated p-value was extremely low (0.000), indicating the high statistical significance of the model.

Table 4.18: Bivariate Panel Regression for IERV & HPR

Random-effects (within) regression			Number of obs			539
Group variable: panels			Number of groups			49
R-sq:			Obs per group:			
Within	0.1787			Min		11
Between	0.1690			Avg		11.0
Overall	0.1775			max		11
			Wald $chi^2(1)$			116.05
Corr(u_i, Xb) 0	(assumed)		Prob > chi^2			0.000
	Coef	**Std. Err.**	**t**	**p-value**	[95% Conf.	Interval]
Const	0.465756	0.00503429	92.52	0.0000	0.4558889	0.4756231
IERV	0.028929	0.00268542	10.77	0.0000	0.0236651	0.0341918
F (48, 489)		6.209621	S.E. of regression			0.107434
Rho		−0.066911	Durbin-Watson			1.952675

Fitted Model:

$$HPR = 0.\ 0.465756+0.0289285IERV$$

Where HPR = Holding Period Returns

IERV = Internal Equity Ratio Volatility

The coefficient estimates for the constant and Internal Equity Volatility were similar to those in the fixed effects model, with both displaying high statistical significance (p-values of 0.000) and suggesting a strong and positive relationship between Internal Equity Volatility and equity security returns of public companies in Kenya.

The Random effect bivariate regression analysis conducted provides interesting insights into the relationship between internal equity structure volatility and equity security returns. The positive coefficient of 0.0289285 for internal equity ratio volatility suggests that an increase in internal equity is associated with a corresponding increase in equity security returns. This indicates that the internal financial strength of organizations, as represented by internal equity, may positively influence the performance of equity securities.

The very low p-value of 0.0000 for the coefficient of internal equity emphasizes the statistical significance of the relationship. This remarkably low p-value suggests that the observed correlation between internal equity and equity security returns is very unlikely to be the product of chance, indicating a high degree of confidence in the

outcome. With a p-value of 0.000, the Wald chi-square test provides additional evidence in favor of the regression model's overall significance by suggesting that equity security returns are mostly explained by internal equity structure volatility.

One possible interpretation of the positive relationship is that internal equity serves as a signal of a company's financial health and stability and can also be identified as an information risk factor given that high volatility implies high risk that requires a return premium as suggested by Graham, Adam, and Gunasingham (2020). When a company has strong internal equity, it implies that it has retained earnings and accumulated capital from its operations, which can be used for various purposes, such as funding growth initiatives, paying down debt, or weathering economic downturns. Investors often view a healthy internal equity position as an indicator of the company's ability to withstand challenges and pursue strategic opportunities, which can positively impact the perceived value of equity securities. Companies that can generate and retain profits internally are less reliant on external financing, reducing financial risk and potentially signaling to investors that the company is well-positioned for long-term success. Strong internal equity may also put businesses in a better position to finance initiatives and investments internally, lessening their need on outside funding. This may result in cheaper financing costs and improved profitability, both of which will draw in investors and raise the return on equity securities.

The findings are in support of efficient market hypothesis where Fama (1970) suggests that information is priced by securities in accordance with the nature of the efficiency level. The findings are also in line with the positive version of the asymmetric information hypothesis of Easly and O'Hara (2004). They however seem to contradict with the postulation of Modigliani and Miller (1958) who had suggested that capital structure is irrelevant in determining firm market value such that volatility in such a structure would equally remain irrelevant.

Some existing empirical literature consistent supports the finding that internal equity structure volatility has a positive significant effect on equity security returns in public companies in Kenya. Yemi and Seriki (2018) for instance arrived at a similar

finding for non-financial firms listed at the Nigeria Stock Exchange. The findings from Nigeria were confirmed by Adeniji (2023) who also found a positive association between changes in retained earnings and stock returns. Almeida and Murillo (2007) examine the relationship between internal financing, cash flow, and debt usage in firms. They find that firms with greater reliance on internal financing tend to use less debt. This aligns with the finding that internal equity volatility has a positive effect on equity security returns, suggesting that a higher proportion of internal equity may lead to lower debt levels and potentially higher returns. On the other hand, Chen et al. (2017) investigated the impact of capital structure on competition through advertising efforts. They found that firms with higher internal equity ratios tend to engage in more aggressive advertising competition. This implies that firms with a substantial proportion of internal equity are more likely to invest in advertising, potentially leading to enhanced visibility and, consequently, higher equity security returns.

Vuong and Nancy (2017) explored the impact of corporate financing decisions on stock returns. They found that firms with higher internal equity ratios are more likely to experience positive stock returns. This supports the finding that Internal Equity Volatility have a positive significant effect on equity security returns. Equally, Chih et al. (2019) investigated how firms' reliance on internal versus external capital markets influences their quarterly earnings forecast disclosure. They found that firms with higher internal equity proportions tend to provide more accurate earnings forecasts. This suggests that firms with a greater emphasis on internal equity may have more stable and predictable financial performance, potentially leading to higher equity security returns.

Finally, Balakrishnan et al. (2019) examined the role of internal governance mechanisms in bank loan contracting. They found that firms with stronger internal governance structures are more likely to obtain favorable loan terms. This highlights the importance of internal equity in influencing financial arrangements, which may ultimately impact Equity Security Returns. In the contradicting side were findings from Jordan where Dahmash et al. (2023) found results that supported Modigliani and Miller (1958) that internal equity structure and the changes thereof had no effect

of firm stock market returns for non-financial firms listed at the Amman Stock Exchange. This apparent contradiction with the findings in this study could possibly emanate from the variations in the regulatory environment in the two countries.

4.6.3 Bivariate Analysis of Effect of EEV on Equity Security Returns

The third objective of this study was to determine the effect of external equity structure volatility (EEV) on ordinary equity security returns of public limited companies in Kenya. The volatility was measured using a 3-year moving standard deviation of external equity ratio (EER) for the 49 qualifying firms over the 11-year period that also provided 539 firm year observations. As usual, before conducting the panel regression, various diagnostic tests were conducted to test the suitability of the desired model.

The study first conducted a bivariate panel autocorrelation for external equity ratio volatility (EERV). As usual, a common rule of thumb as suggested by Pandey and Pandey (2021) is that if the Durbin-Watson statistic is less than approximately 1.5, there may be positive autocorrelation, and if it is greater than 2.5, there may be negative autocorrelation. The findings were summarized in figure 4.19.

Table 4.19: External Equity Ratio Volatility Autocorrelation

Model	D.W for F.E.M. (No moderator)	D.W for F.E.M. (with moderator)	D.W for R.E.M (No moderator)	D.W for R.E.M (with moderator)
$Y=\beta_0+\beta_{1*}$EERV	1.907984	1.890000	1.928984	1.911100

Predictors: EERV, Dependent Variable: HPR

A Durbin-Watson (DW) statistic of 1.907984 in the study on the effect of external equity volatility on equity security returns is slightly below at the midpoint of the possible range (from 0 to 4). A DW value of 1.907984 is typically interpreted as suggesting no autocorrelation in the residuals of the study model. In other words, it implies that there is no systematic pattern of correlation between the error terms at

different time points. This is considered desirable as it indicates that the assumptions of independence of errors are met.

While a DW value of exactly 2.0 suggests no autocorrelation as per Pandey and Pandey (2021), it is essential to keep in mind that the interpretation can vary slightly depending on the context and the specifics of your study. Generally, values between 1.5 and 2.5 are often considered indicative of no significant autocorrelation, while values outside this range may suggest the presence of autocorrelation (either positive or negative). In summary, a Durbin-Watson statistic of 1.907984 in this study is a positive indicator, suggesting that the assumption of no autocorrelation in the residuals of the regression model is reasonable, and the model's estimates may be reliable in that regard.

This was followed by bivariate sectoral unit root test on the effect of external equity structure volatility on equity security returns. As noted earlier, a unit root test is a statistical method used to determine if a time series variable is non-stationary. The findings were summarized in table 4.20.

Table 4.20: External Equity Unit Root Test

	Based on augmented Dickey-Fuller tests			
	H_0: All panels contain unit roots		*Number of panels = 49*	
	H_1: At least one panel is stationary		*Number of periods = 11*	
	AR parameter: Panel-specific		*Asymptotic: T -> Infinity*	
	Panel means and Time trend Included			
	Drift term: Not included		*ADF regressions: 0 lags*	
EERV			**Statistic**	**p-value**
	Inverse chi-squared (66)	P	586.8213	0.0000
	Inverse normal	Z	-16.9192	0.0000
	Inverse logit (64)	L*	-22.7759	0.0000
	Modified inv. chi-squared	Pm	34.9158	0.0000

A p-value of 0.0000 in a unit root test for all the mentioned specifications (Inverse chi-squared (66), Inverse normal, inverse logit (64), and Modified inv. chi-squared)

generally suggests strong evidence against the null hypothesis of a unit root. The unit root hypothesis posits that a time series variable is non-stationary, meaning it has a stochastic trend and does not revert to a constant mean over time. A p-value of 0.0000 indicates that the observed data are highly inconsistent with the idea that a unit root is present. In this context on the effect of external equity volatility on equity security returns, finding strong evidence against a unit root is often considered favorable. It implies that external equity structure volatility is more likely to be stationary, which is a prerequisite for reliable statistical modeling and hypothesis testing. Stationarity is crucial for accurate parameter estimation and valid statistical inferences in econometric analyses. Stationarity is a critical property for time-series analysis, enabling more reliable modeling and forecasting of financial variables (Pandey & Pandey, 2021). These findings suggest that this external equity financial structure volatility display stable behavior over time and do not exhibit stochastic trends.

Heteroscedasticity is a statistical term used to describe a situation in which the variance of errors or residuals in a regression model is not constant across all levels of the independent variable (Gujarati & Porter, 2010). This was also conducted. On the effect of External Equity Volatility on equity security returns. Detecting and addressing heteroscedasticity was crucial, as it can lead to biased parameter estimates, incorrect standard errors, and, ultimately, unreliable model inferences. One common way to test for heteroscedasticity was through the Breusch-Pagan test, which was applied to regression models to determine whether the variance of residuals was related to the values of the External Equity Volatility. The findings were summarized in table 4.21.

Table 4.21: External Equity Ratio Volatility Heteroscedasticity

Test		Breusch-Pagan test	Breusch-Pagan test (Robust variant)
Hypothesis		H_0: Heteroscedasticity not present	H_0: Heteroscedasticity not present
Regression for EERV	Model 3	Test statistic: LM = 34.9689 with p-value = P(Chi-square (1) > 34.9689) = 0.61484	Test statistic: LM = 45.476 with p-value = P(Chi-square (1) > 45.476) = 0.07476

The findings from table 4.21 indicates that for the standard Breusch-Pagan test: The p-value is 0.61484 and for the Robust variant of the Breusch-Pagan test: the p-value is 0.07476. The p-values in hypothesis testing represent the probability of observing the data or more extreme data if the null hypothesis is true. In the context of heteroscedasticity testing, for the standard Breusch-Pagan test: With a p-value of 0.61484, there is no enough evidence to reject the null hypothesis of homoscedasticity. This suggests that there is no strong indication of heteroscedasticity in the residuals. For the Robust variant of the Breusch-Pagan test:

With a p-value of 0.07476, the evidence is suggestive of a potential departure from homoscedasticity in line with Gujarati and Porter (2010). The lower p-value indicates a higher likelihood of rejecting the null hypothesis. While the result is not extremely significant, it might warrant further investigation or consideration. Based on the standard Breusch-Pagan test, there is no strong evidence of heteroscedasticity, while the robust variant suggests a somewhat weaker indication.

In a bid to determine the suitable model for panel regression between external equity structure volatility and equity security returns, a Hausman test was conducted. The results of the Hausman Model Specification Test, conducted on the variables External Equity Volatility and ordinary security returns of public companies in Kenya were as illustrated in table 4.22.

Table 4.22: Hausman Model Specification Test EERV and HPR

HPR and EERV	**(b)**		**(B)**	**(b-B)**			
H_0: Random effect model is the most appropriate Model		**F.E.M.**	**R.E.M.**	**Difference**	**S.E.**	**Chi^2**	**P-value**
	EERV	0.03023	0.027911	0.002321	0.0013823	2.82	0.0932
	b = consistent under H_0 and H_1; obtained from xtreg B = inconsistent under H_1, efficient under H_0; obtained from xtreg						
H_1: Fixed effect model is the most appropriate Model							

The null hypothesis (H_0) tested whether the random effects model was the most appropriate for the data, while the alternative hypothesis (H_1) suggested that the fixed effects model would be more suitable. For the variable External Equity Volatility, it was observed that the fixed effects model produced a coefficient of approximately 0.03023, while the random effects model yielded a coefficient of approximately 0.027911. The difference between these coefficients (b - B) was found to be approximately 0.002321. This difference represented an estimate of the systematic difference in the coefficients between the two models. The standard error (S.E.) of this difference was approximately 0.0013823. The Chi-squared (Chi2) statistic was computed was 2.82.

To assess whether the fixed effects model was more appropriate, the p-value associated with the Chi-squared statistic was considered. In this case, the p-value was 0.0932. This p-value indicated the probability of observing a Chi-squared statistic as extreme as the one calculated (2.82) if the null hypothesis were accurate, that is., if the random effects model were the most appropriate. A p-value above the chosen significance level suggested that the null hypothesis should not be rejected in favor of the alternative hypothesis. In these results, the p-value was 0.0932, which was higher than the commonly chosen significance level of 0.05. Therefore, it was concluded that there was insufficient evidence to reject the null hypothesis. Consequently, based on these findings, the random effects model appeared to be the

more appropriate choice for modeling the relationship between external equity structure volatility and equity security returns of public companies in Kenya. Both the b and B coefficients were consistent under the null hypothesis, further supporting the selection of the random effects model.

Considering the fact that the random effect model was the appropriate, the study further conducted a bivariate regression analysis between the variables, external equity structure volatility and equity security returns. The finding was illustrated in figure 4.23

Table 4.23: Bivariate Regression Random Effect between EERV and HPR

Random-effects (within) regression				Number of obs		539
Group variable: panels				Number of groups		49
R-sq:				Obs per group:		
Within	0.0496			min		11
Between	0.0043			avg		11.0
Overall	0.0393			max		11
				Wald $chi^2(1)$		22.95
Corr(u_i, Xb) (assumed)	0			Prob > chi^2		0.000
	Coef	Std. Err.	z	p-value	[95% Conf.	Interval]
const	0.468564	0.00552376	84.83	0.0000	.4577374	.4793902
EERV	0.0279112	0.00582577	4.791	0.0000	.0164929	.0393295
Sum squared resid		7.253408		S.E. of regression		0.116113
rho		−0.038511		Durbin-Watson		1.907984

Fitted Model:

HPR = 0.468564 + 0.0279112EERV

Where HRP = Holding Period Returns

EERV = External Equity Ratio Volatility

In the regression output, the coefficients provide information about the estimated relationship between the dependent variable (Equity Security Returns) and the independent variable (External Equity Volatility). The results suggest that, on average, a one-unit increase in External Equity Volatility is associated with a 0.0279112-unit increase in Equity Security Returns. The constant term represents the estimated value of the dependent variable when the independent variable is zero. In this context, when there are no External Equity Volatility (that is., External Equity

Volatility is zero), the estimated Equity Security Returns is approximately 0.468564. The p-value of 0.000 indicates that the coefficient is statistically significant. A p-value of 0.000 means that you have very strong evidence to reject the null hypothesis.

For the Random Effects Regression, the within-group R-squared was similar to the fixed effects model, with a value of approximately 0.0496, indicating that the model explained around 4.96% of the variation in equity security returns of public companies in Kenya. The between-group R-squared was 0.0043. The Wald chi-squared test, which assessed the significance of the random effects model, yielded a statistic of 22.95 with a p-value of 0.000, indicating that the model was statistically significant. The coefficient estimates for the constant and External Equity Volatility were similar to the fixed effects model, with both coefficients displaying high statistical significance (p-values of 0.000). This reinforced the presence of a strong and positive relationship between External Equity Volatility and equity security returns of public companies in Kenya.

The results of the random effect regression analysis shed light on the relationship between external equity and equity security returns. The positive coefficient of 0.0279112 for external equity suggests that an increase in external equity is associated with a corresponding increase in equity security returns. This positive association indicates that organizations leveraging external equity—capital raised through stock issuances or other external financing mechanisms—may experience improvements in the performance of their equity securities.

The remarkably low p-value of 0.0000 for the external equity coefficient indicates statistical significance and a high level of confidence in the observed relationship. This implies that the positive association between external equity and equity security returns is highly unlikely to be due to random chance. The Wald chi-square statistic of 22.95 with a p-value of 0.000 further underscores the overall significance of the model, suggesting that external equity significantly contributes to explaining the variation in equity security returns.

A tenable explanation for these findings is that firms receive extra funding from external equity infusions to support their expansion and growth. One can use the money acquired from external sources for value-adding projects like mergers & acquisitions and strategic investments. Improved financial performance from these investments may have a favorable effect on the company's valuation and, in turn, the returns on stock securities. Increased operational capacity, market presence, and general competitiveness are outcomes that can favorably impact returns on equity securities, and these can be facilitated by the infusion of outside money.

Investors may view companies that successfully raise external equity as having favorable growth prospects and financial stability. The ability to attract external investors may signal confidence in the company's future performance and potential for value creation. As a result, the increased demand for equity securities in such companies can drive up their market value, leading to higher equity security returns.

The finding of a positive influence of EERV on HPR is again in line with some existing market theories. It for instance establishes the EERV to be a priced information factor which in line with Fama (1970) with respect to efficient market hypothesis, all fundamental information gets incorporated in security prices. Volatility being a risk indicator implies that it is priced by stocks listed at the NSE. This is also in support of the risk dichotomy theory of Baum et al. (2016).

The current literature consistently supports the finding that external equity volatility has a positive significant effect on equity security returns in public companies in Kenya. El-Masry, Salah and Abdel-Karim (2024) for instance found similar results while evaluating the interrelationship between capital structure with firm value of no financial firms in Egypt as listed at the Egypt Stock Market. Similar findings were obtained from Nguyen et al (2020) in their study in Vietnam for firms listed at the Hanoi and Ho Chi Minh City stock markets.

Chemmanur et al. (2011) investigated the relationship between equity financing and corporate innovation. They found that firms that rely more on external equity financing tend to engage in more innovative activities. This suggests that External Equity Volatility could lead to increased innovation, potentially contributing to

higher equity security returns. On the other hand, Chen and Qiao (2019) examined the relationship between equity issuance and agency costs. They discuss how firms often resort to external equity issuance to alleviate agency problems. This implies that External Equity Volatility can serve as a mechanism to align the interests of managers and shareholders, potentially leading to improved equity security returns.

Swan and Iannis (2019) on the other hand explored the relationship between equity financing, risk, and the choice of financing mechanism. They found that firms relying on external equity tend to choose riskier projects. This suggests that External Equity Volatility may lead to a shift in the risk profile of a firm, potentially influencing equity security returns. Equally, Fich & Anil (2007) examined the relationship between equity issuance and shareholder rights. They found that firms conducting Seasoned Equity Offerings (SEOs) tend to have weaker shareholder rights. This indicates that External Equity Volatility issuance may have implications for corporate governance, which can subsequently affect equity security returns. Finally, Gompers and Josh (1999) investigated the role of venture capital in entrepreneurship and public equity offerings. They found that venture-backed firms are more likely to go public. This suggests that firms accessing external equity through venture capital investments may be better positioned to undertake successful public equity offerings, potentially leading to positive effects on equity security returns.

On the contrary, in Bangladesh, Hossina (2019) sought to establish how capital structure changes affect pharmaceutical and chemical firms listed at the Dhaka Stock Exchange and found out that the variations in capital structure as indicated by equity and debt had a negative effect of stock returns. The seeming contradiction could be attributed to the different regulatory regimes that exist in Kenya and Bangladesh.

4.6.4 Bivariate Analysis on Effect of STDV on Ordinary Equity Security Returns

The penultimate objective was to determine the effect of short-term Debt Volatility on equity security returns of public limited companies in Kenya. Before conducting the bivariate panel regression analysis, the study conducted various diagnostic tests

on the suitability of the model. Bivariate panel Autocorrelation was first conducted to measure the degree of similarity between a given time series and a lagged version of the same time series over successive time intervals. The results are summarized in table 4.24.

Table 4.24: Autocorrelation for Short Term Debt Ratio Volatility

Model		D.W for F.E.M (No moderator)	D.W for F.EM (with moderator)	D.W for R.E.M (No moderator)	D.W for R.E.M (with moderator)
$Y=\beta_0$ STDRV	$+\beta_{1*}$	2.004011	2.080533	2.084712	2.181531

Predictors: *STDRV, Dependent Variable: HPR*

The Durbin-Watson statistic was used as a measure of autocorrelation in the residuals of a regression analysis in line with the suggestion of Gujarati and Porter (2010). It ranges in value from 0 to 4, where a value around 2 indicates no serial correlation. The rule of the thumb suggests that a value close to 0 suggests positive autocorrelation (residuals are positively correlated), while a value close to 4 indicates negative autocorrelation -residuals are negatively correlated (Gujarati & Porter, 2010). The findings from table 4.24 indicate a Durbin-Watson value of 2.004011, which is very close to 2. This value suggests that there is little to no autocorrelation in the residuals of the said regression analysis model. In other words, the assumption of independence of errors is satisfied, indicating that there is no systematic pattern in the residuals that the model has failed to capture. This result is generally favorable because it suggests that the model's residuals do not exhibit a significant pattern of correlation, and the estimated coefficients for the independent variable (short term debt volatility as indicated by STDRV) are likely to be unbiased and efficient.

The study went ahead to conduct unit root test. Unit root test is important in of understanding the stationarity of a time series data in question. Stationarity is a crucial concept in time series modeling, and a unit root test helps determine whether a time series is stationary or non-stationary. The findings were illustrated in table 4.25. The study used the p-values as a critical indicator that help determine whether to reject the null hypothesis of a unit root (non-stationarity) or fail to reject it as

Gujarati and Porter (2010) suggest. In this case, the p-value for the unit root test for all the tests conducted is reported as 0.000.

The null hypothesis in a unit root test typically assumes the presence of a unit root, indicating non-stationarity. A p-value of 0.000 is extremely small, essentially indicating that the probability of observing such a result (or more extreme) under the assumption of the null hypothesis is very low. The finding indicates P-Values less than 0.05 which indicated an automatic rejection of the Null hypothesis of the unit root. Rejecting the null hypothesis suggested that there was evidence to support the idea that Short-term Debt Volatility is stationary rather than non-stationary. Stationarity is often desirable in regression analysis as it simplifies modeling and allows for more reliable estimation of statistical properties.

Table 4.25: Unit Root Test for Short Term Debt Ratio Volatility

	Based on augmented Dickey-Fuller tests			
	H_0: All panels contain unit roots		***Number of panels = 49***	
	H_1: At least one panel is stationary		***Number of periods = 11***	
	AR parameter: Panel-specific		***Asymptotic: T -> Infinity***	
	Panel means and Time trend Included			
	Drift term: Not included		***ADF regressions: 0 lags***	
			Statistic	**p-value**
STDRV	Inverse chi-squared (66)	P	512.9393	0.0000
	Inverse normal	Z	-15.9888	0.0000
	Inverse logit (64)	L*	-19.9030	0.0000
	Modified inv. chi-squared	Pm	29.6933	0.0000

The study further conducted heteroscedasticity on the annual volatility of short-term debt volatility ratio. As noted earlier, Heteroscedasticity refers to the situation in which the variability of the errors in a regression model is not constant across all levels of the independent variable (Pandey Pandey, 2021). In other words, the spread or dispersion of the residuals is not consistent, and it may exhibit patterns or trends. The findings were summarized in table 4.26.

Table 4.26: Heteroscedasticity for Short Term Debt Volatility

Test		Breusch-Pagan test	Breusch-Pagan test (Robust variant)
Hypothesis		H_0: Heteroscedasticity not present	H_0: Heteroscedasticity not present
Regression for STDRV	Model 4	Test statistic: LM = 32.9689 with p-value = P(Chi-square (1) > 32.9689) = 0.51481	Test statistic: LM = 4.0009 with p-value = P(Chi-square (1) > 4.0009) = 0.54076

The Breusch-Pagan test is a statistical test used to detect the presence of heteroscedasticity in the residuals of a regression model (Pandey & Pandey, 2021). The p-value for the Breusch-Pagan test is 0.51481. Since this p-value is greater than the commonly used significance level of 0.05, you would typically fail to reject the null hypothesis. This means that there is no strong evidence to suggest the presence of heteroscedasticity based on the traditional Breusch-Pagan test. The robust variant of the Breusch-Pagan test takes into account potential heteroscedasticity in the residuals by using robust standard errors. The p-value for the robust variant is 0.54076. Similar to the traditional test, the p-value is greater than 0.05, suggesting that the study fails to reject the null hypothesis. The robust variant of the Breusch-Pagan test also does not provide strong evidence of heteroscedasticity. The findings from both versions of the Breusch-Pagan test indicate that there is no strong evidence of heteroscedasticity in the residuals of the regression model. This is generally good because homoscedasticity is an assumption of classical linear regression. When the assumption is met, the standard errors of the coefficients are unbiased and efficient, leading to reliable statistical inferences.

The Hausman model specification test was conducted to assess the suitability of choosing between a random effects model and a fixed effects model for the variables short term Debt Volatility and equity security returns of public companies in Kenya. The findings were as recorded in table 4.27.

Table 4.27: Hausman Model Specification Test for STDVV and ESR

HPR and STDRV	**(b)**	**(B)**	**(b-B)**			
H_0: Random effect model is the most appropriate Model		**F.E.M.**	**R.E.M.**	**Difference**	**S.E.**	**Chi^2**	**P-value**
	STDRV	.028405	0.027357	0.001048	0.000845	1.54	0.215
	b = consistent under H_0 and H_1; obtained from xtreg						
H_1: Fixed effect model is the most appropriate Model	B = inconsistent under H_1, efficient under H_0; obtained from xtreg						

The null hypothesis (H_0) posited that a random effect model is the most appropriate, while the alternative hypothesis (H_1) suggested that a fixed effect model is more appropriate. For the variable short term debt volatility, the estimates for the fixed and random effect models were 0.028405 and 0.027357, respectively. The difference between these estimates (b-B) was 0.001048. The standard error for this difference was 0.0008449. The Chi-squared value for this test was 1.54, leading to a P-value of 0.215. In this case, since the P-value is greater than the significance level (usually 0.05), the study therefore does not reject the null hypothesis (H_0) in line with the recommendations of Gujarati and Porter (2010).

This implies that under the given test conditions, the random effect model is consistent with the data and can be considered the most appropriate model for the variable short term debt volatility. In summary, the Hausman test results indicate that, for the variable short term debt volatility, the random effect model is consistent with the data and is the most appropriate choice, given the provided results.

With all the diagnostic tests having met the needs of a best linear panel estimator of the coefficients based on the random effects model, the researcher went ahead to conduct a bivariate regression analysis for the effect of short-term debt structure volatility of ordinary equity security returns of companies listed at the NSE. The findings were put forth on table 4.27.

Table 4.28: Bivariate Random Effects Regression between STDRV and HPR

Random-effects (within) regression			Number of obs			539
Group variable: panels			Number of groups			49
R-sq:			Obs per group:			
within		0.1050		Min		11
between		0.0054		Avg		11.0
overall		0.0917		max		11
			Wald $chi^2(1)$			56.04
Corr(u_i, Xb)	0	(assumed)	Prob > chi^2			0.000
	Coef	Std. Err.	t	p-value	[95% Interval]	Conf.
const	0.465436	0.00554099	84.00	0.0000	0.4545762	0.4762
STDRV	0.0273572	0.00365446	7.486	0.0000	0.0201945	0.0345
Sum squared resid		6.85792600		S.E. of regression		0.1129
rho		−0.1291100		Durbin-Watson		2.0847

Fitted Model:

HPR = 0.468564+0.0279112STDRV

HPR = Holding Period Returns

STDRV = Short-Term Debt Ratio Volatility

The findings from this model were as follows: The within-group R-squared was similar to that in the fixed effects model, with a value of approximately 0.1050, indicating that the model explained about 10.50% of the variation in equity security returns of public companies in Kenya. The between-group R-squared was 0.0054. The Wald chi-squared test, which assessed the significance of the random effects model, yielded a statistic of 56.04 with a p-value of 0.000, indicating the statistical significance of the model.

The constant term (0.465436) represents the estimated value of the dependent variable (ordinary equity security returns as represented by HPR) when the independent variable (Short Term Debt Volatility) is zero. In practical terms, when there is no change in short-term debt, the estimated Equity Security Returns is 0.465436 (the intercept) units. The coefficient for the short-term debt ratio volatility (0.0273572) represents the estimated change in the dependent variable (Equity Security Returns) for a one-unit change in the independent variable (short term debt volatility), holding other variables constant. In this context, for each unit increase in

Short Term Debt Volatility, the Equity Security Returns are expected to increase by approximately 0.0274 units, assuming a linear relationship.

Interesting insights into the relationship between STDV and returns on equity securities can be gained from the random effect bivariate regression study. The relationship between Short-term debt structure volatility and returns on equities securities appears to be favorable, as indicated by the coefficient of 0.0279112 for short term debt structure volatility. This positive correlation suggests that adjustments to an organization's short-term debt load could improve the performance of equity securities.

The extremely low p-value of 0.0000 for the short-term debt ratio volatility coefficient indicates statistical significance, suggesting a high level of confidence in the observed relationship. This implies that the positive association between short term debt structure volatility and equity security returns is not likely to be due to an arbitrary chance. The Wald chi-square statistic of 56.04 with a p-value of 0.000 further confirms the overall significance of the model, indicating that Short Term Debt Volatility significantly contribute to explaining the variation in equity security returns.

Short-term debts can be strategically used to finance immediate operational needs, allowing companies to take advantage of time-sensitive opportunities or navigate through temporary cash flow challenges. If companies effectively manage and utilize short-term debts to support operational efficiency and profitability, it could positively impact equity security returns. The short-term nature of these debts suggests that they are generally easier to manage and repay, and their efficient use may lead to improved financial performance.

Short term debt structure volatility might also reflect a company's ability to effectively manage its working capital. If short-term debts are used prudently to optimize inventory levels, accounts receivable, and accounts payable, it can contribute to improved liquidity and overall financial health. Investors often view well-managed working capital as a sign of effective financial management, and this

positive perception can contribute to increased demand for the company's equity securities.

The finding that short term debt structure volatility is a positively priced information factor at the NSE can be evaluated from a theoretical literature point of view. The finding that this risk factor is priced by the stock market seems to agree with Fama (1970) and Malkiel (1973) both of whom take any fundamental information that affects prices to be incorporated in the security prices in line with the level of efficiency of the market in which the relevant stocks trade. The findings are also in line with the postulations of the risk dichotomy theory of Baum et al. (2016) and the positive argument of the Easley and O'Hara (2004) asymmetric information hypothesis.

From an empirical literature point of view, the existing literature offers mixed findings on the relationship between short-term debt structure volatility and equity security returns. While some studies suggest that a higher proportion of short-term debt may introduce risks or affect competition, others support the finding of a positive effect on equity security returns for this study. It is therefore essential to consider the specific context and industry characteristics of public companies in Kenya when interpreting these results. In the USA for instance, Friewald, Nagler and Wagner (2022) used 44 years to establish how short-term debt changes affected to returns and firm value. The findings returned a positive value just as is the case in this study. Similar findings have been recorded by Jakobsen and Engebakken (2022) in Japan and Shikumo, Oluoch and Matanda (2020) in Kenya. For all these cases, volatility in short term debt structure is a positive pricing factor for securities listed on stock markets.

Grullon and Roni (2014) for instance investigated the effects of debt maturity on firm performance, particularly during the 2007 credit crisis. They found that firms with a higher proportion of short-term debt experienced more severe financial distress during the crisis. This suggested that Short-term Debt Volatility could potentially introduce higher risk, which does not align itself with this finding of a positive effect on equity security returns. On the other hand, Almeida et al. (2017) investigated how

short-term debt maturity affects firms' product market competition. They find that firms with shorter-term debt are less likely to engage in product market competition. This suggests that Short-term Debt Volatility may lead to a more cautious approach in the face of competitive pressures, hypothetically influencing equity security returns.

Contrary to this study, Dasgupta et al. (2017) examined the impact of short-term debt on financial stability, focusing on the banking industry. They find that banks with a higher proportion of short-term debt are more prone to systemic risk. This suggests that Short-term Debt Volatility could introduce vulnerabilities that may have implications for equity security returns, especially in the context of financial stability. Conversely, Reddy and Stuart (2017) investigated the relationship between short-term debt and stock returns, using data from the London Stock Exchange. They found that firms with higher short-term debt ratios tend to have higher stock returns. This finding aligns with this study, suggesting that Short-term Debt Volatility may indeed have a positive effect on equity security returns. Finally, Lee and Bong-Soo (2019) examined the influence of short-term debt on the relationship between debt maturity and earnings quality. They found that short-term debt mitigates the negative effect of long-term debt on earnings quality. This suggests that Short-term Debt Volatility could have a stabilizing effect on a firm's financial performance, actually contributing to higher equity security returns.

4.7 Bivariate Moderating Influence of Stock Liquidity

The moderating influence of stock liquidity on financial structure volatility and equity security returns refers to the role that the liquidity of a company's stock may play in influencing the relationship between annual fluctuations in its financial structure and the returns on its equity securities. Stock liquidity refers to the ease with which a company's shares can be bought or sold in the financial markets without causing a significant impact on the stock price. The study commenced with analyzing the diagnostic tests for the moderating influence of stock liquidity on all the independent variables against the dependent variable.

4.7.1 Moderating Effect of Stock Liquidity on LTDV and ESR

The study began by conducting various diagnostic tests on the effect of long-term debt volatility on equity security returns with stock liquidity as the moderator and the findings are shown in table 4.29.

Table 4.29: Diagnostic Tests for the Moderating Effect of SL on LTDRV and HPR

Diagnostic Assumption	Test	Statistic	Significance
Autocorrelation	Durbin-Watson	1.936223	
Heteroscedasticity	Breuch-Pagan	0.253662	0.561246
Model Specification	Hausman Chi Square Test	4.14	0.0126
Coefficient of Determination	R-Square	0.2887	
Observations	539	-	-

From the findings in Table 4.29, the Durbin-Watson statistic is used as a measure to detect the presence of autocorrelation in the residuals (errors) of a regression model with the presence of the moderator. With a Durbin-Watson value of 1.936223, which is very close to 2, the study can generally conclude that there is not a strong indication of autocorrelation in the residuals in line with the recommendations of Gujarati and Porter (2010).

Heteroscedasticity test in the presence of the moderator was conducted. Heteroscedasticity referred to a condition in which the variability of the error terms (residuals) in a regression model is not constant across all levels of the independent variable (Pandey & Pandey, 2021). With a p-value of 0.561246, there is no enough evidence to reject the null hypothesis of homoscedasticity as per the recommendations of Gujarati and Porter (2010). This suggests that there is no strong indication that the variance of the residuals is systematically related to the values of the moderator variable (stock liquidity). The non-significant p-value (greater than 0.05) is generally considered good in the context of the Breusch-Pagan test. It indicates that, based on the available evidence, there is no significant violation of the

homoscedasticity assumption in the regression model with the presence of the moderator.

The results of the Hausman test were that the chi-squared value computed was 4.14 with corresponding p-value of 0.0126. In conclusion, based on the Hausman test results, it could be said that the fixed effect model was more appropriate than the random effect model in the presence of moderator.

The coefficient of determination, often denoted as R-squared (R^2), is a statistical measure that represents the proportion of the variance in the dependent variable that is explained by the independent variables in a regression model (Pandey & Pandey, 2021). Results from table 4.30 on the effect of long-term debt structure volatility on equity security returns with stock market liquidity as the moderating variable, an R-squared value of 0.2887 has been obtained. The R-squared value of 0.2887 means that approximately 28.87% of the variance in equity security returns is explained by the long-term debt volatility with stock liquidity as the moderating variable.

Table 4.30: Moderating Effect of Stock Liquidity on the Effect of LTDV on HPR

Fixed-effects (within) regression			Number of obs			539
Group variable: panels			Number of groups			49
R-sq:			Obs per group:			
Within	0.2937			min		11
Between	0.2382			avg		11.0
Overall	0.2887			max		11
			F(2,488)			101.48
Corr(u_i, Xb) = 0.0055			Prob > F			0.000
	Coef.	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
const	0.4533060	0.00456972	99.20	0.000	0.4443269	0.4622844
LTDRV	0.0311157	0.00242462	12.83	0.000	0.0263517	0.0358797
LTDRV*TVR	0.0265954	0.00437092	6.085	0.000	0.0180073	0.0351836
F(48, 488)	1.23				Prob > F = 0.1483	
Sum squared resid		4.791326		S.E. of regression		0.099087
rho		−0.057299		Durbin-Watson		1.937228

To assess the impact of a moderator, fixed effects model was employed to explore the association between the independent variable long-term debt structure volatility with the moderator (stock liquidity), and the dependent variable equity security

returns of public companies in Kenya. The inclusion of a moderator suggests an interest in investigating how the influence of Long-term debt volatility on equity security returns of public companies in Kenya is affected by the presence of stock liquidity. The findings were summarized in table 4.30.

In the fixed-effects model, the results indicated that the constant (intercept) was estimated at 0.453306, with a standard error of 0.00456972. The coefficient for Long-term debt volatility was 0.0311157, with a standard error of 0.00242462. This suggested that, with other factors held constant, a one-unit increase in Long-term debt volatility was associated with an approximate 0.0311-unit increase in equity security returns of public companies in Kenya.

The coefficient for the moderator variable long-term debt ratio volatility with moderator (stock liquidity) was 0.0265954, with a standard error of 0.00437092, underscoring the moderator's substantial impact on the relationship between Long-term debt volatility and equity security returns of public companies in Kenya. 0.0265954 is the coefficient for the interaction term between long-term debt volatility and stock liquidity. The positive value (0.0265954) suggests that the moderating effect of stock liquidity on the relationship between long-term debt volatility and equity security returns is positive. In other words, the impact of long-term debt volatility on equity security returns is strengthened in the presence of higher stock liquidity. The p-value associated with the entire model or individual coefficients is very low (0.000), indicating that the model is statistically significant.

The results in table 4.30 indicate that that the prediction model has positively improved when the moderating effect of stock liquidity as measured by trading volume ratio (TVR) is included. This is because the results before moderation had indicated an R-square of 0.2457 and this changes to 0.2887 when the moderator is introduced. Hence the explanatory power of LTDRV on changes in HPR improves by 4.3 percentage points (28.87% less 24.57%) when the moderator is introduced indicating the positive moderating influence.

The existing literature has potentially supported this study. Marks and Shang (2020) investigated the impact of stock liquidity on corporate debt maturity structure. They

found that the influence of stock liquidity on debt maturity is stronger when borrowers are subject to greater refinancing risk. This suggests that stock liquidity play a moderating role in the relationship between long-term debt and stock returns. Equally, Amin and Mollick (2021) explored the relationship between stock returns, oil prices, and leverage in US firms. They found that the positive effect of oil prices on stock returns is attenuated by the degree of leverage. This implies that the impact of long-term debt on stock returns may be influenced by leverage, as leverage affects the ability of firms to manage their risk.

Ahangar and Kashmir (2021) on the other hand conducted a study on the relationship between stock liquidity and corporate debt maturity structure in Indian firms. The findings revealed a negative relationship between stock liquidity and the use of long-term debt. This suggests that stock liquidity moderate the effect of long-term debt on stock returns, as the choice of debt maturity structure can impact a firm's financial performance. Equally, Croce et al. (2019) investigated the relationship between government debt and the returns to innovation. While the study focused on government debt, the findings may have implications for the moderating effect of stock liquidity on the relationship between long-term debt and stock returns. Elevated levels of government debt can impact the overall economic environment, including stock liquidity, which in turn can influence stock returns.

4.7.2 Moderating Effect of Stock Liquidity on IEV and Ordinary Equity Security Returns

The study conducted various diagnostic tests on the effect of internal equity volatility on equity security returns with stock liquidity as the moderator and the findings are shown in table 4.31

Table 4.31: Diagnostic Tests for the Moderating Effect of SL on IEV and Stock Returns

Diagnostic Assumption	Test	Statistic	Significance
Autocorrelation	Durbin-Watson	1.986503	
Heteroscedasticity	Breuch-Pagan	0.267298	0.582659
Model Specification	Hausman Chi Square Test	0.06	0.984
Coefficient of Determination	R-Square	0.2238	
Observations	539	-	-

The Durbin-Watson test statistic is very close to 2 (1.986503), which suggests little to no autocorrelation in the residuals as recommended by Gujarati and Porter (2010). A value close to 2 indicates that there is not a significant pattern of dependence between consecutive residuals. In this case, the test does not provide strong evidence of autocorrelation in the residuals. The Breusch-Pagan test statistic is 0.267298, and the non-significant p-value (0.582659) suggests no strong evidence of heteroscedasticity. This implies that the variance of the residuals is approximately constant across different levels of the independent variables.

The null hypothesis (H_0) suggested that the random effect model was the preferred choice, while the alternative hypothesis (H_1) proposed that the random effect model was more suitable. The results of the Hausman test indicated a chi-squared value of 0.06, along with a corresponding p-value of 0.984. In summary, based on the outcomes of the Hausman test, it was apparent that the random effect model proved to be a more appropriate choice than the fixed effect model, especially in the presence of the moderator variable. The R-square value of 0.2238 represents the proportion of the variance in the dependent variable explained by the independent variables in your model. Approximately 22.38% of the variability in the dependent variable is accounted for by long-term debt volatility, stock liquidity, and their interaction term. R-square provides an indication of the goodness-of-fit.

In the analysis investigating the association among the variables Internal Equity Volatility, with moderator (stock liquidity), and equity security returns of public companies in Kenya within the context of a moderator, a random effects model was utilized. This examination aimed to elucidate the impact of the moderator variable

(stock liquidity), on the relationship between Internal Equity Volatility and equity security returns of public companies in Kenya. The findings were illustrated in table 4.32.

Table 4.32: Moderating Effect of SL on the Effect of IEV on HPR

Random-effects (within) regression				Number of obs		539
Group variable: panels				Number of groups		49
R-sq:				Obs per group:		
Within	0.2263			min		11
Between	0.2018			avg		11.0
Overall	0.2238			max		11
				Wald $chi^2(1)$		154.94
Corr(u_i, Xb) 0	(assumed)			Prob > chi^2		0.000
	Coef	Std. Err.	T	p-value	[95% Conf.	Interval]
const	0.462229	0.00501835	92.11	0.0000	.4523933	.4720648
IERV	0.0291375	0.00261001	11.16	0.0000	.0240219	.0342530
IERV*TVR	0.0227266	0.00400875	5.669	0.0000	.0148696	.0305836
Sum squared resid		5.860157		S.E. of regression		0.104464
rho		−0.084596		Durbin-Watson		1.986503

The random-effects (within) regression model, applied to the same dataset, produced outcomes that were closely aligned with those of the fixed-effects model. The within-group R-squared retained a value of 0.2263, and the between-group R-squared remained at 0.2018. Notably, the Wald chi-squared statistic for the random-effects model was significant at 154.94. In the random-effects model, the estimated constant was 0.462229, with a standard error of 0.00501835. The coefficient for Internal Equity Volatility was calculated as 0.0291375, with a standard error of 0.00261001, suggesting a positive relationship with equity security returns of public companies in Kenya. The coefficient for the moderator Internal Equity Volatility with moderator (stock liquidity) was estimated to be 0.0227266, with a standard error of 0.00400875, which reaffirmed the moderator's substantial role in influencing the relationship between Internal Equity Volatility and equity security returns of public companies in Kenya.

The results in table 4.32 indicate that that the prediction model has positively improved when the moderating effect of stock liquidity as measured by trading volume ratio (TVR) is included. This is because the results before moderation had indicated an R-square of 0.1775 and this changes to 0.2238 when the moderator is introduced. Hence the explanatory power of IERV on changes in HPR improves by 4.63 percentage points (22.38% less 17.75%) when the moderator is introduced indicating the positive moderating influence.

This study is similar to the study by Febrianti and Saadah (2023) who investigated the moderating role of stock liquidity on the relationship between financial constraints and stock returns. The study found that as the illiquidity of stocks increases, investors demand higher additional returns, particularly for companies experiencing financial constraints. This implies that stock liquidity may moderate the effect of internal equity on stock returns, especially in the presence of financial constraints.

Subsequently, Assagaf and Kartikasari (2019) conducted an empirical study on the determinants of stock returns with liquidity as a moderator in the Indonesia Stock Exchange. The study found that liquidity significantly moderated the relationship between profitability and stock returns. This suggests that stock liquidity may play a moderating role in the effect of internal equity on stock returns, as profitability is a key determinant of internal equity. Ndei et al. (2019) on the other hand examined the flow of equity unit trust funds and stock market returns. The study found that an increase in stock market returns leads equity fund managers to purchase more securities, which increases the demand for those stocks and subsequently increases stock prices and stock market returns. This indicates that stock liquidity, as reflected in the flow of equity unit trust funds, moderates the effect of internal equity on stock returns.

Stock liquidity interact with factors such as financial constraints, profitability, dividend policy, and liquidity risk to influence the relationship between internal equity and stock returns. Considering stock liquidity as a moderating variable is crucial for understanding the complex dynamics between internal equity and stock

returns. Mufidah and Sucipto (2020) investigated the moderating role of dividend policy on the influence of liquidity, profitability, leverage, and investment opportunity set on stock returns. The study found that dividend policy strengthens the relationship between liquidity and stock returns. This suggests that dividend policy may interact with stock liquidity to moderate the effect of internal equity on stock returns.

4.7.3 Moderating Effect of SL on EEV and ESR

The study conducting various diagnostic tests on the effect of External Equity Volatility on equity security returns with stock liquidity as the moderator and the findings were shown in table 4.33

Table 4.33: Diagnostic Tests for the Moderating Effect of SL on EEV and ESR

Diagnostic Assumption	Test	Statistic	Significance
Autocorrelation	Durbin-Watson	1.928984	
Heteroscedasticity	Breuch-Pagan	0.276145	0.58265
Model Specification	Hausman Chi Square Test	3.14	0.02078
Coefficient of Determination	R-Square	0.0752	
Observations	539	-	-

The Durbin-Watson test statistic is very close to 2 (2.00009), indicating little to no autocorrelation in the residuals. A value close to 2 suggests that there is not a significant pattern of dependence between consecutive residuals. In this case, the test does not provide strong evidence of autocorrelation in the residuals. The Breusch-Pagan test statistic is 0.276145, and the non-significant p-value (0.58265) suggests no strong evidence of heteroscedasticity as suggested by Gujarati and Porter (2010). This implies that the variance of the residuals is approximately constant across different levels of the independent variables.

The null hypothesis (H_O) was that the random effect model was the preferred choice, while the alternative hypothesis (H_1) suggested that the fixed effect model was more suitable. The outcomes of the Hausman test revealed a chi-squared value of 3.14, accompanied by a corresponding p-value of 0.02078. These results unequivocally

indicated that the fixed effect model was the superior choice. In summary, based on the Hausman test findings, it could be reasonably concluded that the fixed effect model was more appropriate than the random effect model for the variable External Equity Volatility, as the difference in coefficients proves to be statistically significant.

The R-square value of 0.0752 represents the proportion of the variance in the dependent variable explained by the independent variables in your model. Approximately 7.52% of the variability in the dependent variable is accounted for by long-term debt Volatility, stock liquidity, and their interaction term. R-square provides an indication of the goodness-of-fit.

To establish the moderating effect between the variables External Equity Volatility and equity security returns of public companies in Kenya, with the incorporation of a moderator, fixed effect model was utilized to investigate how the moderator variable External Equity Volatility with moderator (stock liquidity) shapes this relationship. The findings were summarized in table 4.34.

Table 4.34: Moderating Effect of SL on the Effect of EEV on ESR

Fixed-effects (within) regression			Number of obs			539
Group variable: panels			Number of groups			49
R-sq:			Obs per group:			
Within	0.0807			min		11
Between	0.0244			avg		11.0
Overall	0.0747			max		11
			F(2,488)			21.43
Corr(u_i, Xb)	0.0148		Prob > F			0.000
	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
const	0.463939	0.00544380	85.22	0.000	0.4542005	0.473904
EERV	0.0294807	0.00573818	5.138	0.000	0.0199004	0.043096
EERV*TVR	0.0223916	0.00495526	4.519	0.000	0.0107819	0.030929
F test that all u_i=0: F(48, 488) = 1.22					Prob > F = 0.1598	
Sum squared resid		6.982262				
						0.114028
			S.E. of regression			
rho		−0.031306	Durbin-Watson			
						1.890000

Within the fixed-effects (within) regression model, the within-group R-squared revealed that roughly 8.07% of the total variance in equity security returns of public companies in Kenya could be elucidated by the model within each panel. Additionally, the between-group r-squared hinted at approximately 2.44% of the variability in equity security returns of public companies in Kenya existing between various panels.

The findings derived from the fixed effects model unveiled that the constant (intercept) was approximated at 0.463939, with a standard error of 0.00544380. The coefficient for External Equity Volatility was determined to be 0.0294807, with a standard error of 0.00573818, denoting a positive relationship between External Equity Volatility and equity security returns of public companies in Kenya. Furthermore, the coefficient for the moderator variable External Equity Volatility with moderator (stock liquidity) was assessed at 0.0223916, accompanied by a standard error of 0.00495526, indicating the substantial influence of the moderator on the association between External Equity Volatility and equity security returns of public companies in Kenya.

The results in table 4.34 indicate that that the prediction model has positively improved when the moderating effect of stock liquidity as measured by trading volume ratio (TVR) is included. This is because the results before moderation had indicated an R-square of 0.0393 and this changes to 0.0747 when the moderator is introduced. Hence the explanatory power of EERV on changes in HPR improves by 3.54 percentage points (7.47% less 3.54%) when the moderator is introduced indicating the positive moderating influence.

For a one-unit increase in external equity structure volatility, the equity security returns as measured by HPR are expected to increase by 0.0294807 units, holding other variables constant. The positive coefficient suggests a positive relationship between External Equity Volatility and equity security returns. The interaction term (0.0223916) indicates the moderating effect of stock liquidity on the relationship between external equity volatility and equity security returns. A positive coefficient suggests that the effect of external equity volatility on equity security returns is

strengthened when stock liquidity is higher. The p-value (0.0000) is less than the typical significance level of 0.05, suggesting that the overall model is statistically significant. This means that at least one of the independent variables or the interaction term significantly contributes to explaining the variation in equity security returns.

A number of studies mirrored these findings. Assagaf and Kartikasari (2019) examined the determinants of stock returns with liquidity as a moderator in the Indonesia Stock Exchange. The study found that liquidity significantly moderated the relationship between profitability and stock returns. This suggests that stock liquidity may play a role in influencing the effect of external equity on stock returns, as liquidity can modulate the magnitude of the impact of profitability on stock returns. Amihud (2012) conducted a comprehensive analysis of the relationship between illiquidity and stock returns. The study found that illiquidity has cross-sectional and time-series effects on stock returns. Specifically, stocks with higher illiquidity tend to have lower returns. This indicates that stock liquidity plays a crucial role in moderating the effect of external equity on stock returns. Higher liquidity can potentially mitigate the negative impact of illiquidity on stock returns, suggesting that stock liquidity acts as a moderating factor in the relationship between external equity and stock returns.

4.7.4 Moderating Effect of SL on STDV and HPR

The study conducted various diagnostic tests on the effect of short-term debt volatility on equity security returns with stock liquidity as the moderator and the findings were shown in table 4.35

Table 4.35: Diagnostic Tests for the Moderating Effect of SL on STDV and ESR

Diagnostic Assumption	Test	Statistic	Significance
Autocorrelation	Durbin-Watson	2.080533	
Heteroscedasticity	Breuch-Pagan	0.237645	0.549857
Model Specification	Hausman Chi Square Test	2.31	0.0203
Coefficient of Determination	R-Square	0.1132	
Observations	539	-	-

The Durbin-Watson test statistic is very close to 2 (2.080533), indicating little to no autocorrelation in the residuals. A value close to 2 suggests that there is not a significant pattern of dependence between consecutive residuals as recommended by Gujarati and Porter (2010). In this case, the test does not provide strong evidence of autocorrelation in the residuals. The Breusch-Pagan test statistic is 0.237645, and the non-significant p-value (0.549857) suggests no strong evidence of heteroscedasticity. This implies that the variance of the residuals is approximately constant across different levels of the independent variables.

The null hypothesis (H_O) suggested that the random effect model was the preferable choice, while the alternative hypothesis (H_1) indicated that the fixed effect model was more appropriate. The results from the Hausman test showed a chi-squared value of 2.31, accompanied by a corresponding p-value of 0.0203. These findings unequivocally supported the superiority of the fixed effect model. In summary, based on the outcomes of the Hausman test, it can be reasonably inferred that, for the variable short term Debt Volatility, the fixed effect model was more suitable than the random effect model, as the difference in coefficients was statistically significant.

The R-square value of 0.1132 represents the proportion of the variance in the dependent variable explained by the independent variables in your model. Approximately 11.32% of the variability in the dependent variable is accounted for by the External Equity Volatility, stock liquidity, and their interaction term. To establish the relationship between the variables short term Debt Volatility and equity security returns of public companies in Kenya, with the inclusion of a moderator variable, fixed effect model was employed to investigate how the moderator variable (stock liquidity) influences the effect between Short Term Debt volatility on equity security returns. The findings were summarized in table 4.36.

Table 4.36: Moderating Effect of SL on the Effect of STDV on ESR

Fixed-effects (within) regression			Number of obs			539
Group variable: panels			Number of groups			49
R-sq:			Obs per group:			
Within	0.1272			min		11
Between	0.0144			avg		11.0
Overall	0.1132			max		11
			F(2,488)			35.56
Corr(u_i, Xb) = 0.0423			Prob > F			0.000
	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
const	0.461789	0.00490642	94.12	0.000	.4521483	.4714289
STDRV	0.0290251	0.00371193	7.819	0.000	.0217318	.0363
STDRV*TVR	0.0172301	0.00488651	3.526	0.000	.0076289	.0268
F test that all u_i=0: F(48, 488) = 1.38					Prob > F	= 0.0750
Sum squared resid		5.921026	S.E. of regression			0.1101
rho		−0.124263	Durbin-Watson			2.0805

For fixed-effects (within) regression model, R-squared indicated that approximately 12.72% of the total variation in equity security returns of public companies in Kenya could be explained by the model within each panel. Additionally, the between-group R-squared suggested that around 1.44% of the variation in equity security returns of public companies in Kenya existed between different panels. The F-test for the fixed-effects model aimed to test whether the panel-specific effects were collectively equal to zero. The F-statistic resulted in a value of 35.56, with a corresponding p-value of 0.000 which was below 0.05 clearly demonstrating that the model was significant

The results from the fixed effects model revealed that the constant (intercept) was estimated at 0.461789, with a standard error of 0.00490642. The coefficient for short term Debt Volatility was estimated to be 0.0290251, with a standard error of 0.00371193, indicating a positive relationship between short term Debt Volatility and equity security returns of public companies in Kenya. Furthermore, the coefficient for the moderator variable short term Debt Volatility with moderator (stock liquidity) was estimated at 0.0172301, with a standard error of 0.00488651, signifying the moderator's influence on the relationship between short term Debt Volatility and equity security returns of public companies in Kenya.

The results in table 4.36 indicate that that the prediction model has positively improved when the moderating effect of stock liquidity as measured by trading

volume ratio (TVR) is included. This is because the results before moderation had indicated an R-square of 0.0917 and this changes to 0.1132 when the moderator is introduced. Hence the explanatory power of IERV on changes in HPR improves by 2.15 percentage points (11.32% less 9.17%) when the moderator is introduced indicating the positive moderating influence.

4.8 Multivariate Panel Regression Analysis

A comprehensive panel regression analysis was conducted to investigate the potential significance of the relationship between various independent variables and a dependent variable. This section presents the findings pertaining to the overall impact of several independent or predictor variables, namely Long-term debt volatility, Internal Equity Volatility, External Equity Volatility, and External Equity Volatility, on equity security returns of public companies in Kenya. The proposed overarching model for the study was as follows:

$$HPR_{i,t} = \beta_0 + \beta_1 LTDRV_{i,t} + \beta_2 IERV_{i,t} + \beta_3 EERV_{i,t} + \beta_1 STDRV_{i,t} + e_{i,t}$$

Here, the variables were defined as follows:

HPR = Holding Period Returns

LTDRV = Long-term Debt Ratio Volatility

IERV = Internal Equity Ratio Volatility

EERV = External Equity Ratio Volatility

STDRV = Short term Debt Ratio Volatility

4.8.1 Multivariate Panel Regression Diagnostic Tests

This section entails multivariate panel regression diagnostic tests. Conducting multivariate regression diagnostic tests is crucial for ensuring that the assumptions of the regression model are met, identifying potential issues, and obtaining reliable and

valid results. These tests contribute to the overall credibility and interpretability of the multivariate regression analysis. The study began with multicollinearity test. Multicollinearity, a condition in which independent variables in a study exhibit relationship with each other, was assessed in this research using the Variance Inflation Factor (VIF), which is the reciprocal of tolerance. Some scholars suggest that a VIF value exceeding 10 (VIF ≥ 10) indicates the presence of multicollinearity as recommended by Gujarati and Porter (2010). According to Kalnins (2018), a VIF threshold value of 10 and above, with corresponding tolerance statistic values below 0.1, indicates a severe problem, while values below 0.2 suggest a potential issue. The findings were summarized in table 4.37.

When considering scenarios without the moderator, an examination of Variance Inflation Factor (VIF) values for the variables was conducted. For instance, the VIF for LTDRV was found to be 1.00, with a corresponding reciprocal value (Tolerance) of 0.997175. These metrics indicate that X1 did not display notable multicollinearity.

Table 4.37: Multicollinearity

Variables	**Collinearity Statistics**	
(Constant)	**VIF**	**Tolerance**
LTDRV	1.00	0.997175
IERV	1.00	0.997109
EERV	1.01	0.988493
STDRV	1.01	0.992424

The tolerance value, closely approximating 1, signifies that X1 exhibits a substantial degree of independence from the other variables in the model as recommended by Gujarati and Porter (2010). Likewise, IERV was associated with a VIF of 1.00 and a reciprocal (Tolerance) value of 0.997109, suggesting the absence of problematic multicollinearity. The tolerance value, also nearing 1, reinforces the assertion that IERV does not exhibit substantial correlations with the other variables of the study in the study model.

EERV demonstrated a VIF of 1.01, along with a reciprocal (Tolerance) value of 0.988493. Although the VIF slightly exceeded 1, it still indicated a low level of

multicollinearity as recommended by Gujarati and Porter (2010). The tolerance value, approximating 1, implied that EERV's correlations with other variables were not a significant concern and remained within an acceptable range.

Finally, STDRV exhibited a VIF of 1.01, with a reciprocal (Tolerance) value of 0.992424. These findings suggested that STDRV did not significantly contribute to multicollinearity issues within the model as recommended by Gujarati and Porter (2010). The tolerance value, closely aligned with 1, reinforced the notion that STDRV's associations with other variables did not pose problematic challenges for multiple linear panel regression model used in the study.

In summary, for the multiple linear panel regression model, the VIF values for all variables (LTDRV, IERV, EERV and STDRV) approximated 1, indicating the absence of substantial multicollinearity in line with Gujarati and Porter (2010). Additionally, the corresponding tolerance statistics closely approximated 1, further affirming that the variables exhibited a notable degree of independence from one another within this model. These results signify that the predictor variables did not manifest problematic interrelationships, a critical aspect for ensuring the dependability of the model's parameter estimates and interpretations. This lack of multicollinearity enhances the robustness of the regression analysis, thereby ensuring more reliable outcomes and inferences.

The study went ahead to conduct a test for autocorrelation for a multivariate regression model and the results were illustrated in table 4.38.

Table 4.38: Autocorrelation Test for Independent Errors

Model	D.W value for F.E (No moderator)	D.W value for R.E model No moderator
$Y=\beta_0 + \beta_1 LTDRV + \beta_2 IERV + \beta_3 EERV + \beta_3 STDRV$	1.983610	1.993510

Predictors: *LTDRV, IERV, EERV and STDRV. Dependent Variable: HPR*

The Durbin-Watson statistic is a measure used to detect autocorrelation in the residuals of a regression model. It takes values between 0 and 4. A value of 2 indicates no autocorrelation in the residuals. It suggests that there is no systematic pattern of dependence between consecutive residuals. A Durbin-Watson statistic of 1.983610 is very close to 2. While it is slightly below 2, the proximity suggests that there may be little to no autocorrelation in the residuals as recommended by Gujarati and Porter (2010) as well as Pandey and Pandey (2021). The value is within the acceptable limits hence there was no problem of autocorrelation for the model.

The study went further ahead to conduct an overall model for heteroscedasticity. The findings are summarized in table 4.39.

Table 4.39: Overall Model for Heteroscedasticity

Test	Breusch-Pagan test	Breusch-Pagan test (Robust variant)
Hypothesis	H_0: Heteroscedasticity not present	H_0: Heteroscedasticity not present
Overall regression with Model 7 no moderator	Test statistic: LM = 11.4093 with p-value = P(Chi-square (20) > 11.4093) = 0.373404	Test statistic: LM = 9.7974 with p-value = P (Chi-square (5) > 9.7974) = 0.222151 Chi-square (49) = 1249.07, with p-value = 2.398229

Heteroscedasticity occurs when the variance of the residuals is not constant across all levels of the independent variables (Pandey & Pandey, 2021). The null hypothesis of the Breusch-Pagan test is that there is homoscedasticity (constant variance of residuals). The p-value of 0.373404 is greater than the typical significance level of 0.05, indicating that there is no significant evidence to reject the null hypothesis. This suggests that there is no strong indication of heteroscedasticity based on the traditional Breusch-Pagan test. The robust variant of the Breusch-Pagan test also assesses heteroscedasticity, and the p-value of 0.222151 is again greater than 0.05. Similar to the traditional Breusch-Pagan test, this result does not provide significant evidence to reject the null hypothesis of homoscedasticity.

The Pedroni Residual Co-Integration Test, as depicted in Table 4.40, was conducted to assess the presence of co-integration among a set of series, specifically regression for long-term debt structure volatility, internal equity structure volatility, external equity structure volatility and short-term debt volatility on equity security returns as indicated by holding period returns (HPR). Co-integration is a critical concept in time series analysis, indicating whether multiple variables share a common long-term relationship (Pandey & Pandey, 2021). In this context, the test aimed to determine whether these variables exhibited such a relationship.

The analysis was carried out in two primary scenarios: one without a moderator and another with a moderator variable Z. The test was conducted under different deterministic trend specifications, including individual intercept, individual intercept and trend, and no intercept trend. These specifications allowed for the examination of different potential trends in the data, which could influence the co-integration results. For each scenario and trend specification, the Pedroni Residual Co-Integration Test produced various statistics and corresponding probability values. The test assessed two alternative hypotheses: one concerning common AR (auto-regressive) coefficients within the dimensions and another related to individual AR coefficients between dimensions.

In the case of the Pedroni Residual Co-Integration Test with no moderator, the statistics and probabilities were computed as follows: For the Panel v-Statistic, which

is related to common AR coefficients within dimensions, the values ranged from -1.761 to -1.4248 across different trend specifications. The associated probabilities were relatively high, indicating that there was no significant evidence of co-integration in these cases. Similarly, for the Group Rho-Statistic, which examines individual AR coefficients between dimensions, the values varied from 1.287 to 2.41002 across different trend specifications. The corresponding probabilities were also relatively high, suggesting a lack of significant evidence for co-integration. The Group PP-Statistic and Group ADF-Statistic exhibited values and probabilities similar to the Group Rho-Statistic in this scenario.

Table 4.40: Pedroni Residual Co-integration Test

Pedroni Residual Co-integration Test with No Moderator

Pedroni Residual Co-integration Test Series: LTDRV, IERV, EERV, STDRV,HPR

Deterministic trend specification Individual intercept

Alternative hypothesis: common AR coefficients. (within-dimension)					*Alternative hypothesis: individual AR coefficients. (between-dimension)*		
	Statistic	**Prob.**	**Weighted Statistic**	**Prob.**		**Statistic**	**Weighted Prob.**
Panel v-Statistic	-1.761	0.908	-0.503	0.741	Group rho-Statistic	1.287	0.9009
Panel rho-Statistic	-0.355	0.291	-0.835	0.262	Group PP-Statistic	-2.632	0.0542
Panel PP-Statistic	-2.171	0.065	-3.752	0.322	ADF-Statistic	-2.192	0.0643
Panel ADF-Statistic	-2.358	0.089	-3.843	0.000			
Deterministic trend specification Individual intercept and trend							
Panel v-Statistic	-1.4248	0.907	-1.52561	0.9374	Group rho-Statistic	2.41002	0.8961
Panel rho-Statistic	1.6811	0.717	1.24122	0.8921	Group PP-Statistic	-1.68909	0.0785
Panel PP-Statistic	-0.0641	0.578	-1.57461	0.0676	ADF-Statistic	0.23247	0.6802
Panel ADF-Statistic	0.7122	0.512	-0.71760	0.3397			
Deterministic trend specification, No intercept trend							
Panel v-Statistic	-1.47607	0.921	-2.62394	0.9257	Group rho-Statistic	1.35052	0.8124
Panel rho-Statistic	0.0981	0.435	0.45853	0.5324	Group PP-Statistic	-2.579988	0.0949
Panel PP-Statistic	-1.7598	0.089	-1.21945	0.1415	ADF-Statistic	-2.071883	0.0991
Panel ADF-Statistic	-2.70202	0.078	-1.24549	0.1266			

Pedroni Residual Co-integration Test with Moderator

Pedroni Residual Co-integration Test with No Moderator

Pedroni Residual Co-integration Test Series: LTDRV, IERV, EERV, STDRV,HPR
Deterministic trend specification Individual intercept

Alternative hypothesis: common AR coefficients.(within-dimension) *Alternative hypothesis: individual AR coefficients. (between-dimension)*

Pedroni Residual Co-integration Test Series: LTDRV, IERV, EERV, STDRV, LTDRV*TVR, IERV*TVR, EERV*TVR, STDRV*TVR, HPR

Alternative hypothesis: common AR coefs. (within-dimension) | Alternative hypothesis: individual AR coefs. (between-dimension)

	Statistic	Prob.	W Statistic	Prob.		Statistic	Prob.
					Group rho-Statistic	2.96224	0.9985
Panel v-Statistic	-1.3536	0.909	-1.128944	0.8705			
					Group PP-Statistic	-0.009226	0.4963
Panel rho-Statistic	1.4875	0.932	1.535110	0.9374			
Panel PP-Statistic	-0.3831	0.351	-0.057794	0.4770	ADF-Statistic	-0.329850	0.3708
Panel ADF-Statistic	-1.1582	0.123	-0.089210	0.4645			
Deterministic trend specification Individual intercept and trend							
					Group rho-Statistic	3.28146	0.9095
Panel v-Statistic	0.0303	0.587	-0.069728	0.5171			
					Group PP-Statistic	-3.71216	0.6411
Panel rho-Statistic	1.5187	0.732	1.994225	0.4761			
Panel PP-Statistic	-3.8401	0.0631	-2.240235	0.0645	ADF-Statistic	-0.411630	0.4523
Panel ADF-Statistic	-1.9926	0.023	-0.509489	0.3052			
Deterministic trend specification, No intercept trend							
					Group rho-Statistic	1.35195	0.8341
Panel v-Statistic	0.657	0.697	0.173524	0.5311			
					Group PP-Statistic	-2.493705	0.0923
Panel rho-Statistic	-0.4045	0.458	-0.291314	0.4892			
Panel PP-Statistic	-2.4314	0.721	-2.087172	0.0732	ADF-Statistic	-2.387034	0.0821
Panel ADF-Statistic	-2.2693	0.082	-1.574770	0.6213			

Null Hypothesis: No co-integration Trend assumption: No deterministic trend

Automatic lag length selection based on SIC with a max lag of 1 and w-weighted

In the scenario with a moderator variable, the test was conducted in a similar manner, but with the addition of the moderator variable TVR. The statistics and probabilities for the Panel v-Statistic and Panel Rho-Statistic were presented for the same alternative hypotheses, and they exhibited different values and probabilities. From the findings it was evidence that most of the p-values were greater than the conventional 0.05 clearly demonstrating that there was no problem of cointegration.

The Hausman test was employed to determine the optimal model for the analysis of equity security returns in Kenyan public companies. This analysis considered all changes in the predictor variables and the influence of these changes when there is no moderator. The findings were also summarized in table 4.41

Table 4.41: Overall Model Hausman Test

	(b)	(B)	(b-B)			
	F.E.M	**R.E.M.**	**Difference**	**S.E.**	**Chi^2**	**P-value**
H_0: Random effect model is the most appropriate Model	LTDRV .031801	.032169	-.0003683	.0004882	2.02	0.7313
	IERV .030324	.030487	-.000163	.0004901		
	EERV .025334	.024218	.0011163	.0009268		
	STDRV .025921	.026184	-.000263	.0005852		
H_1: Fixed effect model is the most appropriate Model	b = consistent under H_0 and H_1; obtained from xtreg					
	B = inconsistent under H_1, efficient under H_0; obtained from xtreg					

The null hypothesis (H_0) suggested that the random effect model was the most suitable choice, while the alternative hypothesis (H_1) proposed that the fixed effect model was preferable. The results from the Hausman test revealed a chi-squared value of 2.02, with a corresponding p-value of 0.7313 clearly indicating that random effect model was the best model. In summary, based on the Hausman test results, it became evident that the random effect model was a more appropriate choice than the fixed effect model, in the absence of the moderator variable for all variables considered.

4.8.2 Multivariate Panel Regression

Similar to the individual independent variable analyses with the dependent variable using panel regression, from the houseman test above, a random effect model was tested. The findings were summarized in table 4.42.

Table 4.42: Multivariate Panel Regression

Random-effects (within) regression			Number of obs			539
Group variable: panels			Number of groups			49
R-sq:			Obs per group:			
Within	0.5706			min		11
Between	0.4695			avg		11.0
Overall	0.5599			max		11
			Wald chi2(1)			688.41
Corr(u_i, Xb) 0	(assumed)		Prob > chi2			0.000
	Coef	Std. Err.	t	p-value	[95% Conf.	Interval]
const	0.448378	0.00415642	107.9	0.0000	0.4402312	0.4565240
LTDRV	0.0321695	0.00183575	17.52	0.0000	0.0285715	0.0357675
IERV	0.0304869	0.00196198	15.54	0.0000	0.0266415	0.0343323
EERV	0.0242179	0.00395765	6.119	0.0000	0.0164611	0.0319748
STDRV	0.0261843	0.00255098	10.26	0.0000	0.0211845	0.0311842
Sum squared resid		3.322645		S.E. of regression		0.078807
rho		−0.001556		Durbin-Watson		1.883610

The results concerning the equity security returns of public companies in Kenya, indicated the following R-squared values: 0.5599 for the random effect model. These values imply that 55.99% of the variance in Equity security returns of public companies in Kenya could be explained by long-term debt structure volatility, internal equity structure volatility, external equity structure volatility and short-term debt structure volatility for both the random effect model.

Furthermore, the overall model fitness for Security returns was evaluated using F-statistics. The F-statistics value recorded was 688.1 for the random effect model. This value was accompanied by corresponding p-values of 0.0000, indicating statistical significance for the model in the absence of moderator. The p-value was less than the conventional 0.05 significance level, representing the threshold for the risk of committing a type I error in line with the suggestion by Gujarati and Porter (2010).

This finding suggests that there is indeed a significant relationship between long-term debt structure volatility, internal equity structure volatility, external equity structure volatility, and short-term debt structure volatility on equity security returns of public companies in Kenya.

The overall regression coefficients estimate the association between the dependent variable and the predictor variables, shedding light on how significant each predictor variable affects the response variable. In other words, it indicates the relationship between the dependent variable (Equity security returns of public companies in Kenya) and the predictor variables (long-term debt volatility, Internal Equity Volatility, External Equity Volatility, and short-term Debt Volatility). The model obtained was as follows:

$$HPR=0.4484+0.03217_{LTDRV}+0.03049_{IERV}+0.0242_{EERV}+0.0262_{STDRV}$$

The regression equation provided explains the relationship between Equity Security Returns (ESR) and several key financial structure volatility metrics, represented by long term debt ratio volatility (LTDRV), internal equity ratio volatility (IERV), external equity ratio volatility (EERV), and short-term debt ratio volatility (STDRV). Beginning with the intercept term of 0.4484, it denotes the expected HPR when all the independent variables are zero, serving as a baseline measure. Essentially, it represents the anticipated level of HPR in the absence of any volatility in the specified financial structure volatility metrics. This baseline is crucial for contextualizing the influence of volatility on ordinary equity security returns.

Each coefficient in the equation provides information into how changes in the respective financial metrics affect HPR. For instance, the coefficient for LTDV (0.03217) indicates that for every one-unit increase in long-term debt volatility, HPR is expected to increase by approximately 0.03217 units. This implies that higher levels of volatility in long-term debt may potentially lead to increased Equity Security Returns, suggesting a positive relationship between the two variables.

Theoretically, the study finds out that volatility of long-term debt structure is a priced information factor in line with the expectations of the efficient market hypothesis of Fama (1970) and the random walk theory of Malkiel (1973) assuming that the arrival time of the volatility information in the market follows a random unpredictable walk.

From an empirical perspective, the finding that long term debt structure volatility positively affects holding period returns for companies listed at the NSE is in

agreement with what Ezirim, Ezrim and Momodu (2017) found for companies listed at the Nigeria Stock Exchange. This could be because NSE and Nigeria Stock Exchange are both from Africa and identified as developing countries hence are expected to have similar fundamental attributes.

The findings of a positive effect of LTDRV on HPR however contradict those of Salim and Susilowati (2019) and Mustafa, Saeed and Zafar (2017) who found no significant effect of leverage volatility on stock returns. In Nigeria and for insurance companies, Olaniyan, Oyinloye and Agbadua (2020) found that the effect was negative. The variations between the results in this study and those of the foregoing researchers could be arising because of the variations in units of study and the differences in regulatory regimes that determine the financial structuring of companies in various countries.

Similarly, the coefficient for IERV (0.03049) suggests that a one-unit increase in internal equity volatility corresponds to an expected increase in HPR of 0.03049 units. This implies that fluctuations in internal equity values may positively influence equity security returns, indicating that changes in internal equity dynamics could impact overall equity security returns.

The findings are in support of efficient market hypothesis where Fama (1970) suggests that information is priced by securities in accordance with the nature of the efficiency level. The findings are also in line with the positive version of the asymmetric information hypothesis of Easly and O'Hara (2004). They however seem to contradict with the postulation of Modigliani and Miller (1958) who had suggested that capital structure is irrelevant in determining firm market value such that volatility in such a structure would equally remain irrelevant.

Some existing empirical literature consistent supports the finding that internal equity structure volatility has a positive significant effect on equity security returns in public companies in Kenya. Yemi and Seriki (2018) for instance arrived at a similar finding for non-financial firms listed at the Nigeria Stock Exchange. The findings from Nigeria were confirmed by Adeniji (2023) who also found a positive association between changes in retained earnings and stock returns. Almeida and

Murillo (2007) examined the relationship between internal financing, cash flow, and debt usage in firms. They find that firms with greater reliance on internal financing tend to use less debt.

Moreover, the coefficient for EERV (0.0242) implies that a one-unit increase in external equity volatility leads to an estimated increase in HPR of 0.0242 units. This suggests that fluctuations in external equity values, influenced by market conditions and external factors, may also positively impact equity security returns, underscoring the importance of external market dynamics on investment performance.

The finding of a positive influence of EERV on HPR is again in line with some existing market theories. It for instance establishes the EERV to be a priced information factor which in line with Fama (1970) with respect to efficient market hypothesis, all fundamental information gets incorporated in security prices. Volatility being a risk indicator implies that it is priced by stocks listed at the NSE. This is also in support of the risk dichotomy theory of Baum et al. (2016).

The current literature consistently supports the finding that external equity volatility has a positive significant effect on equity security returns in public companies in Kenya. El-Masry, Salah and Abdel-Karim (2024) for instance found similar results while evaluating the interrelationship between capital structure with firm value of no financial firms in Egypt as listed at the Egypt Stock Market. Similar findings were obtained from Nguyen et al (2020) in their study in Vietnam for firms listed at the Hanoi and Ho Chi Minh City stock markets.

Lastly, the coefficient for STDRV (0.0262) suggests that a one-unit increase in short-term debt volatility is associated with an expected increase in HPR of 0.0262 units. This indicates that higher levels of volatility in short-term debt could potentially lead to increased Equity Security Returns, highlighting the significance of short-term financial stability in driving security returns. In summary, this regression equation provides an insight into how volatility in various financial structure volatility metrics may influence Equity Security Returns. These findings can be instrumental for investors and financial analysts in assessing the impact of financial volatility on investment performance.

The finding that short term debt structure volatility is a positively priced information factor at the NSE can be evaluated from a theoretical literature point of view. The finding that this risk factor is priced by the stock market seems to agree with Fama (1970) and Malkiel (1973) both of whom take any fundamental information that affects prices to be incorporated in the security prices in line with the level of efficiency of the market in which the relevant stocks trade. The findings are also in line with the postulations of the risk dichotomy theory of Baum et al. (2016) and the positive argument of the Easley and O'Hara (2004) asymmetric information hypothesis.

From an empirical literature point of view, the existing literature offers mixed findings on the relationship between short-term debt structure volatility and equity security returns. While some studies suggest that a higher proportion of short-term debt may introduce risks or affect competition, others support the finding of a positive effect on equity security returns for this study. It is therefore essential to consider the specific context and industry characteristics of public companies in Kenya when interpreting these results. In the USA for instance, Friewald, Nagler and Wagner (2022) used 44 years to establish how short-term debt changes affected to returns and firm value. The findings returned a positive value just as is the case in this study. Similar findings have been recorded by Jakobsen and Engebakken (2022) in Japan and Shikumo, Oluoch and Matanda (2020) in Kenya. For all these cases, volatility in short term debt structure is a positive pricing factor for securities listed on stock markets.

4.9 Moderating Influence of Stock Liquidity (Multivariate)

The Hausman test was employed to determine the optimal model for the analysis of equity security returns in Kenyan public companies. This analysis considered all changes in the predictor variables and the influence of these changes when moderated by stock liquidity. The findings are shown in table 4.43.

The Moderated Houseman Model Specification Test presented aimed to determine the most appropriate modeling approach, whether a random effect model or a fixed effect model, for analyzing the relationship between the dependent variable, HPR,

and a set of independent variables denoted as LTDRV, IERV, EERV, STDRV, LTDRV*TVR, IERV*TVR, EERV*TVR and STDRV*TVR. This test is pivotal in ensuring the robustness and reliability of the multivariate analysis by selecting the model that best fits the data. The hypotheses being tested are explicitly stated: the null hypothesis (H_0) posits that the random effect model is the most appropriate, while the alternative hypothesis (H_1) suggests that the fixed effect model is more suitable. To evaluate these hypotheses, table 4.43 provides detailed comparisons between the fixed and random effect models for each variable.

Table 4.43: Moderated Houseman Model Specification (Multivariate)

	(b)	**(B)**	**(b-B)**			
	F.E.M.	**R.E.M.**	**Difference**	**S.E.**	**Chi^2**	**P-value**
	LTDRV	.032053	.0323745	-.0003213	.0003511	0.271	0.9181
H_0: Random effect model is the most appropriate Model	IERV	.030692	.0307102	-.0000182	.0003543		
	EERV	.023250	.0228151	.0004348	.0006793		
	STDRV	.026642	.0266148	.0000274	.0004221		
	LTDRV*TVR	.025923	.0252575	.0006654	.0006403		
	IERV*TVR	.026491	.0262426	.0002482	.0005885		
H_1: Fixed effect model is the most appropriate Model	EERV*TVR	.018197	.0186107	-.0004141	.0006135		
	STDRV*TVR	.017767	.0177311	.0000355	.0006672		
	b = consistent under H_0 and H_1; obtained from xtreg						
	B = inconsistent under H_1, efficient under H_0; obtained from xtreg						

For each variable, the table presents the coefficients obtained from both the fixed (b) and random (B) effect models. Additionally, it calculates the difference between these coefficients, along with the standard error (S.E.) associated with the difference. Furthermore, the table includes the Chi2-test value and its associated p-value, which are crucial in assessing the significance of the differences between the models.

Upon analyzing the results, attention is drawn to the p-values associated with the Chi^2-test values. These p-values provide insights into whether the observed differences between the fixed and random effect models are statistically significant. In hypothesis testing, a commonly chosen significance level (often 0.05) is used to determine whether to reject the null hypothesis. If the p-value is greater than this significance level, it indicates that there is insufficient evidence to reject the null

hypothesis, supporting the conclusion that the random effect model is more appropriate.

In this specific case, upon examining findings from table 4.43, it is evident that the p-values associated with the Chi2-test values for all variables (LTDRV, IERV, EERV, STDRV, LTDRV*TVR, IERV*TVR, EERV*TVR and STDRV*TVR) exceed the typical significance level. For example, the Chi^2-test value for variable LTDRV is 0.271 with a corresponding p-value of 0.9181. This suggests that there is no significant difference between the coefficients obtained from the fixed and random effect models for variable x1, supporting the use of the random effect model.

Therefore, based on the results of this test, the random effect model is considered more appropriate for analyzing the relationship between HPR and the specified independent variables. This conclusion is drawn from the lack of statistically significant differences between the fixed and random effect models, as indicated by the p-values associated with the Chi^2-test values. Ultimately, the selection of the random effect model enhances the credibility of the multivariate analysis and ensures accurate interpretation of the relationships between the variables under study.

In the multivariate analysis of sectorial moderated panel regression, the study aimed to explore the moderating effect of stock liquidity on predictor variables in the overall panel regression. The random was considered in this analysis. The findings are summarized in tables 4.44. The results pertaining to equity security returns in Kenyan public companies revealed R-squared values of 0.7057 for the random effects model. These R-squared values indicated that approximately 70.57% of the variance in equity security returns of public companies in Kenya could be explained by Long-term debt volatility, internal equity volatility, external equity volatility, and short-term debt volatility, for the random effect model.

Furthermore, the overall model fitness for equity security returns was assessed using F-statistics. The F-statistics values recorded the Wald chi-square statistic value was 1333.41 for the random effects model. The value was accompanied by corresponding p-values of 0.0000, indicating the statistical significance of both models in the presence of a moderator (stock liquidity). The p-values were lower than the

conventional 0.05 significance level, which serves as the threshold for the risk of committing a type I error.

Table 4.44: Multivariate Sectorial Moderated Panel Regression

Random-effects (within) regression			Number of obs			539
Group variable: panels			Number of groups			49
R-sq:			Obs per group:			
Within	0.7252			min		11
Between	0.5357			avg		11.0
Overall	0.7060			max		11
			Wald $chi^2(1)$			1333.41
Corr(u_i, Xb) 0	(assumed)		Prob > chi_2			0.000
	Coef	Std. Err.	t	p-value	[95% Conf.	Interval]
const	0.428611	0.00413446	103.7	0.000	0.4205076	0.4367144
LTDRV	0.032375	0.00148736	21.77	0.000	0.0294593	0.0352
IERV	0.030710	0.00158765	19.34	0.000	0.0275984	0.0338
EERV	0.022815	0.00322374	7.077	0.000	0.0164967	0.0291
STDRV	0.026615	0.00206282	12.90	0.000	0.0225717	0.0306
LTDRV*TVR	0.025258	0.00267613	9.438	0.000	0.0200124	0.0305
IERV*TVR	0.026243	0.00244418	10.74	0.000	0.0214521	0.0310
EERV*TVR	0.018611	0.00276199	6.738	0.000	0.0131973	0.0240
STDRV*TVR	0.017731	0.00269350	6.583	0.000	0.012452	0.0230
Sum squared resid		2.219852	S.E. of regression			0.064657
rho		0.000815	Durbin-Watson			1.912878

These findings suggest a significant relationship between Long-term debt volatility, internal equity volatility, external equity volatility, and short-term debt volatility on equity security returns in Kenyan public companies in the presence of moderating variable (stock liquidity) in each case. The overall regression coefficients estimate the association between the dependent variable and the predictor variables, shedding light on how significant each predictor variable affects the response variable. In other words, it indicates the relationship between the dependent variable (Equity security returns of public companies in Kenya) and the predictor variables (long-term debt structure volatility, internal equity structure volatility, external equity structure volatility, and short-term debt structure volatility). The models obtained were as follows:

The overall regression coefficients provide insights into the associations between the dependent variable and the predictor variables, offering an understanding of the

significance of each predictor variable's influence on the response variable in the presence of moderator. In simpler terms, they delineate the relationship between the dependent variable, which represents equity security returns of Kenyan public companies, and the predictor variables, encompassing Long-term debt volatility, internal equity volatility, external equity volatility, and short-term debt volatility. The models obtained can be expressed as follows:

For the random effects model:

HPR=0.428611+0.032375*LTDRV+0.030710*IERV+0.022815*EERV+0.026615*STDRV +0.025258*LTDRV*TVR+0.026243* IERV*TVR + 0.018611*EERV*TVR + 0.017731*STDRV*TVR

In conclusion, these results confirm that long-term debt structure volatility, Internal equity structure volatility, external equity structure volatility, and short-term debt structure volatility have a significant impact on the equity security returns of public companies in Kenya in the presence of moderator. This conclusion is supported by the t-test statistics and their corresponding p-values, which are all less than 0.05.

The positive moderation effect is confirmed by the significant increase in the coefficient of determination in the multiple linear regression equation following the introduction of trading volume ratio (TVR) the indicator of stock liquidity as a moderator. The unmoderated panel regression model had an R-square value of 0.5599. The moderated regression R-square value is 0.7060. This represents an increase by 14.61 percentage points (70.6% less 55.99%) in the explanatory power of the model with respect to changes in HPR following introduction of the moderating variable.

4.10 Summary of Hypothesis Tests

The study tested the hypothesis formulated to establish the effect of financial structure volatility on equity security returns of public limited companies in Kenya using the P-Value approach at a 95% level of confidence. The decision rule encompassed a rejection of the null hypothesis if the calculated p-value is less than

0.05. If the calculated P-Value is greater than 0.05, the null hypothesis was affirmed. The findings were presented in table 4.45.

Table 4.45: Hypothesis Test Findings

No.	Objective	Hypothesis	Analytical Tools	Conclusion
1	To evaluate the effect of volatility in long-term debt proportion of the financial structure on equity security returns of public companies in Kenya	**H_{01}**: Long-term debt structure volatility has no significant effect on ordinary equity security return among public companies in Kenya.	Descriptive statistics, panel regression and correlation coefficients $HPR_{i,t} = \beta_0 + \beta_1 X_{1it} + e_{it}$	Reject Null Hypothesis and conclude positive effect
2	To examine the effect of volatility in internal equity proportion of the financial structure on equity security returns of public companies in Kenya.	**H_{02}**: Internal equity structure volatility no significant effect on ordinary equity security return among public companies in Kenya.	Descriptive statistics, panel regression and correlation coefficients $HPR_{i,t} = \beta_0 + \beta_1 X_{1it} + e_{it}$	Reject Null Hypothesis and conclude positive effect
3	To determine the effect of external equity structure change on ordinary equity security returns among public companies in Kenya	**H_{03}**: External equity structure volatility has no significant effect on ordinary equity security return among public companies in Kenya.	Descriptive statistics, panel regression and correlation coefficients $HPR_{i,t} = \beta_0 + \beta_1 X_{1it} + e_{it}$	Reject Null Hypothesis and conclude positive effect
4	To establish the effect of volatility in short term debt proportion of the financial structure on equity security returns of public companies in Kenya.	**H_{04}**: Short-term debt structure volatility has no significant effect on ordinary equity security return among public companies in Kenya.	Descriptive statistics, panel regression and correlation coefficients $HPR_{i,t} = \beta_0 + \beta_1 X_{1it} + e_{it}$	Reject Null Hypothesis and conclude positive effect
5	To determine the moderating effect of stock liquidity on annual financial structure volatility and ordinary security return among public companies in Kenya.	**H_{05}**: Stock liquidity does not moderate the effect of financial structure volatility on ordinary equity security returns of public limited firms in Kenya.	Descriptive statistics, panel regression and correlation coefficients $HPR_{i.t} = \beta_0 + \beta_1 X_{1it} + \beta_5 (X * TVR_{it}) + e_{it}$	Reject Null Hypothesis and conclude positive moderating effect

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summary of the study's key findings, pertinent discussions, conclusions, and required suggestions and recommendations. Based on the results of statistical analyses intended to assess the study's research hypothesis, the summary is basically done in accordance with the objectives of the study. The chapter also recommends areas of further research.

5.2 Summary of Findings

This section contained the summary of the major findings. This was done according to the study objectives.

5.2.1 Effect of Long-Term Debt Structure Volatility on Ordinary Equity Security Returns

The study conducted an in-depth analysis of long-term debt volatility across various sectors listed on the Nairobi Securities Exchange (NSE) in Kenya, providing valuable insights into the financial structures and potential implications for equity security returns. Descriptive statistics revealed sector-specific characteristics, such as volatility, skewness, and kurtosis, shedding light on the variability and distribution patterns of long-term debt volatility. Sectors like Commercial & Services displayed substantial variability, indicating diverse impacts on equity returns, while others like Construction Allied exhibited more stable patterns. Notably, the positive association between long-term debt volatility and equity security returns was statistically significant, corroborating prior research findings and reinforcing the importance of considering long-term debt in equity analysis. The study's fixed effects regression further confirmed this relationship, with the coefficient for long-term debt volatility proportion positively impacting equity returns, supported by a low p-value and high statistical significance.

Several factors contribute to the observed positive relationship between long-term debt volatility and equity security returns. Notably, leveraging long-term debt to finance strategic investments and operational activities can lead to higher profitability and cash flows, thereby enhancing equity returns. Additionally, the prudent use of long-term debt signals confidence in future cash flows and the company's ability to meet debt obligations, potentially boosting investor confidence and demand for equity securities. Overall, the study underscores the significance of long-term debt dynamics in shaping equity performance and emphasizes the importance of strategic financial management practices in maximizing shareholder returns in the dynamic financial landscape of Kenya's capital market.

5.2.2 Effect of Volatility of Internal Equity Structure on Ordinary Equity Security Returns

In summary, the study provides a detailed analysis of Internal Equity Volatility across various sectors listed on the Nairobi Securities Exchange in Kenya, shedding light on sector-specific dynamics and their potential impacts on equity security returns. The findings reveal significant variability within sectors, with metrics such as coefficient of variation and interquartile range highlighting the diversity of financial structures and risk profiles. Notably, positive skewness in certain sectors indicates pronounced increases in internal equity, suggesting potential opportunities for investors. The random effects regression analysis confirms a strong and positive relationship between Internal Equity Volatility and equity security returns, emphasizing the significance of internal financial strength in influencing equity performance. These findings underscore the importance of considering internal equity dynamics in investment decision-making and risk assessment processes, as it serves as a signal of financial health and stability, potentially attracting investors and enhancing equity security returns. Additionally, the study highlights the need for a cautious and thorough approach to sector-specific analysis, recognizing the nuanced factors driving Internal Equity Volatility and their implications for equity returns in Kenya's financial market.

5.2.3 Effect of Volatility of External Equity Structure on Ordinary Equity Security Returns

The study investigated External Equity Volatility and their implications for equity security returns among firms listed on the Nairobi Securities Exchange in Kenya from 2012 to 2022. Descriptive statistics revealed significant variability in external equity volatility across sectors, with implications for investors assessing equity returns. The regression analysis highlighted a positive relationship between External Equity Volatility and equity security returns, suggesting that firms leveraging external equity may experience enhanced equity performance. The statistical significance of the coefficients and Wald chi-square tests reinforced the validity of the relationship. The findings suggest that firms using external equity for growth initiatives may experience improved financial performance, leading to higher equity security returns. Investors may perceive such firms as having favorable growth prospects and financial stability, driving demand for equity securities and increasing market value. Thus, the study underscores the importance of external equity dynamics in shaping equity security returns and investment decisions in Kenya's financial market landscape.

5.2.4 Effect of Volatility of Short-term Debt Structure on Ordinary Equity Security Returns

The study investigated the impact of Short-term debt Volatility on ordinary equity security returns among public limited firms in Kenya from 2012 to 2022. Short-term debt, comprising elements like short-term bank loans and accounts payable, was examined for its potential influence on equity returns. Descriptive statistics revealed significant variability in Short Term Debt volatility across sectors, with sectors like Manufacturing exhibiting extreme variability. The regression analysis indicated a positive correlation between Short-term debt Volatility and equity security returns, suggesting that adjustments in short-term debt could enhance equity performance. Additionally, effectively managing short-term debts to support operational efficiency and liquidity was seen as a strategic approach for improving financial performance and investor confidence. However, the study's findings must be interpreted within

the context of existing literature, which presents mixed evidence on the relationship between Short Term Debt volatility and equity returns, emphasizing the need for industry-specific analysis and interpretation.

5.2.5 Moderating Effect of SL on Annual Financial Structure Volatility and ESR

The study explored the relationship between long-term debt volatility and equity security returns among public companies in Kenya, with stock liquidity as a moderating factor. The fixed-effects model revealed that an increase in the proportion of long-term debts within the financial structure was associated with a corresponding rise in equity security returns, holding other variables constant. Additionally, the presence of higher stock liquidity intensified this relationship, as evidenced by the positive coefficient for the interaction term between long-term debt volatility and stock liquidity. The statistically significant findings suggest that stock liquidity plays a substantial role in amplifying the impact of long-term debt volatility on equity security returns, highlighting the importance of considering liquidity dynamics when assessing the financial performance of companies in the Kenyan market.

The study reveals a positive association between Internal Equity Volatility and equity security returns among public companies in Kenya, with stock liquidity serving as a significant moderator. Both the fixed-effects and random-effects regression models indicate a consistent relationship, with Internal Equity Volatility proportion positively influencing equity security returns. The findings underscore the importance of internal equity management strategies for optimizing shareholder value. Moreover, the moderating effect of stock liquidity highlights the significance of market dynamics in shaping the relationship between internal equity volatility and security returns, suggesting that firms with higher liquidity may experience amplified effects on equity returns from internal equity adjustments. As such, companies should prioritize effective internal equity management practices, monitor stock liquidity levels, and adapt their strategies accordingly to maximize shareholder value in the dynamic market environment.

Based on the findings of the study on External Equity Volatility and its moderation by stock liquidity, several conclusions can be drawn. Firstly, there exists a positive relationship between External Equity Volatility and equity security returns of public companies in Kenya. This implies that increases in external equity are associated with higher equity security returns, holding other factors constant. Secondly, stock liquidity plays a significant moderating role in this relationship, with higher liquidity levels strengthening the impact of External Equity Volatility on equity security returns. Thirdly, the fixed-effects model used in the study demonstrates statistical significance, indicating that the model effectively explains the variation in equity security returns. Overall, these findings underscore the importance of managing external equity and enhancing stock liquidity for maximizing equity security returns in the Kenyan market.

Stock liquidity acts as a moderator between short-term debts and stock returns by influencing the strength and direction of their relationship. Higher stock liquidity generally indicates greater ease of buying and selling a company's shares in the market. When stock liquidity is high, Short Term Debt Volatility may have a more pronounced impact on stock returns because investors can quickly adjust their positions in response to new information. In contrast, when stock liquidity is low, Short Term Debt Volatility may have a muted effect on stock returns since it may be more challenging for investors to buy or sell shares. Therefore, stock liquidity moderates the relationship between short-term debts and stock returns by amplifying or dampening the effects of Short-Term Debt Volatility on stock prices, depending on the liquidity of the market.

5.3 Conclusion

The conclusions were derived from the major findings according to objectives as follows

5.3.1 Long-Term Debt Structure Volatility and Ordinary Equity Security Returns

In conclusion, the study's comprehensive analysis of long-term debt volatility across various sectors listed on the Nairobi Securities Exchange in Kenya provides valuable insights into the relationship between long-term debt dynamics and equity security returns. The findings reveal sector-specific characteristics, highlighting variability, skewness, and kurtosis, which influence the impact of long-term debt volatility on equity returns. The statistically significant positive association between long-term debt volatility and equity security returns underscores the importance of considering long-term debt as a relevant factor in equity analysis. Furthermore, the study emphasizes the strategic importance of leveraging long-term debt to finance investments and operational activities, signaling confidence in future cash flows and enhancing shareholder returns. Overall, these findings underscore the pivotal role of long-term debt management in shaping equity performance and inform strategic financial decision-making in Kenya's capital market.

5.3.2 Internal Equity Structure Volatility and Ordinary Equity Security Returns

In conclusion, the study underscores the critical role of internal equity dynamics in shaping equity security returns within the Nairobi Securities Exchange in Kenya. The significant positive relationship between Internal Equity Volatility and equity security returns highlights the importance of internal financial strength as a key determinant of investor confidence and market performance. The findings suggest that companies with strong internal equity positions are perceived favorably by investors due to their ability to weather economic uncertainties, fund growth initiatives, and reduce reliance on external financing. This implies that investors should carefully consider internal equity metrics when making investment decisions,

recognizing its potential as a signal of financial stability and profitability. Moreover, the sector-specific variability in internal equity volatility emphasizes the need for a nuanced and sector-focused approach to investment analysis, ensuring a thorough understanding of the factors driving internal equity dynamics and their implications for equity returns in Kenya's financial market landscape.

5.3.3 External Equity Structure Volatility and Ordinary Equity Security Returns

The study reveals significant variability in External Equity Volatility across various sectors in Kenya, with sectors like Telecommunication and Commercial & Services exhibiting higher variability. The positive relationship between External Equity Volatility and equity security returns suggests that firms leveraging external equity may experience improved equity performance, highlighting the importance of external equity dynamics in shaping investment outcomes. The statistical significance of regression coefficients reinforces the validity of this relationship, indicating that observed associations are not due to chance. Moreover, companies successfully raising external equity may be perceived by investors as having favorable growth prospects and financial stability, driving demand for their equity securities and leading to increased market value and higher equity security returns. This underscores the importance of considering external equity dynamics when making investment decisions in Kenya's financial market.

5.3.4 Short-term Debt Structure Volatility and Ordinary Equity Security Returns

The study on Short-term debt Volatility and their impact on equity security returns in Kenya reveals significant variability in Short Term Debt volatility across various sectors. Regression analysis indicates a positive correlation between Short Term Debt volatility and equity returns, suggesting that adjustments to short-term debt levels could potentially enhance equity performance. Strategic management of short-term debts is emphasized as a means to improve operational efficiency and liquidity, thereby positively influencing financial performance and investor confidence. However, the study notes mixed evidence from existing literature regarding the

relationship between Short Term Debt volatility and equity returns, underscoring the need for industry-specific analysis to understand the nuanced dynamics within the Kenyan market.

5.3.5 Moderating Effect of SL on Annual Financial Structure Volatility and HPR

The study concludes that long-term debt volatility has a significant impact on equity security returns among public companies in Kenya, especially when considering the moderating effect of stock liquidity. The positive relationship between long-term debt volatility and equity security returns indicates that companies may experience improved returns as they increase their reliance on long-term debt financing. Furthermore, the presence of higher stock liquidity strengthens this relationship, suggesting that firms with more liquid stocks may benefit even more from long-term debt volatility. These findings underscore the importance of understanding the interplay between financial leverage, stock liquidity, and equity returns in the Kenyan market context.

The moderating effect of stock liquidity strengthens the relationship between internal equity volatility and equity security returns, indicating that firms with higher liquidity may experience greater impacts on stock returns from internal equity adjustments. Lastly, the statistical significance of the regression models suggests that the observed relationships are robust and reliable, providing valuable insights for investors and firms alike in understanding the dynamics between internal equity, stock liquidity, and equity security returns.

Based on the study's findings regarding External Equity Volatility and its moderation by stock liquidity, several conclusions can be drawn. Firstly, there is a positive relationship between External Equity Volatility and equity security returns in Kenyan public companies. This suggests that increases in external equity are associated with higher equity security returns, all else being equal. Secondly, the moderating effect of stock liquidity on this relationship is significant, indicating that higher levels of stock liquidity strengthen the impact of External Equity Volatility on equity security returns. Thirdly, the statistical significance of the fixed-effects model used in the

study suggests that it effectively explains the variation in equity security returns. Overall, these findings emphasize the importance of managing external equity and improving stock liquidity to maximize equity security returns in the Kenyan market.

Based on the findings, it can be concluded that Short Term Debt Volatility have a significant association with equity security returns of public companies in Kenya. Stock liquidity plays a moderating role in this relationship, influencing the strength of the association between short-term debts and stock returns. Higher stock liquidity strengthens the impact of Short-Term Debt Volatility on stock returns, while lower liquidity attenuates this relationship. Overall, these findings suggest that both short-term debts and stock liquidity are important factors influencing equity security returns in the Kenyan market.

5.4 Recommendations

5.4.1 Long-Term Debt Structure Volatility and Ordinary Equity Security Returns

Based on the study's findings, it is recommended that investors and financial analysts pay close attention to sector-specific characteristics when evaluating equity investments, particularly considering the variability, skewness, and kurtosis of long-term debt volatility. This nuanced understanding can guide investment strategies and risk management approaches tailored to different sectors. Additionally, companies listed on the Nairobi Securities Exchange should adopt prudent financial management practices, including the strategic use of long-term debt to finance growth-oriented investments and operational activities. By leveraging long-term debt effectively, companies can enhance profitability, signal confidence in future cash flows, and potentially attract greater investor demand for equity securities, thereby maximizing shareholder returns in Kenya's dynamic capital market landscape.

5.4.2 Internal Equity Structure Volatility and Ordinary Equity Security Returns

The recommendations emphasize the significance of sector-specific analysis and prudent financial management for investors and companies listed on the Nairobi Securities Exchange in Kenya. Investors should conduct thorough analyses of internal equity dynamics within each sector, integrating metrics such as coefficient of variation and interquartile range to assess risk profiles effectively. Companies should prioritize maintaining strong internal equity positions through strategies like effective capital allocation and sustainable profit generation. Additionally, investors should adopt a long-term perspective when evaluating internal equity dynamics, recognizing their potential impact on equity security returns over time. Tailoring investment strategies to sector-specific characteristics and risk profiles is essential for optimizing returns and managing risks within Kenya's financial market landscape.

5.4.3 External Equity Structure Volatility and Ordinary Equity Security Returns

Based on the findings of the study, several recommendations can be proposed for investors and policymakers. Firstly, investors should carefully analyze the external equity dynamics of companies when making investment decisions, particularly in sectors with higher variability such as Telecommunication and Commercial & Services. Understanding the relationship between External Equity Volatility and equity security returns can help investors identify opportunities for potential returns. Secondly, policymakers could focus on creating an enabling environment for firms to access external equity financing, as it plays a crucial role in driving growth and improving equity performance. This may involve implementing policies that encourage investment and foster a conducive business environment. Additionally, companies should strive to effectively utilize external equity funds for value-adding projects like mergers & acquisitions and strategic investments to enhance financial performance and attract investor confidence, ultimately leading to higher equity security returns.

5.4.4 Short-Term Debt Structure Volatility and Security Returns

The recommendations stemming from the study's findings include advocating for strategic management of short-term debts, encouraging industry-specific analyses to understand sector-specific dynamics, educating investors on the impact of Short Term Debt volatility on equity security returns, emphasizing the monitoring of financial stability in sectors with high variability in Short Term Debt volatility, and promoting further research to explore the long-term effects of Short Term Debt volatility in the Kenyan market, considering various contextual factors. These recommendations aim to enhance financial management practices, mitigate risks, and empower stakeholders to make informed decisions in the dynamic landscape of equity markets.

5.4.5 Moderating Effect of SL on Annual Financial Structure Volatility and HPR

The study's findings highlight a positive relationship between long-term debt volatility and equity security returns among public companies in Kenya, with stock liquidity acting as a significant moderator. A one-unit increase in long-term debt volatility is associated with approximately a 0.0311 unit increase in equity security returns, emphasizing the importance of strategic debt management. Moreover, the positive moderating effect of stock liquidity suggests that firms with higher liquidity experience stronger impacts of long-term debt volatility on equity returns. To leverage this relationship effectively, companies should strategically manage their long-term debt levels, monitor stock liquidity, communicate transparently with investors, prioritize risk management, and remain sensitive to market dynamics to optimize shareholder value over time.

Given the moderating role of stock liquidity, firms should strive to improve liquidity levels through measures such as enhancing trading volumes and reducing bid-ask spreads. Higher liquidity can amplify the impact of internal equity volatility on equity security returns, thereby creating opportunities for firms to maximize shareholder value. Additionally, investors should consider stock liquidity when evaluating the relationship between internal equity volatility and equity security

returns, as it can significantly influence the strength of this relationship. Overall, a proactive approach to managing internal equity and enhancing stock liquidity can contribute to improved stock performance and investor confidence.

Efforts to enhance stock liquidity should be prioritized, as higher liquidity strengthens the relationship between external equity volatility and equity security returns. This could involve initiatives to increase trading volumes, improve market efficiency, and enhance investor confidence. Thirdly, policymakers and regulatory authorities should continue to foster an environment conducive to equity market development, which can ultimately contribute to improved stock liquidity and more favorable equity security returns for investors. Additionally, further research could explore the specific mechanisms through which stock liquidity influences the relationship between external equity volatility and equity security returns, providing deeper insights for both companies and investors.

Considering the moderating role of stock liquidity, it is imperative for investors to factor in liquidity levels when assessing the impact of Short-Term Debt Volatility on equity security returns. Higher liquidity stocks tend to amplify the effect of Short-Term Debt volatility on returns, while lower liquidity stocks may dampen this relationship. Therefore, investors should diversify their portfolios to mitigate risks associated with Short Term Debt Volatility and stock liquidity. Companies, on the other hand, should carefully manage their short-term debt levels, ensuring a balanced approach that maintains sufficient liquidity while optimizing returns. Stress testing and transparent communication regarding short-term debt levels and liquidity positions are also recommended to prepare for potential challenges and maintain financial stability in volatile environments.

5.5 Areas of Further Research

Investigating the influence of macroeconomic variables, such as interest rates and inflation, on the relationship between short term debt structure volatility and security returns could provide deeper insights into the dynamics of short-term debt management and its implications for investors.

Exploring how long-term debt structure volatility interact with factors like firm size, profitability, and industry risk could enhance understanding of the complex relationship between long-term debt dynamics and security returns. Additionally, investigating the impact of regulatory changes and market conditions on the long-term debt-equity security returns relationship could offer valuable insights for investors and policymakers.

Exploring how internal equity structure volatility interact with external financing sources and firm-specific characteristics could provide deeper insights into the mechanisms driving the relationship between internal equity dynamics and security returns. Additionally, investigating the impact of corporate governance practices and managerial decisions on internal equity allocation and its implications for security returns could be an area of interest.

Investigating how external equity structure volatility interact with market conditions, such as stock market volatility and investor sentiment, could provide valuable insights into the dynamics of equity financing and its effects on security returns. Additionally, examining the role of financial intermediaries, such as investment banks and underwriters, in facilitating external equity transactions and their implications for security returns could be an area of further research.

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APPENDICES

Appendix I: List of Public Limited Companies

Source: Nairobi Securities Exchange (2021)

Agricultural sector.

Eaagads Ltd.X

Kakuzi.X

Kapchorua Tea Co. LtdX

Limuru Tea Co. Ltd.

Rea Vipingo Plantations Ltd.

Sasini Ltd.

Williamson Tea Kenya Ltd.

Automobiles and Accessories Sector.

Car and General (k) Ltd

Banking Sector.

Barclays Bank Ltd.

BK Group

Diamond Trust Bank Kenya Ltd.

Equity Group Holdings.

HF Group Ltd.

I&M Holdings Ltd.

KCB Group Ltd.

National Bank of Kenya Ltd.

NIC Group PLC.

Stanbic Holdings Plc.

Standard Chartered Bank Ltd.

The Co-operative Bank of Kenya Ltd.

Commercial and Services Sector

Atlas African Industries.

Deacons (East Africa) Plc.

Eveready EA

Express Kenya.

Kenya Airways Ltd.

Longhorn Publishers Ltd.

Nairobi Business ventures.

Nation Media Group.

Sammer Africa PLC.

Standard Group Ltd.

TPS Eastern Africa (Serena)

Uchumi Supermarket Ltd.

WPP Scangroup Ltd.

Construction and Allied Sector.

Athi River Mining.

Bamburi Cement Ltd.

Crown Paints Kenya PLC.

E.A Cables Ltd.

E.A Portland Cement Ltd.

Energy and Petroleum Sector.

KenGen Ltd.

KenolKobil Ltd.

Kenya Power & Lighting Co.

Total Kenya Ltd.

Umeme Ltd.

Insurance Sector.

Britam Holdings Ltd.

CIC Insurance Group Ltd.

Jubilee Holdings Ltd.

Kenya Re-Insurance Corporation Ltd.

Liberty Kenya Holdings Ltd.

Sanlam Kenya PLC.

Investment Sector.

Centum Investment Co Ltd.

Home Afrika Ltd.

Kurwitu Ventures Ltd.

Nairobi Securities Exchange.

Olympia Capital Holdings Ltd.

Trans-Century Ltd.

Manufacturing and Allied.

B.O.C Kenya

British American Tobacco Kenya

Carbacid Investment

East African Breweries

Flame Tree Group Holdings

Kenya Orchards

Mumias Sugar Company

Unga Group

Telecommunication and Technology.

Barclays New Gold ET

Safaricom Ltd

Stanlib Fahari

Appendix II: Data Collection Sheet

Firm	Panel	Year	LTDV	IEV	EEV	STDV	SL	ESR