EFFECT OF IDIOSYNCRATIC RISKS AND EARNINGS QUALITY ON VOLATILITY OF STOCK RETURNS AMONGST FIRMS QUOTED AT THE NAIROBI SECURITES EXCHANGE

BY

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DECLARATION

I declare that this thesis has not been previously submitted and approved for examination or otherwise to the examination body of Maseno University or any other University. To the best of my knowledge and belief, the thesis does not contain any material previously published, and all sources of theoretical and empirical information have been duly acknowledged by referencing.

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DEDICATION

This thesis is dedicated to Quinter, Bravian and Lugard. May this inspire you to excel.

ABSTRACT

Globally, extreme levels of stock return volatility at the capital markets result to inefficiency in capital utilization and reduction in liquidity by firms. Locally, stock returns volatility at the NSE has led to a continuous decline in activity in the market for the past 8 years, as evidenced by continuous decline in the NSE 20 share index from 5,406 points in 2014 to1,672 points in April,2022. The presence of volatility of stock returns at the NSE can be attributed to idiosyncratic risks since the systematic risk is priced in the NSE stocks. Empirical evidence shows that, for investors who do not hold fully diversified portfolios, risks associated with managerial strength, intangible assets, environmental disclosure, firm size, liquidity, dividend policy and cash flow to price all have a significant effect on idiosyncratic volatility of stock returns. However, there is no empirical evidence directly linking idiosyncratic risks posed by capital expenditure, financial gearing and profitability to volatility of stock returns. Hence, this study sought to examine the effect of idiosyncratic risks and earnings quality on firm specific stock returns volatility. Specifically, the study sought to establish the effect of capital expenditure on stock returns volatility, the effect of financial gearing on stock returns volatility, the effect of profitability on stock returns volatility, the effect of earnings quality on stock returns volatility and the moderating effect of earnings quality on the relationship between the idiosyncratic risks and stock returns volatility at the NSE. Efficient Market Hypothesis, Modern Portfolio theory and Fama &French three factor model informed this study. Quantitative approach with correlational research design was employed using secondary data. Using purposive sampling technique, 24 listed firms were sampled yielding 240 firm-year observations from 2010 to 2019. Fixed effects panel data regression model was employed in the analysis of data. The results showed a positive and significant effect of both capital expenditure (CAPIT: $\beta = 0.024737$, $p = 0.0000$); and financial gearing (DCR: $\beta = 0.386707$, $p=0.0000$; AER: $\beta = 0.025187$, $P = 0.0037$) on volatility of stock returns at the NSE. This implies that 1% increase in CAPIT, DCR and AER leads to 2.4737%, 38.6707% and 2.5187% increase in volatility of stock returns respectively. On the other hand, the result showed negative and significant effect of both profitability (EPS: $\beta = -0.006834$, $p=0.0452$; P_E: $\beta = -0.014044$, $p=0.0001$; ROE: $\beta = -0.513469$, $p=0.0028$) and earnings quality (AQ: $\beta = -0.012054$, $p=0.0003$) on volatility of stock at the NSE. This implies that 1% increase in EPS, PE, ROE and AQ leads to a decline in volatility by 0.6834%, 1.4044%, 51.3469% and 1.2054% respectively. Earnings Quality had a positive and significant moderating effect on the overall model and the relationship, increasing R^2 from 70.8197% to 82.0373%. The study concludes that capital expenditure and financial gearing are significant positive predictors of stock return volatility; while profitability and earnings quality are all significant negative predictors of volatility of stock returns at the NSE. Earnings quality positively moderates the relationship between capital expenditure, financial gearing and profitability on volatility of stock returns at the NSE. It is recommended that NSE listed firms should optimize their capital expenditure, use more of internal sources of finance and focus more on wealth maximization objective to reduce volatility of stock returns. These findings may be useful to policy makers and academia in designing models which capture idiosyncratic risks in stock pricing to mitigate against volatility of stock returns for firms at the NSE.

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LIST OF ABBREVIATIONS AND ACRONYMS

AER: Asset to Equity Ratio

AIMS: Alternative investment Market Segment

AMEX: American stock exchange

ANOVA: Analysis of Variance.

AQ: Accruals quality.

ASE: Amman Stock Exchange**.**

ASEAN: Association of Southern Asian Nations

BTM: Book Value to Market Price.

BVPS: Book Value Per Share

CAPEX: Capital Expenditure ratio

CAPEXD: Capital Expenditure to Depreciation Ratio.

CAPIT: Capital Intensity Ratio

CAPM: Capital Asset Pricing Model.

CEO: Chief Executive Officer.

CLRM: Classical Linear Regression Model.

CMA: Capital Market Authority.

CRSP: Center for Research in security prices.

DAR: Debt to asset Ratio

DCR: Debt to Capital Ratio

DPS: Dividend per share

EBITA: Earnings Before Interest, Tax and Amortization.

EMH: Efficient Market Hypothesis

EP: Earnings Predictability

EPER: Earnings Persistence

EPS: Earnings per share

FF3F:	Fama & French three factor model
FGLS:	Feasible Generalized Least squares.
FIMS:	Fixed Income Market Segment.
FOMS:	Future and Options Market Segment.
GARCH:	Generalized Autoregressive Conditional Heteroscedasticity Model.
GoK:	Government of Kenya
HML:	High Minus Low
IC:	Intangible Capital
JB:	Jarque- Bera (Test for normality)
JSE:	Johannesburg securities exchange
LLC:	Levin Lin and Chun. Panel unit root test.
LSE:	London Stock Exchange.
MIMS:	Main Investment Market Segment
MSCI:	Morgan Stanley Capital international.
NASDAQ:	National association of security dealers' automatic quotation system.
NSE:	Nairobi Securities Exchange.
NYSE:	New York stock exchange.
PER:	Price Earnings Ratio.
QSB:	Quarterly Statistical Bulletin.
REIT:	Real Estate investment Trust.
ROE:	Return on Equity
SBM:	Small Minus Big
SRV:	Stock Return Volatility
USA:	United States of America.

OPERATIONAL DEFINITION OF TERMS

Accrual's quality ratio: This is the ratio of the difference between net profit and net cash flow from operating activities to total assets. It represents the cash flow risk associated with misstatements, that is, the risk that accounting earnings may not be converted into cash flows.

Asset to equity ratio: This is the ratio of total assets to total stockholders' equity. It shows the part of assets owned by shareholders.

Capital expenditure: Capital expenditure is operationalized as capital expenditure ratio, Capital expenditure to depreciation ratio and capital intensity ratio.

Capital expenditure ratio: This is the ratio of cash provided by operating activities to total capital expenditure of a company.

Capital expenditure to depreciation ratio: This is the ratio of capital expenditures to depreciation. It indicates the growth phase of the company

Capital intensity ratio: This is the ratio of total assets within a particular period to the revenue generated within the same period. It shows the amount of spending required per dollar of revenue generated.

Debt to asset ratio: This is the ratio of total liabilities to total assets of a company. It shows how much of the company is owned by creditors.

Debt to capital ratio: This is the ratio which compares the company's total liabilities to total capital. It measures the financial gearing of the company.

Earnings per share: This is the ratio of the company's net profits to total outstanding shares. It is a profitability ratio which

	measures how much money a company makes for each share of its stock.
Earnings persistence:	This is a ratio which reflects the profit quality of a firm and shows that a firm can retain earnings over time instead of just due to a particular event.
Earnings predictability:	This is a ratio which shows the ability of reported (past) earnings in predicting the future ones.
Earnings' quality:	Was measured as the Accruals quality: Net Income, minus Free Cash Flow, all divided by Total Assets.
Financial gearing:	Financial gearing was operationalized as the debt-to-equity ratio, debt to capital ratio and asset to equity ratio.
Firm specific characteristics:	Are the internal variables that are attributed to idiosyncratic risks. They constitute firm attributes that are majorly under the control of a firm's management. In this study, idiosyncratic risks and earnings quality was considered as the firm characteristics.
Price earnings ratio:	This is the ratio of stock price to company's earnings per share for a period of one year. It is a profitability ratio showing the investors how much a company is worth.
Profitability:	Was operationalized as Return on equity ratio, Earnings per share ratio and price earnings ratio.
Stock return volatility:	The level of turbulence of stock returns of listed firms. Firm specific volatility for any given period is modelled as a function of market shocks that impacted this market, idiosyncratic risks and volatility in the respective stock in the previous period.

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CHAPTER ONE
INTRODUCTION

In this chapter, the researcher provides the background of the research thesis on the effect of idiosyncratic risks and earnings quality on firm specific volatility of stock returns amongst firms listed at the NSE, Kenya. The chapter is organized as follows: background of the research study, problem statement, objectives of the study, formulated null hypotheses and study scope. A conceptual framework has been designed at the end of this chapter, based on the reviewed literature, and it helped the researcher in modeling and analysis of data.

1.1.Background of the study.

Firm specific stock returns volatility is the measure of the degree of turbulence of stock returns of listed firms occasioned by the presence of idiosyncratic risks. The overall stock returns volatility of a specific firm at any given period in time, can be expressed as a function of market shocks, idiosyncratic risks and volatility in the respective stock in the previous period (Laibon, 2020). Volatility is an indication of the amount of uncertainty or risk related to the size of changes in a security's value. A higher volatility implies that a security's value can potentially be spread out over a larger range of values (Ilaboya & Aggreh, 2013). This means that the price of the security can change dramatically over a short time period in either direction. A lower volatility means that a security's value does not fluctuate dramatically, and tends to be more stable.

Globally, extreme levels of stock return volatility has been known to lead to adverse consequences to the market such as inefficiency in capital utilization by firms due to the increasing need to reserve a higher proportion of cash or cash-equivalent investments as an assurance to lenders and regulators. Increased levels of volatility may cause market -making risks which may force market intermediaries to charge more for their liquidity services causing reduction in liquidity for the market as a whole. Volatility may also discourage investors from holding stock since the expected returns have to be traded off for the risk exposure, leading to demand for high-risk premium to leverage volatility risks (Ndwiga and

Muriu, 2016). This causes a decline in activity at the stock market making it difficult for firms to mobilize capital for expansion and also for the government in mobilizing resources to finance infrastructure development. In essence, extreme levels of volatility reduce market liquidity which negatively impacts the economy as it slows down economic development and also leads to unemployment since the capital market does not yield enough capital required by firms to expand.

Locally, stock returns volatility at the NSE has led to a continuous decline in activity in the market for the past 8 years, starting from 2014 to 2022. The decline in activity at the NSE has been attributed to high exit of foreign investors from the bourse due to fear of loss on investment (Bloomberg, 2019). High volatility of stock returns at the NSE has caused spooking amongst investors making them, especially the foreign investors, to take a flight to safety in advanced markets such as the NYSE which promise stable returns (CMA, QSB, 2018). Ma and Wang (2018) posited that volatility of stock returns can lead to investors pulling out of a security market causing a decline of stock market liquidity. Returns from the subsequent liquidation of investments can fall significantly due to poor and declining market liquidity. It is therefore, important to understand volatility risk causing factors amongst NSE listed firms so as to institute mitigation measures to stabilize stock returns and improve market liquidity in order to safeguard investors' interests in the bourse.

The risks inherent to a firm constitutes the systematic risk (which is always incorporated in security prices) and the idiosyncratic risks which are never priced, though their effects can be reduced by diversification. Idiosyncratic risks refer to the risks inherent to a specific firm at any point in time due to the unique nature of each specific firm. At equilibrium, investors can eliminate idiosyncratic risks through diversification. This means that an investor can hold a proper combination of securities which will reduce risk significantly without adversely affecting portfolio returns (Abd & Kurniasih, 2021). This is in conformity with Harry Markowitz's modern portfolio theory (MPT) (Markowitz, 1952) and the Capital Asset Pricing Model (CAPM) concept put forward by Sharpe, Lintner and Mossin (Sharpe, 1964; Lintner; 1965, Mossin, 1966). Merton (1987) and Malkiel and Xu (2006) have posited that company specific risk-expected returns relationship is dependent on the degree of

diversification of investors' portfolios. Highly diversified portfolios reduce the amount of idiosyncratic risks incorporated in their expected stock returns and vice-versa. A number of scholars have shown that between 35-50 stocks are required for optimum diversification effect (Bradfield & Munro, 2017; Oyenubi, 2019; Kurtti, 2020 and Raju & Kumar, 2021). However, scholars such as Scott, (2017) and Yufeng and Weike, (2022) have indicated that investors often fail to diversify fully resulting in the need for a risk premium in the expected rates of return to compensate the investor for holding the idiosyncratic risk. This has led to the conclusion that both systematic risk and idiosyncratic risks together affect investors' returns and need to be incorporated in pricing of firms' stock in order to guarantee stability of investor returns (Sundha, Salma & Stuart, 2018; Rasheed, Naeem, Qaisar, Ahsen & Muhammad, 2020; Saba, Syed & Abdul, 2022).

Previous literature indicates that in some instances, investors do not diversify their portfolios fully, due to factors which can be linked to investor characteristics as well as market characteristics. Investor characteristics constitute such factors as income level and risk tolerance. The degree of diversification is directly proportional to the level of individual investor's endowment (Blume & Friend, 1975; Liu, 2008). Odean (1998) and Barber and Odean (2001) indicated that investors who tolerate more risk portray a tendency of being overconfident, trading excessively and holding under diversified portfolios. Also, Market frictions such as information asymmetry and transaction cost can also cause investors to under diversify. The study of Merton (1987) puts forward an argument that investors will tend to overinvest in stocks where information is readily available. As a result, high cost of information could lead to reduction in portfolio diversification which in essence, causes an increase in firm specific risk premium in the expected returns. However, stock prices do not capture the required risk premium to compensate for idiosyncratic risks and this is thought to be the cause for idiosyncratic volatility of stock returns.

Idiosyncratic risks are inherent to a firm due to various firm idiosyncratic characteristics such as firm's capital expenditure, financial gearing, profitability, managerial decisions and operational strength. It is not clear whether all these Idiosyncratic risks have a relationship with idiosyncratic stock returns volatility at the NSE, Kenya. Fama, (1970) put forward the strong form Efficient Market Hypothesis (EMH), which held that all past and present

security information, which is publicly available or privately held, should completely be impounded in the current market prices of such a security and that there is no set of information that can give an investor an undue advantage over other investors in the same market. It is not yet clear whether Idiosyncratic risks posed by capital expenditure, financial gearing and profitability significantly affect variance of returns earned by securities traded at the Nairobi Securities Exchange (NSE), warranting their incorporation in pricing of stocks. According to Fama and French three Factor (FF3F) theory, portfolio's sensitivity to the systematic risk (beta), the risk posed by the size of stocks in the portfolio (size), and the risk as a result of the average weighted book-to-market (value) of stocks can explain up to 95% of the portfolio's expected returns (Fama & French, 1993). The researcher hypothesized that the remaining 5% could be explained by the sensitivity of individual stocks in the portfolio to the idiosyncratic risks, which are represented by capital expenditure, financial gearing and profitability. The effect of risks posed by firm specific characteristics on stock returns can be accounted for in the residuals of the FF3F model.

Globally, scholars have, in the past two decades, paid keen attention to idiosyncratic risks and their effect on stock returns volatility since the study of Campbell (2001) which posited a new twist in volatility. The results in the study showed that aggregate idiosyncratic volatility of stock returns had increased significantly, while the total market stock returns variance remained unchanged over time at the New York Securities Exchange (NYSE). Many such scholars around the globe who have turned their focus on firm specific stock returns volatility include Firmansyah, Sihombing, and Kusumastuti (2020), who studied the causes of idiosyncratic stock returns volatility in Indonesian banking industries. They indicated that firm size, dividend policy, PER and profitability significantly and negatively relate with firm specific volatility of stock returns while company's operating performance and institutional ownership did not show any relationship with idiosyncratic stock returns volatility. Even though the results of this study were significant, its model was weak as it could only explain 23% (adj. R^2 =0.2301) of the idiosyncratic volatility in Indonesian banking industry. Hou, Zhang and Li (2019), posited that intangible assets have a negative association with idiosyncratic stock returns volatility. Panagiotis, Renatas, Ioannis and Sagitova (2020) demonstrated that environmental disclosure is negatively connected with company specific stock returns volatility. Jyoti, Jitendra, and Hiremath (2017) demonstrated that firm size

negatively influences idiosyncratic stock returns volatility, but liquidity, cash flow to price and book to market ratio all show a negative interconnect with idiosyncratic stock returns volatility. All these scholars have provided evidence that some idiosyncratic risks influence stock returns volatility. However, studies have not assessed whether idiosyncratic risks associated with capital expenditure and financial gearing have any effect on stock return volatility. Data used in the past studies has also been obtained from markets outside Africa, creating a need to test whether results obtained in the past can be applicable in the emerging markets in Africa. Therefore, this study sought to evaluate the effect of idiosyncratic risks (represented by capital expenditure, financial gearing and profitability) on volatility of stock returns using evidence from Nairobi securities exchange.

Numerus Empirical literature on the relationship between capital expenditure and stock returns volatility have been carried out albeit, with many shortcomings. While Erwei, Dominic, Grant and Wenjuan (2020) and Clark (2021) showed that capital expenditure and stock return volatility are significantly and positively related, Takashi (2022) and Chih (2017) posited a negative relationship. They both used research and development (R&D) expenditure as the measure of capital expenditure. R&D varies in different firms based of the product offered in a firm. The studies failed to take into consideration the entire capital expenditure of the firm, which could be measured as either capital expenditure ratio, capital expenditure to depreciation ratio or capital expenditure intensity ratio. Firms in the manufacturing sector may spend very little on R&D but so much on acquisition of machinery and equipment while those in technology sector spend a substantive amount in relation to R&D. Hence, R&D is not correct metric for capital expenditure for firms. Past studies have also failed to capture asymmetric pattern of volatility and change of magnitude over time exhibited by idiosyncratic volatility of stock returns. Authors such as Li (2019) and Ching (2022) did not directly link capital expenditure to volatility of stock returns but they rather established a connection between capital expenditure and stock returns. Other scholars have omitted firm years with large acquisitions in their studies making them biased. Also, the data used in past studies has been sourced from highly developed stock markets outside Africa. It is not yet known whether results of such studies can still hold in the frontier markets in Africa, such as the NSE, which are faced with huge capital demands posed by existence of high growth opportunities and high expansionary activities. Thus, the effects of idiosyncratic risks

associated with the firm's overall corporate investment, measured by its entire capital expenditure, on volatility of the firm's stock returns is not yet known.

Another idiosyncratic risk considered in this study is the risk posed by financial gearing. Pandey and Moynihan (2010) define financial gearing as the use of debt in financing part of the activities of the firm. Gearing decisions are so important in an organization's finance activities as they are closely related to other elements of corporate finance, which can have a huge impact on the firm's overall returns, competitiveness, as well as solvency level (Javeed, Hassan & Azeem (2014); Ramli & Nartea, 2016; Kenyanya & Ombok 2018). Empirical studies reviewed do not lead to consistent results with regards to the influence of financial gearing on stock returns volatility. Some studies have shown weak relationships between financial gearing and volatility of stock returns. From a majority of the past studies which have been reviewed, it has been noted that most of the scholars have directed their attention more on financial leverage in relation to stock returns and stock price variance, ignoring the influence of financial gearing on variance of stock returns. Zhang and Zhou (2020) found a negative financial gearing-stock price asynchronicity relationship. The studies of Byung and Chong (2019), Wasafi and Haneen (2016) and Mohammad, Kamruddin, Tarana and Rahat (2015) all found a statistically significant and negative relationship between financial gearing and stock returns. Studies of Aharon & Yagil (2019) and Zeeshan and Daw (2018) used financial leverage as a dependent variable with volatility of stock returns as independent variable giving a positive relationship. Kinoti, Muturi and Oluoch (2019) assessed the interconnection between company characteristics and stock returns of non-financial companies listed in Kenya. The study showed that both cashflow and leverage have significant effect on stock returns of non-financial listed companies in Kenya. Past studies have found a significant relationship between financial leverage and stock returns. However, previous studies have fallen short of directly linking financial gearing either with stock returns or stock return volatility. Also, the models adopted in the past studies to measure volatility have failed to capture asymmetric pattern in volatility and change of magnitude over time exhibited by idiosyncratic volatility of stock returns. Thus, this study sought to establish the relationship between financial gearing (measured as AER and DCR) on volatility of stock returns using evidence from firms listed at the NSE.

Studies on the relationship between profitability and volatility of stock returns are inconclusive. Nathania and Sang (2021) and Paulas and Irvan (2018) established a positive and significant relationship between profitability (measured by ROA) and volatility of stock returns. However, when ROE was used as a measure of profitability, Nathania and Sang (2021) found a positive relationship while Paulas and Irvan (2018) found a negative relationship with stock returns. These studies did not endeavour to establish a relationship between profitability and volatility of stock returns. Cheruiyot, Olweny and Irungu (2021) posited that EPS, DPS and cash flow were positively and significantly connected with firm specific volatility of stock returns amongst NSE listed companies. The study also showed that book value per share and liquidity negatively and significantly related with idiosyncratic volatility of stock returns. However, this study posited a weak relationship between the variables and also the prediction ability of the model was weak at 15%. This makes it necessary to reassess the relationship using other metrics of profitability, that is, PE and ROE besides the EPS. Thus, this study also sought to establish the relationship between Profitability (measured as EPS, PE and ROE) and volatility of stock returns using evidence form the firms listed at the NSE. Earnings quality was used to moderate the relationship to improve model prediction ability since past studies such as Cheruiyot, Olweny and Irungu (2021) posited weak models with prediction ability of just 15%.

Past studies have posited varying results on relationship between earnings quality and stock returns volatility. Past studies have also used earnings quality to mediate relationship between stock returns and firm performance. The study of Mohamed and Hatem (2018) assessed the relationship between three constructs of firm performance namely; firm specific stock return volatility, earnings management, and the corporate governance. The study showed that all the variables were positively related except for the earnings management which was negatively related with earnings quality. The study used earnings quality as a mediator. The study of Nyanine, Josue, Odunayo and Bomi (2022) indicated that firms with a high value of earnings quality and those with more persistent earnings showed a decrease in stock return volatility. The study also demonstrated that the earnings smoothness positively influenced the idiosyncratic volatility of stock returns. This study did not assess how quality of earnings, measured as the Accruals' Quality, influences the idiosyncratic volatility of stock returns. Therefore, the current study sought to assess the influence of earnings quality, measured as

Accruals' Quality, on volatility of stock returns of firms listed at the Nairobi Securities Exchange.

Also, Anaekenwa, Samuel and Nwaobia (2019) did an empirical analysis of the potency and value relevance of earnings persistence (EPERS) and its impact on firm value and the implications of the analyst accuracy and forecast ability using data from the frontier market of Nigeria. The study indicated a negative and non-significant relationship between earnings persistence (EPERS) and firm performance. Financial Gearing showed a positive and significant relationship whereas firm size indicated a negative relationship with Tobin's Q. The study did not relate earnings persistence to firm specific volatility of stock returns. Other metrics for earnings quality such as accruals quality were not considered and their effect on stock return volatility was not captured in this study.

Past studies assessing the relationship between some idiosyncratic risks and volatility of stock returns established weak relationships which needed moderation. Studies such as Cheruiyot, Olweny and Irungu (2021) have used firm size as a moderator in establishing the influence of accounting elements and firm specific stock returns volatility. However, the study could not ascertain the total value of the accrual's which were eventually realised as actual cash receipts from the accounting information. The risk of accrual earnings failing to be realised as actual cash receipts can affect the reliability of the financial ratios obtained from accounting information in giving the correct relationship with stock returns variance. The study of Hoyoung and Hyunmin (2017) found it necessary to use earnings quality to moderate the relationship between voluntary disclosure and information asymmetry. The moderating effect was statistically significant and negative. In the study Mohamed and Hatem (2018), earnings quality was used as an intermediary. The current study has been carried out in the wake of huge pending bills in Kenya both by the county and National Governments. Studies such as Mitra (2016), Nguyen, Le, Tran & Dang (2021), Domingues, Cerqueira, Brandão (2015), Yuni, Mandiri and Jalan (2022) and Rizal, Amrie, Dani and Ahmad (2022) have provided evidence which indicates that earnings quality seems to have an influence on the relationship between idiosyncratic risks and volatility of stock returns. It is against this background that the current study endeavored to evaluate first, the effects of idiosyncratic risks posed by

capital expenditure, financial gearing, profitability and earnings quality on volatility of stock returns at the NSE and secondly, the moderating effect of earnings quality on the relationship between the idiosyncratic risks and volatility of stock returns at the NSE.

Capital markets form an integral part of any proper functioning economy. Capital markets world over, perform such functions as facilitating efficient capital sourcing (Levine, 2003), mobilization and directing capital from surplus agents to deficient agents (Kalu, 2014) and providing a platform where investors can diversify their portfolios (Mishra, Swain & Malhotra, 2007; Jebran & Iqbal, 2016; Laibon, 2020). Locally, the Nairobi securities exchange (NSE) plays a pivotal role in facilitating mobilization of resources for attainment of national development goals and fulfillment of Vision 2030 development blue print in Kenya. NSE is fairly developed than its peers in the region, thus, firms within the region looking for foreign market for cross listing will pick NSE as the capital market of choice. Despite the importance of NSE both locally and regionally, high stock returns volatility has proved to be a common phenomenon in the market for the past 8 years. This is evidenced by a continuous decline in the NSE 20 share index from 5,406 points in 2014 to1,672 points in 2022, an indication of high exit of investors from the bourse (Capital Market Authority QSB, 2022). Therefore, it is necessary and important to determine the causes of idiosyncratic volatility shocks at the NSE so as to institute mitigation measures to avert unnecessary losses to investors. It is also important to understand how NSE listed firms' respond to idiosyncratic volatility shocks and volatility contagion across periods since this has a bearing on portfolio construction processes, volatility forecasting, and mitigation of the negative consequences of the shocks and cross period volatility contagion. A graph on the trend of the NSE 20 share index for the past 8 years illustrates the declining trend from the year 2014 to the year 2022 as shown in figure 1-1 below.

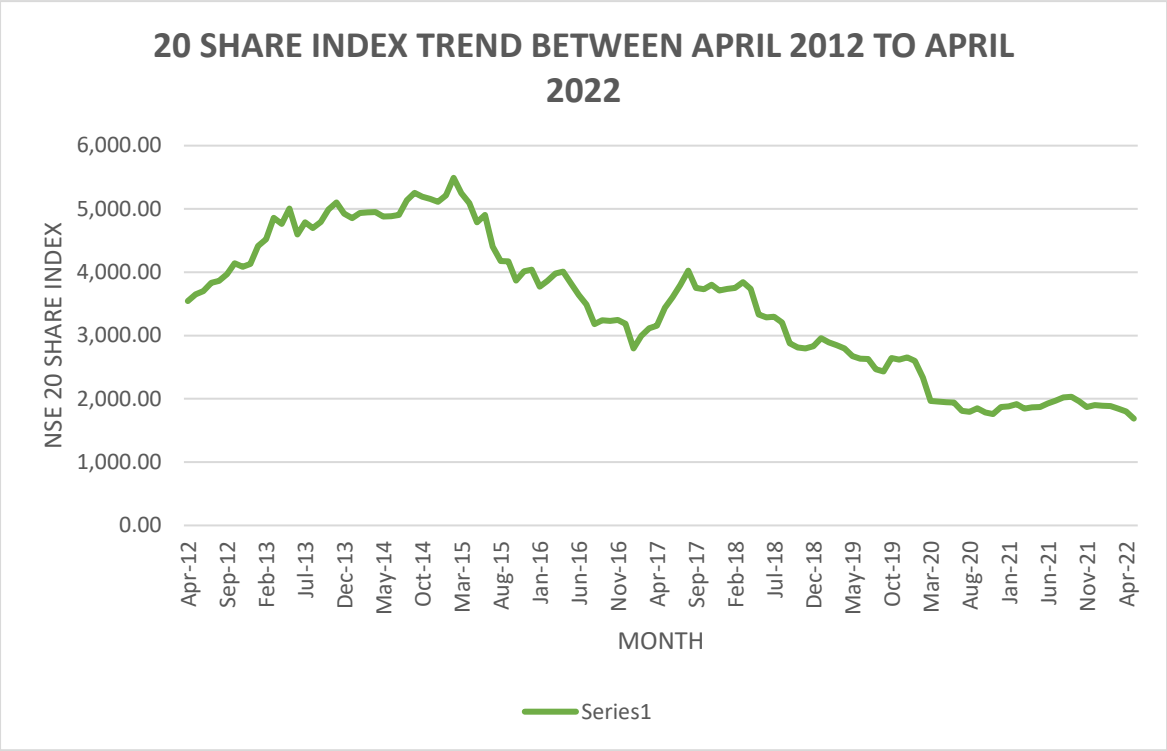

Figure 1.1: Trend of the NSE 20- Share Index for the Period Jan. 2014- April. 2022

Source: CMA QSB, 2022.

According to the International Monetary Fund (IMF report, 2018), frontier markets have seen an increase in foreign investments from investors running away from developed markets experiencing slow growth making them less attractive in terms of expected returns and diversification of portfolio risk. These investors are seeking higher risk-adjusted returns from the emerging markets experiencing superior economic growth as compared to mature and more developed markets. Contrary to this assertion, the opposite is happening at the NSE, which is losing more foreign investors instead of receiving as expected.

In the emerging capital markets, there is scarcity of information pertaining to stock market phenomena such as idiosyncratic stock returns volatility. As a result, investors in these markets are relying on past similar experiences from the developed markets for investment decision making. Whatever that holds in the highly developed stock markets may not necessarily hold in the frontier markets. The literature is yet to catch up with the flow of

funds to these developing markets, and this creates an opportunity to be explored. This study sought to bridge the existing literature gap by bringing up new insights on how idiosyncratic risks such as idiosyncratic risks and earnings quality affect firm specific volatility of stock returns in an emerging market – NSE, Kenya.

The Kenya's NSE is an attractive market in Africa due to the positive performance of the Kenyan economy. It has attracted investors who see growth and possibility for making better returns (Muiruri, 2014). NSE has been bolstered by a higher Morgan Stanley Capital International (MSCI) frontier markets portfolio index which is 293.32 against MSCI frontier markets average of 226.17 and this is likely to attract volumes of portfolio and foreign direct investments (MSCI Report, 2022). The MSCI Kenya index is designed to measure the performance of the large and mid-cap constituents. The index covers approximately 85% of the Kenya equity universe. Higher MSCI Index notwithstanding, NSE has witnessed notable levels of volatility in investor returns due to high volatility of stock prices in the bourse (CMA QSB, REPORT 2022). This can be illustrated by the volatility depicted by the trends in NSE 20 share index for the past 8 years between the year 2014 and 2022.

1.2 Statement of the Problem

Globally, extreme levels of stock return volatility result to adverse consequences to capital markets, such as inefficiency in capital utilization and reduction in liquidity by firms due to the increasing need to reserve a higher proportion of cash or cash-equivalent investments as an assurance to lenders and regulators. Locally, stock returns volatility at the NSE has led to a continuous decline in activity in the market for the past 8 years, as evidenced by a continuous decline in the NSE 20 share index from 5,406 points in 2014 to1,672 points in April,2022. This is a clear indicator that stock returns volatility has caused spooking amongst investors making them to take a flight to safety in advanced markets such as the NYSE which promise stable returns. The presence of volatility of stock returns at the NSE can be attributed to idiosyncratic risks since the market risks are always factored in the security prices. Empirical evidence shows that, for investors who do not hold fully diversified portfolios, idiosyncratic risks associated with high managerial strength, intangible assets, environmental disclosure, firm size, liquidity, dividend policy and cash flow to price all have a significant effect on firm

specific volatility of stock returns. Empirical evidence available links capital expenditure and stock returns and uses only R&D as a metric for capital expenditure yet only firms specializing technology attach much value to R&D. The influence of the entire capital expenditure on firm specific stock returns volatility is yet to be established empirically. Also available is empirical evidence linking financial leverage and firms' financial performance and stock returns but no direct link has been established between financial gearing and volatility of stock returns. Available literature on the relationship between profitability and volatility of stock returns yields plausible but contradicting relationships and weak models. Finally, there is empirical evidence which indicates that earnings quality has an influence on the relationship between some idiosyncratic risks and volatility of stock returns. It is against this background that the current study endeavored to evaluate first, the effects of idiosyncratic risks posed by capital expenditure, financial gearing, profitability and earnings quality on volatility of stock returns at the NSE and secondly, the moderating effect of earnings quality on the relationship between the idiosyncratic risks and volatility of stock returns at the NSE.

1.3 Objectives of the study.

The major aim of this study was to assess the effect of idiosyncratic risks and earnings quality on volatility of stock returns at the Nairobi Securities Exchange.

The following specific objectives guided the study:

i.) To assess the effect of capital expenditure on volatility of stock returns amongst NSE quoted firms.

ii.) To find out the influence of financial gearing on volatility of stock returns amongst NSE quoted firms.

iii.) To analyze the relationship between profitability and volatility of stock returns amongst NSE quoted firms.

iv.) To evaluate the effect of Earnings' quality on volatility of stock returns amongst NSE quoted firms.

v.) To assess the moderating effect of Earnings' Quality on the relationships between Capital Expenditure and volatility of stock returns, Financial Gearing and volatility of stock returns and profitability on volatility of stock returns amongst NSE quoted firms.

1.4 Null Hypotheses

H_{01}: Capital expenditure has no effect on stock returns volatility amongst NSE quoted firms.

H_{02}: Financial gearing has no effect on stock returns volatility amongst NSE quoted firms.

H_{03}: Profitability has no effect on stock returns volatility amongst NSE quoted firms.

H_{04}: Earnings quality has no effect on stock returns volatility amongst NSE quoted firms.

H_{05}: Earnings' quality has no moderating effect on the relationships between Capital Expenditure and volatility of stock returns, Financial Gearing and volatility of stock returns and profitability on volatility of stock returns amongst NSE quoted firms.

1.5 Scope of the Study.

The scope of this study can be categorized into three: subject scope, geographical scope and time scope. On subject scope, this study directed its focus to the broad business field of finance and its branches of corporate finance, financial economics, finance research and econometrics. Four study variables: Idiosyncratic risks and earnings quality are drawn from the discipline of corporate Finance. The dependent variable, Volatility of stock returns, is shared between economics and finance disciplines. Three theories of corporate finance are used in the study: Modern Portfolio Theory, Efficient Market Hypothesis and Fama and French Three Factor Model. Econometric models such as the FF3F model as well as the GARCH model were used. Classical linear regression model was applied with all its test statistics. Descriptive statistics and correlation analysis also formed part of this study.

Under geographical scope the study was conducted using data from the NSE, Kenya. This is where listed companies' stocks and bonds as well as treasury bills and bonds are traded. Firms listed at NSE were considered since they are required by law to publish their annual audited financial reports making the data collected authentic and readily available. Also, most of the previous studies done touching on volatility of stock returns have been carried out in

developed markets such as the US, Finland, Australia, or on emerging markets outside Sub-Saharan Africa such as Indonesia and India. This makes NSE ideal place for the study, since Kenya's stock market is a frontier or an emerging market which is considered to be fairly well-developed in Africa particularly the sub-Saharan Africa.

Under time scope, this study has been designed to cover a period of 10 years from 1st January, 2010 to 31st Dec.2019. The year 2010 is important in the study since it eliminated any chance of including the confounding effect of the global financial crisis of 2007/2008, ending in 2009. The study is designed to end in the year 2019, the year when covid-19 struck and its effects felt across various stock markets around the world, including Nairobi Securities Exchange, Kenya. Thus, the possibility of having a confounding effect of the effects of Covid-19 on the study were completely eliminated.

1.6 Justification of the Study

Volatility may lead to increased market risks which may force market agents to charge more to maintain liquidity causing reduction in liquidity for the market as a whole. Stock return volatility may also encourage investors to dispose-off stock since there is a return-risk trade off, which leads to the demand for higher volatility risk premium to compensate for the increased risk. In essence, this clearly shows that volatility interrupts smooth operations at the security market by reducing investors' confidence. Thus, this study is important since it captures an element which hitherto, has been ignored in pricing of market securities – idiosyncratic risks. As such, when making investment decisions at the Nairobi Securities Exchange, investors can make use of information which captures idiosyncratic risks. Using the current study findings, participants in the NSE will be able to understand how NSE listed firms' respond to idiosyncratic volatility shocks and volatility contagion across periods and this will act as a guide to portfolio construction, volatility forecasting and formulation of policy on mitigation of the negative effects of shock and volatility transmission. The study findings will help firms in making capital expenditure and financial gearing decisions in order to avoid idiosyncratic volatility shocks on stock returns which may make stocks of the firm unattractive to investors.

The study findings will also determine whether it is prudent for managers to pursue the profit maximization objective as opposed to the shareholders wealth maximization objective. The study findings will create a paradigm shift on the existing and potential investors on pricing securities in the stock market and derivatives in the futures and option markets, by ensuring that they capture both systematic and unsystematic risks. The study findings are expected to be useful to market arbitrageurs and speculators making investment decisions, based on the relevant firm characteristics and their impact on stock return movements. The study findings will also be useful to market regulators for policy formulation. The study findings will clearly show the causes of idiosyncratic volatility of stock returns at the NSE; thus, stakeholders can put in place measures to mitigate the causes of stock returns volatility and their effects.

Due to increased attention by scholars on the issue of stock return volatility, the study contributes to existing literature on the factors affecting firm specific volatility of stock returns. These findings will add on to the already identified idiosyncratic risk factors causing volatility of stock returns. Past studies have obtained data from developed markets where firms are faced with limited growth opportunities. The current study has obtained data from NSE, a frontier market where firms have high growth opportunities. Methodologically, this study estimates volatility of stock returns from the regression residuals of Fama and French 3 Factor model, a departure from the past studies which have used the residuals of CAPM, the single factor model. The current study contributes to theory in that it provides evidence on the existence of idiosyncratic risks influencing volatility of stock return, thus fronting a strong case on the need to incorporate a risk premium to compensate for the unsystematic risk in pricing of stocks against the Modern portfolio theory and the CAPM. The findings of the study will lay ground for the pricing of stocks based on the strong form of the Efficient Market Hypothesis which demands that the stock prices need to incorporate past and current information as well as public and private information.

1.7 Conceptual Framework.

The study was based on the conceptual frame work shown on figure 1.3 below.

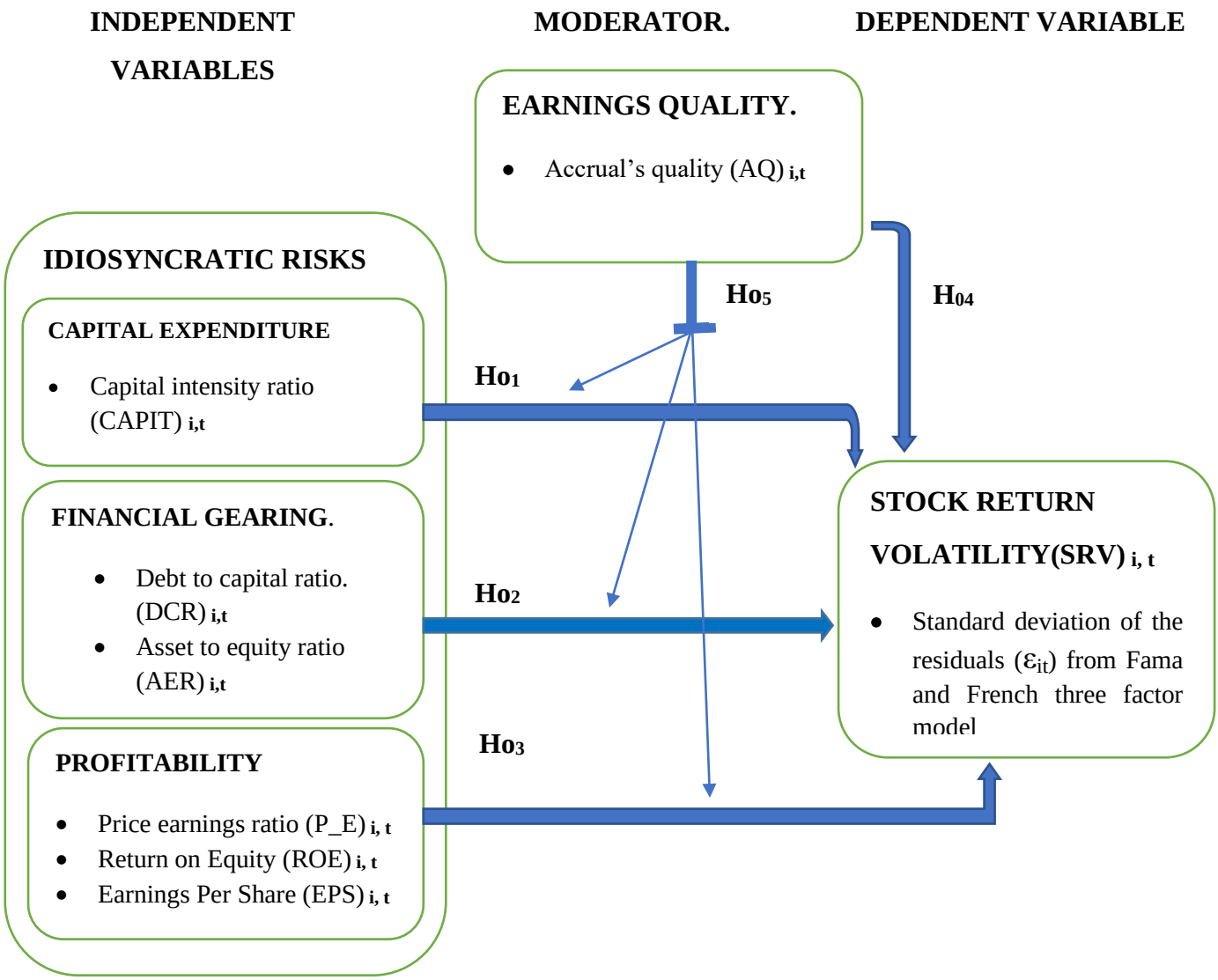

Figure 1.2: Effect of Idiosyncratic risks and Earnings Quality on Volatility of Stock Returns at the Nairobi Securities Exchange.

Source: Adapted and Modified from GM Laiboni, 2020.

Where H_{01}, H_{02}, H_{03}, H_{04} and H_{05} represents test for hypothesis 1 to 5

This conceptual framework was adapted from GM Laiboni (2020) and changed to suit the study objectives. GM Laiboni (2020) did investigation on lagged disturbances and volatility of sectoral returns in the NSE, Kenya. The modification of GM Laiboni (2020) framework in

the current study touches on the independent, dependent and moderating variables. In the current study, capital expenditure, financial gearing and profitability were chosen to replace the sectorial lagged disturbances used in the GM Laiboni (2020) study as the independent variables. Sectoral liquidity served as the moderator in the GM Laiboni (2020) model and was replaced in the current model by Earnings quality. The choice of earnings quality was motivated by the study of Mohamed and Hatem (2018) where earnings quality was used as an intermediary in a relationship establishing the factors affecting firm performance. The dependent variable in GM Laiboni (2020) is sectoral stock returns volatility estimated as the variance of market capitalization weighted average sectoral index modelled using the Baba, Engle, Kroner, Kraft (BEKK) Multivariate GARCH model of Baba, Engle, Kroner, Kraft (1995). In the current study, firm-specific volatility of stock returns is estimated as the variance of the residuals of Fama and French Three Factor Model, capturing market factors, portfolio size and portfolio value. Idiosyncratic volatility of stock returns was modelled using the GARCH (1,1) model of Tim Bollerslev (1986)

Capital expenditure is operationalized as capital intensity ratio (CAPIT). Financial gearing is operationalized as the debt-to-capital ratio (DCR) and asset to equity ratio (AER). Profitability is operationalized as Return on Equity ratio (ROE), Price Earnings Ratio (PE) and Earnings per share ratio (EPS). Earnings quality was operationalized as accruals quality ratio. Firm-specific volatility of stock returns was operationalized as the Standard deviation of the residuals from the Fama and French Three Factor Model. The generalized autoregressive conditional heteroskedasticity (GARCH (1,1)) model of Bollerslev (1986) was used to model volatility since it captures the asymmetric pattern in variance and change of magnitude over time exhibited by idiosyncratic stock returns volatility. The conceptual framework in Figure 1.3 above shows that idiosyncratic stock returns volatility for any firm i at any time t is influenced by capital expenditure (CAPIT) for firm i at time t, financial gearing (DCR & AER) for firm i at time t and profitability (EPS, PE, and ROE) of firm i at time t. The influence of these firm characteristics on idiosyncratic volatility of stock returns is moderated by earnings quality (AQ) of firm i at time t.

The study was informed by the Fama and French three factor model (Fama & French 1993) which proposes that a combination of beta, size, and value explained 95% of a diversified

portfolio's return. The Fama-French Three Factor Model has proved to be way above the 70% explanatory power of market beta alone using CAPM. The FF3F model has proved to be a highly useful tool for understanding portfolio performance, measuring the impact of active management, portfolio construction and estimating future return. The study was also anchored on two other theories, the Modern Portfolio Theory (Markowitz, 1952) and Efficient Market Hypothesis (Fama, 1970).

CHAPTER TWO
LITERATURE REVIEW

In this Chapter, the researcher presents a summary of the theoretical and empirical literature reviewed on the effect of idiosyncratic risks and earnings quality on stock returns volatility, both globally and locally. The chapter has been organized as follows: theoretical review, empirical literature, critique of the reviewed literature and summary of literature gaps which were identified.

2.1 Theoretical literature.

This section reviews the theories that shapes the premise, elucidating the relationship that exists between the predictor and response variables. Lewis, Saunders and Thornhill, (2009) posits that a theory is an explanation anchored in proof intended to explain some marvel. A theory consists of a logical set of general propositions that puts meaning to some phenomena by describing the way other set of elements relate to these phenomena (Zikmund et al, 2010). The three theories that underpinned the relationship between idiosyncratic risks and earnings quality on volatility of stock returns are, Efficient Market Hypothesis, Modern Portfolio Theory and the Eugine Fama and Ken French Three Factor (FF3F) model. The theories are discussed below:

2.1.1 Modern Portfolio Theory

The Modern Portfolio Theory (MPT) was proposed by Harry Markowitz (Markowitz, 1952). The theory holds the view that an efficient frontier of optimal portfolios can be constructed to give the highest possible expected portfolio return for any given level of risk. One of the major assumptions of the theory is that investors are risk averse. Risk averse investors will always choose a portfolio with a lower risk over another with higher risk if the two are offering the same expected returns. Therefore, an investor will accept a higher risk only if the increased risk is indemnified by a risk premium in the anticipated returns. All the investors will have the same risk return trade off, but they will evaluate it differently based on how each individual perceive risk and individual risk aversion characteristics. Any investor who desires to hold a portfolio with reduced risk will simply keep a combination of negatively

correlated stocks. That is, investors can greatly minimize their idiosyncratic risk exposure simply by keeping a fully-diversified portfolio of securities. Diversification will ensure that an investor maintains the same portfolio expected returns but at a reduced risk (Markowitz, 1959). Willium Sharpe (1964), John Lintner (1965) and Jan Mossin (1966) separately put forward the Capital Asset Pricing Model (CAPM), which highlighted how investors can calculate the expected returns of a risky asset, considering its sensitivity to the market factors (β). CAPM is a one factor model, just like the MPT model, which makes it more acceptable from a mathematical stand point. Under the assumption of the CAPM, an investor is only compensated for bearing systematic risk since all the idiosyncratic risks are thought to be diversified away (Tran and Nguyen, 2015). However, empirical literature indicates that due to one reason or another, most investors fail to hold a fully diversified portfolio of stocks. Hence, such investors should attract a risk premium in pricing of securities so as to indemnify them for bearing unsystematic risk. This calls for pricing of idiosyncratic risks associated with factors such as idiosyncratic risks and earnings quality on asset prices.

The theory informed the current study in that the researcher held the view that an efficient portfolio may not exist in reality. For some reason, investors may fail to hold an optimally diversified portfolio, thus, investors need to be compensated for bearing both systematic and firm specific risk. In this study, Idiosyncratic risks and earnings quality have been found to be among the major elements of firm specific risk whose information should be impounded in the security prices.

2.1.2 Efficient Market Hypothesis

The Efficient Market Hypothesis (EMH) was first proposed by Eugene Fama (1970). According to the theory, all the available information relevant to the valuation of stocks is impounded in the stock prices at all times. This implies that security prices at all times shows true reflection of all information inherent on the security's anticipated future cash flows and the inherent risks to an investor if he chooses to own such a security. Abnormal returns in the stock market serves as evidence of inefficiencies in the market since they are interpreted to mean that the market has overreacted or underreacted to new set of information (Fama, 1998; Malkiel, 1999). Eugene Fama classified the information elements into three categories based on how fast the elements are impounded in security prices. The three classes include weak

form information Efficiency, semi strong form information Efficiency, and strong form information Efficiency.

The weak form information efficiency suggests that the current security prices in the market reflects all the data from the previous prices and that technical analysis methods cannot consistently yield excess returns. However, it is believed that with the weak form information efficiency, some forms of fundamental analysis techniques may still produce excess returns. The proponents of the weak form efficiency theory hold the view that investors can analyse companies' financial statements, using fundamental analysis techniques, to identify undervalued stocks and overvalued stocks and thereby, increasing their chances of making abnormal profits in the short run. However, abnormal returns cannot be sustained in the long run by using investment strategies based on historical share prices or other historical data. Share prices are not autoregressive, that is, they do not display any serial dependencies, meaning that, there are no "patterns" to asset prices. This means that future price movements can be established purely based on information not available in the current price series. Thus, prices must always follow a random walk. This "soft" EMH does not demand that prices remain at or near equilibrium, but only that market participants not be able to systematically profit from the "inefficiencies" in the market (Fama, 1998; Clerke, Jandik & Mandelker, 2019). Studies on the weak form of EMH in developing markets may first consider the liquidity analysis as it helps to break down market into distinctive segments (Degutis & Novickyte, 2014)

The proponents of the semi-strong form efficiency degree of the theory believe that all publicly available information is rapidly and in unbiased way, impounded in the security's new prices, leaving no room for abnormal returns. Thus, neither technical analysis nor fundamental review of the firm's financial statements could help identify mispriced stocks for any investor to gain abnormal profits in the market. However, investors can still earn abnormal profits by utilizing privately held information which is not readily available to the public. In testing for the semi strong form information efficiency, the adjustments to previously unknown news must be reasonable in size and must be instantaneous. Orderly positive or negative adjustments after the initial change must be sought for. If such changes

are feasible, it will give an indication of biased interpretation of the information, hence, inefficiency (Fama, 1998; Lo, 2007; Mwaolisa & Kasie, 2012).

The strong form information efficiency version of the EMH states that all information, both past and present and also public and private, is fully impounded in the new security prices, and there is no form of information which can give any investor undue advantage over others in the stock market. This means that abnormal returns cannot be earned by any investor trading on the information, regardless of type of information retrieved or research conducted. However, if there are legal barriers to private information becoming public, as with insider trading laws, strong form information efficiency may prove impossible, except in cases where the laws are universally ignored (Fama, 1998; Clerke, Jandik & Mandelker, 2019).

The theory informed this research study in that the researcher holds the view that listed firms' information as regards to corporate investment, financial gearing, profitability and earnings quality represents part of the private information contemplated in the strong form of EMH and which should be quickly impounded in the company's stock price. The legal requirement for publication of audited annual financial statements seeks to break the barrier to information flow. The study has established the need for companies' information on corporate investment, financial gearing, profitability and earnings quality, to be impounded in the security prices such that no investors can be able to trade on this information and earn excess returns, even in the short run. The theory supports the pricing of information related to idiosyncratic risks and earnings quality in relation to volatility of stock returns.

2.1.3 Fama-French Three Factor Model

Eugene Fama and Ken French (1993) fronted the Fama and French Three Factor Model (FF3F) for pricing of securities due to the growing number of scholars providing empirical evidence proving that the CAPM was largely inefficient in explaining expected portfolio returns. Fama and French tried CAPM on a large number of portfolios and concluded that on average, a portfolio's market beta explains about 70% of its actual returns. For instance, if a portfolio was up 20%, about 70% of this return could be explained by the portfolio's

sensitivity to the market (β) and the other 30% is due to other factors not included in the model. The 70% goodness of fit offered by CAPM was good but Fama and French believed that it could be improved further. They developed a more elaborate model incorporating portfolio sensitivity to market, portfolio sensitivity to size and portfolio sensitivity to value factors in determining expected portfolio return. In the FF3F model, market beta remains a significant risk factor since it explains up to 70% of the returns of a well-diversified portfolio. However, portfolio size and portfolio value proved to have significant influence on the portfolio's expected return. Fama and French empirically proved that by incorporating market beta with the portfolio's sensitivity to size and value factors, the three factors accounted for up to 95% of a well-diversified portfolio's expected returns. This leaves only 5% of the portfolio's expected returns to be accounted for by other factors not included in the model. The FF3F model has proved to be an advanced Model with 95% explanatory power compared to the single factor CAPM which has 70% explanatory power with regards to portfolio return.

According to FF3F model, the expected return on a portfolio (excess return above the market return) is modeled as a function of three factors: the excess return on market portfolio above the risk-free rate; the difference between the return on a portfolio of small stocks and the return on a portfolio of big stocks (SMB) and; the difference between the return on a portfolio of high-book-to-market stocks and the return on a portfolio of low-book-to-market stocks (HML). The model can be illustrated as follows:

$$R_{i,t} - R_{m,t} = \alpha_{i,t} + \beta_{i,t}\left(R_{m,t} - R_{f,t}\right) + s_{i,t}SMB_t + h_{i,t}HML_t + \varepsilon_{i,t}\,, \quad \varepsilon \sim N\left(0, \sigma_{i,t}^2\right) \ldots (2.1)$$

where: $\mathbf{R_{f,t}}$ is the risk-free rate, $\mathbf{R_{m,t}}$ is the return on the market for period **t;** $\boldsymbol{\alpha_{i,t}}$ the stock's alpha, or abnormal return at a time **t**; $\boldsymbol{\beta_{i,t}}$ is the stocks' sensitivity to the market return at a time **t**; $\mathbf{SMB_t}$ and $\mathbf{HML_t}$ represent the portfolios' sensitivity to size and value respectively; and $\mathbf{S_{it}}$ and $\mathbf{h_{it}}$ are the coefficients related to each factor. $\mathbf{R_{i,\,t} - R_{m,t}}$ is the abnormal return on the security **i** at time **t** and $\mathbf{R_{m\ t} - R_{f,\ t}}$ is the abnormal return on the market and $\boldsymbol{\varepsilon_{i,t}}$ are the disturbance terms relating to stock ***i*** at a time **t**.

The study was informed by this theory in that if 95% of the portfolio return could be accounted for by the portfolio's sensitivity to the market (β), portfolio size (SMB) and portfolio value (HML). The researcher hypothesized that the remaining 5% could be explained by firm specific risk factors represented by idiosyncratic risks and earnings quality. As a result, in the current study, firm specific volatility was measured as the variance of the disturbance terms (ε_{it}) from Fama and French three factor model. The Generalized Autoregressive Conditional Heteroskedasticity (GARCH (1,1)) model of Bollerslev (1986) was used to estimate volatility since it captures the asymmetric pattern in variance and change of magnitude over time exhibited by idiosyncratic volatility of stock returns.

2.1.4 Capital expenditure

Capital expenditure represents the resources invested by a firm in acquiring, maintaining, or improving fixed assets such as property, plant, equipment, and technology. For purposes of this study capital expenditure was operationalized as capital intensity ratio (CAPIT). The study of Sheridan, Wei and Feixue (2009) concludes that companies that significantly raise their funds meant for corporate investments afterwards attain negative benchmark-adjusted returns. The strength of the negative abnormal capital expenditure/return relationship increases for companies which have greater investment focus, that is, companies which have higher cash inflows and lower gearing, and was shown to be significant only during times of hostile takeovers.

David (2018) defines net corporate investment as the aggregate corporate investments less aggregate depreciation. Financial statements contain all the data for the total funds spent on new investment projects, as well as annual depreciation charge. When firms start new projects, the first year will see a huge initial capital outlay followed by smaller investments in the subsequent years. For purposes of this study, the entire capital expenditure for a particular project is normalized to make it easier in obtaining future cash flows for valuation. The normalization process may involve averaging the capital expenditure for the estimated life of the asset, say 10 years. In cases where R&D is treated as a normal expense, it has to be capitalized to obtain the aggregate capital expenditure. Serial acquirers who involve themselves with huge acquisitions should capitalize these acquisitions to obtain aggregate

capital expenditures. In addition, amortization of R&D expenditures for a particular period has to be added to the depreciation for the period making it possible for the capital expenditures to be linked to stock return volatility within that same period.

Andrea (2009) argues that Capital expenditure decisions ought to be executed at the same degree of accuracy as other cost accounting decisions. Proposed capital projects should be analysed in detail, giving both the timing, initial capital outlay as well as other charges to be incurred during the life of the project. This makes it possible to apportion risk brought about by the capital expenditure to the relevant time period. Capital expenditure decisions involve commitment of huge sums of money and are irreversible, thus, they create a huge impact on the well-being of the firm. The current study has linked capital expenditure of firms to the firm's volatility of stock returns.

2.1.5 Financial gearing

Financial gearing can be expressed as the firm's debt-to-capital (DCR) ratio, representing the degree to which the companies' operations are financed by borrowed funds. Financial gearing for a firm, at any given period in time, can be measured by having the total debt of the company divided by total capital of the company at that period. It can also be expressed as the ratio of the firm's Assets to Equity (AER). Chen et al. (2014) posits a significant and negative stock return volatility-financial gearing relationship, which shows that stock return volatility causes companies to cut on book gearing and market gearing ratios. Thus, such companies tend to show negative growth in their expected profits, and the cost of borrowing for such companies is usually high. This increases the insolvency risks as well as financial distress cost for such companies. Therefore, companies may opt to reduce on their optimal gearing ratios for the purposes of saving themselves from bankruptcy risk, financial distress cost and risk of default. The impact of stock return volatility on financial gearing is negative and persistent (Smith &Yamagata, 2011). During corporate mergers, firms use asset volatility to cause reduction in debt saving them from possible financial distress costs and default making such firms to run their operations smoothly (Levine & Wu, 2016).

Financial gearing decisions have a bearing on bankruptcy risks and they threaten the life of the firms themselves. Thus, the idiosyncratic risks associated with financial gearing contributes to overall idiosyncratic volatility of stock returns. This study relates financial gearing to firm specific volatility of stock returns amongst the NSE quoted firms in Kenya. Past studies have shown that listed firms in Kenya adopts the capital structure which optimizes use of debt financing (Mule & Mukras, 2015). Thus, listed firms in Kenya are not left out when it comes to the threat posed by financial gearing.

2.1.6 Profitability.

Profitability was operationalized as Earnings per share, return on equity and Price earnings ratio. The study of Nathania and Sung (2021) argues that firm profitability positively influences expected stock returns. However, this study fails to make a case on the link between profitability and volatility of stock returns. Luqman and Kusmanto, (2020) concluded that if companies obtained high profits, dividends payouts ratios are also high attracting many potential investors to buy the firms' stocks, and vice versa. Investors will follow this trend only if their only motive is dividend payout.

Teddy, Achmad, Evelyn, Suharti, Irman and Martha (2019) in their study showed profitability variables positively affect stock returns. Di, Liu & Silva (2014) concluded that firm's dividend policy and firm specific volatility of stock returns are significantly and positively related. The study also posited that firm characteristics represented by price-earnings ratio, firm size, gearing, and profitability all have a negative influence on idiosyncratic risks. Firmansyah, Sihombing, and Kusumastuti (2020) concluded that firm size, dividend policy, PER and profitability are negatively related with firm specific stock returns volatility, while companies operating performance and institutional ownership were found not to have any relationship with firm specific stock returns volatility. This implies that profitability risks need to be reflected in security prices besides other firm specific characteristics.

2.1.7 Earnings quality.

The study used Accruals Quality (AQ) as a metric for earnings quality. Accruals quality was measured as the Net Income from operating activities, minus Free Cash Flow, all divided by

Total Assets. This study established the impact of earnings quality and stock returns volatility. It also estimated the influence of earnings quality on idiosyncratic risks and volatility of stock returns. A moderator is described as a variable that influences the direction and/or the strength of the relationship between an exogenous (predictor) and an endogenous (criterion) variable (Baron & Kenny, 1986). Earnings Quality as measured by the Accrual Quality Ratio, was used to identify firms where earnings owed by debtors make up a significant proportion of Total Earnings and the impact this has on stock returns volatility.

The study of Lan and Anh (2016) and Oduma (2015) failed to consider other elements of Earnings Quality like the Accrual's Quality, Earnings Persistence and Earnings Smoothness but only paid great attention to Earnings management. For purposes of this study, accruals quality was used as a measure of earnings quality. First, the influence of earnings quality on stock returns volatility was established. Accruals quality was also used as the variable moderating the relationship between other idiosyncratic risks and stock returns volatility at the NSE.

2.1.8 Firm specific volatility of stock returns.

Company specific risk (Idiosyncratic risk) is the risk inherent to a specific firm and can be reduced if an investor holds a fully diversified portfolio of stocks. However, this diversification does not completely remove specific risks (Scott, 2015; Rohmat, & Amrie 2021). This implies that, both systematic risk and unsystematic risks jointly affect investors' stock returns. Total firm risk constitutes both systematic and idiosyncratic risk (Mathew, 2018; Rasheed, 2019; Shahzad, 2020). Previous literature indicates that investors do not always keep a fully diversified portfolios of stocks due to the following reasons which are grouped into two: Investor characteristics and market characteristics. Investor characteristics include such factors as level of disposable income and level of risk tolerance. In this regard, the degree of investor portfolio diversification varies proportionally with the level of personal endowment (Blume & Friend, 1975; Liu, 2008). Risk-tolerant investors will have a tendency to be overconfident, do excessive trading and hold less diversified portfolios (Odean, 1998; Barber & Odean, 2001). Additionally, Market frictions such as information and transaction cost can also cause investors to under diversify.

Idiosyncratic risks are inherent to a firm as a result of various firm characteristics such as capital expenditure, financial gearing and profitability. Idiosyncratic risks can lead to firm specific stock returns volatility at the bourse. This study considered the effect of idiosyncratic risks posed by idiosyncratic risks and earnings quality on volatility of stock returns at the NSE.

2.1.9 Nairobi Securities Exchange.

Globally, capital markets play a key role in ensuring that businesses get the requisite funding and the owners of capital are well protected and get the return that is commensurate to the amount of risk borne (World Bank report, 2020). An estimated US$ 4 trillion yearly investment is required for the emerging economies to achieve the Sustainable Development Goals (SDGs) by 2030. Considering the huge investment requirement and the Maximizing Financing for Development (MFD) strategy, there is a greater need to develop and equip capital markets to have the necessary capacity to enable counties mobilize for long-term commercial financing through issuance of bonds. Capital markets have a significant role in financing strategic sectors in an economy such as infrastructure development, corporate expansion, and SMEs growth as highlighted in the G20 agenda.

The Kenya's Capital Markets Authority (CMA) was established under the Capital Markets Authority Act (renamed the Capital Markets Act in 2000), which became operational from December 1989. The CMA is responsible for the licensing, regulation and supervision of all operators in the capital markets. The CMA has recently constituted a Capital Markets Advisory Committee. The committee consists of eleven appointed representatives from private-sector organisations, and nine ex-officio members representing the CMA, NSE, and other non-commercial organisations. The mandate of the committee is to act as a forum for discussions between the Authority and stakeholders on all matters pertaining to capital markets. The NSE, which is the only bourse in Kenya, was established in 1954 as a voluntary association of stockbrokers registered under the societies Act. Currently, the NSE has 62 companies with equity listings in four segments; the Main Investment Market Segments (MIMS), the Alternative investment Market segment (AIMS), the fixed-income Market Segment (FIMS) and the Futures and Options Market Segment (FOMS).

The NSE, as a capital market institution, plays a very crucial role in spurring economic development in Kenya. It helps in the marshaling of domestic savings thereby facilitating the redistribution of financial resources from inactive agents to vibrant agents. NSE has increased the liquidity of Long-term investments since it provides a platform facilitating transfer of shares and other marketable securities between stock holders. The NSE also enables listed firms to engage local participation in investment and this gives Kenyans a chance to own shares and enjoy the returns. NSE listed firms can also raise extra long-term finance essential for expansion and development. The NSE trades in both variable rate and fixed rate income securities. Variable rate income securities are the ordinary shares, which have no fixed rate of return at the end of the year. Their returns are based on firm profitability as well as dividend payout policy of the company. The fixed rate income securities include Treasury bills and bonds, Corporate Bonds, Preference shares and Debentures which have a fixed rate of return at the end of the agreed period.

The NSE is an attractive market in Africa due to the positive performance of the Kenyan economy. It has attracted investors who see growth and possibility for making better returns (Muiruri, 2014). NSE has been bolstered by a higher Morgan Stanley Capital International (MSCI) frontier markets portfolio index which is 293.32 against MSCI frontier markets average of 226.17 and this is likely to attract volumes of portfolio and foreign direct investments (MSCI Report, 2022). The MSCI Kenya index is designed to measure the performance of the large and mid-cap constituents. The index covers approximately 85% of the Kenya equity universe. Higher MSCI Index notwithstanding, NSE has witnessed notable levels of volatility in investor returns due to high volatility of stock prices in the bourse (CMA QSB, REPORT 2022). This can be illustrated by the volatility depicted by the trends in NSE 20 share index for the past 8 years between the year 2014 and 2022.

2.2 Empirical literature review.

In this section, the reviewed empirical literature in relation to idiosyncratic risks, earnings quality and volatility of stock returns at the NSE, has been highlighted. The results from the literature reviewed is as presented below.

2.2.1 Capital expenditure and stock return volatility.

Takashi, Kentaro and Clinton (2022) did a study on whether productivity at the company level can be used as a predictor of security returns. The results showed that the idiosyncratic total factor productivity is a significant positive predictor of future stock returns when relevant risk factors are controlled, together with those in the FF3F model. Interestingly, the study found that Risks emanating from research and development (R&D) expenditure accounts for a substantial portion of the predictive power of firm-level Total Factor Productivity, but risks associated with the entire capital expenditure were found not have any predictive power on stock returns. Stocks of firms with high productivity were found to trade at a significant premium compared to stocks of firms with low productivity. The study fell short of linking directly the entire capital expenditure of the firms, measured by CAPIT, and the firm's stock returns volatility. R&D varies between individual firms based on the nature of firms. It is necessary to assess the relationship between entire capital expenditure and volatility of stock returns using evidence from NSE, Kenya

LI, HOU & Zhang (2019) found that firm specific stock returns volatility has a negative relationship with the intangible assets- total assets ratio. This is in line with the theoretical predictions of the IC model. The study went further and built smaller samples by dividing the original dataset considering the firm specific volatility risk factors and the company-level intangible assets-total assets ratio, respectively. Additionally, they established the explanatory power of intangible assets in relation to the firm specific volatility puzzle for firms with company specific volatility and firms with high intangible asset ratios. These scholars did not consider the causality influence of IC investments on firm specific volatility of stock returns. IC does not represent total capital expenditure of the firms.

The study of Erwei, Dominic, Grant and Wenjuan (2020) showed that disruptive adjustment cost and earnings quality moderates capital expenditure- stock returns relationship. Using a

sample of 5,178 publicly listed US firms from 1980 to 2018, they found that Research and Development volatility and stock returns have a negative relationship. The study was moderated by firm size. The researchers concluded that investors of big firms negatively react to the adverse effect of variations to Research and Development expenditures. Investors in smaller firms did not exhibit this kind of reactions. In small firms, the benefit of the governance mechanism of varying Research and Development expenditure to control overinvestment outweighs the cost of disruption. The study used R&D as a measure of total capital expenditure and also did not relate Research and Development to firm specific stock return volatility. The current study has used total capital expenditure (CAPIT) as the predictor variable and firm specific stock return volatility as the response variable. Idiosyncratic volatility of stock returns was modelled using the GARCH (1, 1) model to account for the asymmetric pattern in variance and change of magnitude over time exhibited by idiosyncratic volatility of stock returns.

The study of Ching, Chih, Ruey and Hsin (2022) examined how the news of the issue of convertible bonds affected the firm's stock returns amongst Korean listed firms from 2000 to 2015. Their empirical results showed that the announcement of issue of convertible bonds have significant and positive cumulative abnormal returns (CARs) around the announcement. Higher excess returns were recorded by firms which indicated that the proceeds of the issue were to finance capital acquisition. This indicates that investors react positively to the information about capital expenditure leading to excess returns in the short run. In addition, they found that excess returns are more likely to be positive for smaller firms where information asymmetry occurs more from the new investment opportunities than from the assets-in-place, which is conformity with the generalized Myers-Majluf model (Myers & Majluf, 1984). This study linked bond issues, capital expenditure and abnormal returns but failed to explain the relationship between capital expenditure and overall stock returns volatility. The study used qualitative data with regards to capital expenditure, thus, the relationship between capital expenditure and stock returns volatility could not be determined quantitatively. The current study employs a quantitative approach in determining how capital expenditures and overall stock returns volatility are related at the NSE.

Chih-Chiang and Wei-Peng (2017) assessed how research and development (R&D) expenditures influence idiosyncratic risks in firms. They directed their major focus on research and development expenditures because in many firms, this expenditure is huge and fast-growing as it is aimed at improving the organization's innovativeness. The regression results indicated that research and development expenditures and absolute idiosyncratic risk for firms have a significant and positive relationship. Overall, the adjusted R^2 was 50%, implying that research and development expenditure can account for up to 50% of the firm's idiosyncratic risk. This study considered impact of only R&D expenditure on idiosyncratic risk. The study did not relate R&D expenditure and stock returns volatility nor did it account for volatility asymmetry occasioned by volatility clustering exhibited by idiosyncratic volatility. The current study measured the total capital expenditure as CAPIT and accounted for the asymmetric pattern in variance and change of magnitude over time exhibited by idiosyncratic volatility of stock returns using the GARCH model.

Clark and Shujing (2021) evaluated the moderating effect of growth options on firm investment and firm specific risk when agency problem is completely eliminated. They sampled all listed companies in CompStat with the financial years spanning 1967 - 2017. They eliminated all firms which are domiciled outside the USA and with format codes in 4, 5 and 6. They also eliminated firm–years where huge acquisitions were made. They also excluded companies in the financial sectors, service industries, and government-controlled industries. The final sample had 124,314 data points. They found a negative corporate investments-idiosyncratic risk relationship. Growth options increased the strength of the relationship between investments and idiosyncratic risks. Their results remained robust even after controlling for management risk aversion, implying the significance of firms' optimal investment decisions under uncertainty to explain the negative corporate investment-idiosyncratic risk relationship. This study omitted firm-years with large acquisitions making it a biased study. Despite the fact that the study posits a strong relationship between corporate investment and idiosyncratic risk, it is not clear as to what extent this risk affects idiosyncratic volatility of stock returns.

In summary, the reviewed empirical literature on the relationship between capital expenditure and stock returns shows diverse results. While Erwei et al. (2020) and Clark et al (2021) found a positive relationship between capital expenditure and stock returns, Takashi et al

(2022) found a negative relationship. These studies did not consider capital expenditure as a potential risk that can influence volatility of stock returns. The current study sought to establish the relationship between capital expenditure risk and volatility of stock returns. Chih et al (2017) only linked R & D to firm's idiosyncratic risk. All the studies used R&D as a measure of capital expenditure. R&D varies based on the nature of the firm. Thus, the results could have been more informative if the entire capital expenditure of the firm as measured by the capital expenditure ratio, capital expenditure to depreciation ratio or capital expenditure intensity ratio was considered. The studies of Li et al (2019) and Ching et al (2022) did not directly link capital expenditure to volatility of stock returns and also did not capture the element of volatility clustering. Other studies reviewed were qualitative rather than quantitative and thus, could not measure the magnitude of the relationship between capital expenditure risk and volatility of stock returns. Hence, the current study sought to quantitatively assess the relationship between entire capital expenditure (CAPIT) and volatility of stock returns.

2.2.2 Financial gearing and stock return volatility

Aharon and Yagil (2019) investigated how stock returns volatility relate with financial leverage when both corporate and personal taxes are incorporated. The study used a sample data from the U.S. manufacturing NYSE listed companies. Stock returns volatility was modelled as a function of the companies' financial leverage. Their results showed that volatility of stock returns and financial gearing were positively and significantly related. This positive relationship remained significant irrespective of whether financial leverage was measured in book or market terms, and whether the tax estimates were relatively or absolutely measured. The result also showed that the relationship between stock return volatility and leverage was positive in all of the three theoretical models tested, that is, the perfect capital market, corporate tax model, and both corporate and personal tax model. Finally, the study indicated that when market measures are used, better results in terms of R squared are produced and the difference between the theoretical and actual parameter is reduced. This study modeled stock returns as a function of leverage as given in the Modigliani and Millar (1958, 1963) considering both personal and corporate taxes. The model used in this study did not express volatility as a function of Leverage and as such, no relationship between the two could be established. This model did not capture the asymmetric

pattern in variance and change of magnitude over time exhibited by idiosyncratic volatility of stock returns. This model also did not capture the sensitivity of the stock to portfolio size and portfolio value.

Zhang and Zhou (2020) assessed the influence of gearing structure on various levels of security price synchronization. The study used a sample of firms listed at the Chinese security exchange for a period spanning 10 years (2007 to 2016). The study employed quantile regression model to analyse the data, and the result of the study indicated that financial gearing and stock price synchronicity are significantly and negatively related. The study's primary focus was on stock price synchronicity and did not model volatility in a manner to capture the asymmetric pattern in variance and change of magnitude over time exhibited by idiosyncratic volatility of stock returns.

Byung and Chong (2019) did a study on variance in financial gearing and security returns using firms listed at the Korean stock market. The results indicated that the security returns of companies having high financial gearing volatility, falling under different size groups, flow together over time. This is an indication of the presence of a financial gearing volatility factor. The factor earned a significant, negative risk-premium of −1.08% monthly over the sample period covering 13 years. However, the factor return was negatively affected by declining financial market conditions. In addition, the cross-sectional relation between capital structure volatility and stock returns is also negative presenting another pricing puzzle in the stock markets. This study did not solve this puzzle since it did not relate capital structure to volatility of stock returns. This study also did not consider stock returns' sensitivity to portfolio size and portfolio value.

Waasafi And Haneen (2016) did a study examining how capital structure and stock returns relate. They used a sample of industrial firms listed in the Jordan stock market for a 7-year period ranging 2007–2014. They controlled for variables including growth opportunities, firm size, liquidity and profitability. The regression results indicated that the capital structure-stock returns relationship was statistically significant and negative. The study did not capture stock returns' sensitivity to market, portfolio size and portfolio value. The study did not

capture variance of stock returns and volatility clustering associated with stock return volatility.

Zeeshan and Daw (2018) did a study investigating how stock return volatility relate with different financial gearing measures of non- financial firms. The study used data from firms listed at the Karachi Stock Exchange for a period spanning 14 years, from 2001 to 2014. They employed a dynamic panel model and the findings indicated that volatility of stock returns can be significantly negatively linked to book gearing and long-term market gearing ratios. They concluded that firms significantly reduce their debt financing to minimize stock returns volatility so as to avoid possible consequences of default. In this study, financial gearing was the dependent variable while the stocks return volatility was the independent variable. Stock return volatility was estimated using residuals of CAPM, the single factor model which did not capture stock returns' sensitivity to portfolio size and portfolio value. The sample data only contained non-financial firms which easily face liquidity challenges and higher risk of default.

Shalaby, (2020) conducted a study to establish how financial gearing relate with stock returns amongst listed firms across the Arab stock markets including Amman, Egyptian, Kuwait and Tadawul stock markets. The study used the Capital Asset Pricing Model (CAPM), the Fama and French 3-factor (FF3F) model and the Fama-French 5-factor (FF5F) model to test the relationship between financial gearing and stock returns. The results indicated that gearing change and gearing level do not significantly relate with stock returns for listed firms in all countries included in this study. The findings of this study contradict those obtained by other scholars such as (Aharon & Yagil, 2019; Waasafi & Haneen 2016). Further study is required to ascertain the source of the contradiction. The study did not consider volatility of stock returns, hence, did not ascertain the extent to which financial gearing can influence volatility of stock returns. This study also could not capture the element of volatility clustering common with stock returns.

Rizal, Amrie, Dani and Ahmad (2022) examined the relationship between financial gearing and firm specific risk in Indonesia. Integrated reporting elements were included to moderate

the study. The study sample consisted 450 manufacturing firms listed on the Indonesian stock exchange between 2016–2020, selected using purposive sampling. The study findings indicated that financial gearing and idiosyncratic risk are positively related ($\beta = 0.06; p = 0.0022; R^2 = 0.0283$). The study also indicated that integrated reporting positively moderates financial gearing and idiosyncratic risk ($\beta = 0.8811; p = 0.0032; R^2 = 0.4189$). This study only used DER to measure financial gearing. The study identifies financial gearing as an element of idiosyncratic risk but did not go further to establish how financial gearing and stock returns volatility relate. Additionally, the findings of this study could be biased since only firms in the manufacturing sector were considered with exclusion of all firms in other sectors of the economy.

Richard, Ivan and Ralf (2015) assessed the role financial gearing in stock returns-idiosyncratic risk relationship using a sample of real estate firms depicting characteristically high debt levels. The results from regression analysis indicated that firm specific risk and stock returns are significantly and negatively related (β = -0.2395 and p = 0.0000). This is further re-affirmed when both market risks and idiosyncratic risks are included as the predictor variables besides the gearing metric (DER). The financial gearing variable is significant at the 95% level of confidence and does not weaken the relationship idiosyncratic risk has with stock returns. This study only used financial gearing as a control variable. The study could not, therefore, establish with clarity how financial gearing and stock returns volatility relate.

Mohammad, Kamruddin, Tarana and Rahat (2015) assessed the relationship between financial gearing and size of market for sampled stocks on stock returns. The gearing for the sampled companies was obtained from audited financial statements for 4-year period (2008-2012). The study sample consisted five firms undertaking manufacturing activities, listed at the Dhaka Stock Exchange. The study findings indicated that financial gearing and stock returns are significantly and negatively related when the overall industrial data is used. Nevertheless, the findings are not stable when individual firm's data is used. 80% of the firms selected indicated that firm's financial gearing and stock returns are negatively related. One firm had a positive relationship between gearing and stock returns. The researcher also found the relationship between firm size and stock returns to be positive and significant. The value

of R^2 obtained for the study was R = 0.756 suggesting that the predictor variables, financial gearing and firm Size, accounted for 75.6% of the total stock returns volatility. The study sample only consisted of only 5 firms from the manufacturing sector and its findings could be biased. This study did not relate financial gearing to volatility of stock returns. The study also did not explain the source of the contradiction in its results where some firms posited negative results while others posited positive results in the same sector.

Muturi, Kinoti and Oluoch (2019) did a study to determine how firm characteristics affect stock returns of non-financial firms listed at the NSE-Kenya. Idiosyncratic risks, which formed the predictor variables in this study include Cash flows, financial leverage and Firm size. Stock returns formed the response variable. This was a census study, where data was collected from all the 44 non-financial companies listed at the NSE between the years 2008 to 2016. Panel regression analysis was conducted to test the study hypothesis. The results of the study indicated that both cashflow and financial leverage have significant effect on stock returns of non-financial firms listed at the NSE. The results further indicated that size of the enterprise significantly and positively influences the relationship between gearing and cashflow on stock returns. The study did not link financial gearing to stock return volatility.

A majority of the studies reviewed have directed their focus on financial gearing in relation to stock returns and stock price asynchronicity. Aron and Yagil (2019) found a positive financial leverage-stock return relationship; Zhang et al (2020) found a negative relationship between financial gearing and stock price asynchronicity; Byung et al (2019), Waasafi et al (2016) and Mohammad et al (2015) all posited a negative relationship between financial gearing and stock returns. Zeeshan et al (2018) used financial gearing as a dependent variable with volatility of stock returns as independent variable positing a negative relationship. These studies have linked financial leverage and stock returns. They did not consider the risk posed by the entire financial gearing on stock returns volatility. Most of the previous Studies have not even analyse the influence of financial leverage on stock returns volatility. The current study sought to evaluate the relationship between financial gearing and volatility of stock returns amongst firms listed at the NSE. The studies which have directly linked Financial Gearing and stock return volatility are contradictory in nature. The current study endeavoured to determine the source of the contradiction and contribute to the existing literature using data

from the Kenyan capital market-NSE. This study aims to establish how financial gearing (measured as DCR and AER) relate with stock returns volatility using evidence from the Kenyan capital market.

2.2.3 Profitability and volatility of stock returns

Nathania and Sung (2021) analyzed the influence of Profitability on Expected Stock Return amongst firms listed in the stock markets in the ASEAN countries. The study sampled 1,010 companies listed in ASEAN countries for ten years between 2010 to 2019. Time series regression analysis was conducted and the result indicated that profitability is significantly and positively related with stock returns in all the stock markets in ASEAN. The regression analysis confirmed that company profitability (ROE and ROA) significantly and positively affects stock returns amongst firms in the ASEAN equity markets. In this study, the link between profitability and volatility of stock returns was not adequately analysed. The study also made use of only two profitability metrics while ignoring others like EPS, PER and ROE. The study also failed to capture the elements of volatility clustering.

Luqman and Kusmanto, (2020) undertook a study to establish the factors influencing stock returns amongst firms in the Mining sector in Indonesian Stock Exchange. The study aimed to establish the individual or joint implication of Bank Certificate, forex rate, cash flow from operations, liquidity and net profit on stock returns. The study sampled 12 firms, in the mining sector, from the entire 40 firms listed on the IDX. This study employed fixed effects panel regression model (FEM) for data analysis, with the help of Econometric-views application. The result showed that net profit positively and significantly influences the Stock returns. They concluded that increased profits lead to increased dividends payout to investors which has an effect locking in the investors as well as attracting new potential investors. The converse is also true, that depressed profits will lead to reduction in dividend payout to investors who will end up disposing the firms' stocks for alternative investments. This may result in the decline in the companies' equity prices in the long run due to drop in demand the same. However, not all investors are motivated by profits to invest, as the study suggest, but rather by wealth creation through capital gains. Stock return volatility was not captured in

this study and the sampling technique used was biased and therefore, the findings of the study could also be biased.

Teddy, Achmad, Evelyn, Suharti, Irman and Martha (2019) conducted a study whose purpose was to evaluate the determinants of financial gearing, profitability and stock returns. The study also established how financial gearing, profitability and stock returns relate. The predictor variables in this study constituted financial gearing, profitability and stock returns, whereas the response variables constituted company size, expansion opportunity, asset tangibility, working capital, stock returns volatility and uniqueness. 64 firms were sampled from a population comprising of firms listed on the compass index 100 in the month of August 2016. To analyse the data, path analysis technique was employed with help of AMOS software. From the results obtained, the researchers concluded that only profitability variables had an effect on stock returns. Financial gearing, corporate size, expansion opportunity, asset tangibility and working capital did not relate significantly with stock returns. Financial gearing was influenced only by expansionary opportunities, while other variables had a statistically insignificant relationship. Profitability was affected by corporate size, expansionary opportunities, uniqueness and stock returns volatility. Even though the study findings show a relationship between volatility and profitability, the study focused more on the determinants of profitability as opposed to stock returns volatility.

Firmansyah, Sihombing and Kusumastuti (2020) did a study on the factors influencing firm specific stock returns volatility in Indonesia banking industries. The result indicated that corporate size, dividend policy, PER and profitability are negatively related with firm specific stock returns volatility while companies operating performance and institutional ownership were found not to have any relationship with idiosyncratic stock returns volatility. Other firm fundamentals such as capital expenditure, financial gearing and profitability were not considered in this research. The researchers also considered only firms in the banking industry and the results could not be generalized to firms in other sectors.

Paulus and Irvan (2018) did an analysis on how profitability relate with stock returns. They also analyzed the influence of inflation on profitability and stock returns. Metrics for profitability included ROA, ROE and Net Profit Margin (NPM). The study sampled 12

automotive firms which were continuously listed for the period 2013- 2017. Panel data regression analysis was used to test the study hypothesis. The findings indicated an Adjusted R-squared of 0.153836, which implied that the magnitude of the effect of the predictor variable, with inflation as moderator, on the response variable that could be accounted for by the model was 15.38%. While the remaining 84.62% was as a result of other variables not incorporated in the regression model. The researchers concluded that ROA is positively and significantly related with stock returns, ROE negatively and significantly related with stock returns and NPM had no significant influence on stock returns. ROA moderated by inflation had a negative influence on stock returns. ROE, moderated by inflation had a significant and positive relationship with stock returns while NPM moderated by inflation does not have any significant influence on stock returns. The regression model's goodness of fit was too low at 15.38%, an indication that profitability is not a good predictor of stock returns as it can only account for 15.38% of the stock returns, leaving a larger percentage of the returns to be determined by other factors not included in the model.

Bin, Amalia and Ashton, (2014) did an examination on how stock fundamental ratios and firm specific volatility relate amongst firms listed at the Australian Securities Exchange between 1993 and 2010. The portfolio analysis results showed that companies with high firm specific volatility tend to have a small corporate size and low value. The regression analysis results indicated that dividend yield was positively related to firm specific volatility. Price to earnings ratio and return on equity are negatively related to the firm specific volatility. The relationships between the firm specific volatility and the stock fundamental ratios remained robust in presence of size, but it is not known whether this robustness will hold in the presence of earnings quality.

Cheruiyot, Olweny and Irungu (2020) examined the Influence of Earnings per Share on firm specific stock returns volatility amongst NSE Listed Firms. The study was quantitative with a correlational research design. It was a census study targeting the entire 39 NSE listed companies that existed at the time and their stocks actively traded at the NSE from the year 1998 to 2017. Dynamic panel regression analysis was conducted to test the study hypothesis. The findings indicated that EPS was significantly and positively related with stock returns volatility ($\beta = 0.001$, $p=0.027$). This was supported by F statistic of 4.89 and a t statistic of

2.210 which were greater than the critical F and critical t of 1.96. The findings showed existence of positive and significant relationship between EPS and firm specific stock returns Volatility at 95% confidence level. The R^2 was 0.3133 an indication low prediction ability of the model. This study estimated volatility as the variance of the residuals of the CAPM, the single factor model, which only took care of the market factors (β) but not portfolio size (SMB) and portfolio value (HML). Despite the fact that the researcher used a dynamic panel regression model, the model did not account for serial autocorrelation exhibited by firm specific volatility of stock returns. The study covers the period 1998 to 2017, but the author has ignored the confounding effect of the global financial crisis of the year 2008 ending in 2009 as well as the political turmoil around the study area within the same period. This study also failed to include other metrics for profitability as well as other idiosyncratic risks in evaluating their influence on stock return volatility. Finally, this study evaluated the influence of profitability and firm specific stock returns volatility but could not establish the influence of earnings quality on the same relationship.

Empirical studies reviewed show contradictory results for the relationship between profitability and stock returns. Weak and contradictory results have been posted and the resulting models are also weak. Past studies have used DPS or EPS as metrics for profitability. The current study used P/E and ROE as metrics for profitability besides the EPS. Past studies have also estimated volatility using the residuals of the CAPM, the single factor model, which could not take care of portfolio value factors and portfolio size factors. Finally, past studies have estimated volatility without accounting for the asymmetric pattern in variance and change of magnitude over time exhibited by idiosyncratic volatility of stock returns.

2.2.4 Earnings Quality and stock return volatility.

There is an ongoing debate in the fields of accounting and finance on whether idiosyncratic stock return volatility is as a result of idiosyncratic risk or Noise (Ranjan M. 2016). The way and how earnings quality relates to idiosyncratic stock returns volatility has been linked to this debate. Claudia & Antonio (2018) did a study to establish how earnings quality influences volatility of stock returns. The major objective was to evaluate how performance

of accrual-based measures of earnings quality relate with firm specific stock returns volatility. In the study the major predictor for firm specific volatility was volatility of discretionary accruals (accruals quality). The study used a sample of LSE listed firms in the UK. The study indicated that the volatility of discretionary accruals significantly relates with idiosyncratic stock return volatility. This relationship remained significant when other metrics for earnings quality, such as dispersion in analysts' forecasts and the innate accruals quality, are used. The study found that dispersion in analysts' forecasts positively moderated the influence of discretionary accruals, and the innate accruals on idiosyncratic volatility of stock returns. Their results were in line with the noise-based approach of firm specific stock returns volatility. The study did not control for other idiosyncratic risks. Also, the study did not account for sensitivity of the portfolio to size and value factors.

The study of Cerquera (2018) independently investigated the association of earnings quality and idiosyncratic stock returns volatility for firms sampled from the LSE, UK. The aim was to determine whether accruals quality can be used by capital market investors as a good indicator of earnings quality. Panel regression model was used to established that poor accrual quality significantly causes a higher idiosyncratic stock returns volatility. The significance of the relationship held even when other measures of earnings quality like the dispersion in analysts' forecasts, the innate component of accruals quality, which reflects the uncertainty about the nature of the firm's business and the discretionary component of accruals quality, which is related to managerial discretionary choices, were incorporated. Based on the findings of this study the current study uses accruals quality as a measure of earnings quality.

Brent and Xuan (2020) investigated the effect of stock price movement on Real Estate Investment Trusts' earnings management. They collected data for all listed REITs covered in the SNL REIT for a 16-year period (1990-2006). The study evaluated whether managers' decision to engage on earnings management is influenced by information on firm specific volatility of stock prices. The study findings were in conformity with EMH, that stocks of the firms engaging in earnings-management are not in any way mispriced compared to those which are not. Additionally, when the researchers used firm specific stock return volatility to measure private information impounded on security prices, they posited that negative real

earnings management, which makes the REITs able to outwit the compulsory requirement for dividend payment, can be linked to the greater information impounded in REITs security prices. This result suggests that information impounded in security price asynchronicity provides an incentive to REIT managers to more actively get rid of regulatory costs. This study evaluated how earnings quality is influenced by asynchronicity of stock prices. The current study has examined how earnings quality influences stock returns volatility.

Manish, Asgar and Bhawna (2020) did an investigation on how earnings quality (real earnings management) relate with the cross-sectional stock returns for stock of listed firms at Bombay stock exchange, India. Market risk factors, size risk factors, value risk factor and momentum risk factors moderated the study. A sample of 3,085 listed firms was selected and monthly data for the stocks was collected for a period of 20 years, from January 2000 to December 2019. Real earnings management was estimated using constructs established by Roychowdhury (2006), which include excess levels of cash flows from operations, cost of production and discretionary expenditure. The study made use of univariate and bivariate portfolio-level analysis. The empirical results indicated that investors view the downward trend in real earnings management as a component of idiosyncratic risk, thus, stocks are priced at a premium to compensate for the risk. The study findings indicated that investors view the upward trend in REM positively, hence, willingness to hold stocks even at a lower rate of return. These results have significant applications in management in establishing risks associated with earnings quality and the implications on stock returns volatility. This study did not evaluate the implications of earnings quality on stock returns volatility in the presence of capital expenditure, financial gearing and profitability.

Prodosh (2021) did a study to establish how accrual mispricing and value-at-risk relate with expected stock returns for NYSE listed firms, US. The study investigated the extent to which value-at-risk (VaR) moderates the relationship involving accruals quality and variance of expected stock returns. In this study, portfolios were built based on Sloan's total accruals (TA) measure and individual asset-level VaR, which depicts the dynamic behavior of the asset distribution. He documented that VaR is in congruence with portfolio-level accruals and that there is a significant positive relationship between VaR and the cross-section of portfolio

returns. Allowing a double-sort involving VaR and TA further suggests that the spread between low- and high-TA portfolios is significantly attenuated after controlling for VaR. He also conducted a firm-level cross-sectional regression analysis and demonstrated that the TA- and VaR-based characteristics are compensated with higher expected returns, and that VaR neither subsumes nor is subsumed by TA. Finally, His cross-sectional decomposition analysis suggested that the firm-level VaR captures at least 7% of the accrual premium even in the presence of size and book-to-market. These findings lend support for the mispricing explanation of the accrual anomaly. No direct link between earnings quality and stock returns volatility was established in the study.

Ranjan (2016) did a study to investigate how earnings quality associate with idiosyncratic equity return volatility using data from Japanese listed firms. A large number of manufacturing firms were sampled, and their data collected for the period 2003-2012. This content analysis research employed idiosyncratic volatility and stock returns variance as two equivalent metrics for idiosyncratic volatility of stock returns, to assess its link with earnings quality. The study results indicated that using firm specific return volatility and equity return variance as two equivalent proxies for idiosyncratic stock return volatility, the author came up with contradicting findings. The author associates this incongruity to the ongoing debate in accounting and finance literature on whether idiosyncratic stock return variance is due to idiosyncratic risk or noise. At the beginning, the author obtains contradictory findings due to the market risk. Up on controlling for the systematic risk, the results indicate that increased earnings quality is associated with decreased idiosyncratic equity return volatility. The author went further to break earnings quality into innate accruals component, which is driven by economic factors and discretionary accruals, which is driven by managerial characteristics. The findings indicated that both components significantly related to idiosyncratic equity return volatility though the innate accruals showed a significantly stronger influence compared to discretionary accruals. The study does not answer the question whether earnings quality can moderate the relationship between capital expenditure, gearing and profitability on firm specific stock returns volatility. The study also uses a large sample of manufacturing firms begging the question whether the findings can hold for non-manufacturing firms. Tokyo stock exchange is highly advanced; thus, these findings may not hold for an emerging or frontier market.

Rohmat and Amrie (2021) analysed the relationship between earnings quality, measured using two metrics - accrual earnings management (AEM) and real earnings management (REM)-with aggregate risk and company specific risks in Indonesia. This research study embraced a quantitative design making use of secondary data obtained from audited accounting statements and equity market prices of garment making firms listed at the Indonesian securities exchange for the period 2015 to2019. Using purposive sampling, the researchers picked 75 firms. For data analysis, multiple regression analysis involving panel data was employed to test for study hypothesis. The findings of the study indicated that accrual earnings management was statistically significant and negatively related with both total and firm specific risk, but real earnings management was statistically significant and positively related with both total and firm specific risk. The study concluded that AEM, which is undertaken by managers for efficiency purposes, does not constitute idiosyncratic risk. The authors suggested that the Financial regulatory authorities needed to come up with policies aimed at protection of investors in Indonesia. They also advised investors to make decisions considering information about the firm's operating cash flow generating ability and share price trends in recent years. This study did not relate accruals quality to idiosyncratic volatility of stock returns.

The study of Dang and Vu (2020) assessed the influence of Earnings Quality (EQ) on stock returns of Vietnamese listed firms. The study covered the period 2010 to 2018. Generalized least squares (GLS) regression analysis was embraced in testing for the study hypothesis. Companies' EQ was comprehensively measured using all possible metric of measurement. The study results indicated that EQ, measured using four metrics; Earnings Management (EM), Earnings Persistence (EP), Earnings Smoothness (ES) and Earnings Volatility (EV), all are statistically significant and have a positive relationship with stock returns. On the other hand, EQ, measured as accruals quality (AQ), was found to have a negative influence on stock returns. The study also revealed that the scale of operation had a negative but statistically insignificant relationship with stock returns. Based on the results of the study, the authors recommended that investors need to take into account the accounting information related to accruals quality of the business as such information has a bearing on stock returns. Firms need to make full and timely disclosure of all material facts in accounting statements to

enable investors to use the same for investment decisions. Besides, the results indicated that the scale of operation does not significantly influence stock returns, thus, the researchers recommended that businesses should direct their focus on improving working capital management and business efficiency rather than pursuing unnecessary expansions activities. This study did not establish the link between the metrics of earnings quality and stock returns volatility.

Mahdi, Masomeh and Shayan (2017) studied the influence of financial reporting quality on stock returns of Iranian listed firms. The study used earnings quality as a metric for financial reporting quality. The goal of the study was to evaluate the influence of financial reporting quality (measured by earnings quality) and the quality of their financial information disclosure on stock returns amongst firms listed at the Tehran Stock Exchange (TSE), Iran. To test for the study hypothesis, Panel data regression analysis was employed. A total of 280 firms were sampled, yielding 1680 firm–year observations, from TSE listed firms for the period 2009–2014. The researchers controlled for severe multicollinearity in their ordinary least squares, by conducting the variance inflation factor. They also used the LLC unit root tests to ensure normality of the individual series of the study variables. The study results indicated that a statistically significant and positive association exist between firms' earnings quality and their stock returns. Nevertheless, the study findings suggested that earnings management and disclosure quality are not significant predictors of a firms' equity return. The study was limited in that, the researchers did not test the predicting ability of all the idiosyncratic factors on stock returns. Factors such as the idiosyncratic risks and operating environment which could influence stock returns were not analysed, thus, the results were not robust enough. Additionally, there are several methods which have been adopted by different scholars for measuring earnings quality and each could give a different result if adopted in the study.

The study of Mohamed and Hatem (2018) evaluated the influence of Earnings Quality on equity performance of stocks of firms listed in the Egyptian security market. The study examined the effect of three determinants - idiosyncratic volatility, earnings management and corporate governance - on the firm performance with earnings quality as an intermediate variable. The study sample included the EGX30 share index during the time frame 2010-

2017. Descriptive statistics and structure equation modeling techniques were employed in the study. The study examined all the components including, corporate governance, earnings management and the idiosyncratic equity return volatility in relation to the firm's earnings quality. The findings indicated that there is a positive interrelation amongst all the variables, save for earnings management that portrayed a negative relationship with the earnings quality. This study did not account for the confounding influence on the study findings occasioned by the toxic political environment in Egypt over the study period. Hence, the validity of the study findings cannot be ascertained. The study related stock return volatility with firm performance with earnings quality as a moderator. The study did not identify the determinants of stock return volatility.

Nyanine, Josue, Odunayo and Bomi (2022) studied the link between Earnings quality metrics and equity return volatility using data from the firms listed at JSE for 10 years between 2009 and 2018. Earnings quality was operationalised as accrual quality (AQ), conservatism, earnings persistence (EP), earnings predictability (EP) and earnings smoothness (ES). Idiosyncratic volatility was estimated as variance of residuals of the CAPM. Hypothesis testing was done using hierarchical linear regression model. The findings indicated that accrual quality and idiosyncratic stock returns volatility are significantly and negatively related. The relationship remained unchanged even when earnings persistence was used as a metric for earnings quality. Companies having high value accruals quality and those firms which have more persistent earnings presented decreased idiosyncratic stock returns volatility. The result also indicated that the earnings smoothness significantly and positively influenced firm specific stock return volatility, implying that companies with less smooth earnings showed increased idiosyncratic equity return volatility. However, other metrics like the conservatism and earnings predictability did not significantly influence equity return variance. The contradictory findings of this study supported the noise and information perspective to explain the stock return variance amongst JSE-listed companies. This study only accounted for the market risks by making use of the residuals of the CAPM but did not account for size and value risk factors.

In Kenya, Oluoch, Namusonge, and Onyango, (2015) evaluated the influence of accruals quality on stock returns amongst NSE listed firms in Kenya. The study adopted both

qualitative and quantitative research designs in determining the pricing influence of accruals quality amongst listed firms in Kenya. Purposive sampling was used in the study to select 39 firms from among all the 60 NSE listed firms in Kenya. The study covered a 20-year period between January 1993 to December 2013. Relevant secondary data on accrual quality was obtained from audited annual financial statements of each firm while NSE hand book provided monthly equity market security prices. Panel data regression was used to test the study hypothesis. Accruals-based portfolio decile premiums were regressed together with the Fama and French (1993) market factors on excess returns to test the statistical significance and ascertain whether and how accruals quality is priced in the security prices of equities of NSE listed firms. The results indicated that amongst NSE listed firms, much of the accruals quality consists of innate accruals with the level discretionary accruals being largely and statistically insignificant. The study further showed that because of the existence of accruals quality risk in the NSE market, there is a market return premium to compensate investors for bearing the risk. The findings also indicate that the security market returns are inversely proportional with the market returns. The study concludes that accruals quality is an idiosyncratic information risk factor in the Kenyan capital market. However, the study did not statistically estimate the quantitative impact of accruals quality on stock returns volatility.

Paulo (2019) examined the relationship between Corporate Governance, Earnings Quality and Idiosyncratic Crash Risk during the 2007-2008 Financial Crisis. The study explored the time-varying nature of the association between financial disclosure quality, corporate governance, and crash risk. Their empirical design took advantage of the 2008 financial crisis as a sudden and negative exogenous shock that affected overall trust in capital markets. This near-natural experiment enabled the examination of the influence of accounting quality and corporate governance on abnormal crash risk arising during distress periods, using a sample of 1,361 firms from developed countries. While pre-crisis accounting opacity fueled the abnormal component of crash risk associated with the crisis, corporate governance practices had virtually no effect. Their findings are consistent with the notion that pre-crisis accounting quality has predictive power over the abnormal component of crash risk. They concluded that perceived integrity compounded by firms by way of financial disclosure quality bolsters investor confidence in the firms' financial information during a crisis, thereby attenuating crash risk.

Anaekenwa, Samuel and Nwaobia (2019) evaluated the potency and value relevance of earnings persistence (EPERS) and its influence on firm performance and the implications of the analysts' accurate forecast ability from the Nigerian capital Market. The study employed the expo facto research design and sampled 51 companies listed on the Nigerian Stock Exchange using stratified random sampling techniques from all the sectors for the period 2000-2016. Descriptive and Panel data regression analysis were used in the analysis of the effect of earnings persistence on firm performance. The findings showed that earnings persistence (EPERS) had a negative and non-significant effect on firm performance (Tobin's Q). Gearing exhibited a positive relationship whereas firm size revealed a negative relationship with Tobin's Q. Also based on findings, a weak growth trend was established between EPERS and Tobin's Q. Earnings persistence resulting from discretionary and opportunistic earnings could give inaccurate forecasting ability. Consequently, the study recommended that analysts should be watchful of the stable occurrence of earnings when evaluating reported financial statements, without which, predictions made from them could have negative and misleading implications. The study did not relate earnings persistence to firm specific volatility of stock returns. Other measures of earnings quality such as accruals quality were also not considered in the study.

The empirical studies reviewed are inconclusive on how earnings quality will affect stock return volatility but have rather linked earnings quality to stock returns. Empirical studies have also not examined how quality of financial statements, measured by earnings quality, influences the relationship between capital expenditure, financial gearing and profitability on volatility of stock returns.

2.2.5 Earnings quality and the relationships between idiosyncratic risks and volatility of stock returns.

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Nguyen, Le, Tran & Dang (2021) did a study on Financial Reporting Quality, Corporate Governance, and Idiosyncratic Risk: Evidence from a Frontier Market. They provided empirical evidence on the impacts of financial reporting quality and corporate governance

mechanism - two firm-level determinants that are strongly affected by the unique market setting and regulatory framework in emerging/frontier markets - and idiosyncratic risk in Vietnam. Utilizing different panel data analysis techniques, they found high-quality financial reports can mitigate firm-specific risk. Firms with high state ownership tend to have lower idiosyncratic risk too, implying the monitoring role of the government. They also documented a positive link between board size and firm specific risk. This result indicates that earnings quality which are determined by the quality of financial reports can exert an influence on the effect idiosyncratic risks such as capital expenditure, financial gearing and profitability have on volatility of stock returns.

Domingues, Cerqueira, Brandão (2015) did a study aiming to verify if the financial reporting quality, proxied by earnings quality, an accrual-based measure, has an impact on idiosyncratic return volatility, using as sample the firms listed on London Stock Exchange, and comprising the period between 1988 and 2015. To account for the robustness of their results, they used several control variables, such as leverage, size, ratio book- to-market, firm age and firm performance. they concluded that earnings quality has a positive impact on idiosyncratic volatility, meaning that poorer information quality implies higher idiosyncratic volatility. Posteriorly, they extended their study to a trend analysis, asking if the earnings quality behaviour was related with the idiosyncratic volatility trends. they proved that idiosyncratic volatility did not have a constant upward trend, instead it behaved like ebbs and flows. they found that earnings quality had an impact, albeit small, in the overall trend of idiosyncratic volatility, and also explained its episodic behaviour. This evidence indicates that earnings quality has an effect on idiosyncratic risks which in turn affect idiosyncratic volatility of stock returns.

Yuni, Mandiri and Jalan (2022) did a study to examine whether idiosyncratic risk significantly affects earnings quality in non-financial companies listed on the Indonesia Stock Exchange. Research on developing countries, especially Indonesia, which links idiosyncratic risk and earnings quality, had not been widely conducted at the time. This study used the dependent variable of earnings quality, which was the residual value of the Kasznik and Dechow– Dichev model, and idiosyncratic risk, which was measured based on the Capital Assets Pricing and Fama–French models. The overall results indicated that high idiosyncratic

risk was associated with low earnings quality (large residual value). Robustness tests are also conducted based on groups of positive and negative profit companies, as well as industry groups. The same results were obtained for each earnings component, namely, innate and discretionary factors.

Rizal, Amrie, Dani and Ahmad (2022) examined the interconnect between financial gearing and idiosyncratic risk in Indonesia. Integrated elements were used as a moderating variable in the study. The findings of the study indicated that financial gearing positively affects idiosyncratic risk ($\beta = 0.06; p = 0.0022; R^2 = 0.0283$). Also, this study suggests that integrated reporting strengthens the positive effect of financial gearing on idiosyncratic risk ($\beta = 0.8811; p = 0.0032; R^2 = 0.4189$). The current study used earnings quality as a moderator in the relationship between financial gearing and firm specific stock returns volatility.

Hoyoung and Hyunmin (2017) evaluated the connection between voluntary disclosure and information asymmetry of the firms listed at the Korea Stock Exchange from 2011 to 2014. The study also sought to determine the extent to which this relationship is influenced by accruals quality since Korea adopted International Financial Reporting Standards (IFRS) in 2011. The results of the study indicated that the link between voluntary disclosure and information asymmetry is statistically significant and positive according to priori expectation. The study indicated that sampled Korean firms which had a high voluntary disclosure experienced higher daily stock return volatility and less trading volume, suggesting that firms tend to disclose biased information to the outside, which was in line with previous studies in Korea. Secondly, the accruals quality, the moderator, was found to have a statistically significant and negative moderating effect on the relationship. Thus, they concluded that high accruals quality triggers more voluntary disclosure causing decline in information asymmetry. These results suggested that accruals quality provides a mechanism which reduces the negative effect of voluntary disclosure on information asymmetry after the adoption of IFRS in Korea. In this study, earnings quality was used to moderate information disclosure and information asymmetry variables. The current study sought to use earnings quality to moderate the interconnect between idiosyncratic risks and firm specific volatility of stock returns using evidence from NSE.

Mitra (2016) investigated the cross-sectional association between earnings quality and firm-specific return volatility for a large sample of Japanese manufacturing firms for the period 2003-2012. Using idiosyncratic volatility estimated as the variance of residual from the market model and asynchronicity estimated as the inverse R^2 from the market model as two seemingly comparable proxies for firm-specific return volatility, and after controlling for the market risk, he found that higher earnings quality is associated with lower firm-specific return volatility. Earnings quality was an independent variable. In the current study, earnings quality was used as a moderating variable in the relationship between idiosyncratic risks and volatility of stock returns at the NSE.

Claudia and Antonio (2018) analysed used accruals quality as a measure of earnings quality in determining the likely relationship existing between earnings quality and firm specific volatility of stock returns. They used discretionary accruals as the only as the main explanatory variable for firm specific stock returns asynchronicity. The study sample consisted of all UK firms listed on the LSE and the findings indicated that volatility of discretionary accruals is statistically significant and positively associated with firm-specific stock return volatility. This association also holds for other measures of the quality of information environment, such as the dispersion in analysts' forecasts, the innate component of accruals quality and the discretionary component of accruals quality. They also found that adding the dispersion in analysts' forecasts increases the explanatory power for idiosyncratic volatility of the remaining measures of the quality of the information environment. Analysts' forecast was used as a moderating variable. A Component of earnings quality was used as a moderator in the current study.

The study of Mohamed and Hatem (2018) evaluated the influence of Earnings Quality on the stock performance of listed firms in the Egyptian stock market. The study examined the effect of three determinants - idiosyncratic volatility, earnings management and corporate governance – on firm performance with earnings quality as an intermediate variable. The study sample included the EGX30 share index during the time frame 2010-2017. Descriptive statistics and structure equation modeling techniques were employed in the study. The

researchers tested the attributes of the corporate governance, earnings management and the firm return volatility and their impact on the earnings quality, the results of that are that there is a positive association among all the variables except for the earnings management that show negative association with the earnings quality. The influence on the study findings occasioned by the toxic political environment in Egypt over the study period is not documented. Hence, the validity of the study findings cannot be ascertained. The study related stock return volatility with firm performance with earnings quality as a moderator. The study did not identify the determinants of stock return volatility. In the current study, earnings quality was used as a moderator to evaluate how it affects the strength and/or direction of the relationship between idiosyncratic risks and volatility of stock returns at the NSE.

Muigai (2016) analysed the influence of financial gearing, debt maturity, equity structure and asset structure on financial distress of non-financial firms listed at NSE. The study also examined the influence of firm size and the listing sector on capital structure and financial distress relationship. The study made use of secondary data obtained from audited annual financial statements of individual firms for the 10-year period covering January 2004 to December 2013. A quantitative research design was adopted in this study. This was a census study which collected data from all the 41 non-financial NSE listed firms as at December 2013. The study's findings showed that financial gearing, asset tangibility and external equity have a statistically significant and negative influence on financial distress of non-financial firms. Nevertheless, firm's equity and long-term debt play a significant role in reducing financial distress in the NSE- listed non-financial companies. The study further concluded that the firm size and the listing sector have a statistically significant and positive moderating effect on the relationship between capital structure and financial distress. The study did not relate capital structure to volatility. The study embraced moderation using firm size. the current study embraces moderation using earnings quality, measured by accrual quality.

Cheruiyot et al. (2021) examined the impact of the elements of financial reporting on firm specific stock return volatility among the NSE-listed firms in Kenya. Firm specific stock returns asynchronicity was estimated as the variance the residuals of the CAPM, which only

accounted for Market factors but failed to account for size and value factors. Independent variables included EPS, DPS, book value per share (BVPS), cash flow and liquidity. Firm size was the moderator. Correlational research design was employed, with census sampling technique netting all the 39 listed firms that existed and their shares were actively traded at the Nairobi securities exchange NSE from 1998 to 2017. The study findings indicated that Firm size was statistically significant and positive moderator on the link between elements of financial reporting information and firm specific stock return volatility. The study did not incorporate other firm specific risk variables such as capital expenditure and financial gearing in order to assess the viability of Firm size as a moderator.

Past studies assessing the relationship between some idiosyncratic risks and volatility of stock returns established weak relationships which needed moderation. Studies such as Cheruiyot, Olweny and Irungu (2021) have used firm size as a moderator in establishing the influence of accounting elements and firm specific stock returns volatility. However, the study could not ascertain the total value of the accrual's which were eventually realised as actual cash receipts from the accounting information. The risk of accrual earnings failing to be realised as actual cash receipts can affect the reliability of the financial ratios obtained from accounting information in giving the correct relationship with stock returns variance. The study of Hoyoung and Hyunmin (2017) found it necessary to use earnings quality to moderate the relationship between voluntary disclosure and information asymmetry. The moderating effect was statistically significant and negative. In the study Mohamed and Hatem (2018), earnings quality was used as an intermediary. The current study has been carried out in the wake of huge pending bills in Kenya both by the county and National Governments. This makes it important to assess the influence earnings quality on the relationship between idiosyncratic risks and volatility of stock returns at the NSE. Thus, this study sought to assess the moderating effect of earnings quality, measured as Accruals' quality, on the relationship between idiosyncratic risks and volatility of stock returns of firms listed at the NSE.

2.2.6 Summary of the gap.

Empirical literature on the relationship between capital expenditure and volatility of stock returns shows diverse results. While Erwei et al. (2020) and Clark et al (2021) found a negative relation between capital expenditure and volatility of stock returns, Takashi et al

(2022) and Chih et al (2017) found a negative relationship. They both used R&D as a measure of capital expenditure. The entire capital expenditure of the firm as measured by the capital expenditure ratio, capital expenditure to depreciation ratio or capital expenditure intensity ratio was not considered. Other studies such as Li et al (2019) and Ching et al (2022) did not directly link capital expenditure to volatility of stock returns. Some other studies have omitted firm years with large acquisitions making them biased. Data used in past studies has been obtained from developed markets outside Africa. This study will use total capital expenditure of a company as measured by capital expenditure intensity ratio to establish the effect of capital expenditure on volatility of stock returns at NSE.

Secondly, the above studies do not lead to any specific conclusions on the influence of financial gearing on volatility of stock returns due to their contradictory nature. Other studies have shown weak relationships between financial gearing and volatility of stock returns. Most of the empirical studies have focused on financial leverage in relation to stock returns and stock price volatility. Zhang et al (2020) found a negative relationship between financial gearing and stock price synchronicity. The studies of Byung et al (2019), Wasafi et al. (2016) and Mohammad et al (2015) all found a negative relationship between financial gearing and stock returns. Studies of Yossi et al (2019) and Zeeshan et al (2018) used financial gearing as a dependent variable with volatility of stock returns as independent variable with contradicting results. Studies have not analysed the effect of financial gearing, measured by DCR or AER, on volatility of stock returns at the NSE.

Past studies have estimated idiosyncratic volatility as the variance of the residuals of the CAPM, the single factor model, which only takes care of sensitivity to market factors (β), but not size and value factors. The current study cures this shortcoming by estimating volatility as the variance of the residuals of the FF3F model which takes care of the market factors (β), size and value factors. Past studies have also not captured the asymmetric volatility response to information and time varying properties of idiosyncratic volatility. The current study cures this by employing the GARCH model in estimating volatility of stock returns.

Finally, the literature reviewed gives a contradictory and weak relationship between some idiosyncratic risks and volatility of stock returns. Evidence from past literature also indicates

that earnings quality seems to have an influence on the relationship between idiosyncratic risks and volatility of stock returns. It is against this background that this study endeavored to evaluate the moderating effect of earnings quality on the relationship between idiosyncratic risks posed by capital expenditure risks, financial gearing risks and profitability risks on volatility of stock returns at the NSE.

Based on the above gaps identified from previous studies, the current study sought to establish the effect of idiosyncratic risks and earnings quality on firm specific volatility of stock returns amongst firms listed at the Nairobi Securities exchange, Kenya. The study also sought to establish the moderating effect of earnings quality on the relationship between idiosyncratic risks and firm specific volatility of stock returns using evidence from firms listed at NSE. The researcher calculated firm specific volatility of stock returns as the variance of residuals of the FF3F model. Idiosyncratic volatility was estimated using the GARCH (1,1) model.

CHAPTER THREE
RESEARCH METHODOLOGY

This chapter presents the methodology and procedures which were employed to address the research problem are outlined. The chapter covers the study design, the research area, the target population, sample and sampling frame, data type, data collection instruments, data collection procedures and analytical techniques. Prior to analysis of data to test for the study hypothesis, relevant diagnostic tests were undertaken and it is in this chapter that the findings are presented. Diagnostic tests ensured that the assumptions of the Classical Linear Regression Model are not violated, thereby ruling out any chance of making misleading inferences when testing the study hypotheses.

3.1 Research Design

A study design shows the structural framework of various research techniques as well as methods that are utilized to arrive at the study outcome. It helps the researcher to pursue his journey into the unknown but with a systematic approach by his side. Vibha & Walsh (2019) views research design or paradigm as a plan just like an architectural plan used in building and constructions. It is always the first step to be considered before starting to build a house (research). In other scenarios, research design is compared to "glue" that holds all research elements together (Vibha & Walsh, 2019). Research paradigm is a word commonly used in research to mean the world view understanding and assumptions of research (Lincoln et al, 2011). Paradigms are considered research apparatus used to solve exact research problems. Generally, research can follow quantitative paradigm or it can follow qualitative paradigm (Philips, 1987; Creswell, 1994). In the broad sense, this study embraced a quantitative research design. More specifically, the study made use of Correlational research design, which utilized secondary data obtained from the accounting statements of NSE listed firms in Kenya as well as other relevant market data. Researchers who use correlational design are more interested with the correlation between individual variables without involving themselves in trying control or manipulate any of them. This kind of studies show the magnitude(size) and /or direction association between the variables. Dynamic panel data

regression model with the help of Econometric-views (E-views) software was employed to test for the study hypotheses.

3.2 Study Area

This research was conducted at Kenya's only capital market, NSE. The bourse is based in Nairobi City which serves as both the capital city of Kenya as well as the headquarters for the Nairobi city county. It has a population of 4,397,073 according to the 2019 population census (GoK, 2019). The city has an area of 695 square kilometers. Nairobi situates at 1°9′S 36°39′E and 1°27′S 37°6′E. The Nairobi Securities Exchange stated it operations, albeit informally, in the 1920s. Dealing in shares commenced with trading being carried out informally without any physical trading space. Kenya being a British colony at the time, the London Securities exchange (LSE) granted recognition rights to NSE as an overseas bourse in 1954. The bourse changed from Nairobi Stock Exchange to Nairobi Securities Exchange (NSE) in 2011. NSE had 62 listed companies by the time this study was concluded. The firms are listed in four different segments: the Main Investment Market Segments (MIMS), the Alternative investment Market segment (AIMS), Fixed Income Market Segment (FIMS) and Futures and Options Market Segment (FOMS). The Map of the study area has been annexed as Appendix VII.

3.3 Target Population

This study targeted firms forming the NSE 25 share index, which were continuously listed during the period 1st January, 2010 to 31st December, 2019. Firms forming the NSE 25 share index were targeted since they constituted over 80% of NSE market capitalization at the time. NSE listed firms are expected to be strictly monitored by the Capital market authority and are assumed to meet all the listing requirements. The study's choice of NSE listed firms was motivated by the fact that they are required by law to publish their annual audited financial reports making the relevant data to be collected authentic, reliable and readily available. This study was designed to cover a span of 10 years starting 1st January, 2010 ending on 31st December, 2019. Year 2010 was significant in this study because it ensured that the study findings were not confounded by the impact of the global financial crisis of the year 2007/2008 which ended in 2009. This study was designed to end in the year 2019, to avoid

the confounding effects of covid-19 which stated in December of 2019 and its effects felt across various stock markets in the world, Kenya's NSE included.

3.4 Sample and Sampling Design

Sampling design denotes the methods, technique or procedures that are adopted by the researcher in identifying and selecting some representatives from the population which will help in drawing inferences about the population. Kothari (2004) advices that no data collection should commence until sampling design is specified. Purposive sampling technique was specified for this study. This design is non-probabilistic and it allows the researcher to select study participants based on particular characteristics that suits the interest of the researcher (Sekaran, 2000). The sampling technique led to balanced panel data which was preferred as it was considered to be a more sensitive measure of change that may occur between any two points in time and across firms leading to more robust, consistent and stable results which can easily be generalized about the population (Cavana et al.,2000). The sample inclusion/ exclusion criterion was the availability of complete data for the entire study period and also inclusion of the firm in the NSE 25 share index. Therefore, only firms forming the NSE 25 share index with complete data over the data collection period (1st Jan, 2010 to 31st Dec. 2019) were included. Firms forming the 25 NSE share index were identified because they control over 80% of Market capitalization (NSE QSB, 2018; Wall Streat Journal (WSJ), 2023). Initially, 25 firms were targeted for data collection picked from the entire population of 62 NSE listed companies. The criterion for inclusion in the sample was that the firm had to be among the firms constituting NSE 25 share index. Complete data was available for 24 firms out of the possible 25 firms, and this represented an overall data collection rate of 96%. One firm, NSE PLC, which was incorporated in 2014 missed data for the years 2010 to 2013 and therefore, was excluded. The 24 companies constituted 39.3443% of the NSE listed companies. According to Rogelberg and Stanton (2007) the acceptable data collection rate should be over 35% for any study carried out at the institutional level. Thus, the data collection rate of 39.3443%, recorded in the current study surpassed this threshold, making the data suitable in ensuring accuracy and minimization of bias. The list of all the firms from among which the sample has been picked, based on the sampling criteria are annexed as appendix VI

The study sampled 24 firms spread across 8 sectors as summarized in Table 3.1 below.

Table 3.1 Study Sample.

Sector	Number of firms	Percentage composition.
Banking.	9	37.5%
Commercial services	3	12.5%
Construction and Allied.	1	4.2%
Energy and petroleum	3	12.5%
Insurance	4	16.6%
Investment	1	4.2%
Manufacturing	2	8.3%
Telecommunication	1	4.2%
TOTAL	**24**	**100%**

Source: Research Data (2023)

3.5 Methods of Data Collection

The data for idiosyncratic risks was collected from audited annual financial statements of the listed companies from January 2010 to December 2019. The data obtained included firms' annual capital expenditure, total equity and debt, overall profitability, earnings quality and daily returns of stocks of NSE listed firms from Jan 2010 to December 2019. Daily market data for the respective security prices was also obtained from the NSE. The information source documents were obtained from the NSE handbooks available in the CMA library. The collection followed a pattern described hereunder.

3.5.1 Data Sources

Data from secondary sources was used in this study. The relevant data was sourced from audited published yearly financial statements of the listed companies available in their official websites as well as the NSE Handbooks at the CMA library. The data spanned 10 years, from January 2010 to December 2019. The data collected included individual firms'

idiosyncratic risks and elements of earnings quality. Data from Secondary sources obtained from audited annual accounting statements was used since it was readily available, reliable and with enhanced validity making the data sources more credible.

3.5.2 Data Collection Instruments

This study embraced Document review method to gather relevant data, on the study variables, from the relevant secondary sources. Pre-defined data collection sheets were used for recording of the required data. The raw data was then transferred to computer excel sheets for debugging and analysis. A sample data collection sheet has been annexed as appendix IV.

3.5.3 Procedure for Data Collection

Collection of data entails a precise and systematic process of gathering relevant information related to the research problems, using relevant methods. Data used in this study was only sourced from secondary documents. This kind of data is readily available, and the researcher only needs to verify its validity, reliability, adequacy and suitability based on the current study (Kothari 2004). Audited accounting reports for all the 24 listed firms sampled, were obtained and the required data was extracted covering all the sampled firms for the entire period of the study. The collected data was then entered to the pre-defined data collection templates specifically designed to accommodate this data. This data was then keyed into computer pre-designed worksheets ready for processing. To ensure accuracy and reliability, the researcher broke down the large sets of data into small units to minimize errors during entry. Data on daily stock returns was calculated from the daily historical stock prices of the sampled listed firms obtained from NSE.

3.5.4 Data Validity

Validity is defined as a measure of the extent to which an assessment tool measures what it is intended to measure and the degree to which it gives information answering the key questions in research (Sekaran, 2000). It can also refer to the level at which a given metric accurately captures the study purpose, and the limit to which it does not contain any procedural errors (Robson, 2011). The researcher engaged the services of four financial data analysts who

evaluated the study items based on the face validity, content validity, construct validity and criterion validity. These experts were satisfied that the study items adequately and sufficiently represented the content for each construct, thus, met the validity threshold.

3.5.5 Data Reliability

Reliability refers to the internal consistency of the collected data, allowing the data to maintain some form of internal consistent pattern (Creswell & Plano, 2007). Ascertaining reliability is important as this guarantees consistency or stability of the data even when the test is repeated. Preliminary reliability assurance emanated from the fact that this study sourced its data from official secondary documents: the audited accounting reports prepared in line with the Generally Accepted Accounting Principles (GAAPs) (Mule & Mukras, 2015; Kenyanya & Ombok, 2018). It was necessary also to undertake the second level reliability test. According to Field (2000), secondary panel data is considered reliable if it is stationary. Stationarity of the individual series was assessed using the Unit Root Test. The Unit Root Test was conducted with the help of the Levin, Lin and Chun (LLC) test, to determine whether individual variable series were stationary or otherwise. The LLC test results presented in Table 3.2 below indicates that all the individual variables' series are stationary at level at 95% degree of confidence.

Table 3.2: Panel Unit Root Test Results for the Study Variables

Cross-sections included: 8

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-2.32215	0.0101

Source: Research Data, 2023.

3.6 Procedures for Data Analysis

Relevant data was extracted from the companies' audited accounting reports, captured into predefined Excel worksheets and debugged. Relevant capital expenditure ratios, financial gearing ratio, profitability ratios and earnings quality ratios were computed for the entire period of study. Historical stock prices were collected for all the firms in the ten-year period

and were used to calculate stock returns. The risk factors in relation to size (SMB) and the risk factors in relation to value (HML) of the FF3F model were computed. The regression residuals were obtained from the FF3F model. The Generalized Autoregressive Conditional heteroscedasticity (GARCH) model of Engle (1986) was used to obtain the actual volatilities used in the study analysis. Data for all the variables was formatted to suit and was imported to Econometric-Views software for analysis. Pre-analysis diagnosis was conducted to ensure that the data conforms to the classical linear regression model (CLRM) assumptions. Among the diagnostic tests conducted include the Panel Unit Root Test using the LLC test, Normality test using the histogram of regression standardised residuals, Multicollinearity test using VIF, Heteroscedasticity test using Breusch Pegan test, Autocorrelation test using Breusch-Godfrey serial correlation LM test and Hausman model selection test. All these tests indicated that the data was fit for correlation and hypotheses testing using dynamic panel regression model. The data was then subjected to descriptive analysis, correlation analysis, and panel regression analysis.

Descriptive analysis produced a summary statistic that represented the data set's central point as well as data spread in the individual series denoting Idiosyncratic risks, Earnings quality and firm specific stock returns variance for NSE listed firms. The descriptive summary presented the mean, median, standard deviation, skewness, kurtosis, Jacque-Bera, sum and sum of squared deviations. Subsequently, the Pearson's correlation analysis was conducted to establish the bivariate relationship, in terms of strength and direction, between the predictor and response variables. The bi-variate relationships evaluated in the study included capital expenditure and variance of stock returns, financial gearing and stock returns volatility, profitability and stock returns volatility and earnings quality and stock returns volatility. Finally, dynamic panel multiple regression analyses were performed to actualize the study objectives. The panel regression analysis helped to determine the effect of the predictor variables on the response variable and also the influence of the moderator on the predictor and response variables. By using Panel data in this study, there was improved efficiency in the outputs brought about when combining time series data and cross-sectional data.

3.7 Model specification

3.7.1 The Remodeling of the Fama and French Three Factor (FF3F) Model

In the current study, the firms' expected returns were modeled using the Fama and French three factor (FF3F) model (Fama & French, 1993). Daily stock returns were regressed on three factors defined by FF3F model as the sensitivity of the portfolio to the market return, Portfolio sensitivity to size factors and portfolio response to value factors.

The Fama and French Three Factor Model.

$$R_{i,t} = \alpha_{i,t} + \beta_{i,t}(R_{m,t} - R_{f,t}) + s_{i,t}SMB_t + h_{i,t}HML_t + k_{i,t}CE_{i,t} + f_{i,t}FG_{i,t} + p_{i,t}PRO_{i,t} + k_{i,t}AQ_{i,t} + \varepsilon_{i,t}, \quad \varepsilon \sim N(0, \sigma^2_{i,t}) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3.11)$$

where: $\mathbf{R_{f,t}}$ is treasury bill rate at time t, $\mathbf{R_{m,t}}$ is the return on the market for period **t;** $\boldsymbol{\alpha_{i,t}}$ the stock's alpha, or abnormal returns for period **t**; $\boldsymbol{\beta_{i,t}}$ is the stock **i**'s sensitivity to the market return for period **t**; $\mathbf{SMB_t}$ and $\mathbf{HML_t}$ represent the portfolios' sensitivity to size and value respectively; and $\mathbf{S_{it}}$ and $\mathbf{h_{it}}$ are the coefficients related SMB and HML respectively. CE, FG PRO and AQ represent portfolio sensitivity to risk associated with capital expenditure, financial gearing, profitability and earnings quality respectively. $\boldsymbol{k_{i,t}}$, $\boldsymbol{f_{i,t}}$, $\boldsymbol{p_{i,t}}$, $\boldsymbol{k_{i,t}}$ are coefficients related to Capital expenditure, financial gearing profitability and earnings quality respectively. $\mathbf{R_{i,\,t} - R_{m,t}}$ is the expected on the stock **i** at time **t** and $\mathbf{R_{m\,t} - R_{f,\,t}}$ is the market return above the risk free rate and $\boldsymbol{\varepsilon_{i,t}}$ are the residual terms relating to security ***i*** at a time **t**.

3.7.2 Portfolios Construction Procedures

The SMB and HML factors were constructed using a similar procedure like the one used in the FF3F model. Mid-year ranking of stocks in the study sample is done using their market capitalization and the securities are categorized based on their size as portfolios of small stocks(S) and portfolio of big stocks(B). The 50% securities above the split point are classified as big and the 50% securities below the split point are classified as small. SMB (small minus big) is the difference between the simple average rate of return on the three

small security portfolios (SL, SM, and SH) and the simple average rate of return on the three big stocks portfolios (BL, BM, and BH) each month, (Fama & French,1993).

Model 3.12 below was used in calculating the SMB factor:

$$SMB = \frac{((SL- BL) + (SM - BM) + (SH- BH))}{3} \quad \text{..... (3.12)}$$

The same stocks are again independently categorized into three portfolios based on the book to market equity ratio at December of year each year, based on the break point for the bottom 30 % (Low), middle 40% (Medium), and top 30% (High), based on the intersection between two market capitalization groups(S&B) and three Books to market equity groups (L, M and H). HML (high minus low) is the difference each month between the simple average rate of return on two high book- to -market equity stocks portfolios (SH and BH) and the simple average rate of return on the two low book to market equity stocks portfolios (SL and BL), (Fama & French, 1993). Model 3.13 below was used in calculating HML factor:

$$HML = \frac{((SH- SL) + (BH- BL))}{2} \quad \text{..... (3.13)}$$

3.7.3 The Generalized Autoregressive Conditional Heteroskedasticity (GARCH) model

For modelling the variance process the current study employed the GARCH (1,1) model which captures the element of volatility clustering (Bollerslev, 1986). This model was also adopted by many other studies such as Fu (Fu, 2009). The researcher jointly estimated a time-series regression for individual securities throughout the period of study. Equation 3.14 shows the GARCH (1,1) model:

The GARCH Model to Estimate Volatility.

$$\sigma_{i,t}^{2} = \omega + \alpha\varepsilon_{i,t}^{2} + \beta\sigma_{t-1}^{2} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (3.14)$$

Where, $\boldsymbol{\omega}$ is the intercept, $\boldsymbol{\alpha}$ is the coefficient for the variance of the residual and $\boldsymbol{\beta}$ is the loading on the conditional variance estimate at time t - 1. In the next sub-section the study details the test framework where firm specific dispersion is specified as $\boldsymbol{\varepsilon_{i,t}}$ and describe the computation of firm specific volatility based on $\boldsymbol{\sigma^2_{i,t}}$.

The parameter estimates of the GARCH (1,1) process are always positive ($\boldsymbol{\omega \geq 0}$, $\alpha \geq 0, \beta \geq 0$). This ensures that $\boldsymbol{\sigma_{i,t}^{2}}$ is is always non-negative for all the random error terms $\boldsymbol{\varepsilon_{i,t}}$. Any new information at time ***t*** is incorporated in the ARCH term, the squared error term, $\boldsymbol{\varepsilon_{i,t}^{2}}$. Past information at a time ***t-1*** is carried by the GARCH term, $\boldsymbol{\sigma_{t-1}^{2}}$ (Rachev et al., 2008). Persistence of shocks to volatility becomes greater as the sum ($\boldsymbol{\alpha + \beta}$) approaches unity.

3.7.4 Empirical Model

A dynamic panel data regression model was employed in the current research to assess the effect of idiosyncratic risks and earnings quality on firm specific stock returns volatility at the NSE, Kenya. Dynamic panel data is autoregressive, that is, it contains one or more lagged effects of the response variable on itself. In line with the study of Hsiao (2003), the Panel data contained observations for CAPIT, DCR, AER, EPS, PE and ROE obtained over ten-year period for each of the 24 firms. Frees (2004) posits that this kind of data (panel data) is preferrable due to its ability to reveal firm level variations as well as determining chronology of the study variables and shows how the interconnect between the variables emerge. Equation 3.15 shows the General Empirical model:

The General Empirical Model.

$$Y_{i,t} = \beta_0 + \beta_1 X_{i,t} + \beta_2 Y_{i,(t-2)} + \varepsilon_{i,t} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (3.15)$$

Where: $Y_{i,t}$ represents the response variable which denotes firm specific stock returns of company i for period t; i denotes individual company, i = 1,… 24 and t is the time period in

years, t = 2010-2019; $X_{i,t}$ denotes a vector of independent variables, $Y_{i,(t-2)}$ denotes two period lag for idiosyncratic volatility for firm I; β_1 and β_2 are specific effects to be determined, β_0 is the intercept term, and ε_{it} is the regression residual for company i for period t.

From model 3.15, the general volatility model was fitted at two lags. This was the optimal lag order that was determined through consensus of the four information criteria: the prediction error (FPE) information criterion, the Akaike information Criterion (AIC), the Schwarz Bayesian information criterion (SC) and the Hanna Quinn Information criterion (HQ). This is illustrated in the table below:

Table 3.3 VAR Lag Order Selection Criteria

Included observations: 232

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-2102.171	NA	0.010978	18.19113	18.30998	18.23906
1	-1302.972	99.18064	3.38e-05	12.40493	14.42543	13.21978
2	-1356.483	1433.519	3.08e-05*	12.31451*	13.38419*	12.74590*
3	-1253.209	88.80047	3.84e-05	12.52767	15.49899	13.72597
4	-1222.808	52.15364	5.17e-05	12.81731	16.73946	14.39907
5	-1175.080	78.58759	6.03e-05	12.95758	17.83056	14.92280
6	-1147.930	42.83023	8.47e-05	13.27526	19.09906	15.62394
7	-1111.184	55.43690	0.000110	13.51020	20.28483	16.24234
8	-1049.703	88.51154*	0.000118	13.53192	21.25736	16.64751

Source: research data 2023

* Indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5%level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

The following specific models emanate from the general model:

Objective 1: Effect of Capital Expenditure on Stock Return Volatility Amongst NSE Listed Firms

$$Y_{i,t} = \beta_{10} + \beta_{11} X_{1\,i,t} + \beta_{12} Y_{i,(t-2)} + \varepsilon_{i,t} \quad (3.16)$$

Where;

Y_{it} = stock return volatility for company i during period t;

$X_{1\,i,t}$ = Capital expenditure for company i during period t;

β_{01} = constant term

β_{11} = Regression coefficient for capital expenditure.

β_{12} = Regression coefficient for one period lag volatility.

i = NSE listed companies ranging from 1 to 24;

t = Time in Years covering the period from 2010 to 2019;

$\varepsilon_{i,t}$ = Residual term of firm i, during time t.

Objective 2: Effect of financial gearing on stock returns volatility amongst NSE listed firms

$$Y_{i,t} = \beta_{20} + \beta_{21} X_{2\,i,t} + \beta_{22} Y_{i,(t-2)} + \varepsilon_{i,t} \quad (3.17)$$

Where;

$Y_{i,t}$ = stock return volatility for company i for time period t;

$X_{2\,i,t}$ = Financial gearing for company i for time period t;

β_{20} = constant term

β_{21} = Regression coefficient for financial gearing.

β_{22} = Regression coefficient for one period lag volatility.

i = NSE listed companies ranging from 1 to 24;

t = Time in Years covering the period from 2010 to 2019;

$\varepsilon_{i,t}$ = Residual term of firm i, during time t.

Objective 3: Effect of Profitability on Stock returns Volatility Amongst NSE Listed Firms

$$Y_{i,t} = \beta_{30} + \beta_{31} X_{3\,i,t} + \beta_{32} Y_{i,(t-2)} + \varepsilon_{i,t} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3.18)$$

Where;

Y_{it} = stock return volatility for company i during time t;

$X_{3\,i,t}$ = profitability for company i during time t;

β_{30} = constant (intercept).

β_{31} = Regression coefficient for profitability.

β_{32} = Regression coefficient for one period lag volatility.

i = NSE listed companies ranging from 1 to 24;

t = Time in Years covering the period from 2010 to 2019;

$\varepsilon_{i,t}$ = Residual term of firm i, during time t.

Objective 4: Relationship between Earnings Quality and Stock Returns Volatility

The basic model is specified as follows:

$$Y_{i,t} = \beta_{40} + \beta_{41} M_{i,t} + \beta_{42} Y_{i,(t-2)} + \varepsilon_{i,t} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3.19)$$

Where; $Y_{i,t}$ = stock return volatility for firm i during period t;

$M_{i,t}$ = Moderating variable (earnings quality) for firm i during time t;

β_{40} = constant term

β_{41} = Regression coefficient for Earnings Quality.

β_{42} = Regression coefficient for one period lag.

i = NSE listed companies ranging from 1 to 24;

t = Time in Years covering the period from 2010 to 2019;

$\varepsilon_{i,t}$ = Residual term of firm i, during time t.

Moderating effect

In this study, the researcher conducted a stepwise regression model to find out the influence of Earnings quality on Idiosyncratic risks and stock returns variance amongst NSE listed firms in Kenya. The following models were used to test hypothesis five.

Moderating Effect of Earnings Quality on Capital Expenditure and volatility of Stock Returns amongst firms listed at the NSE.

$$Y_{i,t} = \beta_{10} + \beta_{11} X_{1\,i,t} + \beta_{12} M_{i,t} + \beta_{13} X_{1\,i,t} * M_{i,t} + \beta_{14} Y_{i,(t-2)} + \varepsilon_{i,t} \ldots\ldots\ldots\ldots (3.20)$$

Where;

$Y_{i,t}$ = Stock return volatility for firm i during time t

$X_{1\,i,t}$ = capital expenditure for company i during time t;

$M_{i,t}$ = Moderating variable (earnings quality) for firm i during time t;

β_{10} = Constant term

$\beta_{11,}$ = Regression coefficient for capital expenditure.

β_{12} = Regression coefficient for moderating variable.

β_{13} = Moderating effect of earnings quality.

β_{14} = Regression coefficient for one period lag volatility.

i = NSE listed companies ranging from 1 to 24;

t = Time in Years covering the period from 2010 to 2019;

$\varepsilon_{i,t}$ = Residual term of firm i, during time t.

Moderating Effect of Earnings Quality on Financial Gearing and Volatility of Stock Returns amongst firms listed at the NSE.

$$Y_{i,t} = \beta_{20} + \beta_{21} X_{2\,i,t} + \beta_{22} M_{i,t} + \beta_{23} X_{2\,i,t} * M_{i,t} + \beta_{24} Y_{i,(t-2)} + \varepsilon_{i,t} \ldots\ldots\ldots (3.21)$$

Where; $Y_{i,t}$ = Stock return volatility for firm i during time t;

$X_{1\,i,t}$ = financial gearing for company i during time t;

$M_{i,t}$ = Moderating variable (earnings quality) for firm i during time t;

β_{20} = constant term

β_{21} = Regression coefficient for financial gearing.

β_{23} = Regression coefficient for moderating variable.

β_{24} = Moderating effect of earnings quality.

β_{24} = Regression coefficient for one period lag volatility.

i = NSE listed companies ranging from 1 to 24;

t = Time in Years covering the period from 2010 to 2019;

$\varepsilon_{i,t}$ = Residual term of firm i, during time t.

Influence of Earnings Quality on Profitability and Volatility of stock returns at the NSE.

$$Y_{i,t} = \beta_{30} + \beta_{31} X_{3\,i,t} + \beta_{32} M_{i,t} + \beta_{33} X_{3\,i,t} * M_{i,t} + \beta_{34} Y_{i,(t-2)} + \varepsilon_{i,t} \ldots\ldots\ldots (3.22)$$

Where;

$Y_{i,t}$ = stock return volatility for firm i during period t;

$X_{1\,i,t}$ = profitability for company i during time t;

$M_{i,t}$ = Moderating variable (earnings quality) for firm i during time t;

β_{30} = constant term

β_{31} = Regression coefficient for profitability.

β_{32} = Regression coefficient for moderating variable.

β_{33} = Regression coefficient for the moderator and the Profitability.

β_{34} = Moderating effect of earnings quality.

i = NSE listed companies ranging from 1 to 24;

t = Time in Years covering the period from 2010 to 2019;

$\varepsilon_{i,t}$ = Residual term of firm i, during time t.

Objective 5: Moderating Effect of Earnings Quality on Idiosyncratic risks and Volatility of stock returns.

To determine the moderating effect, the general Model 3.15 is advanced with four additional independent regressors including the moderator with other three derived regressors. This conforms with what Cohen et al. (2003) proposes: the model used for testing hypothesis on moderation should maintain the base regressors (consisting of all the predictor variables), the moderator, as well as the derived regressors showing the interaction between the moderator and the base regressors (predictor variables).

Determining the derived regressors.

Three derived regressors are obtained by multiplying the moderator with each of the three exogeneous variables for each of the 24 firms. The three derived regressors were denoted ϕ, Ω and μ.

ϕ denotes the derived regressor, the product of earnings quality and X_1, the exogeneous variable (capital expenditure).

$$\phi = X_{1\,i,t} * M_{i,t} \ldots\ldots (3.23)$$

where, $X_{1\,i,t}$ is the capital expenditure for company *i* for period t

$M_{i,t}$ is the earnings quality for firm *i* at time t

i = 1,2,3……24 firms

t = 1,2,3……10 years

Ω denotes the derived regressor, the product of moderator (earnings quality) and X_2, the exogeneous variable (financial gearing).

$$\Omega = X_{2\,i,t} * M_{i,t} \ldots\ldots (3.24)$$

where, $X_{2\,i,t}$ is the financial gearing for company *i* at time t

$M_{i,t}$ is the earnings quality for company *i* at time t

i = 1,2,3……24 firms

t = 1,2,3……10 years

μ denotes the derived regressor, the product of the moderator, earnings quality, and X_3, the exogeneous variable, profitability.

$$\mu = X_{3\,i,t} * M_{i,t} \quad \ldots\ldots (3.25)$$

where, $X_{3\,i,t}$ is the profitability for firm *i* at time t

$M_{i,t}$ is the earnings quality for firm *i* at time t

i = 1,2,3……24 firms

t = 1,2,3……10 years

Fitting the interaction model

After determining the moderator and the three interacting terms, they fitted into the general Model 3.13 above. The resulting model 3.26 is as below:

$$Y_{i,t} = \beta_{40} + \beta_{41} X_{1\,i,t} + \beta_{42} X_{2\,i,t} + \beta_{43} X_{3\,i,t} + \beta_{44} M_{i,t} + \beta_{46}\,\phi + \beta_{47}\Omega + \beta_{48}\,\mu + \beta_{34} Y_{i,(t-2)} + \varepsilon_{i,t} \quad \ldots\ldots (3.26)$$

Where;

Y_{it} = stock return volatility of company i for the time period t;

$X_{1\,i,t} X_{2\,i,t}$, $X_{3\,i,t}$ = capital expenditure, financial gearing and profitability for firm i during period t;

β_{40} = constant term

β_{41}, β_{42}, β_{43}, β_{44} = Regression coefficients for the idiosyncratic risks and earnings quality on volatility of stock returns

β_{46}, β_{47}, β_{48}. = Regression coefficients for the interactive terms.

ϕ, Ω, μ = Interactive terms

i = NSE listed companies ranging from 1 to 24;

t = Time in Years covering the period from 2010 to 2019;

$\varepsilon_{i,t}$ = Residual term of firm i, during time t.

3.8 Testing for the Classical Linear Regression Model Assumptions

Hair, Black, Babin and Anderson (2010) assert that, prior to performing the descriptive and correlation analysis for the data, and before any attempts are made to estimate the model equations, data has to be tested to ensure non-violations of the CLRM assumptions. This is to ensure that the data yields best least squares unbiased estimators (BLUE). Brooks (2008) posits that running the regression model and going ahead to estimate model equations when CLRM assumptions are infringed poses the danger of getting inefficient, skewed and unstable parameter estimates. The study further explains that the diagnostic tests help in identifying the best estimation techniques yielding the best parameter estimates. Thus, it was essential to conduct the following tests: types of variables, stationarity test, normality test, multicollinearity test, autocorrelation test, heteroscedasticity test and the Hausman model selection test, to guarantee unbiased, efficient and consistent parameter estimates. The tests were conducted as follows:

3.8.1 Types of Variables

According to Kaur (2013), a variable is something that can change and or can have more than one value. According to Field (2000), any meaningful statistical conclusions can only be drawn from a sample data if the predictor variable is either quantitative or categorical and the response variable is non-discrete, quantitative or unbound. The current study fulfills this condition since idiosyncratic risks, earnings quality and stock returns volatility measures are all quantitative. Thus, the variable type does not infringe the demands of the linear regression model in this aspect.

3.8.2 Normality test

According to Gujarati (2007), normality of the regression residuals implies that the study findings could be generalized. Brook (2008) asserts that the normality assumption is key in determining whether run a single or joint hypothesis testing for the model's parameter estimates. In the current study, the researcher conducted the normality test using a histogram of regression-standardised residuals. This is a simple graphical tool that is used to check for the presence of outliers in the effects sizes. It presents the analysis for the degree of asymmetry(skewness) and also the degree of peakedness (Kurtosis) of the study distribution in comparison with the normal distribution. For any set of data to be considered normal, its residuals' skewness value should be 0 or close to 0, and kurtosis for the residuals should be 3.0 or close to 3.0 (Tabanchnick & Fidell, 2007). The Jack Bera statistic for the residuals, which are considered normally distributed, is zero or close to zero otherwise the statistic will assume large and increasing values. This statistic determines whether or not the sampled data's skewness and kurtosis matches that of the normal distribution. The JB test statistic can be modeled as;

$$JB = \frac{n-k+1}{6}\left(S^2 + {}^1/_4\,(C-3)^2\right). \quad \text{..... (3.8.2)}$$

Where, n is the sample size, k is the number of study variables, S is the sample skewness coefficient and C is the sample kurtosis coefficient. The null hypothesis for the statistic is that the data comes from a normal distribution; the alternative hypothesis is that the data is not normally distributed. If the probability value for the JB statistic is less than 0.05, null hypothesis is rejected and alternative hypothesis accepted. The Normality test results for the study are presented in Fig 3.1

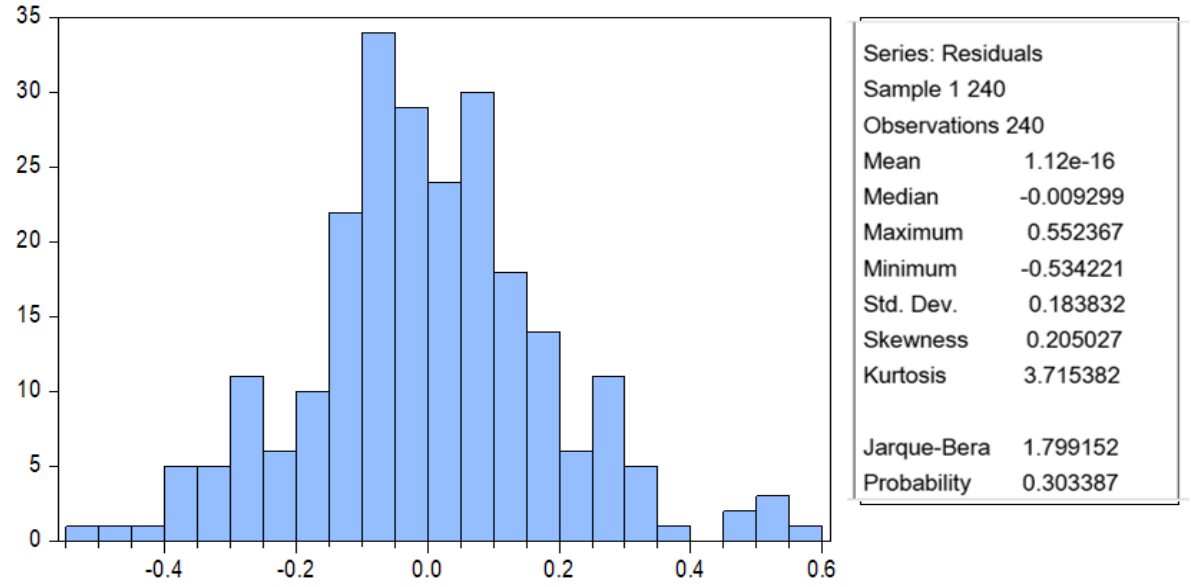

Figure 3. 1. Histogram of Regression Standardised Residuals

Source: Research Data, 2023.

Normality test results indicates that the skewness is 0.205027, which was near Zero. The kurtosis statistic was 3.715382 which was close to 3 while the Jarque Bera statistic was 1.799152 with a probability of 0.303387 which is greater than 0.05. This indicates that the null hypothesis, that the residuals are normally distributed is accepted, hence, the normality condition for the data is therefore met.

3.8.3 Multicollinearity

Multicollinearity in a study can be defined as the presence of reciprocal relationship between the exogeneous variables (William et al., 2013). According to Field, (2009) severe cases of multicollinearity may make it difficult to estimate one unique least squares solution to a regression model. The current study, tested for the presence of severe Multicollinearity using the variance inflation factors (VIF). The VIF greater than 10 will be a pointer to severe, not tolerable correlation of model predictors (James et al. 2013). From Table 3.3 below, the VIF for CAPIT (1.840004), DCR (2.209225) AER (1.931834), EPS (1.277344), P_E (1.104533) and ROE (1.512310) all which are way below 10, an indication of absence of severe multicollinearity.

Table 3.4.Test for Multicollinearity Using VIF

Variance Inflation Factors

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.000114	5.088480	NA
CAPIT	3.04E-05	3.919652	1.840004
DCR	0.007657	8.757608	2.209225
AER	8.92E-05	4.424268	1.931834
EPS	1.37E-05	2.304324	1.277344
P_E	4.72E-06	2.011230	1.104533
ROE	0.038570	4.026298	1.512310

Source: Research data, 2023.

3.8.4 Panel Unit Root Test

In this study the panel unit root test was conducted using the Levin, Lin and Chun (LLC) test. The test aimed at determining whether the individual series for the variables were stationary or non-stationary. Stationarity condition is necessary to avoid instances of obtaining spurious regression results due to the use of non-stationary series. The null hypothesis for the LLC test was that all panels have a unit root. The alternative hypothesis was that at least one panel do not have unit root or some panels do not have unit root (Choi, 2001). Table 3.3 below indicates a summary of the LLC which includes Im, Pesaran and Shin W-stat, ADF-Fisher Chi-square and PP-Fisher Chi-square results for robustness purposes. The result reveals that all variables are stationary at level (integrated, order 0) at 5% level of significance. Since all the variables are stationary at level, testing for cointegration in the series was not necessary. Table 3.4 below shows the results of the LLC test.

Table 3.5 Panel Unit Root Test Results

Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.32215	0.0101	8	1880
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-7.43277	0.0000	8	1880
ADF - Fisher Chi-square	93.1922	0.0000	8	1880
PP - Fisher Chi-square	266.865	0.0000	8	1880

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Source: Research Data, 2023.

3.8.5 Heteroscedasticity test

Heteroscedasticity is present in a given set of data if the variance of the regression residuals is not constant. To run a regression model without first checking for the presence of heteroscedasticity, poses a risk of obtaining unbiased parameter estimates. In this study, the presence of heterogeneity in variance of the error terms was tested with the help of the Breusch-Pagan-Godfrey test. The null hypothesis for this test was that there is homoscedasticity across panels. In the event the Breusch-Pagan test probability exceeds 5% significance level, the null hypothesis is accepted and inferred that the variations of the error terms are homoscedastic across panels. In the event the Breusch-Pegan test probability is below 5% significance level, the null hypothesis is rejected and the alternative hypothesis, that there is heteroscedasticity across the panels, is taken. In this case, the feasible generalized least square (FGLS) regression model could be run to account for the heterogeneity. Heteroscedasticity test result for the current study is presented in table 3.4 below and indicates that the probability of the chi-square is greater than 0.05. Hence, the null hypothesis is accepted that the variations are homoscedastic.

Table 3.6 Heteroskedasticity Test: Breusch-Pegan-Godfrey Test.

F-statistic	3.134817	Prob. F (6,233)	0.2357
Obs*R-squared	7.923683	Prob. Chi-Square (6)	0.1264
Scaled explained SS	10.91974	Prob. Chi-Square (6)	0.4419

Source: Research Data, 2023.

3.8.6 Autocorrelation

Panel data poses the danger of having serial correlation among the study variables. If serial correlation is present, the assumptions of CLRM are violated. Autocorrelation is present in the data if one exogenous variable can be used to predict another exogeneous variable making it possible to forecast the future values of the second exogeneous variable using the first exogenous variable. It is important to identify and account for autocorrelation in panel data to avoid biased standard errors and inefficient parameter estimates (Wooldridge, 2002). To check on the presence of serial correlation, the Breusch- Godfrey serial correlation LM test was performed. The results of Breusch-Godfrey Serial correlation LM test are presented in table 3.7 below.

Table 3. 7 Breusch-Godfrey Serial Correlation LM Test.

F-statistic	1.413698	Prob. F (2,229)	0.2454
Obs*R-squared	2.914873	Prob. Chi-Square (2)	0.2328

Source: Research Data, 2023.

The $\mathbf{H_0}$ for autocorrelation test is that the data does not have autocorrelation. Autocorrelation test results presented in table 3.5 above shows that the probability of F-statistic and the probability of observed R-squared are both greater than 0.05. Thus, the $\mathbf{H_0}$, that there is no evidence of serial correlation, is accepted.

3.8.7 Test for Model Selection using Hausman Test

It was necessary to determine the most appropriate model to be employed in performing panel data regression analysis. The researcher had to make a choice between the fixed effect model and the random effect model. According to Baltagi (2005), Fixed effect model holds the assumption that individual firms have unique intercepts and captures effects which are constant over time and belong to the variables specific to individual firms. Fixed effects model gives room for heterogeneity within the firms by letting each firm maintain its unique value for the intercept. On the other hand, random effects model holds the view that there exists a single common intercept and that this intercept randomly changes from one firm to another. The Hausman test was conducted to help in making a choice between the two models. The null hypothesis for the test was that there is no correlation between the residuals and the regressors. If the null hypothesis is supported, the random effects model is adapted, otherwise, the fixed effect model is appropriate. The null hypothesis is accepted if the p-value exceeds 0.05. otherwise, the alternative hypothesis is accepted. Results for the Hausman test for this study are presented in Table 3.6. below. The p-value is less than 0.05, therefore, the null hypothesis is rejected which means that the fixed effects model is appropriate.

Table 3.8. Test for Model Selection using Hausman Test.

Test Summary	Chi-Sq. Stat	Chi-Sq. d.f	Prob.
Cross-Section	0.474175	2	0.0045

Source: Research Data, 2023.

Based on the above diagnostic tests; Stationarity test, Normality test, Multicollinearity test, Heteroscedasticity test and Serial correlation test, the data was found to be fit for analysis. The Fixed Effects model was adopted based on the result of the Hausman test. Dynamic, fixed effects Panel data analysis was performed using Econometric Views (EViews) data analysis software.

3.9 Data Presentation

Results of data analysis were presented using tables, figures, equations and correlation matrices (Field and Zikmund et al., 2010). These presentation strategies describe and summarize large data sets into a meaningful and interpretable fashion. Summary of the findings were given and conclusions have been drawn with various recommendations.

CHAPTER FOUR
RESULTS AND DISCUSSION

This chapter presents the findings of data analysis, testing of the study hypotheses, reporting and synthesis of the study findings. The results presented include; the descriptive statistics, the correlation analysis and result of hypotheses testing on the effect of idiosyncratic risks and earnings quality on volatility of stock returns. Finally, regression results and discussion on the moderating influence of earnings quality on idiosyncratic risks and volatility of stock returns are also outlined.

4.1. Descriptive Statistics of Study Variables

Loeb et al. (2017) asserted that descriptive statistics is key when a researcher wants to confirm the association among variables under investigation for purposes of making conclusions and inferences. Kaur (2018) posited that descriptive statistics values are used to describe the entire data set. Similarly, Jankowski and Flannelly (2015) postulated that mean is used both in interval and ratio form. They argued that the mean, which is the mathematical average, assumes all the information that is associated with data characteristics and values. Thus, the mean is considered the most important of all measures of central tendency, hence, it occupies a privileged part in research. The descriptive statistics are presented in Table 4.1 below:

Table 4.1 Descriptive statistics on the study variables.

	SRV	CAPIT	DCR	AER	EPS	P_E	ROE	AQ
Mean	0.221339	1.237172	0.138267	0.790312	1.295762	2.071442	0.038171	0.004072
Median	0.220000	0.773415	0.135308	0.605076	0.954250	1.505850	0.035648	0.002035
Maximum	0.860000	4.940524	0.361463	3.043034	6.178200	10.23077	0.123378	0.060388
Minimum	0.020000	0.022670	0.003446	-1.702812	-1.897700	-5.369356	-0.068034	-0.051299
Std. Dev.	0.120656	1.166142	0.080478	0.697233	1.448120	2.291066	0.029668	0.017759
Skewness	1.082398	0.923249	0.410331	-0.046549	1.091561	0.892109	0.245424	0.274678
Kurtosis	6.274013	3.127263	2.501955	4.857537	4.303445	5.046593	3.681800	4.351792
Jarque-Bera	154.0550	34.25752	9.215345	34.59109	64.64988	73.71973	7.057832	21.29134
Probability	0.000000	0.000000	0.009975	0.000000	0.000000	0.000000	0.029337	0.000024
Sum	53.03000	296.9213	33.18397	189.6748	310.9828	497.1462	9.161097	0.977257
Sum Sq. Dev.	3.473080	325.0130	1.547930	116.1860	501.1956	1254.508	0.210359	0.075376
Observations	240	240	240	240	240	240	240	240

Source: Research Data, 2023.

***Key**: SRV-stock returns volatility, CAPIT- capital intensity ratio, DCR- debt capital ratio, AER- asset Equity ratio, EPS- Earnings per share, P_E price earnings ratio, ROE- Return on Equity, AQ accrual's quality*

The results in Table 4.1 indicates a balanced panel of 240 observations. The mean idiosyncratic volatility is 0.221339 with a high of 0.86000 and a low of 0.02000. This means that firm specific volatility ranges between 2% to 86% and averages at 22.1339%. This compares favourably with what is reported by Ayaibei (2018) ranging between 2.044% and 28.890% averaging at 26.00% and Saad Alsunbul (2019) who reported volatility ranging between 0% to 56.15% with an average of 22.29%. However, both Ayaibei (2018) and Alsunbul (2019) did not account for volatility clustering exhibited by firm-idiosyncratic stock returns volatility. The current study embraced GARCH modelling, which allows for volatility clustering making it a more accurate tool for determining the firm specific volatility values. A low positive skewness of 1.082398 indicates that slightly more firms have their volatilities less than the mean causing a fat left tail. Stock return volatility has a kurtosis of 6.274013 which is more than 3 hence the distribution is leptokurtic. A low standard deviation of 0.120548 shows low variance in idiosyncratic volatility.

Capital expenditure for the firms was operationalised as Capital Intensity ratio. The descriptive statistics shows that the mean Capital Intensity for firms in the ten-year period between January 2010 to December 2019 is 1.237172 indicating that, on average companies were increasing their corporate investments. Their total assets maintained a ratio greater than 1 with revenues, indicating growth in assets to match revenues. Hence, on average, firms engaged in corporate investment activities. A small standard deviation of 1.166142 is an indication of low variance of corporate investments over time. Capital expenditure ranges between 0.022670 to 4.940524 indicating that generally, firms were engaging in expansionary activities at different levels over the study period. This contradicts the result of Koori (2015) which posited a mean of 0.0726 and a range of -1.08811 to 2.1480, an indication of divestiture by some firms. Nevertheless, the study of Koori (2015) covered a different time span, 2002 to 2013, which included the period of the global financial crisis and also the period of the post-election disturbances in Kenya. Koori study also obtained its data from nonfinancial NSE listed firms only as opposed to the current study which sampled NSE listed firms across all the sectors of the economy. The current study was also unfavourable with the study of Lee, Pai, Huang, and Lin (2021) which posited a capital expenditure mean of 0.021, a low of 0.000, a high of 0.495 and a root variance of 0.033. However, the study only considered firms in advanced economies facing shrinking growth opportunities.

This is a clear indication that firms listed at the NSE are engaged in expansionary activities due to existence of several growth opportunities in the region where these firms operate. Findings in Table 4.1 also indicates that Capital Expenditure, over the 10-year period, has a small positive skewness of 0.923249 which shows that most firms' capital expenditure revolves around the mean.

Financial gearing was operationalised by two variables in the study; Debt Capital Ratio (DCR) and Asset equity ratio (AER). Both DCR and AER have low standard deviation of 0.080478 and 0.697233 respectively, indicating low volatility of debt in the gearing structure among the companies listed at NSE. Using the DCR results, the descriptive statistics show that listed firms' debt range between 0.3446% to 36.1463% of total capital. On average, listed firms' debt is 13.8267% of the total capital. This result is favourable with the results obtained from Mule and Mukras (2015) who posited a Long-term debt range of 0.00% to 79.8% to total assets, with a mean of 25.8%, Alsunbul (2019) who posited a mean of 22.29%, with a range of 0% to 56.15% and Koori (2015) who posited a mean of 24.67% and a range of 0.12% to 94.84%. However, the result was unfavourable with study of Zhang and Zhou (2020) who posited a mean of 45% with debt/capital ratio ranging between 1% to 120%. This could be explained by the different economic zones where these studies are carried out. Based on AER, financial gearing averages 79.0312% and has an equally low standard deviation of 0.697233, an indication of low variance of assets in relation to stockholders' equity among NSE listed firms.

Table 4.1 shows that P_E, EPS and ROE have a standard deviation of 2.291066, 1.448120 and 0.029668 respectively, indicating low variance of ratios over time for NSE listed firms. Return on equity (ROE) on average is 3.8171%. This is in line with a single digit return recorded in other studies such as Koori (2015) 7.4%; Alsunbul (2019) 9.37% and Zang and Zhou (2020) 4%. Price Earnings per share ratio recorded a mean of 2.071442, indicating that on average, most stocks are either overvalued or investors are expecting a high growth rate in the future. Some NSE listed firms shows a PE ratio of 10.23077 showing a high expectation of increasing growth rates in the future, a common phenomenon amongst firms in the frontier markets. On the other hand, some listed firms show a negative PE of 5.369356 an indication of either undervaluation of stocks of low prospects of growth rate in the future.

4.2. Correlation Analysis Between Idiosyncratic risks and volatility of Stock Returns.

Correlation analysis for this study was conducted using Pearson's correlation, measuring the direction and the strength of the relationship between the response variable and each of the predictor variables. The Pearson's correlation coefficients denote the magnitude and direction of associations. The coefficients range between -1, an indication of perfect negative correlation, and +1 which is an indication of perfect positive correlation. As the values move closer to the two limits, the association becomes stronger. As the coefficients approach 0, the relationship becomes weaker. There is no relationship when the coefficient is 0 (Danthine & Donaldson 2005 and Maddala, 2008). Table 4.2 below presents the correlation results.

Table 4.2 Correlation Analysis of Capital Expenditure, Financial Gearing, Earnings Quality and Volatility of Stock Returns

Correlation Probability	SRV	CAPIT	DCR	AER	EPS	P_E	ROE	AQ
SRV	1.000000							

CAPIT	0.479580	1.000000						
	(0.0000)	-----						
DCR	0.679134	0.574039	1.000000					
	(0.0000)	(0.0000)	-----					
AER	-0.180872	-0.591297	-0.530139	1.000000				
	(0.0049)	(0.0000)	(0.0000)	-----				
EPS	-0.270294	-0.281932	-0.206964	0.206546	1.000000			
	(0.0000)	(0.0000)	(0.0013)	(0.0013)	-----			
P_E	-0.449246	-0.153145	-0.349005	0.201702	-0.108719	1.000000		
	(0.0000)	(0.0176)	(0.0000)	(0.0017)	(0.0929)	-----		
ROE	-0.517811	-0.182199	-0.449019	0.138362	0.383284	0.289425	1.000000	
	(0.0000)	(0.0046)	(0.0000)	(0.0321)	(0.0000)	(0.0000)	-----	
AQ	-0.388210	0.115875	-0.191911	-0.147965	0.076379	0.251460	0.306272	1.000000
	(0.0000)	(0.0732)	(0.0028)	(0.0219)	(0.2385)	(0.0001)	(0.0000)	-----

Source: Research Data, 2023.

P- values in parentheses

***Key**: SRV-stock returns volatility, CAPIT- capital intensity ratio, DCR- debt capital ratio, AER- asset Equity ratio, EPS- Earnings per share, P_E price earnings ratio, ROE- Return on Equity, AQ accrual's quality*

The results in Table 4.2 above indicates the existence of a moderately positive and statistically significant correlation between Capital Expenditure (CAPIT) and firm specific volatility of stock returns (SRV) (r = 0.479580; p = 0.0000). From this result it can be implied that a 47.9580% increase in Capital Expenditure by firms listed at NSE results in a corresponding increase of 47.9580% in volatility of the stock returns. The result therefore, confirms that NSE listed firms could differ in idiosyncratic stock return volatility depending on the total annual corporate investments budget.

The results in Table 4.2 also shows that financial gearing, measured as the debt capital ratio (DCR), is strongly, positively and significantly correlated with Idiosyncratic volatility of stock returns at NSE (DCR: r = 0.679134; p = 0.0000). This implies that a 67.9134% increase in DCR leads to a corresponding increase in idiosyncratic volatility of stock returns at the NSE. This is in conformity with the findings recorded in past studies such as Alnasubul, 2019; Zang and Zhou, 2020. This implies that a highly geared firm is prone to increased stock return volatility. Thus, firms listed at NSE can increase stability in stockholders' returns by employing optimum level of debt in their capital structure. Conversely, the Asset Equity Ratio (AER) was moderately, negatively and significantly correlated with idiosyncratic volatility of stock returns at NSE (r = -0.180872; p = 0.0049). This means that an 18.0872% increase in assets in relation to equity causes a decline in idiosyncratic volatility by 18.0872%.

Table 4.2 above indicates that profitability and Idiosyncratic stock returns volatility are negatively and significantly correlated (EPS: r = -0.270294; p = 0.0000; P_E: r = -0.449246; p = 0.0000 & ROE: r = -0.517811; p = 0.000). This is in line with the results of Alnasubul (2019), Paulus and Irvan (2018), Zang and Zhou (2020) and Firmansyal et al. (2020) but contradicts the result of Cheruiyot et al. (2019) who got a positive correlation. However, all these studies did not use the GARCH model to capture the asymmetric pattern in variance and change of magnitude over time exhibited by firm-idiosyncratic volatility of stock returns. Finally, the correlation results indicates that accruals quality, a measure of earnings quality, is negatively correlated with idiosyncratic volatility of stock returns at the NSE (AQ: r = -0.388210, p = 0.0000)

4.3. Effects of Capital Expenditure on Stock Returns Volatility Amongst the NSE Listed Companies

To establish effects of capital expenditure on stock returns volatility, a null hypothesis, H_{01}, with the assumption that Capital Expenditure has no effect on volatility of stock returns amongst NSE quoted firms was formulated. Dynamic, Fixed effects panel regression model was employed to test for the null hypothesis. The regression output is as presented as shown in Table 4.3 below.

Table 4.3 Effect of capital expenditure on stock returns volatility at the NSE.

Dependent Variable: SRV

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.108270	0.012602	8.591766	0.0000
LNCAPIT	0.026097	0.004287	6.088088	0.0000
SRV(-2)	0.567061	0.048068	11.79701	0.0000

R-squared	0.511763	Mean dependent var	0.221339
Adjusted R-squared	0.507608	S.D. dependent var	0.120656
S.E. of regression	0.084662	Akaike info criterion	-2.087768
Sum squared resid	1.684411	Schwarz criterion	-2.044000
Log likelihood	251.4444	Hannan-Quinn criter.	-2.070129
F-statistic	123.1619	Durbin-Watson stat	1.242166
Prob(F-statistic)	0.000000		

Source: Research Data, 2023.

*****Key: SRV-stock returns volatility, LNCAPIT- natural logarithm of capital intensity ratio*

The resulting model 4.31 is as follows:

$$SRV = 0.108270 + 0.026097\,CAPIT + 0.567061\,SRV_{t-2} + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4.31)$$

Model 4.31 above shows that, with all other factors held constant, one percentage increase in capital expenditure will occasion a 2.6097% increase in stock returns volatility. For any company, capital expenditure projects take up huge amounts of funds, are irreversible and are faced with a lot of uncertainty. The uncertainty emanates from the fact that capital expenditures are incurred today to create a benefit in the uncertain future. When firms engage

in capital investments, investors react to information about the risk inherent in the capital expenditures due to uncertainty of the future benefits and this causes the increase in volatility.

The findings of the current study conform with the study of Takashi, Kentaro and Clinton (2022) and Chih and Wei (2017) who recorded a positive and statistically significant relationship between capital expenditure, measured as R & D, and stock returns. However, the two studies used R & D as a measure of capital expenditure and also failed to account for volatility clustering exhibited by idiosyncratic stock returns volatility. On the contrary, the current result contradicts the study of Erwei, Dominic, Grant and Wenjuan (2020) and Clark and Shujing (2021) who posited that capital expenditure is negatively and significantly related with stock returns. However, the study of Erwei et al. (2020) used R & D as a measure of capital expenditure and also regressed capital expenditure against stock returns without considering the firm specific volatility aspect in the stock returns. This study did not account for the asymmetric pattern exhibited by stock return asynchronicity. The study of Cark and Shujing (2021) only measured the influence of growth options (moderator) on the relationship between capital expenditure and stock returns variance. The study also omitted firm years with large acquisitions making it a biased study. Also, the study of Shujing (2021) did not directly link growth options to stock return asynchronicity. Lastly, the findings obtained in the current study contradict those of Ching, Chih, Ruey and Hsin (2022) which used qualitative data and found that capital expenditure and cumulative abnormal returns (CARs) are significantly and negatively related. Besides using qualitative data, the study focused more on capital expenditure and CARs rather than volatility of stock returns. The current study directed its focus on quantitatively analyzing how total capital expenditure, measured by CAPIT, relate with idiosyncratic stock returns volatility. The metric for idiosyncratic stock returns volatility was the root variance of the residuals of FF3F model. This accounted for the stock sensitivity to market (β), sensitivity to size (SMB) factors and sensitivity to value (HML) factors. The current study captures all firm-years regardless of the magnitude of new acquisitions incurred in each particular year. Additionally, the GARCH model is used in the current study, to account for the asymmetric pattern in variance and change of magnitude over time exhibited by idiosyncratic stock returns volatility.

The findings in the current study gives a higher goodness of fit, R^2 = 50.7608%, which is an indication that the model is a good predictor of firm specific stock returns volatility with capital expenditure as the predictor variable. The result reveals that stocks from firms listed at the NSE could face different levels of volatility based on the proportion of resources allocated and utilized on corporate investments activities. These findings explain why aggregate firm specific volatility of stock returns can increase even when aggregate market volatility remain the same over time as posited by the study of Campbell (Campbell, 2001). This makes a strong case for pricing of idiosyncratic risks, associated with capital expenditure, in the NSE listed firms' stocks. Firms engage in corporate investment at different levels and at different time periods leading to varying levels of idiosyncratic volatility of stock returns.

Also, the coefficient of determination (Adjusted R^2) of 0.507608 shows that capital expenditure, measured as Capital Intensity Ratio (CAPIT), together with the two-period lag volatility, will predict 50.7608% of firm specific stock return volatility leaving 49.2392% to be explained by other variables not captured in this the model. R^2 (coefficient of determination) is used as a metric for the strength and quality of the regression model. A strong R^2 is an indication that the study's model is a good and significant predictor of idiosyncratic volatility of stock returns. The results of the dynamic panel regression analysis represented in table 4.3 (above) helped in hypothesis testing. The criterion for rejection or acceptance of the null hypothesis was that, when the p value greater than 0.05, the null (**H_{01}**) was accepted, but if the p-value was below 0.05, the null (**H_{01}**) was rejected. The results in Table 4.3 indicates that capital expenditure significantly and positively relate with firm specific stock returns volatility amongst companies listed at the NSE in Kenya (β = 0.026097; p = 0.0000). A calculated t-statistic of 6.088088 which is greater than the critical t-statistic of 1.96 supported this finding. Based on this finding, the null hypothesis (H_{01}), that Capital Expenditure has no effect on volatility of stock returns amongst NSE quoted firms is, therefore, rejected. It is therefore concluded that capital expenditure has a statistically significant and a positive relationship with volatility of stock returns amongst NSE quoted firms.

4.4. Influence of Financial Gearing on Firm Specific Stock Returns Volatility Amongst NSE Listed Firms.

To actualize the second objective, a null hypothesis, **H_{02}**, assuming that Financial Gearing has no effect on volatility of stock returns amongst NSE quoted firms in Kenya, was conceived. To test this hypothesis, dynamic fixed effects panel regression analysis was performed. The results of the regression analysis are displayed in Table 4.4 below

Table 4.4 Influence of Financial Gearing on volatility of Stock Returns Volatility Amongst NSE Quoted Firms.

Dependent Variable: SRV

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.288083	0.023616	12.19862	0.0000
LNDCR	0.066779	0.009828	6.795096	0.0000
LNAER	-0.028459	0.008140	-3.496090	0.0006
SRV(-2)	0.458618	0.053140	8.630323	0.0000

R-squared	0.562171	Mean dependent var	0.221339
Adjusted R-squared	0.556558	S.D. dependent var	0.120656
S.E. of regression	0.080344	Akaike info criterion	-2.188336
Sum squared resid	1.510504	Schwarz criterion	-2.129979
Log likelihood	264.4120	Hannan-Quinn criter.	-2.164817
F-statistic	100.1517	Durbin-Watson stat	1.242816
Prob(F-statistic)	0.000000		

Source: Analysed Research Data, 2023

*****Key: SRV-stock returns volatility, LNDCR- natural logarithm of debt capital ratio, LNAER- natural logarithm of asset Equity ratio*

The resulting models Model 4.41 & 4.42 are as follows:

$$\text{SRV} = 0.0288083 + 0.066779\,\text{DCR} + 0.458618\,SRV_{t-2} + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4.41)$$

$$\text{SRV} = 0.0288083 - 0.028459\,\text{AER} + 0.458618\,SRV_{t-2} + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4.42)$$

Model 4.41 above indicates that, all other factors held constant, one percentage change in financial gearing (DCR) can cause an increase in firm specific volatility of stock returns by 6.6779%. This means that an increase in debt in the capital structure of a firm cause an

increase in idiosyncratic stock returns volatility of such a firm and vice versa. The reason behind this could be that increase in debt causes an increase the associated risk of default as well as the possibility of insolvency by the firms accumulating too much debt in their capital structure. This confirms the assertion in the study of Pandey (2010) which posits that when low growth firms increase their gearing ratio, they increase their default risk scaring away their potential investors while spooking existing stock holders decreasing the demand for the firm's stocks causing instability in prices which leads to increased stock returns volatility. On the other hand, model 4.42 indicates that, all other factors held constant, one percentage increase in financial gearing (AER) causes a decline in firm specific volatility by 2.84459%. This means that increase in assets in relation to equity of a firm causes a decline in volatility of stock returns of that firm. Investors may be viewing more assets as compared to equity in a firm as an indicator of positive equity or net worth which implies high value for such a firm. This reduces spooking amongst investors leading to a decline in volatility.

When using DCR as a metric for financial gearing, the findings obtained are in conformity with the findings obtained in the study of Aharon and Yagil (2019) who posited a positive financial gearing - stock return volatility relationship. Nevertheless, the study of Aharon and Yagil (2019) modeled stock returns as a function of financial gearing as given in the Modigliani and Millar (1958). This type of modeling could neither measure stock return volatility nor capture the asymmetric pattern in variance and change of magnitude over time exhibited by idiosyncratic stock returns volatility. Additionally, they posited a low goodness of fit (R^2= 11.1%) implying that the model was significant but not good predictor of stock returns using leverage as the predictor variable. The current findings contradict those of Shalaby (2020) who conducted a study on how financial gearing relate to stock returns in Arab stock markets indicating that there is no significant relationship. However, this study did not investigate how financial gearing influences firm specific volatility of stock returns. On the other hand, when using AER as a metric for financial gearing, the result obtained (β = -0.028459, p = 0.0006) relates favourably with Zhang and Zhou (2020) who employed quantile regression model to evaluate the influence of financial gearing on stock price asynchronicity. The study found that financial gearing significantly and negatively relates with stock price asynchronicity. However, the study solely focused on equity price asynchronicity and not idiosyncratic equity return volatility. The negative relationship in the

current study is also in line with what Byung and Chong (2019) who found that capital structure volatility and stock returns relate have a negative relationship. However, the study did not relate gearing to stock return volatility. Wasafi and Haneen (2016) also found a negative capital structure-stock returns relationship, using a sample of industrial companies listed at ASE, Jordan. This study did not capture stock returns' sensitivity to the market, portfolio size and portfolio value factors. The current study findings also conform to those of Mohammad, Kamruddin, Tarana and Rahat (2015) who found that financial gearing and stock returns relationship is statistically significant and negative, amongst manufacturing firms, when overall industrial data was used. However, the study posted unstable results when firm specific data was used. The study did not investigate the link between financial gearing and idiosyncratic equity return volatility. Finally, the current findings conform with those of Zeeshan and Daw (2018) who posited a negative interlink between financial gearing and stock returns which were measured as the residuals of the CAPM.

Further, the results in Table 4.4 above records an R^2 (coefficient of determination) of 0.556558 which indicates that Financial Gearing, measured as Debt Capital Ratio (DCR) and Asset Equity Ratio (AER), together with the two periods lag volatility, will predict 55.6558% of idiosyncratic volatility of stock returns. The remaining 44.3442% can be accounted for by other variables not captured in this model. The model's goodness of fit is high indicating the model's high prediction ability of stock returns volatility using financial gearing as the independent variable. It can be noted that past studies have linked financial gearing, to either stock price asynchronicity or stock returns but not stock returns volatility. To cure the shortcomings of these studies, the current study analysed the effect of financial gearing, measured as DCR & AER, on volatility of stock returns, which were modeled as the root variance of the regression residuals of FF3F model. FF3F model captured stock returns' response to the market (β), portfolio size (SMB) and portfolio value (HML) factors. Idiosyncratic volatility was modelled using the GARCH model which captured the asymmetric pattern in variance and change of magnitude over time exhibited by firm-idiosyncratic stock returns volatility. Data used in the current study was sourced from firms sampled from different sector of the economy, a clear departure from the past studies which sampled firms from a single sector. This has increased the robustness and stability of the findings posited by the current study which has given a higher goodness of fit (R^2 =

55.6558%) indicating that the model is a better predictor of stock return volatility with financial gearing as the predictor variable, as compared to models in earlier studies.

The dynamic panel regression analysis results presented in table 4.4 (above) helped in testing for the hypothesis H_{02}. Null hypothesis acceptance or rejection criterion was that, if the p-value was below 0.05, the null (H_{02}) was to be rejected, but if the p- value was more than 0.05, the null (H_{02}) was to be accepted. Results in Table 4.4 indicates that financial gearing (DCR) and idiosyncratic stock returns Volatility exhibit a significant and positive relationship, amongst NSE listed firms in Kenya ($\beta = 0.066779$, $p=0.0000$). This finding was also supported by a calculated t-statistic of 6.795096 which was greater than the critical t-statistic of 1.96. Additionally, the study indicates that the relationship between financial Gearing, measured by AER and firm specific stock returns volatility amongst NSE listed firms in Kenya is negative and significant ($\beta = -0.028459$, $p = 0.0006$). This was supported by a calculated absolute t-statistic of 3.496090 that was greater than the critical t-statistic of 1.96. Thus, the null hypothesis, H_{02}, that Financial Gearing has no effect on volatility of stock returns amongst NSE quoted firms, is rejected. Therefore, two conclusions can be drawn from the study: Financial Gearing, measured by DCR significantly and positively affect volatility of stock returns amongst NSE quoted firms and financial gearing measured as AER significantly and negatively affect volatility of stock returns amongst NSE quoted firms.

4.5 Effect of Profitability on Stock Returns Volatility Amongst NSE Listed Firms.

To actualize the third objective, a null hypothesis, $\mathbf{H_{03}}$, assuming that profitability has no effect on volatility of stock returns amongst NSE quoted firms, was formulated. Hypothesis testing was done with the help of dynamic, fixed effects regression model. The regression results in Table 4.5 below indicates that profitability, measured by Earnings Per Share (EPS), Price Earnings Ratio (P_E) and Return on Equity (ROE) significantly and negatively affect volatility of stock returns amongst NSE quoted firms (EPS: $\beta = -0.010357$, $p = 0.0056$; P_E: $\beta = -0.017284$, $p = 0.0000$ and ROE: $\beta = -0.232885$, $p = 0.0000$). This indicates that a 1% increase in profitability measured by EPS causes a decline in stock return volatility by 1.0357%, 1% increase in Price Earnings Ratio causes a decline in volatility of stock return by 1.7284% and also 1% increase in Return on Equity Ratio causes a decline in volatility of

stock returns by 23.2885%. The results of the regression analysis are presented in Table 4.5. below.

Table 4.5 Effect of Profitability on Volatility of stock returns at the NSE.

Dependent Variable: SRV				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.058015	0.011357	-5.108277	0.0000
LNEPS	-0.010357	0.003707	-2.793987	0.0056
LNP_E	-0.017284	0.003859	-4.478701	0.0000
LNROE	-0.232885	0.035061	-6.642288	0.0000
SRV (-2)	0.473653	0.048257	9.815258	0.0000
R-squared	0.571927	Mean dependent var		0.221339
Adjusted R-squared	0.564578	S.D. dependent var		0.120656
S.E. of regression	0.079614	Akaike info criterion		-2.202467
Sum squared resid	1.476848	Schwarz criterion		-2.129520
Log likelihood	267.0936	Hannan-Quinn criter.		-2.173068
F-statistic	77.82478	Durbin-Watson stat		1.142623
Prob(F-statistic)	0.000000			

Source: Research Data, 2023

Key: SRV-stock returns volatility, LNEPS- natural logarithm of Earnings per share, LNP_E – Natural logarithm of price earnings ratio, LNROE- natural logarithm of Return on Equity

The resulting models 4.51, 4.52 and 4.53 are presented as follows:

$$\text{SRV} = -0.058015 - 0.010357\ \text{EPS} + 0.473653\ SRV_{t-2} + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4.51)$$

$$\text{SRV} = -0.058015 - 0.017284\ PE + 0.473653\ SRV_{t-2} + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4.52)$$

$$\text{SRV} = -0.058015 - 0.232885\ \text{ROE} + 0.473653\ SRV_{t-2} + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4.53)$$

The regression analysis in table 4.5 give rise to models 4.51, 4.52 and 4.53 above. Model 4.51 indicates that, all factors held constant, 1% increase in EPS causes a decline in volatility of stock returns by 1.0357%. This implies that an increase in earnings attributable to shareholders reduces spooking amongst investors making them hold onto their investments creating stability in stock prices which reduces volatility in stock returns. Model 4.52

indicates that, all factors held constant, 1% increase in PE leads to a decrease in volatility of stock returns by 1.7284%. This implies that increase in stock prices at the NSE could be interpreted as a sign of financial stability and increase in value of the respective firms. Thus, investors respond to this information positively by holding onto their stocks leading to stability and decline in volatility of the stock returns. For robustness of the results, ROE was included in the regression and its result indicates that 1% increase in ROE causes a decline in volatility by 3.3448%.

The recorded R^2 (coefficient of determination) of 0.564578 indicates that Profitability, measured as EPS, P_E and ROE, together with the two periods lag volatility, will predict 56.4578% of idiosyncratic volatility of stock returns. Factors outside this model could predict the remaining 43.5422%. The strong R^2 is an indicator that the model is robust and a good predictor of firm specific stock returns volatility with profitability as the independent variable. The study findings conform with those of: Paulus and Irvan (2018) recording R^2 = 15.38%; Firmansyah, Sihombing and Kusumastuti (2020) and Bin, Amalia and Ashton (2014). The study of Paulus and Irvan (2018) used a sample consisting of only 12 automotive companies which could not be considered to be representative enough. The study also related profitability to stock returns and not stock return volatility and therefore neither measured volatility nor accounted for sensitivity of the stock to the market (β), portfolio size (SMB) and portfolio value (HML) factors. The study also failed to capture the asymmetric pattern in variance and change of magnitude over time exhibited by idiosyncratic stock returns volatility. The study of Firmansyah, Sihombing and Kusumastuti (2020) and Bin, Amalia and Ashton (2014) used the root variance of the residuals of the FF3F model to estimate volatility but failed to account for volatility clustering exhibited by firm-idiosyncratic volatility. Thus, the current study cured the weakness noted in past studies by measuring volatility as the standard deviation of residuals of FF3F model, which accounted for market factors, portfolio size and portfolio value. The current study also modelled volatility using the GARCH model which captures the asymmetric pattern in variance and change of magnitude over time exhibited by idiosyncratic volatility of stock returns.

On the contrary, the results of the current study contradict that of Cheruiyot, Olweny and Irungu (2019); Nathania and Sung (2021) and Luqman and Kusmanto (2020) who found that

profitability relate significantly and positively with stock returns and/or stock returns volatility. The study of Cheruiyot, Olweny and Irungu (2019) did not model volatility using the GARCH model, which accounts for volatility clustering exhibited by idiosyncratic volatility. In addition, Cheruiyot, et al. (2019) measured volatility as variance of residuals of CAPM, the single factor model, taking care of only the sensitivity to market (β) factors but not the sensitivity to portfolio size (SMB) and portfolio value factors value (HML) factors. The study of Nathania and Sung (2021) linked profitability to stock returns but did not link profitability to stock returns volatility. The study also ignored other profitability metrics which are of interest to the investor such as the EPS, PER and ROE. Finally, the study of Luqman and Kusmanto (2020) sampled only 12 firms in the mining sector, which was not representative enough. The study used net profit as the only metric of profitability and assumed that all investors are motivated by profits to invest. The study linked profitability to stock returns and not stock return volatility. Therefore, this study went further to establish the relationship between profitability, measured as EPS, PE and ROE, on stock returns volatility, for NSE listed companies. A sample of 24 firms picked from different sectors of the Kenyan economy were used in the study, giving more credibility to the results obtained. The current study estimated volatility as variance of residuals of the FF3F model, which accounts for Market (β), size and value factors and captured volatility clustering using the GARCH model.

Hypothesis testing was done using the dynamic panel regression represented in table 4.5 above, and was decided based on the probability values. The criterion for acceptance or rejection was a probability value 0.05. H_{03} is rejected if the p- value is below 0.05 but if the p-value is greater than 0.05, the H_{03} is accepted. The findings in Table 4.5 shows that the relationship between profitability, measured by EPS, P_E and ROE and Firm Specific Stock Returns Volatility, amongst NSE listed firms, is negative and significant (EPS: $\beta = -0.010357$, $p = 0.0056$; P_E: $\beta = -0.017284$, $p = 0.0000$ & ROE: $\beta = -0.033448$, $p = 0.0000$). A calculated t-statistic of 2.793987, 4.478701 and 4.258616 respectively, supported these results. Based on these findings, the formulated null hypothesis, H_{03}, that profitability does not significantly affect stock returns volatility amongst NSE listed firms in Kenya is rejected. Therefore, it is concluded that profitability, measured by EPS, P_E and ROE, significantly and negatively affect stock returns volatility amongst NSE listed companies in Kenya.

4.6 Effect of earnings Quality on stock returns volatility amongst firms listed at the NSE.

To actualize the fourth objective, a null hypothesis, H_{04}, assuming that Earnings Quality does not significantly affect stock returns volatility amongst NSE listed firms, was formulated. Hypothesis testing was done using the dynamic, fixed effects regression analysis and the results are presented in Table 4.6 below.

Table 4.6 Effect of Earnings Quality on Volatility of stock returns Amongst firms listed at the NSE.

Dependent Variable: SRV				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.135514	0.024861	-5.450795	0.0000
LNAQ	-0.013537	0.003792	-3.569904	0.0004
SRV(-2)	0.596466	0.050755	11.75198	0.0000
R-squared	0.465194	Mean dependent var		0.221339
Adjusted R-squared	0.460643	S.D. dependent var		0.120656
S.E. of regression	0.088608	Akaike info criterion		-1.996665
Sum squared resid	1.845073	Schwarz criterion		-1.952896
Log likelihood	240.6031	Hannan-Quinn criter.		-1.979025
F-statistic	102.2059	Durbin-Watson stat		1.319806
Prob(F-statistic)	0.000000			

Source: Research Data, 2023

Key: SRV-stock returns volatility, LNAQ- natural logarithm of accrual's quality

The resulting model 4.6 is as follows:

$$\boldsymbol{S}RV = -0.135514 - 0.013537\, AQ + 0.596466\, SRV_{t-2} + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4.6)$$

Model 4.6 above indicates that all other factors held constant, 1 % increase in earnings quality causes a decline in volatility by 1.3537%. This could be associated with the fact that when more earnings are converted to cash, firms are able make good their obligations when they fall due. In this regard, firms are able to reduce their financial distress risks, attaining

financial stability. Investors tend to hold onto stocks of firms exhibiting financial stability and this creates stability in stock prices, reducing variance in stock returns.

The results presented in Table 4.6 above and the resulting model 4.6 shows that earnings quality significantly and negatively predict stock return volatility at the NSE (β = -0.013537, p = 0.0004). This means that 1% increase in earnings quality causes 1.3537% decline in volatility of stock returns. This conforms with the findings of Mitra (2016); Claudia and Antonio (2018) and Nyanine et al (2022) which found that earnings quality significantly and negatively relate with Idiosyncratic stock returns volatility. These studies used Earnings persistence and Earnings smoothness as metrics for earnings quality. In the current study, Earnings Quality has been operationalised as Accrual's Quality.

Hypothesis testing was done with the criterion for acceptance or rejection being a probability value 0.05. H_{04} is rejected if the p- value is below 0.05 but if the p-value is greater than 0.05, the H_{04} is accepted. Table 4.6 indicates that Accrual's Quality relate significantly and positively with idiosyncratic stock Returns Volatility amongst NSE listed firms in Kenya (β = -0.013537, p = 0.0004). The computed t-statistic of 3.569904 supports this finding, since it is greater than the critical t-statistic of 1.96. Based on these findings, the formulated null hypothesis, H_{04}, that Earnings Quality does not significantly affect stock returns volatility amongst NSE quoted companies in Kenya is rejected. Therefore, it can be resolved that Earnings Quality has a negative and statistically significant effect on stock returns volatility amongst NSE quoted companies in Kenya.

4.7 Multiple Regression on the effect of capital expenditure, financial gearing and profitability on stock returns volatility amongst NSE listed Firms.

To estimate the combined effect between idiosyncratic risks and Earnings quality on firm specific stock returns Volatility at the NSE, an overall regression analysis was conducted. Table 4.7 below displays the findings from the dynamic multiple regression model on the effect of idiosyncratic risks and Earnings quality on stock returns volatility amongst the NSE quoted companies in Kenya. The R^2 was used for robustness check and to assess the overall model's predicting ability.

The model was supported by a strong R^2 (coefficient of determination) of 0.708197. This implies that capital expenditure, financial gearing and profitability together can explain 70.8197% of the changes in idiosyncratic stock returns volatility. The remaining 29.1803% can be accounted for in factors not included in this model. It can be concluded that capital expenditure, financial gearing and profitability are good predictors of firm specific stock returns' volatility amongst NSE quoted firms. The model's statistically significant F statistic (F = 72.89906, p = 0.0000), which is higher and above the critical value of 1.96 at 99% confidence, supports these findings. Multiple regression output is presented in Table 4.7 below,

Table 4.7 Multiple Regression Analysis on the effect of Capital expenditure, Financial Gearing and profitability on volatility of stock returns at the NSE.

Dependent Variable: SRV

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.115928	0.021800	-5.317868	0.0000
LNCAPIT	0.024737	0.004926	5.022134	0.0000
LNDCR	0.386707	0.083264	4.644352	0.0000
LNAER	0.025187	0.008600	2.928889	0.0037
LNEPS	-0.006834	0.003394	-2.013416	0.0452
LNP_E	-0.014044	0.003536	-3.971479	0.0001
LNROE	-0.513469	0.169942	-3.021429	0.0028
LNAQ	-0.012054	0.003250	-3.708962	0.0003
SRV(-2)	-0.246803	0.048249	-5.115229	0.0000

R-squared	0.718047	Mean dependent var	0.221339
Adjusted R-squared	0.708197	S.D. dependent var	0.120656
S.E. of regression	0.065175	Akaike info criterion	-2.586408
Sum squared resid	0.972734	Schwarz criterion	-2.455104
Log likelihood	316.7826	Hannan-Quinn criter.	-2.533490
F-statistic	72.89906	Durbin-Watson stat	1.389069
Prob(F-statistic)	0.000000		

Source: Research Data, 2023

Key: SRV-stock returns volatility, LNCAPIT-natural log of capital intensity ratio, LNDCR-natural log of debt capital ratio, LNAER- natural log of asset Equity ratio, LNEPS- natural log of Earnings per share, LNP_E-natural log of price earnings ratio, LNROE- natural log of Return on Equity, LNAQ-natural log of accrual's quality

Table 4.7 reveals that capital expenditure (measured by Capital Intensity ratio) significantly and positively relate with stock returns Volatility amongst the NSE quoted companies in Kenya (β= 0.024737, p=0.0000). Financial Gearing (measured by DCR and AER) was significantly and positively related with firm-Idiosyncratic stock returns Volatility amongst NSE quoted companies in Kenya (DCR: β = 0.386707, p=0.0000; AER: β = 0.025187, p=0.0037). Finally, the model indicated a negative and statistically significant relationship between profitability (measured by EPS, P_E and ROE) and firm specific stock returns volatility amongst quoted companies in Kenya (EPS: β = -0.006834, p=0.0452; P_E: β = -0.014044, p=0.0001 and ROE: β = -0.513469, p=0.0028). This was supported by a calculated t-statistic of 2.013416, 3.971479 and 3.021429 respectively, all of which are greater than the critical t-statistic of 1.96. Finally, the findings indicated a negative and significant interconnect between earnings quality (AQ) and stock returns Volatility amongst NSE quoted companies in Kenya (β = -0.012054, p=0.0003).

Models 4.71 to 4.76 Shows the Multiple Regression Models on the effects of capital expenditure, financial gearing and profitability on volatility of stock returns.

$$SRV = -0.115928 + 0.024737\ \text{CAPIT} + 0.386707\ \text{DCR} - 0.006834\ \text{EPS} - 0.012054\ \text{AQ} - 0.246803\ SRV_{t-2} \quad (4.71)$$

$$SRV = -0.115928 + 0.024737\ \text{CAPIT} + 0.386707\ \text{DCR} - 0.014044\ \text{P\_E} - 0.012054\ \text{AQ} - 0.246803\ SRV_{t-2} \quad (4.72)$$

$$SRV = -0.115928 + 0.024737\ \text{CAPIT} + 0.386707\ \text{DCR} - 0.513469\ \text{ROE} - 0.012054\ \text{AQ} - 0.246803\ SRV_{t-2} \quad (4.73)$$

$$SRV = -0.115928 + 0.024737\ \text{CAPIT} + 0.025187\ \text{AER} - 0.006834\ \text{EPS} - 0.012054\ \text{AQ} - 0.246803 SRV_{t-2} \quad (4.74)$$

$$SRV = -0.115928 + 0.024737\ \text{CAPIT} + 0.025187\ \text{AER} - 0.14044\ \text{P\_E} - 0.012054\ \text{AQ} - 0.246803\ SRV_{t-2} \quad (4.75)$$

$$SRV = -0.115928 + 0.024737\ \text{CAPIT} + 0.025187\ \text{AER} - 0.017445\ \text{ROE} - 0.012054\ \text{AQ} - 0.246803\ SRV_{t-2} \quad (4.76)$$

4.8 Moderating Influence of Earnings Quality on the relationship between capital expenditure, financial gearing and profitability on volatility of stock returns at the NSE.

Past studies such as Cheruiyot et al. (2019) established the influence of firm size on accounting elements and firm-idiosyncratic stock returns volatility. However, the studies could not ascertain the total value of the accrual's which were eventually realised as actual cash receipts. The risk of accrual earnings failing to be realised as actual cash receipts can affect the reliability of the financial ratios obtained from accounting information in giving the correct relationship with volatility of stock returns. Thus, this study established the influence of accruals quality, a metric of earnings quality, on idiosyncratic risks and stock returns volatility amongst NSE quoted companies in Kenya.

Thus, the fifth objective aimed at determining whether earnings Quality has a statistically significant influence on the relationship between capital expenditure, financial gearing and profitability on stock returns volatility at the NSE. A null hypothesis was formulated as; **H_{05}**: Earnings Quality does not significantly moderate influence the interconnect between capital expenditure, financial gearing and profitability on stock returns volatility amongst NSE Listed companies. To ascertain the influence of earnings quality on idiosyncratic risks and stock returns volatility amongst the NSE listed firms, the researcher conducted a stepwise regression analysis as shown below:

4.8.1 Influence of earnings quality on capital expenditure and volatility of stock returns at the NSE.

The results of table 4.8 shows that introducing earnings quality as a moderator improves the prediction ability of the regression model, as is depicted by an increased R^2 from 50.7608% recorded in table 4.3 to 71.5655% recorded in Table 4.8 below. Below is Table 4.8 which displays the regression analysis on the influence of earnings quality on capital expenditure and stock returns volatility amongst quoted companies at the NSE.

Table 4.8 Influence of earnings quality on capital expenditure and volatility of stock returns at the NSE.

Dependent Variable: SRV

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.074371	0.021299	-3.491726	0.0006
LNCAPIT	0.014951	0.004083	3.662210	0.0003
LNAQ	0.056699	0.008738	6.488944	0.0000
LNCAPIT*LNAQ	0.043354	0.004613	9.398849	0.0000
SRV (-2)	0.264424	0.043317	6.104448	0.0000

R-squared	0.720454	Mean dependent var	0.221339
Adjusted R-squared	0.715655	S.D. dependent var	0.120656
S.E. of regression	0.064336	Akaike info criterion	-2.628596
Sum squared resid	0.964428	Schwarz criterion	-2.555650
Log likelihood	317.8030	Hannan-Quinn criter.	-2.599198
F-statistic	150.1239	Durbin-Watson stat	1.421118
Prob(F-statistic)	0.000000		

Source: Research data, 2023

Key: SRV-stock returns volatility, LNCAPIT-natural log of capital intensity ratio, LNAQ-natural log of accrual's quality

The moderating influence of earnings quality on capital expenditure and idiosyncratic stock returns volatility is positive and statistically significant (LNCAPIT*LNAQ: β = 0.043354, p = 0.0000). This is supported by a t statistic of 9.398849, which is greater that t critical of 1.96. The resulting Model is:

$$SRV = -0.074371 + 0.014951\ \text{CAPIT} + 0.056699\ \text{AQ} + 0.043354\ \text{CAPIT} * \text{AQ}$$
$$+0.264424\ (SRV)_{t-1} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots .. (4.8.1)$$

From 4.8.1 above, the moderating effect of earnings quality on capital expenditure and volatility of stock returns is positive (0.043354). This indicates that an increase in earnings quality of a firm strengthens the impact of capital expenditure on stock returns volatility for NSE quoted companies.

4.8.2 Influence of earnings quality on financial gearing and stock returns volatility at the NSE.

The results of table 4.9 shows that introducing earnings quality as a moderator improves the prediction ability of the model, as is depicted by an increased R^2 from 55.6558% recorded in table 4.4 to 73.9392% recorded in table 4.9.

Table 4.9 below displays the findings on the influence of earnings quality on financial gearing and stock returns volatility at the NSE.

Table 4.9 Effect of Earnings Quality on Financial Gearing and Stock Returns Volatility at the NSE.

Dependent Variable: SRV

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.640203	0.046051	-13.90193	0.0000
LNDCR	0.154533	0.015174	10.18399	0.0000
LNAER	0.095154	0.019972	4.764359	0.0000
LNAQ	-0.109061	0.009772	-11.16056	0.0000
LNDCR*LNAQ	-0.054587	0.005386	-10.13512	0.0000
LNAER*LNAQ	0.035393	0.005372	6.587833	0.0000
SRV (-2)	0.257735	0.041968	6.141293	0.0000

R-squared	0.745989	Mean dependent var	0.221339
Adjusted R-squared	0.739392	S.D. dependent var	0.120656
S.E. of regression	0.061593	Akaike info criterion	-2.707578
Sum squared resid	0.876334	Schwarz criterion	-2.605453
Log likelihood	329.2018	Hannan-Quinn criter.	-2.666420
F-statistic	113.0684	Durbin-Watson stat	1.337455
Prob(F-statistic)	0.000000		

Source: Research data, 2023

Key: SRV-stock returns volatility, LNDCR- natural log of debt capital ratio, LNAER-natural log of asset Equity ratio, LNAQ-natural log of accrual's quality

The moderating influence of earnings quality on financial gearing and stock returns volatility is negative and statistically significant for DCR (LNDCR*LNAQ: $\beta = -0.054587$, $p = 0.0000$) and positive and statistically significant for AER (LNAER*LNAQ: $\beta = 0.035393$, $p = 0.0000$). This is supported by a t statistic of 10.13512 and 6.587833 respectively, which are greater that t critical of 1.96. Introducing the moderator changes the direction of the association between AER and stock returns volatility from negative to positive.

The resulting models 4.9.1 and 4.9.2 were as follows:

$$SRV = -0.640203 + 0.154533\ \mathrm{DCR} - 0.109061\ \mathrm{AQ} - 0.054587\ \mathrm{DCR} * \mathrm{AQ}$$
$$+0.257735\ (SRV)_{t-1} \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots (4.9.1)$$

$$SRV = -0.640203 + 0.095154\ \mathrm{AER} - 0.109061\ \mathrm{AQ} + 0.035393\ \mathrm{AER} * \mathrm{AQ}$$
$$+0.257735\ (SRV)_{t-1} \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots (4.9.2)$$

From model 4.9.1 above, it can be concluded that increase in quality of financial reporting, measured by the earnings quality, reduces the influence of debt (in the capital structure) on volatility of stock returns. In this regard, managers operating a proper working capital management system with an efficient debt collection management cycle, could increase proportion of debt in their capital structure without necessarily causing adverse effects on the idiosyncratic stock returns volatility. Efficiency in working capital management reduces the default risk on both short-term and long-term debt since all debt obligations are timely serviced. Model 4.9.2 above indicates that an increase in quality of earnings changes the influence AER has on stock returns volatility from negative to positive. Increase in assets in relation to equity can only be interpreted to mean accumulation of more debt to finance the additional assets (increased leverage). The moderating effect of earnings quality on AER and idiosyncratic volatility of stock returns is significant and positive, which implies that in the presence of earnings quality, the effect of AER on volatility of stock return increases from negative to positive, creating an overall effect of an increase in idiosyncratic volatility of stock returns.

4.8.3 Influence of earnings quality on profitability and volatility of stock returns at the NSE.

Table 4.10 below shows the results of the moderating effect of earnings quality on the relationship between profitability and volatility of stock returns at the NSE.

Table 4.10: Influence of Earnings Quality on Profitability and Stock Returns Volatility at the NSE.

Dependent Variable: SRV

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.727797	0.050051	14.54117	0.0000
LNEPS	-0.027541	0.009394	-2.931910	0.0037
LNP_E	-0.040440	0.009386	-4.308703	0.0000
LNROE	-0.101574	0.008567	-11.85601	0.0000
LNAQ	-0.115113	0.009462	-12.16601	0.0000
LNEPS*LNAQ	-0.009193	0.002588	-3.551960	0.0005
LNP_E*LNAQ	-0.013260	0.002761	-4.802184	0.0000
LNROE*LNAQ	0.031535	0.002689	11.72704	0.0000
SRV (-2)	0.152452	0.042159	3.616115	0.0004

R-squared	0.773465	Mean dependent var	0.221339
Adjusted R-squared	0.765551	S.D. dependent var	0.120656
S.E. of regression	0.058420	Akaike info criterion	-2.805248
Sum squared resid	0.781543	Schwarz criterion	-2.673944
Log likelihood	342.8245	Hannan-Quinn criter.	-2.752330
F-statistic	97.73504	Durbin-Watson stat	1.433468
Prob(F-statistic)	0.000000		

Source: Analysed Research Data, 2023

Key: SRV-stock returns volatility, LNEPS- natural log of Earnings per share, LNP_E- natural log of price earnings ratio, LNROE- natural log of Return on Equity, LNAQ-natural log of accrual's quality

Table 4.10 shows that introducing earnings quality as a moderator improves predictability ability of the model, as is depicted by an increased R^2 from 56.4578% recorded in table 4.5 to 76.5551% recorded in table 4.10. the predictability ability of the model improves by 20.0973% due to moderation. The moderating influence of earnings quality on profitability (measured by EPS and P_E) and volatility of stock returns is statistically significant and negative (EPS: β = -0.009193, p = 0.0005 and P_E: β = -0.013260, p = 0.0000). This is supported by t statistic of 3.551960 and 4.802184 respectively, which are greater that t critical of 1.96. Finally, the influence of earnings quality on profitability (measured by ROE) and volatility of stock returns is positive and statistically significant (β = 0.031535, p = 0.0000). This is supported by a t statistic of 11.72704, which is greater that t critical of 1.96. The resulting models were as follows:

Models 4.10.1, 4.10.2 and 4.10.3: The Influence of earnings quality on profitability and volatility of stock returns at the NSE.

$$\mathrm{SRV} = 0.727797 - 0.027541\ \mathrm{EPS} - 0.115113\ \mathrm{AQ} - 0.009193\ \mathrm{EPS} * \mathrm{AQ}$$
$$+0.152452\ (\mathrm{SRV})_{t-1} \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots (4.10.1)$$
$$\mathrm{SRV} = 0.727797 - 0.040440\ \mathrm{PE} - 0.115113\ \mathrm{AQ} - 0.013260\ \mathrm{PE} * \mathrm{AQ}$$
$$+0.152452\ (\mathrm{SRV})_{t-1} \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots (4.10.2)$$
$$\mathrm{SRV} = 0.727797 - 0.101574\ \mathrm{ROE} - 0.115113\ \mathrm{AQ} + 0.031535\ \mathrm{ROE} * \mathrm{AQ}$$
$$+0.152452\ (\mathrm{SRV})_{t-1} \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots (4.10.2)$$

Model 4.10.1 above indicates a negative moderating effect of earnings quality on EPS and stock returns volatility. This means that increase in quality of earnings increases the negative influence EPS has on stock returns volatility. Similarly, the interaction influence of earnings quality on PE and volatility of stock returns is negative as depicted in model 4.10.2 above. This implies that increase in quality of earnings increases the negative influence of PE on stock returns volatility. Contrary to the aforementioned, the effect of earnings quality on ROE and stock returns volatility is positive as shown in model 4.10.2 above. This indicates that in the presence of earnings quality the negative effect of ROE on volatility of stock returns reduces.

4.8.4 Multiple regression model on the Influence of Earnings Quality on capital expenditure, financial gearing and profitability on stock returns volatility at the NSE.

The next step involved generating a complete model for moderation incorporating all the interactive terms in the model. The interactive terms were obtained by having Earnings Quality as a cross-product of each of the constructs of capital expenditure, financial gearing and profitability. The model involving the interactive terms was as follows:

Model 4.83 moderating equation with the interactive terms.

$$Y_{i,t} = \beta_{40} + \beta_{41}\,\text{CapI} + \beta_{42}\,\text{F.G} + \beta_{43}\text{Prof.} + \beta_{44}\text{E Q} + \beta_{45}\text{capI} * \text{EQ} + \beta_{46}\text{F.G} * \text{EQ}$$

$$+ \beta_{47}\,\text{prof} * \text{EQ} + \text{SRV}_{t-1} + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4.85)$$

Table 4.12 hereunder displays the regression analysis findings:

Table 4.11 Moderated Multiple Regression on the Influence of Earnings Quality on the Relationship Between Capital Expenditure, Financial Gearing and Profitability on volatility of stock returns

Dependent Variable: LNSRV

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.314617	0.118215	-2.661394	0.0083
LNCAPIT	0.030453	0.009195	3.311830	0.0011
LNDCR	0.767060	0.037880	20.24972	0.0000
LNAER	0.274043	0.046656	5.873718	0.0000
LNEPS	-0.066276	0.019192	-3.453381	0.0007
LNP_E	-0.104889	0.021638	-4.847461	0.0000
LNROE	-0.031656	0.011815	-2.679448	0.0079
LNAQ	-0.179318	0.032568	-5.505991	0.0000
LNCAPIT*LNAQ	0.224471	0.010666	21.04470	0.0000
LNDCR*LNAQ	-0.268377	0.013013	-20.62335	0.0000
LNAER*LNAQ	0.101095	0.012372	8.171078	0.0000
LNEPS*LNAQ	-0.020479	0.005334	-3.839360	0.0002
LNP_E*LNAQ	-0.023141	0.006488	-3.566759	0.0004
LNROE*LNAQ	-0.061298	0.027242	-2.250169	0.0254
SRV(-2)	0.105020	0.037795	2.778670	0.0059

R-squared	0.830226	Mean dependent var	0.221339
Adjusted R-squared	0.820373	S.D. dependent var	0.120656
S.E. of regression	0.051135	Akaike info criterion	-3.051663
Sum squared resid	0.585718	Schwarz criterion	-2.847411
Log likelihood	377.1479	Hannan-Quinn criter.	-2.969346
F-statistic	84.26156	Durbin-Watson stat	1.434216
Prob(F-statistic)	0.000000		

Source: Research Data, 2023

Key: SRV-stock returns volatility, LNCAPIT-natural log of capital intensity ratio, LNDCR-natural log of debt capital ratio, LNAER- natural log of asset Equity ratio, LNEPS- natural log of Earnings per share, LNP_E-natural log of price earnings ratio, LNROE- natural log of Return on Equity, LNAQ-natural log of accrual's quality

Models 4.86, 4.87, 4.88, 4.89, 4.90 and 4.91. Moderating Influence of Earnings Quality on the relationship between capital expenditure, financial gearing and profitability on volatility of stock returns at the NSE.

$$SRV = -0.314617 + 0.030453\ \text{CAPIT} + 0.767060\ \text{DCR} - 0.066276\ \text{EPS} + 0.224471\ \text{CAPIT} * \text{AQ} - 0.268377\ \text{DCR} * \text{AQ} - 0.020479\ \text{EPS} * \text{AQ} + 0.105020\ SRV_{t-1} \quad (4.86)$$

$$SRV = -0.314617 + 0.030453\ \text{CAPIT} + 0.274043\ \text{AER} - 0.066276\ \text{EPS} + 0.224471\ \text{CAPIT} * \text{AQ} - 0.101095\ \text{AER} * \text{AQ} - 0.020479\ \text{EPS} * \text{AQ} + 0.105020\ SRV_{t-1} \quad (4.87)$$

$$SRV = -0.314617 + 0.030453\ \text{CAPIT} + 0.767060\ \text{DCR} - 0.104889\ PE + 0.224471\ \text{CAPIT} * \text{AQ} - 0.268377\ \text{DCR} * \text{AQ} - 0.023141\ \text{P}_\text{E} * \text{AQ} + 0.105020\ SRV_{t-1} \quad (4.88)$$

$$SRV = -0.314617 + 0.030453\ \text{CAPIT} + 0.767060\ \text{DCR} - 0.03165\ \text{ROE} + 0.224471\ \text{CAPIT} * \text{AQ} - 0.268377\ \text{DCR} * \text{AQ} - 0.061298\ \text{ROE} * \text{AQ} + 0.105020\ SRV_{t-1} \quad (4.89)$$

$$SRV = -0.314617 + 0.030453\ \text{CAPIT} + 0.274043\ \text{AER} - 0.104889\ PE + 0.224471\ \text{CAPIT} * \text{AQ} - 0.101095\ \text{AER} * \text{AQ} - 0.023141\ \text{PE} * \text{AQ} + 0.105020\ SRV_{t-1} \quad (4.90)$$

$$SRV = -0.314617 + 0.030453\ \text{CAPIT} + 0.274043\ \text{AER} - 0.031656\ \text{ROE} + 0.224471\text{CAPIT} * \text{AQ} - 0.101095\ \text{AER} * \text{AQ} - 0.061298\ \text{ROE} * \text{AQ} + 0.105020\ SRV_{t-1} \quad (4.91)$$

From the moderated multiple regression equations 4.86 to 4.91 above moderating influence of earnings quality on the relationship between capital expenditure and stock returns volatility is positive and significant (CAPIT*AQ: β = 0.224471, p = 0.0000), the moderating influence of earnings quality on the relationship between financial gearing and stock returns volatility is negative and significant (DCR*AQ: β = -0.268377, p = 0.0000; AER*AQ: β = -0.101095, p = 0.0000) and the moderating influence of earnings quality on the relationship between profitability and stock returns volatility is negative and significant (EPS*AQ: β = -0.020479, p = 0.0002; P_E*AQ: β = -0.023141, p = 0.0004 and ROE*AQ: β = -0.061298, p = 0.0254).

When the cross-interaction terms between Earnings Quality and the constructs of capital expenditure, financial gearing and profitability are included in the model, the predictability ability of the model improved, from 70.8197% to 82.0373%. This represents an improvement in the model's ability to predict Idiosyncratic stock returns volatility by 11.2176% as a result of the moderation brought about by Earnings quality. Thus, in the new model, 82.0373% of the idiosyncratic variations in stock returns faced by NSE listed firms could be explained by capital expenditure, financial gearing and profitability in the presence of Earnings Quality. 17.9627% which could not be explained by the model represents other elements, having an influence on idiosyncratic stock returns volatility, but not captured in the model. The findings indicate that Earnings Quality is a positive and a significant moderator in the relationship between capital expenditure, financial gearing and profitability on stock returns volatility of NSE quoted companies in Kenya. This conforms with the study of Hoyoung and Hyunmin (2017); Mohamed and Hatem (2018); Rizal, Amrie, Dani and Ahmad (2022) and Claudio and Antonio (2018) where earnings quality was a significant moderator on the study variables. However, none of the aforementioned studies used capital expenditure, financial gearing and profitability as the predictor variables. Other studies such as Mungai (2016) and Ayaibei (2021) used Firm size as a moderator in place of earnings quality. The current findings imply that corporate investment decisions, financial gearing decisions and profitability objectives should be evaluated together with earnings quality in order to reduce their impact on idiosyncratic volatility of stock returns at the NSE.

Table 4.12 further shows statistically significant positive influence of earnings quality on capital expenditure and stock returns volatility amongst the NSE quoted companies in Kenya ($\beta = 0.224471$, $p = 0.0000$). This shows that the influence of the moderator improved the strength of the relationship between capital expenditure (measured by CAPIT) and volatility of stock returns from ($\beta=0.024737$, $p=0.000$) to ($\beta = 0.030453$, $p = 0.0011$). Further, the findings indicate that there was a statistically significant moderating influence of earnings quality on the relationship between financial gearing (measured by DCR and AER) and idiosyncratic volatility of stock returns at the NSE (DCR: $\beta = -0.268377$, $p = 0.0000$; AER: $\beta = 0.101095$, $p = 0.000$). Earnings quality strengthened the association between financial gearing (DCR) and firm specific stock returns volatility from (DCR: $\beta = 0.386707$, $p = 0.0000$) to (DCR: $\beta = 0.767060$, $p = 0.000$).

Earnings quality changed the direction of the relationship between financial gearing (AER) and stock returns volatility amongst NSE quoted companies in Kenya (AER: β = -0.025187, p = 0.0037) to (AER: β = 0.274043, p = 0.0000). Finally, Table 4.8.3 shows that the moderator had a statistically significant influence on the relationship between profitability (measured by EPS, P_E and ROE) and idiosyncratic stock returns volatility amongst NSE quoted companies in Kenya (EPS: β = -0.020479, p = 0.0002; P_E: β = -0.023141, p = 0.0004 and ROE: β = -0.061298, p = 0.0254). Earnings quality strengthened the relationship between profitability and firm specific stock returns volatility amongst companies quoted at the NSE, Kenya: EPS from (β = -0.006834, p = 0.0452) to (β = -0.066276, p = 0.0007) and P_E from (β = -0.014044, p = 0.0001) to (β = -0.104889, p = 0.0000), but weakened that of profitability measured by ROE and idiosyncratic volatility of stock returns (β = -0.513469, p = 0.0028) to (β = -0.031656, p = 0.0079). These findings are summarized in Table 4.12 and subsequently, models 4.86 to 4.91 are extracted from these results.

Table 4.12. Table of Coefficients.

Variable	**Coefficients**		
	Before moderation	**After moderation**	**Moderating Effect of AQ**
CAPIT	0.024737	0.030453	0.224471
DCR	0.386707	0.767060	-0.268377
AER	0.025187	0.274043	0.101095
EPS	-0.006884	-0.066276	-0.020479
P_E	-0.014044	-0.104889	-0.023141
ROE	-0.513469	-0.031656	-0.061298
AQ	-0.012054	-0.179318	
R^2	0.708197	0.820373	

Source: research Data 2023

Lastly, as it has been noted, the adjusted R^2 improved significantly from (R^2= 0.708197, p(F)=0.0000) to (R^2= 0.820373, p(F)=0.0000) upon moderation. This implies that there is a significant moderating influence of earnings quality on the overall model. The null hypothesis $H_{05,}$ that Earnings' quality does not significantly moderate the relationships between Capital Expenditure and stock returns volatility, Financial Gearing and volatility of stock returns and profitability on stock returns volatility amongst NSE quoted companies in Kenya, is therefore rejected based on the study findings. Therefore, a conclusion is drawn that Earnings' quality significantly moderates the relationships between Capital Expenditure and stock returns volatility, Financial Gearing and stock returns volatility and profitability on stock returns volatility amongst NSE quoted companies in Kenya. It can be concluded further that, Earnings quality acts as a quasi-moderator on idiosyncratic risks and volatility of stock returns at NSE. As a quasi-moderator, earnings quality influences the true relationship between the exogeneous and endogenous variables and, at the same time, is independently affects the response variable.

Based on the results of the data analysis which has been presented in this chapter, it has been noted that the mean idiosyncratic volatility is 22.1339%. CAPIT and DCR have been found to be positively correlated with idiosyncratic volatility of stock returns while AER, EPS, P_E, ROE, and AQ have been found to be negatively correlated with idiosyncratic volatility of stock returns. Idiosyncratic risks and earnings quality together, can account for 70.8197% of the firm specific volatility of stock returns while other factors not included in this study account for the remaining 29.1803%. When the same factors are moderated by earnings quality, they can account for 82.0373% of the firm specific volatility at the NSE.

CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In this chapter, summary of the findings, the conclusions drawn and recommendations thereof are presented. The researcher also points out the limitations of the study and proposes areas which can be of interest to scholars in the future studies.

5.1. Summary of Findings

Hypothesis testing was done using linear regression analysis and the findings are summarized as follows:

5.1.1. Capital Expenditure and volatility of stock returns

Objective one's quest was to assess the influence of capital expenditure on stock returns volatility amongst NSE quoted companies. It was established that capital expenditure is a significant predictor of firm specific volatility of stock returns amongst firms at the NSE. The correlation results show existence of a moderately positive and statistically significant correlation between Capital Expenditure and firm specific volatility of stock returns ($r = 0.479580$; $p = 0.0000$). The regression analysis result shows that capital expenditure is a positive and statistically significant predictor of stock return volatility at the NSE ($\beta = 0.026097$, $p = 0.0000$). The study recorded a coefficient of determination (Adjusted R^2) of 0.507608 showing that capital expenditure, together with the two-period lag volatility, will predict 50.7608% of firm specific stock return volatility leaving 49.2392% to be explained by other variables not captured in the model. Unlike past studies, entire capital expenditure and all firm years were put into perspective, thus, making the results more informative.

5.1.2. Financial Gearing and volatility of stock returns

The second objective sought to evaluate the influence of financial gearing on stock returns volatility amongst NSE quoted firms. Two constructs of financial gearing were used; Debt Capital Ratio (DCR) and Asset Equity Ratio (AER). The correlation matrix shows that financial gearing (DCR) is strongly, positively and significantly correlated with Idiosyncratic volatility of stock returns at NSE (DCR: $r = 0.679134$; $p = 0.0000$). Conversely, the Asset Equity Ratio (AER) was moderately, negatively and significantly correlated with idiosyncratic volatility of stock returns at NSE ($r = -0.180872$; $p = 0.0049$). The regression

result shows that financial gearing, measured by DCR, significantly and positively predict equity return volatility amongst the NSE listed companies (β= 0.066779, p= 0.0000). The results also indicates that that financial gearing, measured by AER, significantly and negatively predict stock return volatility amongst the NSE quoted companies (β= -0.028459, p= 0.0006). The study recorded R^2 of 0.556558 indicates that Financial Gearing, measured as DCR and AER, together with the two periods lag volatility, will predict 55.6558% of idiosyncratic volatility of stock returns. The remaining 44.3442% can only be accounted for by other variables not captured in this model. Past studies have shown that there exists a relationship between financial leverage and stock returns. The current study has gone further to show that there exists a significant relationship between a firm's financial gearing and volatility of stock returns at the NSE.

5.1.3. Profitability and volatility of stock returns

Objective three sought to analyze the relationship between profitability and volatility of stock returns among listed firms in Kenya. Profitability was operationalized as Earnings Per Share (EPS), Price Earnings Ratio (PE) and Return on Equity (ROE). The correlation matrix indicates that profitability and Idiosyncratic stock returns volatility are negatively and significantly correlated (EPS: r = -0.270294; p = 0.0000; P_E: r = -0.449246; p = 0.0000 & ROE: r = -0.517811; p = 0.000). The regression analysis indicates that profitability, measured by Earnings Per Share (EPS), Price Earnings Ratio (P_E) and Return on Equity (ROE) significantly and negatively predict stock returns volatility at the NSE (EPS: β = -0.010357, p = 0.0056; P_E: β = -0.017284, p = 0.0000 and ROE: β = -0.232885, p = 0.0000). The recorded R^2 of 0.564578 indicates that Profitability, measured as EPS, P_E and ROE, together with the two periods lag volatility, will predict 56.4578% of idiosyncratic volatility of stock returns. Factors outside this model could predict the remaining 43.5422%. The current study has used EPS, P_E and ROE as metrics for profitability and this improves the prediction ability of profitability on firm specific volatility of stock returns.

5.1.4. Earnings quality and volatility of stock returns

Objective four sought to establish how earnings quality and stock returns volatility relate amongst NSE quoted companies. The correlation results indicates that accruals quality, a measure of earnings quality, is negatively correlated with idiosyncratic volatility of stock returns at the NSE (AQ: r = -0.388210, p = 0.0000). the regression results indicates that that earnings quality significantly and negatively predict stock return volatility at the NSE (β = -0.013537, p = 0.0004). Therefore, it can be resolved that Earnings Quality has a negative and statistically significant effect on stock returns volatility amongst NSE quoted companies in Kenya.

5.1.5. Moderating Effect of earnings quality on the relationship between specific idiosyncratic risks and volatility of stock returns

The fifth objective sought to assess the influence of earnings quality on capital expenditure and stock returns volatility; financial gearing and stock returns volatility and profitability and stock returns volatility amongst NSE quoted firms. Including earnings quality as a moderator in the model increases the model's prediction ability from 70.8197% to 82.0373%. This represents an improvement in the model's ability to predict Idiosyncratic stock returns volatility by 11.2176% as a result of the moderation brought about by Earnings quality. The multiple regression analysis has indicated that the moderating influence of earnings quality on the relationship between capital expenditure and stock returns volatility is positive and significant (CAPIT*AQ: β = 0.224471, p = 0.0000), the moderating influence of earnings quality on the relationship between financial gearing and stock returns volatility is negative and significant (DCR*AQ: β = -0.268377, p = 0.0000; AER*AQ: β = -0.101095, p = 0.0000) and the moderating influence of earnings quality on the relationship between profitability and stock returns volatility is negative and significant (EPS*AQ: β = -0.020479, p = 0.0002; P_E*AQ: β = -0.023141, p = 0.0004 and ROE*AQ: β = -0.061298, p = 0.0254). The findings shows that earnings quality is a very important factor when analysis idiosyncratic risk and volatility of stock returns for firms listed at the NSE.

5.2 Conclusion of the study.

Based on the findings, the study puts forward the following recommendations:

5.2.1. Capita Expenditure.

Based on the findings, the study concludes that Capital expenditure has a positive and statistically significant relationship with volatility of stock returns at the NSE. This implies that increase in assets in relation total revenues, caused by increased corporate investment causes an increase in firm specific volatility of stock returns. This can be attributed to the fact that capital expenditure involves huge outlay of funds, sourced either from debt or equity, on projects running through a period covering more than one year. Providers of capital expect a return for their money whether the projects are giving a return or not.

Most of the capital expenditure undertakings are irreversible making them highly risky ventures. Thus, corporate investment should be undertaken in moderation to minimize risks involved thus, reducing volatility of stock returns at the NSE. Risk adjusted capital budgeting techniques need to be embraced in appraising capital projects to mitigate risk inherent in capital intensive projects.

5.2.2. Financial Gearing

The second objective established that DCR had a statistically significant and positive relationship with volatility of stock returns among listed firms, implying that increase in debt in relation to the capital of a firm causes a significant increase in volatility of stock returns at the NSE. Debt is a fixed income security which a firm has an obligation to pay when it falls due. A higher debt ratio will cause spooking amongst investors as well as potential investors because of its possible chocking effect to the firm. Thus, firms should strive to achieve optimal debt equity mix which will minimize the associated idiosyncratic risk, lowering the associated volatility of stock returns.

On the other hand, AER was found to have a statistically significant and negative relationship with volatility of stock returns amongst firms listed at the NSE. This implies that an increase in assets in relation to equity will cause a decrease in stock return volatility amongst firms listed at the NSE. This is as a result of decreased insolvency/bankruptcy risk

brought about by increased assets over and above the equity and liabilities. This means that managers should only raise equity capital to finance expansion and acquisition of assets rather than financing recurrent expenditure.

5.2.3. Profitability

The third objective found that both EPS, PE and ROE were found to have a statistically significant and negative relationship with volatility of stock returns at the NSE. This indicates that increase in investor returns causes a decline in volatility of stock returns amongst firms listed at the NSE. All these profitability ratios point towards an increase of investors welfare. Therefore, it can be concluded that managers should strive to increase investors welfare in order to reduce stock return volatility. This is in support of the investors' wealth maximization objective.

When EPS, P_E and ROE are calculated over a number of years, they give an indication of whether the earning power of the company has improved or deteriorated. Growth in EPS, P_E and ROE, is therefore an important measure of management performance because it shows how much money the company is making for it's shareholders, not only due to changes in profit, but also after all the effects of issuance of new shares. Thus, it can be concluded that improvement in management efficiency and performance over time lowers the firm's idiosyncratic risk which increases stability in stock returns.

5.2.4. Earnings quality.

The fourth objective found negative and significant relationship between earnings quality and volatility of stock returns of firms listed at the NSE. This means that quality of earnings determine how stable stock returns are at the NSE. This implies that firms which have a lower rate of conversion of accruals to real cash experience increased levels of volatility of stock returns.

The results have also indicated that earnings quality has a positive and statistically significant moderation on the relationship between capital expenditure and volatility of stock returns at the NSE. It was also established that earnings quality negatively and significantly moderated the relationship between financial gearing (measured by DCR) and volatility of stock returns, but the moderating influence was positive and statistically significant when AER was used as a measure of financial gearing. Also, earnings quality had a negative and statistically significant moderating effect on the relationship between profitability (EPS and PE) and volatility of stock returns but negative and statistically significant moderating influence on the relationship between profitability (ROE) and volatility of stock returns. This implies that besides earnings quality being a risk which affects volatility of stock returns at the NSE, it also increases the risk posed by capital expenditure, financial gearing and profitability on volatility of investors' stock returns. It can be concluded that firms experiencing a decline in earnings quality in a particular period will have cut down their capital expenditures for that period in order to lower volatility of stock returns. It can also be concluded that a firm with low earnings quality, trying to finance a new project will experience working capital challenges which may force it to resort to expensive sources of finance to raise the necessary funds. This will increase the insolvency risk which may spook investors in the capital market. Volatility of stock returns of such a firm will remain high. Lastly, firms with low earnings quality may remain profitable but these profits may be eroded by the huge debts these firms have to write off as bad debts. This may have an effect on the future returns expected by the investors causing uncertainty, thus, resulting in an increase in volatility of stock return.

5.2.5. Firm Specific Volatility of Stock Returns.

Based on the findings, the study concluded that idiosyncratic risks related to capital expenditure, financial gearing and profitability have an influence on firm specific volatility of stock returns among listed firms in Kenya. From the regression analysis results, capital expenditure and financial gearing have a positive relationship with volatility of stock returns while profitability has a negative relationship with volatility of stock returns amongst firms listed at the NSE.

Therefore, the study concludes that capital expenditure, financial gearing and profitability are key elements of idiosyncratic risk to be considered by investors in their investment decision

making. It is necessary for the information related to these risks to be accurately published by firms to avoid trading on such information and to enable investors to make sound investment decisions.

5.3 Recommendations of the Study

The following recommendations have been fronted based on the study findings: from objective one, it has been concluded that corporate investment should be undertaken in moderation to minimize risks involved thus, reducing the uncertainty leading to high volatility of stock returns at the NSE. the study recommends that risk adjusted capital budgeting techniques need to be embraced in appraising capital projects to mitigate risk inherent in capital intensive projects. Arbitrageurs, individual investors and market analyst should review their security pricing strategies to incorporate capital expenditure risks to ensure that investors are well compensated for bearing such risks. It is further recommended that managers of listed firms at the NSE should decrease their capital expenditure and general corporate investment in relation to earned revenues and use more of retained earnings to finance expansion, as opposed to debt or more equity so as to stabilize shareholders' returns and reduce volatility of stock returns.

From objective two, firm managers are advised to maintain optimum debt equity mix which reduces insolvency risk creating confidence to current investors and potential investors to continue investing their funds in the company. This creates stability on the firm's stock prices and thus, reduces idiosyncratic volatility of stock returns form the firm. Also, managers should only raise capital to finance expansion and acquisition of assets but not financing recurrent expenditure.

The study concluded that Growth in EPS, P_E and ROE, is an important measure of management efficiency and performance because it shows how much money the company is making for its shareholders, not only due to changes in profit, but also after all the effects of issuance of new shares. It is recommended that management should take measures which improves efficiency and improve investor returns. It is further recommended that managers of

listed firms at the NSE should focus more on wealth maximization objective as opposed to profit maximization so as to increase and stabilize shareholders' returns and reduce volatility of stock returns.

From the study results it was concluded that the model significance improved upon moderation meaning that earnings quality increases the effect of idiosyncratic risks on volatility of stock return amongst firms listed at the NSE. therefore, the study recommends that managers should employ prudent and robust debt recovery strategies to ensure that all earnings are converted to cash and the cash conversion cycle is kept short. Measure should be put in place to reduce bad debts written off from the firm's financial records.

Arbitrageurs, individual investors and market analyst should review their security pricing strategies by considering idiosyncratic risks. In their analysis, they should incorporate earnings quality, since, besides posing a risk by itself, it aggravates the risk posed by idiosyncratic risks on stock returns volatility. They need to embrace efficiency and customize their asset pricing models to incorporate idiosyncratic risks in pricing of stocks. In this way, they will be able to make sound investment decisions that suit client investment preference.

In terms of policy, the study proposes the following policy recommendations. Since the study concludes that idiosyncratic risks and earnings quality are the major causes of the firm's idiosyncratic volatility of stock returns, the government should come up with a policy on enhanced disclosure of financial ratios associated with these idiosyncratic risk factors to facilitate decision making by various players at the NSE. Also, the study concludes that earnings quality is both a determinant of idiosyncratic volatility of stock returns as well as a positive and significant moderator in the relationship between idiosyncratic risks and volatility of stock returns. Thus, CMA should come up with a policy requirement for firms to publish earnings quality indices on a daily basis which will help investors and regulators to monitor the quality of accruals over time and institute measures to remedy any undesired fall in earnings quality. This will ensure idiosyncratic volatility of stock returns is always put under control and investors risk of losing returns on their investment is reduced.

5.4 Limitations of the Study

The study achieved its aim of providing a general view on the influence of idiosyncratic risks and earnings quality on volatility of stock returns at the NSE, which points towards their influence and causal effects on volatility of stock returns. However, some limitations were encountered; first, the study was limited to Nairobi Securities Exchange. The study findings could more concrete if regional data from across several stock exchanges in Africa was used.

Secondly, the study only focused on listed firms which are required by law to publish audited accounts, minimizing errors and cases of fraud. The findings may therefore be limiting since non listed firms could be having different dynamics with respect to capital expenditure, financial gearing, and profitability and may not necessarily replicate what is happening at the NSE. The study also used only three idiosyncratic risks, that is, capital expenditure, financial gearing and profitability. Other idiosyncratic factors were not considered.

Lastly, the metric used to measure earnings quality only accounted for cash flow from operating activities. The researcher held the view that most of the accruals emanate from business operations. The study did not include cashflows from financing activities as well as cash flow from investing activities in estimating firm's earnings quality.

5.5 Areas of Further Research

Following the limitations of the current study, the following areas have been suggested for further research. Firstly, the study only focused on listed firms at the NSE. Future researchers could expand the geographical scope to include listed firms in other stock markets within the east Africa community block for comparative analysis.

Future studies could also incorporate other firm specific characteristics in the study such as sales growth, ownership concentration, firm size, firm age, board composition among others to ascertain their influence on firm specific volatility of stock returns at the NSE.

Future studies could also focus on non-listed firms, such as the SACCOS and microfinance banks, to establish the influence of firm specific characteristics on volatility of returns to investors.

Finally, future studies could incorporate cashflow from financing activities and cash flow from investing activities when estimating the values of accruals quality, which was used as a metric for earnings quality, to establish how this will affect the moderating influence of earnings quality on other firm characteristics and idiosyncratic stock returns volatility

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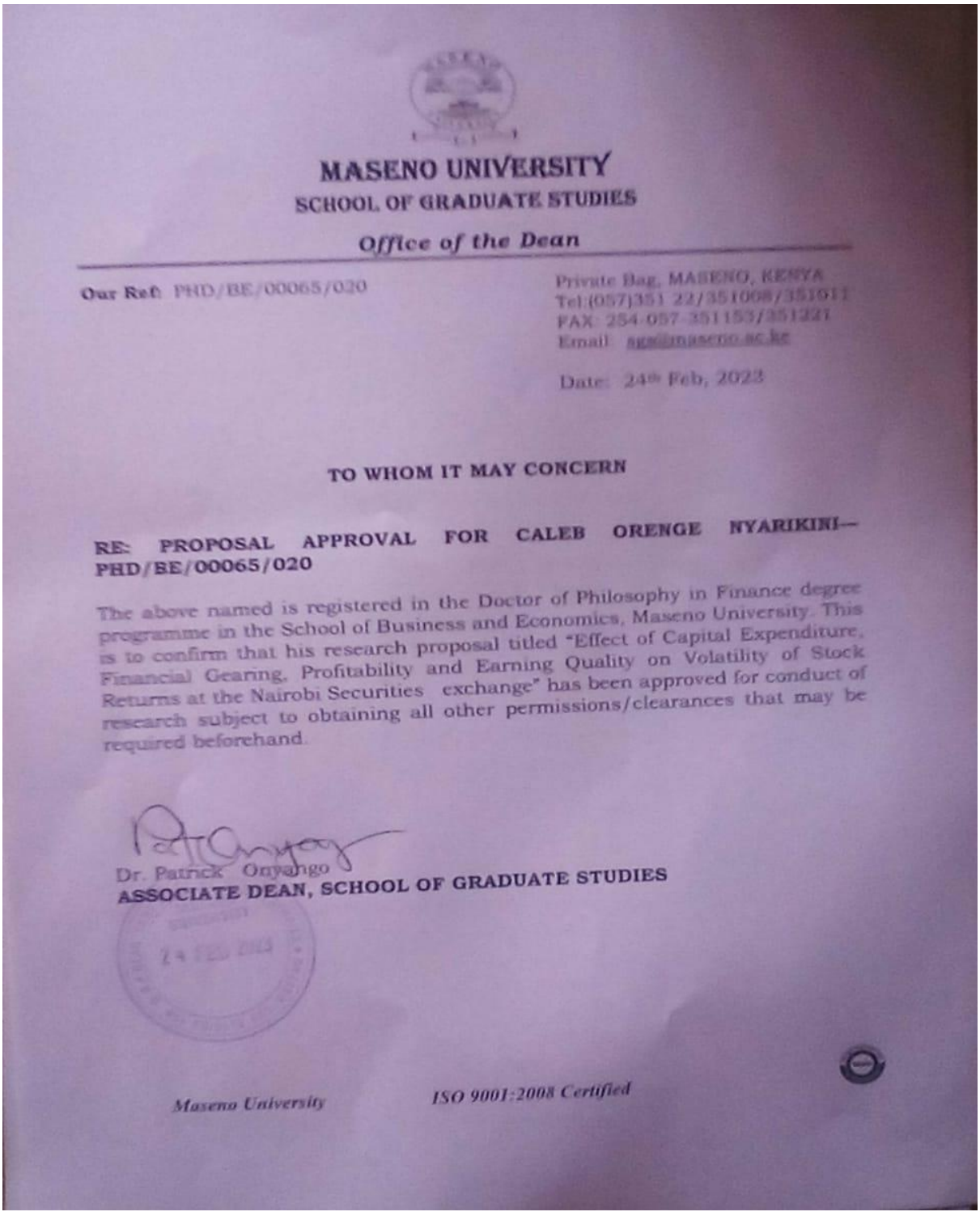
APPENDICES.

Appendix I: Letter of Approval



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Date: 24th Feb, 2023

TO WHOM IT MAY CONCERN

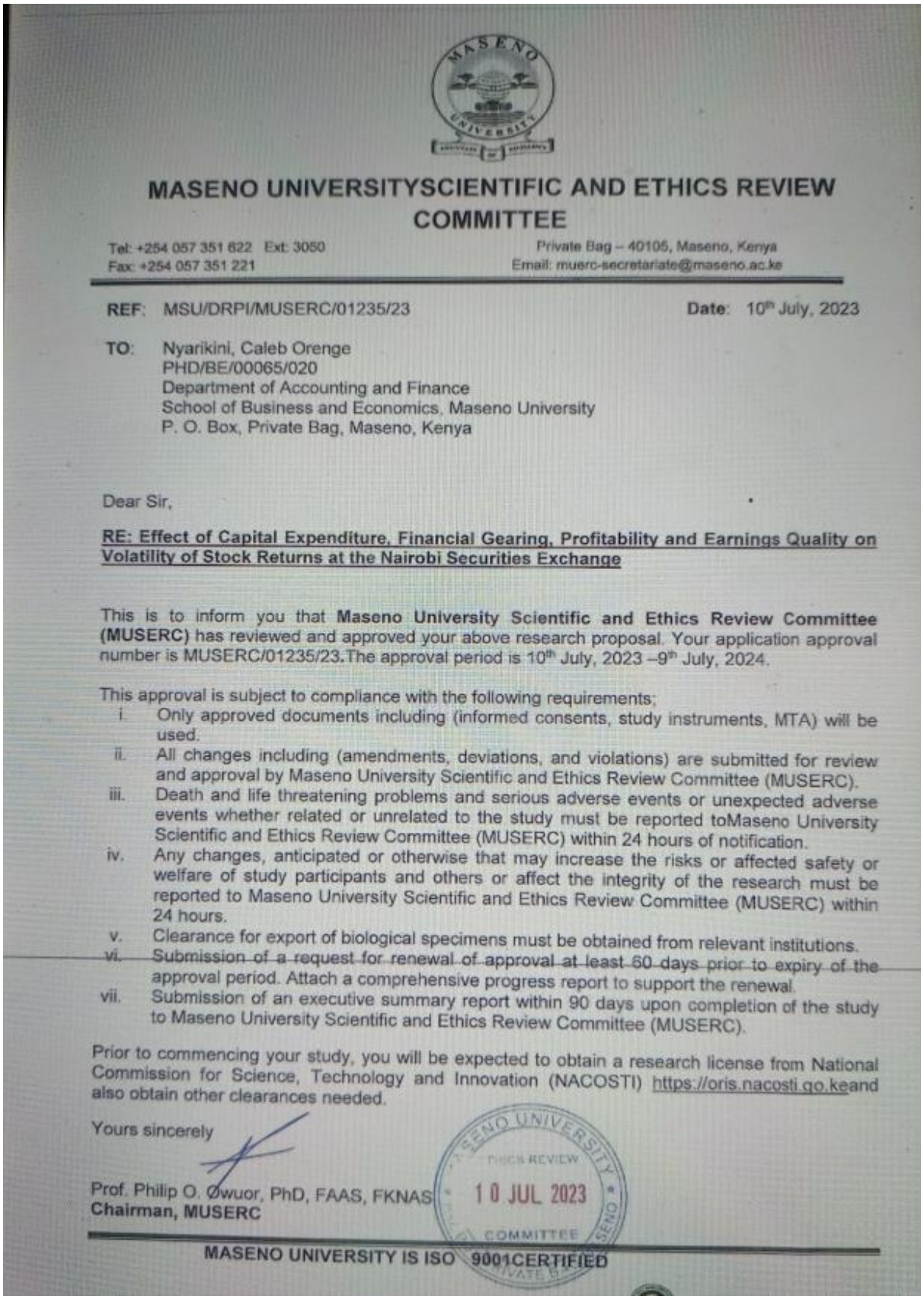
RE: PROPOSAL APPROVAL FOR CALEB ORENGE NYARIKINI– PHD/BE/00065/020

The above named is registered in the Doctor of Philosophy in Finance degree programme in the School of Business and Economics, Maseno University. This is to confirm that his research proposal titled "Effect of Capital Expenditure, Financial Gearing, Profitability and Earning Quality on Volatility of Stock Returns at the Nairobi Securities exchange" has been approved for conduct of research subject to obtaining all other permissions/clearances that may be required beforehand.

Dr. Patrick Onyango
ASSOCIATE DEAN, SCHOOL OF GRADUATE STUDIES

Maseno University *ISO 9001:2008 Certified*

Appendix II:MUSERC Approval



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REF: MSU/DRPI/MUSERC/01235/23 **Date**: 10th July, 2023

TO: Nyarikini, Caleb Orenge
PHD/BE/00065/020
Department of Accounting and Finance
School of Business and Economics, Maseno University
P. O. Box, Private Bag, Maseno, Kenya

Dear Sir,

RE: Effect of Capital Expenditure, Financial Gearing, Profitability and Earnings Quality on Volatility of Stock Returns at the Nairobi Securities Exchange

This is to inform you that **Maseno University Scientific and Ethics Review Committee (MUSERC)** has reviewed and approved your above research proposal. Your application approval number is MUSERC/01235/23.The approval period is 10th July, 2023 –9th July, 2024.

This approval is subject to compliance with the following requirements;

i. Only approved documents including (informed consents, study instruments, MTA) will be used.
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by Maseno University Scientific and Ethics Review Committee (MUSERC).
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported toMaseno University Scientific and Ethics Review Committee (MUSERC) within 24 hours of notification.
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to Maseno University Scientific and Ethics Review Committee (MUSERC) within 24 hours.
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to Maseno University Scientific and Ethics Review Committee (MUSERC).

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://oris.nacosti.go.keand also obtain other clearances needed.

Yours sincerely

Prof. Philip O. Owuor, PhD, FAAS, FKNAS
Chairman, MUSERC

MASENO UNIVERSITY ETHICS REVIEW COMMITTEE 10 JUL 2023

MASENO UNIVERSITY IS ISO 9001CERTIFIED

Appendix II: NACOSTI Research License

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **593429**

Date of Issue: **01/May/2023**

RESEARCH LICENSE

This is to Certify that Mr.. Nyarikini Orenge Caleb of Maseno University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: EFFECT OF CAPITAL EXPENDITURE, FINANCIAL GEARING, PROFITABILITY AND EARNINGS QUALITY ON VOLATILITY OF STOCK RETURNS AT THE NAIROBI SECURITIES EXCHANGE for the period ending : 01/May/2024.

License No: **NACOSTI/P/23/25680**

593429

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

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See overleaf for conditions

Appendix IV. Data Collection Sheet

FIRM	YEAR	CFO	CAPEX	TOTAL DEBT	TOTAL ASSET	TOTAL CAPITAL	EBITA	EBIT	NET INCOME	FREE CASH FLOW
FIRM…….	2010									
	2011									
	2012									
	2013									
	2014									
	2015									
	2016									
	2017									
	2018									
	2019									

Appendix III: Field Data 2023

	FIELD DATA 2023								
FIRM	**YEAR**	**SRV**	**CAPIT**	**DCR**	**AER**	**EPS**	**P/E**	**ROE**	**AQ1**
1	2019	0.1300	0.1734	0.0233	0.2223	0.2262	8.2782	0.0016	0.0449
1	2018	0.1000	0.1351	0.0187	0.1695	0.2370	7.0802	0.0021	0.0439
1	2017	0.0200	0.0262	0.0034	0.0321	0.0908	0.7507	0.0013	0.0631
1	2016	0.1300	0.1395	0.0224	0.2009	1.8772	1.5512	0.0290	-0.0476
1	2015	0.1000	0.1072	0.0183	0.1563	1.4490	1.0904	0.0218	0.0094
1	2014	0.0800	0.0910	0.0132	0.1227	0.7840	1.4310	0.0117	0.0863
1	2013	0.0800	0.1014	0.0111	0.1190	0.7640	1.7550	0.0102	0.0689
1	2012	0.1600	0.1837	0.0261	0.2426	1.9472	2.1141	0.0275	0.0952
1	2011	0.1100	0.1027	0.0167	0.1673	1.5884	1.3064	0.0293	0.0518
1	2010	0.2700	0.3203	0.0605	0.4460	3.7854	3.7072	0.0626	0.1218
2	2019	0.2200	2.4425	0.1941	1.8252	0.2904	1.8833	0.0349	-0.0017
2	2018	0.2200	2.2581	0.1901	1.6190	0.2904	1.8833	0.0356	-0.0539
2	2017	0.2800	2.5131	0.2345	1.7243	0.3444	2.0943	0.1234	-0.0503
2	2016	0.2700	2.2133	0.2259	1.6543	0.3672	2.0250	0.0471	-0.0721
2	2015	0.1800	1.4717	0.1503	1.0917	0.2790	1.7187	0.0381	-0.0500
2	2014	0.1400	1.1177	0.1162	0.8243	0.2156	1.5364	0.0306	0.0340
2	2013	0.1900	1.4068	0.1602	1.2134	0.2660	2.3479	0.0447	0.0119
2	2012	0.2100	1.4153	0.1764	1.3119	0.3381	1.7870	0.0620	0.0012
2	2011	0.3000	1.9025	0.2475	1.7147	0.4470	2.9597	0.0833	0.0126
2	2010	0.2300	1.3411	0.1880	1.2603	0.4485	1.7574	0.0775	-0.0521
3	2019	0.2600	2.4658	0.2143	1.4779	0.6448	1.4136	0.0463	0.0132
3	2018	0.2000	1.8993	0.1658	1.1693	0.4360	1.5323	0.0360	0.0492
3	2017	0.2600	2.4181	0.2131	1.4408	0.5174	1.8172	0.0425	-0.0136
3	2016	0.2900	2.4137	0.2400	1.6831	0.5858	1.8868	0.0606	-0.0554
3	2015	0.2000	2.0130	0.1712	1.3894	0.4620	1.4204	0.0425	0.0241
3	2014	0.2000	1.8188	0.1700	1.3312	0.3380	1.8179	0.0390	0.0072
3	2013	0.2000	1.8843	0.1684	1.2575	0.4400	1.0394	0.0495	0.0008
3	2012	0.1800	1.4824	0.1536	1.2111	0.3312	0.7937	0.0466	0.0229
3	2011	0.2100	1.9277	0.1839	1.6870	0.3234	1.3139	0.0622	0.0118
3	2010	0.2100	2.0681	0.1820	1.6221	0.2751	1.3747	0.0593	0.0058
4	2019	0.1300	1.9651	0.1083	0.8532	3.1551	0.6808	0.0161	0.0096
4	2018	0.1400	2.0206	0.1182	0.9855	3.3474	1.1301	0.0185	0.0145
4	2017	0.1300	1.8330	0.1108	0.9764	2.9991	0.7844	0.0186	0.0129
4	2016	0.1700	2.1911	0.1462	1.3592	4.5798	1.1333	0.0320	0.0106
4	2015	0.1100	1.4486	0.0945	0.8753	2.6862	0.9982	0.0213	0.0152
4	2014	0.1300	1.6354	0.1102	0.9495	2.8496	1.0379	0.0256	0.0099
4	2013	0.1200	1.3782	0.1029	0.9538	2.5932	0.5914	0.0300	0.0003
4	2012	0.1700	1.8691	0.1466	1.3938	2.9648	0.8256	0.0419	0.0149
4	2011	0.1200	1.3510	0.1052	0.9761	1.6296	0.7511	0.0271	0.0168
4	2010	0.3200	3.4485	0.2807	2.6075	4.4832	1.2288	0.0774	0.0130
5	2019	0.2600	2.6232	0.2169	1.5820	1.5418	1.8196	0.0530	0.0021
5	2018	0.2400	2.2717	0.2003	1.4628	1.2528	2.0828	0.0506	0.0409
5	2017	0.2900	2.5870	0.2385	1.6329	1.4500	2.0590	0.0589	0.0611
5	2016	0.2800	2.4033	0.2315	1.6180	1.1928	2.3662	0.0567	0.0911
5	2015	0.3200	2.5545	0.2661	1.8989	1.4880	3.1725	0.0769	0.0161
5	2014	0.2700	2.0199	0.2200	1.4588	1.2501	2.4551	0.0726	0.0164
5	2013	0.2700	1.7913	0.2199	1.4545	0.9693	2.4292	0.0695	-0.0382
5	2012	0.2200	1.4527	0.1812	1.2466	0.7172	1.4172	0.0619	0.0213

FIRM	YEAR	SRV	CAPIT	DCR	AER	EPS	P/E	ROE	AQ1
5	2011	0.2400	1.6432	0.1981	1.3741	0.6696	1.9871	0.0723	0.0330
5	2010	0.2800	1.8077	0.2267	1.4720	0.5404	3.1482	0.0734	0.0407
6	2019	0.2300	2.4516	0.1968	1.5930	1.8009	1.2513	0.0446	0.0144
6	2018	0.2000	1.9896	0.1682	1.2569	1.5660	1.1520	0.0422	-0.0225
6	2017	0.2700	2.6668	0.2258	1.6477	1.7361	1.5243	0.0502	0.0007
6	2016	0.2800	2.5386	0.2346	1.7259	1.8004	1.5067	0.0572	-0.0484
6	2015	0.2400	2.1757	0.2051	1.6485	1.5576	1.9304	0.0580	-0.0272
6	2014	0.2100	1.7769	0.1776	1.3614	1.1823	1.9247	0.0468	0.0293
6	2013	0.2400	1.8720	0.2011	1.4806	1.1568	2.0763	0.0543	-0.0214
6	2012	0.2100	1.6707	0.1790	1.4234	0.8631	1.2365	0.0472	-0.0008
6	2011	0.2500	2.1030	0.2164	1.8582	0.3125	4.2600	0.0617	0.0081
6	2010	0.2400	2.0569	0.2026	1.5417	0.6624	1.7739	0.0440	-0.0425
7	2019	0.3500	0.8623	0.2900	2.0416	0.0455	10.2308	0.0016	0.0808
7	2018	0.3200	0.8093	0.2616	1.7539	0.5344	1.2072	0.0173	0.0752
7	2017	0.2900	0.7781	0.2377	1.3429	1.0788	0.6548	0.0301	0.0620
7	2016	0.2800	0.7687	0.2198	1.3013	1.0332	0.7588	0.0315	0.0621
7	2015	0.2500	0.6451	0.1743	1.1881	0.9525	1.0433	0.0321	0.0732
7	2014	0.2300	0.4821	0.1536	0.9282	0.8234	0.9380	0.0294	0.0556
7	2013	0.2100	0.4189	0.1347	0.7848	0.4683	1.5161	0.0193	0.0705
7	2012	0.1800	0.2524	0.1050	0.5549	0.4248	1.2051	0.0191	0.0638
7	2011	0.2500	0.4141	0.1529	0.7648	0.5400	2.0718	0.0266	0.0859
7	2010	0.2800	0.3070	0.1797	0.7815	5.1516	0.1174	0.0362	0.1015
8	2019	0.2300	2.4863	0.1936	1.4550	5.4027	1.7619	0.0397	-0.0432
8	2018	0.2000	2.0551	0.1673	1.2239	4.6180	1.6066	0.0347	0.1014
8	2017	0.2600	2.7900	0.2597	1.6268	5.1064	2.5151	0.0394	-0.0321
8	2016	0.2900	2.6515	0.2384	1.6286	4.4965	1.9793	0.0588	-0.0569
8	2014	0.2800	2.5601	0.2288	1.5401	5.2380	1.9110	0.0568	0.0689
8	2015	0.2000	1.8286	0.1647	1.1437	5.1700	1.3650	0.0406	0.1185
8	2013	0.2100	1.9764	0.1755	1.2783	6.1782	1.6920	0.0537	-0.0261
8	2012	0.2200	2.0791	0.1854	1.3975	5.8520	1.2603	0.0577	-0.0252
8	2011	0.2100	2.1648	0.1835	1.6647	4.1475	1.9457	0.0592	-0.0028
8	2010	0.2700	2.7722	0.2315	1.8957	5.0166	2.5619	0.0714	0.0791
9	2019	0.3400	4.9405	0.2938	2.5108	2.9478	1.1569	0.0398	0.0337
9	2018	0.3800	3.6512	0.3325	3.0430	2.7018	1.5392	0.0621	-0.0004
9	2017	0.3700	3.7783	0.2385	1.0410	0.5217	6.8227	0.0237	0.0039
9	2016	0.3500	4.7403	0.2241	0.9732	0.2310	5.0076	0.0217	-0.0178
9	2015	0.2600	2.5335	0.2187	1.6361	1.8200	1.5934	0.0443	-0.0562
9	2014	0.2800	2.9771	0.2352	1.7481	1.9796	1.9762	0.0494	-0.0208
9	2013	0.2500	2.5996	0.2137	1.7227	1.5300	1.6013	0.0461	-0.0533
9	2012	0.2900	2.7400	0.2486	2.0296	1.7487	1.0003	0.0569	0.0083
9	2011	0.3100	3.7083	0.2687	2.3268	2.0832	1.0702	0.0798	-0.0384
9	2010	0.6400	3.7723	0.2928	2.3474	4.7840	4.9739	0.0832	-0.0513
10	2019	0.5500	2.8968	0.1782	1.1570	0.6500	8.8280	0.0444	0.0133
10	2018	0.4100	1.3129	0.1687	0.6967	0.5617	4.8513	0.0296	0.0309
10	2017	0.3900	1.2757	0.1359	0.5867	0.4680	6.1384	0.0208	-0.0262
10	2016	0.4000	1.1157	0.1387	0.6124	0.4480	8.1958	0.0209	-0.0339
10	2015	0.3600	0.8937	0.1116	0.5217	0.4032	6.8374	0.0200	0.0113
10	2014	0.2500	0.6480	0.0892	0.3888	0.3750	8.0558	0.0183	0.0388
10	2013	0.2800	0.9417	0.0967	0.4394	0.7560	6.8133	0.0294	-0.1305

FIRM	YEAR	SRV	CAPIT	DCR	AER	EPS	P/E	ROE	AQ1
10	2012	0.2700	0.5755	0.1058	0.4608	0.5967	6.0644	0.0414	-0.1439
10	2011	0.3400	3.1496	0.1521	0.6628	0.8670	6.3029	0.0711	-0.0815
10	2010	0.6400	3.6690	0.3388	1.4327	1.3632	9.7263	0.1146	0.0465
11	2019	0.5700	0.8736	0.3221	-1.2323	-1.2711	-1.1106	0.1014	0.0601
11	2018	0.4500	0.5385	0.3582	-1.7028	-0.5850	-4.0102	0.1066	0.1020
11	2017	0.8600	1.1961	0.1243	-1.5983	-1.8652	-2.6558	0.1054	0.0408
11	2016	0.4500	0.6323	0.3531	-1.5642	-1.8885	-0.4741	0.1031	0.0982
11	2015	0.3500	0.5784	0.3615	-1.6862	-1.0235	-0.5666	0.1011	0.1481
11	2014	0.2800	0.3926	0.2268	1.4745	-0.6300	-5.3694	-0.0335	0.0412
11	2013	0.2700	0.3350	0.2013	1.0613	-1.7145	-1.8373	-0.0680	0.0597
11	2012	0.2900	0.2081	0.2038	2.7504	1.0382	4.6035	0.0821	0.0351
11	2011	0.3100	0.2699	0.2306	1.0035	2.3715	5.1137	0.0475	0.0759
11	2010	0.5000	0.0518	0.2369	0.1839	2.2000	4.3179	0.0511	0.0607
16	2019	0.3700	0.4945	0.1315	0.5740	1.6650	3.7740	0.0406	0.0490
16	2018	0.2800	0.3246	0.0830	0.3980	1.6520	3.9342	0.0397	-0.0484
15	2017	0.3100	0.3303	0.0864	0.4297	2.1390	4.1917	0.0498	0.0771
15	2016	0.3100	0.3332	0.0884	0.4336	2.7590	4.5281	0.0602	0.0381
14	2015	0.3200	0.3293	0.0943	0.4538	3.7760	4.9736	0.0740	0.0673
14	2014	0.1800	0.1610	0.0479	0.2452	2.3580	3.8460	0.0495	0.0113
13	2013	0.2500	0.2139	0.0699	0.3471	3.3500	4.8228	0.0768	-0.0252
13	2012	0.2100	0.1816	0.0660	0.3062	2.7930	2.1411	0.0720	0.0718
12	2011	0.2200	0.1725	0.0672	0.3168	2.7940	2.1047	0.0721	-0.0332
12	2010	0.2300	0.1910	0.0736	0.3383	2.2540	2.4924	0.0653	0.1142
13	2019	0.2900	2.5326	0.1492	0.5971	0.0725	6.9600	0.0117	0.0566
13	2018	0.3000	2.5128	0.1497	0.5987	0.1200	5.6250	0.0125	0.0254
13	2017	0.3500	3.7128	0.1615	0.7590	1.4420	0.6541	0.0182	0.0006
13	2016	0.3800	3.6145	0.2013	0.8079	1.1666	0.8169	0.0148	0.0613
13	2015	0.3600	4.6381	0.2112	0.8708	1.8864	0.5908	0.0293	0.0029
13	2014	0.4300	4.8185	0.2982	1.4025	0.5547	3.4667	0.0158	0.0371
13	2013	0.4000	4.2585	0.2428	1.0181	0.9560	2.3766	0.0283	0.0939
13	2012	0.2800	2.6198	0.1596	0.6509	0.3584	1.7281	0.0113	0.0014
13	2011	0.3100	3.2786	0.1763	0.7189	0.2914	3.9904	0.0093	0.0151
13	2010	0.3200	4.1859	0.1701	0.6831	0.4768	3.3289	0.0149	-0.0077
14	2019	0.0800	0.2749	0.0612	0.3411	0.1128	0.4709	0.0124	0.0352
14	2018	0.0800	0.3142	0.0615	0.3462	-0.0736	-1.0957	-0.0077	0.0788
14	2017	0.0800	0.2846	0.0617	0.3494	0.0208	3.8462	0.0019	-0.0505
14	2016	0.0900	0.3367	0.0708	0.4211	0.1134	0.8571	0.0125	0.0303
14	2015	0.0600	0.3258	0.0521	0.4556	0.0066	1.7273	-0.0010	0.0663
14	2014	0.0700	0.2035	0.0573	0.3853	0.1022	1.0692	0.0108	0.0227
14	2013	0.1700	0.5270	0.1086	0.4708	0.2380	1.0807	0.0266	-0.0149
14	2012	0.0800	0.2440	0.0521	0.2298	0.1064	0.3188	0.0162	-0.0072
14	2011	0.0700	0.5306	0.0466	0.2097	0.0763	0.3275	-0.0160	0.1631
14	2010	0.0800	0.2262	0.0467	0.1920	0.1448	0.2254	0.0205	-0.0440
15	2019	0.4500	1.0247	0.1645	0.7093	1.1475	0.5824	0.0559	0.0073
15	2018	0.2200	0.5343	0.0793	0.3440	0.3212	0.6479	0.0177	0.0022
15	2017	0.3200	0.7518	0.1163	0.5026	1.6352	0.3194	0.0421	-0.0346
15	2016	0.2000	0.4520	0.0746	0.3190	0.9400	0.2170	0.0272	-0.0450
15	2015	0.2400	0.5258	0.0936	0.3934	1.2240	0.2165	0.0389	-0.0251
15	2014	0.3000	0.6573	0.1170	0.4918	1.5300	0.2706	0.0486	-0.0251

FIRM	YEAR	SRV	CAPIT	DCR	AER	EPS	P/E	ROE	AQ1
15	2013	0.3100	0.6324	0.1186	0.5021	1.3299	0.2746	0.0633	-0.1094
15	2012	0.3700	0.6666	0.1461	0.6115	1.4800	0.2220	0.0897	-0.1028
15	2011	0.3100	0.8951	0.1229	0.5136	0.9889	0.1846	0.0515	-0.0406
15	2010	0.3000	1.0384	0.1160	0.4892	0.7710	0.3152	0.0437	0.0023
16	2019	0.2600	2.4354	0.1282	0.6567	1.7368	1.2222	0.0266	-0.0047
16	2018	0.3300	3.1240	0.1556	0.8260	1.3068	3.0333	0.0239	-0.0009
16	2017	0.2600	2.4443	0.1145	0.4645	2.8418	0.9301	0.0437	-0.0728
16	2016	0.2800	2.6847	0.1248	0.6379	3.2900	1.0223	0.0813	-0.0956
16	2015	0.2600	1.5880	0.1212	0.4871	2.7170	1.3908	0.0536	-0.1187
16	2014	0.3700	2.2426	0.1166	0.5402	1.6798	3.8141	0.0558	-0.0953
16	2013	0.4000	2.4244	0.0237	0.5840	1.8160	1.9912	0.0603	-0.0950
16	2012	0.2600	1.2623	0.0114	0.3614	0.9802	0.9172	0.0478	-0.1651
16	2011	0.3100	1.6863	0.0691	0.3989	1.1749	1.5050	0.0743	-0.1655
16	2010	0.3800	3.0217	0.0184	0.3993	0.6878	3.5691	0.0529	-0.0789
17	2019	0.2200	0.3743	0.0939	0.6489	-0.3190	-3.2841	-0.0071	0.0940
17	2018	0.2100	0.1331	0.1792	0.0765	-0.1155	-4.2745	-0.0558	-0.0098
17	2017	0.1800	0.1708	0.1476	1.0010	1.7478	4.4546	0.0828	0.0810
17	2016	0.2400	0.2489	0.2003	1.4506	2.9280	5.3803	0.0427	0.1265
17	2015	0.2000	0.2078	0.1601	1.0026	1.6440	7.2555	0.1043	0.0740
17	2014	0.2500	0.2587	0.2138	1.7269	2.0525	8.6236	0.1088	-0.0106
17	2013	0.2500	0.2477	0.2141	0.5717	2.2075	8.9892	0.0678	0.0232
17	2012	0.2000	0.1966	0.1681	0.4396	2.6920	3.1887	0.0901	-0.0797
17	2011	0.2400	0.2526	0.1159	0.4217	2.2320	4.7561	0.0805	-0.0029
17	2010	0.1600	0.1590	0.0602	0.2568	1.4528	3.1524	0.0590	0.0875
18	2019	0.0800	0.0434	0.0779	0.1779	3.1088	1.0781	0.0336	0.1644
18	2018	0.1000	0.0411	0.0602	0.1612	4.0850	1.5807	0.0417	0.0943
18	2017	0.0800	0.0413	0.0448	0.1817	2.6688	1.9707	0.0340	0.0774
18	2016	0.0700	0.0353	0.0226	0.1472	2.9638	1.3699	0.0337	0.0501
18	2015	0.1100	0.0923	0.0579	0.2321	5.4736	1.7426	0.0618	-0.0560
18	2014	0.1100	0.0955	0.0610	0.2471	4.6805	1.8696	0.0576	0.0288
18	2013	0.0500	0.0266	0.0277	0.1122	1.8620	0.7456	0.0246	-0.0178
18	2012	0.0500	0.0249	0.0087	0.1069	1.6355	0.5576	0.0263	0.0177
18	2011	0.1100	0.0751	0.0587	0.2359	3.4078	0.9033	0.0531	0.0561
18	2010	0.0600	0.0493	0.0324	0.1305	1.0602	0.7776	0.0207	0.0401
19	2019	0.2100	0.1615	0.0525	0.2800	0.3276	3.7019	0.0909	0.1939
19	2018	0.2600	0.1859	0.0676	0.3513	0.3588	5.1812	0.1160	0.2190
19	2017	0.2500	0.1630	0.1936	0.3229	0.3025	4.5868	0.1127	0.2239
19	2016	0.2100	0.1708	0.1540	0.2864	0.1995	4.0011	0.0685	0.1665
19	2015	0.2500	0.2402	0.1677	0.3763	0.2000	4.8438	0.0764	0.1856
19	2014	0.1900	0.1768	0.1432	0.2803	0.1083	4.2000	0.0479	0.2089
19	2013	0.2500	0.2592	0.2023	0.4013	0.1100	4.2614	0.0546	0.1676
19	2012	0.2500	0.2848	0.1979	0.4228	0.0800	2.8906	0.0438	0.1691
19	2011	0.2700	0.3242	0.2182	0.4557	0.0891	2.9455	0.0527	0.1567
19	2010	0.2800	0.3472	0.2106	0.4680	0.1064	3.9053	0.0681	0.0855
20	2019	0.1400	0.0384	0.0491	0.2157	0.5698	0.9835	0.0146	-0.0748
20	2018	0.1500	0.0533	0.0634	0.2598	0.5505	1.1985	0.0153	0.2407
20	2017	0.1400	0.0386	0.0611	0.2485	0.6090	0.6541	0.0179	-0.0265
20	2016	0.1100	0.0227	0.0526	0.2000	0.3905	0.5494	0.0127	-0.0263
20	2015	0.1500	0.0372	0.0729	0.2917	0.3855	1.4338	0.0138	0.1815

FIRM	YEAR	SRV	CAPIT	DCR	AER	EPS	P/E	ROE	AQ1
20	2014	0.1400	0.0267	0.0693	0.2774	0.3164	1.4893	0.0121	-0.2614
20	2013	0.1800	0.0465	0.1108	0.4680	0.3744	1.3224	0.0154	0.1637
20	2012	0.1200	0.0330	0.0684	0.2789	0.0384	6.0844	-0.0017	0.2093
20	2011	0.2500	0.0833	0.1847	0.9570	0.0600	6.4815	-0.0019	-0.0550
20	2010	0.3600	0.1381	0.2465	1.1415	1.1052	3.5077	0.0344	0.1677
21	2019	0.0800	0.1601	0.0622	0.3596	0.0096	2.3333	0.0033	0.0500
21	2018	0.0700	0.1354	0.0536	0.2989	0.0126	1.8278	0.0044	0.0461
21	2017	0.0800	0.1564	0.0600	0.3195	0.0144	2.0000	0.0050	0.0528
21	2016	0.0800	0.1649	0.0577	0.2869	0.0056	5.4857	0.0020	0.0100
21	2015	0.0400	0.0721	0.0274	0.1273	0.0172	0.7628	0.0058	-0.0895
21	2014	0.0600	0.0979	0.0417	0.1972	0.0252	1.1714	0.0091	-0.0058
21	2013	0.1700	0.2660	0.1033	0.4331	0.1105	1.0462	0.0357	0.0335
21	2012	0.0900	0.1422	0.0550	0.2315	0.0576	0.4500	0.0228	0.0303
21	2011	0.0800	0.1665	0.0491	0.2072	0.6472	0.0316	0.0109	0.0833
21	2010	0.0700	0.1478	0.0456	0.2011	0.5684	0.0276	0.0131	0.0461
22	2019	0.0800	0.2758	0.0632	0.3807	0.1048	0.6351	0.0074	-0.0498
22	2018	0.0800	0.3143	0.0633	0.3841	0.0736	1.1478	0.0058	-0.0404
22	2017	0.0700	0.2683	0.0560	0.3498	0.0644	0.9207	0.0080	0.0124
22	2016	0.1000	0.3869	0.0807	0.5171	0.1370	1.1168	0.0093	0.0111
22	2015	0.0900	0.3757	0.0738	0.4986	0.1233	1.4781	0.0106	0.0277
22	2014	0.0500	0.1999	0.0407	0.2696	0.1070	0.4439	0.0093	0.0470
22	2013	0.1800	1.0113	0.1665	2.3990	0.3852	0.9421	0.0493	-0.0038
22	2012	0.0800	0.4040	0.0748	1.2262	0.1712	0.2766	-0.0067	0.1437
22	2011	0.1200	0.2938	0.0917	0.5088	4.3452	0.0378	0.0174	-0.0823
22	2010	0.0700	0.1496	0.0536	0.2981	-1.8977	-0.0294	-0.0089	0.0415
23	2019	0.0700	0.9399	0.0565	0.3626	0.8729	0.1443	0.0124	0.0034
23	2018	0.0700	0.8807	0.0577	0.3970	0.6734	0.2052	0.0117	0.0745
23	2017	0.0600	0.6797	0.0494	0.3390	1.7870	0.0077	0.0132	-0.0111
23	2016	0.0700	0.7310	0.0577	0.3974	1.8102	0.0093	0.0144	-0.0266
23	2015	0.0500	0.5696	0.0419	0.3073	1.2425	0.0072	0.0112	-0.1202
23	2014	0.0900	1.1548	0.0770	0.6181	1.0515	0.0165	0.0210	-0.0801
23	2013	0.0300	0.3934	0.0249	0.1778	1.0500	0.0211	0.0063	-0.2172
23	2012	0.0400	0.6356	0.0335	0.2458	1.0400	0.0229	0.0085	-0.1125
23	2011	0.0200	0.4642	0.0172	0.1425	0.5200	0.0078	0.0046	-0.0798
23	2010	0.0400	0.6728	0.0336	0.2509	0.8000	0.0118	0.0073	-0.1606
24	2019	0.1400	2.0279	0.1174	0.8669	2.2596	0.8535	0.0182	0.0340
24	2018	0.1000	2.0292	0.0630	0.8753	1.5880	0.5673	0.0141	0.1199
24	2017	0.1200	1.8309	0.0993	0.6949	1.3080	0.8003	0.0120	-0.0031
24	2016	0.1700	2.1768	0.1382	0.9092	1.9006	1.2237	0.0187	-0.0601
24	2015	0.1400	1.8197	0.1142	0.7607	1.7374	1.2058	0.0179	-0.0121
24	2014	0.1100	1.2315	0.0876	0.5396	1.5818	0.9141	0.0170	-0.0297
24	2013	0.1800	2.1049	0.1477	1.0020	2.3346	0.9030	0.0285	-0.0102
24	2012	0.1300	1.3835	0.1053	0.6834	1.2870	0.5114	0.0144	-0.0046
24	2011	0.1600	2.3581	0.1394	1.2431	0.9584	1.3825	0.0152	0.0105
24	2010	0.3700	2.2297	0.3046	2.0926	1.9018	4.2358	0.0267	0.0092

FIELD DATA 2023: MODERATION INTERACTIVE TERMS.						
LNCAPIT*LNAQ	LNDAR*LNAQ	LNDCR*LNAQ	LNAER*LNAQ	LNEPS*LNAQ	LNP/E *LNAQ	LNROE*LNAQ
6.3323	5.4379	11.6737	4.6670	4.6132	-6.5601	19.9311
7.1993	6.2576	12.4394	5.5496	4.5013	-6.1197	19.3282
10.8097	10.0591	15.6689	9.4988	6.6292	0.7925	18.2717
6.2140	5.9994	11.5638	4.8879	-1.9182	-1.3371	10.7835
10.7467	10.4214	18.6721	8.6620	-1.7310	-0.4040	17.8481
6.1875	5.8714	10.5999	5.1399	0.5961	-0.8780	10.9008
6.7556	6.1208	12.0282	5.6945	0.7200	-1.5044	12.2758
4.3104	3.9858	8.5784	3.3315	-1.5674	-1.7608	8.4508
6.5336	6.7369	12.1072	5.2925	-1.3697	-0.7912	10.4536
2.7565	2.3968	5.9053	1.7001	-2.8025	-2.7585	5.8325
9.6542	-5.6940	10.4514	-3.8364	7.8840	-4.0363	21.4003
4.4231	-2.3794	4.8497	-1.4074	3.6121	-1.8493	9.7473
3.8047	-2.7543	4.3343	-1.6285	3.1860	-2.2094	6.2542
3.4424	-2.0888	3.9108	-1.3235	2.6340	-1.8550	8.0315
5.1356	-1.1572	5.6753	-0.2628	3.8231	-1.6220	9.7879
6.6489	-0.3763	7.2783	0.6532	5.1887	-1.4522	11.7898
7.3551	-1.5116	8.1094	-0.8567	5.8650	-3.7800	13.7598
10.4529	-2.3264	11.6213	-1.8182	7.2632	-3.8882	18.6194
5.2654	-2.8127	6.1065	-2.3583	3.5214	-4.7455	10.8699
4.3414	-0.8670	4.9367	-0.6834	2.3687	-1.6656	7.5558
5.8321	-3.9074	6.6698	-1.6912	1.8998	-1.4985	13.3052
4.8474	-1.9321	5.4123	-0.4711	2.5002	-1.2854	10.0129
5.7926	-3.7969	6.6484	-1.5703	2.8335	-2.5684	13.5834
3.5822	-2.5499	4.1294	-1.5066	1.5475	-1.8372	8.1107
5.9949	-2.6061	6.5739	-1.2249	2.8763	-1.3071	11.7659
7.9393	-2.9508	8.7424	-1.4113	5.3508	-2.9483	16.0092
11.5593	-4.5502	12.7964	-1.6456	5.8965	-0.2778	21.5829
6.4777	-1.4871	7.0757	-0.7235	4.1743	0.8726	11.5797
6.9328	-2.9155	7.5233	-2.3231	5.0147	-1.2127	12.3357
8.0242	-3.7361	8.7606	-2.4872	6.6358	-1.6362	14.5253
9.4777	-3.1383	10.3267	0.7377	-5.3377	1.7861	19.1933
8.3197	-2.9765	9.0376	0.0617	-5.1125	-0.5174	16.8887
8.8755	-2.6361	9.5701	0.1038	-4.7779	1.0564	17.3312
8.0499	-3.5636	8.7343	-1.3943	-6.9128	-0.5686	15.6341
9.2365	-1.5507	9.8726	0.5575	-4.1349	0.0075	16.1128
9.4185	-2.2707	10.1824	0.2393	-4.8342	-0.1716	16.9159
17.3575	-2.6259	18.6169	0.3874	-7.8008	4.3002	28.7172
7.4582	-2.6326	8.0808	-1.3975	-4.5744	0.8065	13.3573
8.6702	-1.2303	9.2066	0.0990	-1.9969	1.1704	14.7483
4.9504	-5.3783	5.5192	-4.1638	-6.5183	-0.8953	11.1157
8.2932	-5.9372	9.4102	-2.8239	-2.6655	-3.6852	18.0868

LNCAPIT*LNAQ	LNDAR*LNAQ	LNDCR*LNAQ	LNAER*LNAQ	LNEPS*LNAQ	LNP/E *LNAQ	LNROE*LNAQ
4.5610	-2.6224	5.1396	-1.2156	-0.7203	-2.3449	9.5377
3.4598	-2.6566	4.0063	-1.3706	-1.0385	-2.0186	7.9150
3.0499	-2.1008	3.5052	-1.1529	-0.4224	-2.0636	6.8758
4.7043	-3.8721	5.4662	-2.6476	-1.6408	-4.7665	10.5929
5.3780	-2.8877	6.2187	-1.5509	-0.9169	-3.6892	10.7725
4.2747	-1.9032	4.9450	-1.2232	0.1018	-2.8977	8.7034
5.8252	-1.4366	6.5722	-0.8479	1.2788	-1.3414	10.7023
4.8666	-1.6936	5.5213	-1.0837	1.3677	-2.3416	8.9593
4.0769	-1.8961	4.7527	-1.2383	1.9711	-3.6729	8.3646
6.2273	-3.7996	6.8880	-1.9728	-2.4927	-0.9500	13.1766
6.1051	-2.6096	6.7625	-0.8674	-1.7014	-0.5367	12.0051
9.5077	-7.1227	10.8072	-3.6263	-4.0057	-3.0608	21.7236
3.8551	-2.8213	4.3911	-1.6528	-1.7807	-1.2414	8.6655
5.1425	-2.8012	5.7095	-1.8011	-1.5969	-2.3700	10.2626
5.5108	-2.0299	6.1023	-1.0895	-0.5913	-2.3120	10.8131
5.4855	-2.4100	6.1652	-1.5085	-0.5599	-2.8083	11.1958
11.1890	-3.6799	12.3334	-2.5312	1.0555	-1.5219	21.8909
6.6792	-3.5815	7.3753	-2.9853	5.6041	-6.9826	13.4197
4.5087	-2.2784	5.0433	-1.3676	1.3013	-1.8109	9.8664
2.6417	0.3729	3.1149	-1.7960	7.7755	-5.8514	16.1556
2.9479	0.5474	3.4690	-1.4536	1.6211	-0.4871	10.5031
3.4416	0.6976	3.9942	-0.8196	-0.2109	1.1770	9.7380
3.5374	0.7308	4.2106	-0.7319	-0.0908	0.7670	9.6109
3.6237	1.1458	4.5671	-0.4505	0.1272	-0.1108	8.9931
4.2474	2.1085	5.4149	0.2153	0.5616	0.1850	10.1937
4.1389	2.3075	5.3158	0.6427	2.0119	-1.1037	10.4721
4.7192	3.7890	6.2021	1.6210	2.3561	-0.5134	10.8928
3.4021	2.1637	4.6092	0.6579	1.5122	-1.7876	8.8974
2.9116	2.7013	3.9264	0.5640	-3.7496	4.8990	7.5904
4.6165	-2.8610	5.1570	-1.1779	-5.2988	-1.7791	10.1374
3.6840	-1.6489	4.0925	-0.4624	-3.5021	-1.0853	7.6915
4.6333	-3.5291	4.6371	-1.6738	-5.6081	-3.1723	11.1263
3.5485	-2.7953	4.1106	-1.3980	-4.3093	-1.9571	8.1211
3.4047	-2.5142	3.9444	-1.1551	-4.4290	-1.7322	7.6710
3.4330	-1.2875	3.8468	-0.2864	-3.5043	-0.6637	6.8355
5.6900	-2.4839	6.3443	-0.8951	-6.6393	-1.9174	10.6602
5.5760	-2.6955	6.2068	-1.2326	-6.5064	-0.8519	10.5029
9.1852	-4.5456	9.9788	-2.9995	-8.3722	-3.9175	16.6344
3.3210	-2.5863	3.7107	-1.6223	-4.0906	-2.3861	6.6949
3.6560	-5.4137	4.1512	-3.1198	-3.6636	-0.4938	10.9256
7.6611	-10.2538	8.7172	-8.8113	-7.8696	-3.4148	22.0013
5.5158	-7.3745	7.9523	-0.2228	3.6097	-10.6530	20.7598

LNCAPIT*LNAQ	LNDAR*LNAQ	LNDCR*LNAQ	LNAER*LNAQ	LNEPS*LNAQ	LNP/E *LNAQ	LNROE*LNAQ
4.2267	-6.2649	6.0212	0.1094	5.8996	-6.4858	15.4186
3.8782	-2.6763	4.3764	-1.4174	-1.7240	-1.3413	8.9755
4.9278	-4.2231	5.6036	-2.1621	-2.6436	-2.6370	11.6465
4.0640	-2.8007	4.5236	-1.5944	-1.2467	-1.3802	9.0224
5.9297	-4.8283	6.6683	-3.3907	-2.6771	-0.0016	13.7323
3.8168	-4.2711	4.2828	-2.7522	-2.3917	-0.2212	8.2414
1.3257	-3.9438	3.6486	-2.5347	-4.6496	-4.7652	7.3858
2.5840	-4.5972	7.4546	-0.6304	1.8619	-9.4135	13.4607
3.0994	-0.9463	6.1862	1.2565	2.0051	-5.4899	12.2402
3.4299	-0.8871	7.2706	1.9425	2.7658	-6.6098	14.1087
3.1006	-0.3705	6.6836	1.6592	2.7171	-7.1183	13.0877
4.5811	0.5038	9.8338	2.9177	4.0729	-8.6200	17.5353
4.5053	1.4101	7.8534	3.0705	3.1876	-6.7805	13.0015
2.5919	0.1223	4.7571	1.6743	0.5695	-3.9070	7.1787
2.5379	1.0709	4.3544	1.5019	1.0008	-3.4937	6.1706
2.7048	-2.8765	4.7219	1.0310	0.3578	-4.6158	6.6270
1.3695	-3.9891	3.3211	-1.1035	-0.9508	-6.9809	6.6482
1.5805	0.3801	3.1850	-0.5873	-0.6745	-0.2949	6.4360
1.8226	1.4129	2.3433	-1.2149	1.2237	-3.1700	5.1087
0.4827	-0.5729	6.6724	-1.5006	-1.9949	-3.1257	7.1993
1.8531	1.0640	2.4159	-1.0383	-1.4755	1.7321	5.2731
2.0053	1.0456	1.9437	-0.9980	-0.0444	1.0852	4.3773
4.0609	2.9822	4.7327	-1.2388	1.4739	-5.3616	10.8298
3.6896	3.0815	4.5169	-0.1675	-1.5192	-1.7141	7.5739
4.1463	5.2576	5.3282	-3.3889	-0.1256	-5.1141	8.3735
3.0191	3.3758	3.7818	-0.0090	-2.2260	-4.2068	7.8546
1.9425	8.2974	4.0360	4.7462	-2.2097	-4.0994	8.3361
2.9992	2.1242	6.1196	1.6745	-1.5379	-4.0063	9.6635
3.8551	3.4078	7.5365	2.7899	-1.5202	-4.1481	9.7693
3.0008	2.8384	6.2751	2.1640	-1.9481	-3.6719	7.6880
3.8282	3.5919	7.9298	2.7311	-3.3173	-4.9367	9.1875
3.0750	2.9980	6.3713	2.1324	-3.5857	-4.3291	7.0258
7.6857	8.1848	13.6224	6.3002	-3.8447	-6.0373	13.4738
5.1033	5.6768	9.7935	3.8956	-4.4505	-5.7919	9.4469
4.1112	4.4939	7.1618	3.1180	-2.7057	-2.0055	6.9318
5.1549	5.9835	9.1913	3.9134	-3.4981	-2.5336	8.9523
3.1889	3.5918	5.6603	2.3516	-1.7634	-1.9816	5.9222
3.5560	-2.6694	5.4660	1.4814	7.5383	-5.5734	12.7712
4.4242	-3.3859	6.9796	1.8854	7.7913	-6.3470	16.1168
7.7163	-9.6418	13.4018	2.0269	-2.6904	3.1198	29.4372
2.7015	-3.5876	4.4760	0.5957	-0.4302	0.5645	11.7564
5.9542	-8.9419	9.0628	0.8059	-3.6989	3.0668	20.5773

LNCAPIT*LNAQ	LNDAR*LNAQ	LNDCR*LNAQ	LNAER*LNAQ	LNEPS*LNAQ	LNP/E *LNAQ	LNROE*LNAQ
2.7803	-5.1802	3.9865	-1.1144	1.9414	-4.0955	13.6551
2.1677	-3.4277	3.3483	-0.0424	0.1065	-2.0479	8.4311
8.3689	-6.3319	12.0664	2.8229	6.7460	-3.5964	29.4949
4.9102	-4.9783	7.2756	1.3834	5.1696	-5.8020	19.6163
5.5431	-6.9650	8.6174	1.8539	3.6032	-5.8506	20.4598
8.4534	4.3219	9.3480	3.6002	7.3034	2.5204	14.6802
6.4178	2.9419	7.0856	2.6957	6.6297	-0.2321	12.3767
7.5427	3.7530	8.3191	3.1398	11.5655	-4.0228	18.7734
8.4170	3.8055	9.2575	3.0234	7.6091	0.5388	15.3213
7.6349	3.0437	8.0181	2.1334	13.6249	-1.4832	18.8688
10.0718	6.0298	10.8312	3.6124	8.6385	-0.2533	17.1345
7.4525	2.6941	9.3364	3.1680	6.0373	-0.3265	15.2474
12.4559	6.9561	14.5666	7.2530	11.0495	5.6378	20.3438
4.8217	1.1492	5.5581	2.8321	4.6655	2.0239	7.4966
7.8913	4.6437	9.5759	5.1568	6.0375	4.6547	12.1394
3.9322	-0.1202	8.8874	1.6913	-0.6775	2.6625	14.2063
9.2903	3.8458	15.5515	6.5479	6.9683	2.6626	24.7647
3.8324	0.9597	7.2374	2.3136	-1.6540	3.8390	10.6562
4.9907	2.4621	8.0482	3.5429	0.1919	4.7375	11.1725
5.2590	2.3689	8.7291	3.4376	-0.7448	5.6393	11.9652
4.4367	1.5466	7.9068	2.6153	-1.5671	4.8170	11.1429
2.5917	1.0142	4.7175	1.5244	-0.6309	2.8601	6.1060
2.2621	0.9227	4.3759	1.1190	-0.8920	3.4244	5.4857
3.7520	0.3551	6.7171	2.1346	0.0358	5.4119	9.5028
7.3039	-0.2287	13.0674	4.3378	1.5777	7.0045	18.9859
7.2163	-4.7684	11.0030	2.2527	-2.9573	-1.0747	19.4312
7.7165	-7.9286	12.9508	1.3307	-1.8624	-7.7235	25.9742
3.5289	-2.3413	5.6781	2.0088	-2.7361	0.1898	8.2022
2.9890	-2.3189	4.8860	1.0554	-2.7963	-0.0518	5.8926
2.8708	-0.9856	4.4970	1.5329	-2.1301	-0.7030	6.2377
2.3370	-1.8984	5.0520	1.4476	-1.2192	-3.1467	6.7852
2.1566	-2.0843	8.8102	1.2660	-1.4042	-1.6210	6.6104
2.4264	-0.4195	8.0627	1.8334	0.0360	0.1556	5.4762
2.1068	-0.9400	4.8069	1.6532	-0.2900	-0.7354	4.6755
2.4568	-2.8077	10.1444	2.3307	0.9503	-3.2305	7.4630
3.5802	2.3233	5.5925	1.0227	2.7016	-2.8117	11.7048
7.2139	9.3224	7.9478	11.8792	9.9773	-6.7148	13.3361
4.3098	4.4413	4.8081	-0.0025	-1.4033	-3.7547	6.2620
2.9510	2.8753	3.3250	-0.7692	-2.2215	-3.4796	6.5218
4.1910	4.0911	4.7704	-0.0068	-1.2945	-5.1605	5.8853
6.3056	6.1497	7.0168	-2.4850	-3.2706	-9.7998	10.0880
5.2171	5.2514	5.8005	2.1042	-2.9801	-8.2645	10.1258

LNCAPIT*LNAQ	LNDAR*LNAQ	LNDCR*LNAQ	LNAER*LNAQ	LNEPS*LNAQ	LNP/E *LNAQ	LNROE*LNAQ
4.0706	4.1137	4.5106	2.0787	-2.5046	-2.9329	6.0877
8.3443	8.0458	12.5984	5.0483	-4.6945	-9.1180	14.7344
4.4636	4.4787	6.8437	3.3114	-0.9097	-2.7966	6.8922
4.5601	5.6647	4.6081	3.1174	-2.0478	-0.1358	6.1245
5.4381	7.5368	6.6381	4.3102	-3.3237	-1.0813	7.5016
6.4640	8.1544	7.9494	4.3648	-2.5123	-1.7362	8.6509
7.9604	10.0090	11.3413	5.7351	-3.2523	-0.9422	10.1491
6.3628	6.8677	8.2142	4.2102	-4.9003	-1.6010	8.0234
7.8296	8.3323	9.9196	4.9593	-5.4748	-2.2196	10.1247
12.0624	14.6020	14.4387	8.8091	-2.5031	1.1822	14.9200
12.0856	14.9019	19.1550	9.0198	-1.9847	2.3563	14.6749
6.3593	7.4585	8.1685	4.1613	-3.5324	0.2930	8.4553
9.0465	9.6790	11.0269	6.5485	-0.1880	0.8089	12.4633
2.5602	2.9910	4.8339	2.0881	1.8307	-2.1471	3.9335
2.0457	2.5555	4.0917	1.5886	1.5566	-2.4982	3.2713
2.0746	2.7145	2.4574	1.6918	1.7893	-2.2794	3.2673
2.7981	3.1683	3.3542	2.2421	2.8901	-2.4860	4.8055
2.3347	2.4021	3.0077	1.6460	2.7106	-2.6571	4.3311
2.6007	2.7137	3.0436	1.9917	3.4810	-2.2473	4.7574
2.4764	2.4119	2.8547	1.6308	3.9429	-2.5894	5.1933
2.4641	2.2323	2.8796	1.5302	4.4894	-1.8867	5.5602
2.4266	2.0878	2.8212	1.4564	4.4813	-2.0021	5.4556
3.1312	2.6019	3.8320	1.8677	5.5112	-3.3510	6.6094
5.0981	8.4551	7.8135	3.9774	1.4585	0.0430	10.9683
2.7017	4.1765	3.9282	1.9194	0.8501	-0.2578	5.9522
7.1352	11.8151	10.1430	5.0532	1.7998	1.5407	14.5998
8.0271	13.7709	10.7077	5.8524	3.4196	2.1781	15.8776
3.2372	5.6168	4.4693	2.1024	1.6266	-0.6148	7.3130
2.6377	4.8614	3.5804	1.7205	1.5438	-0.5343	5.9182
3.1034	5.5512	3.9821	1.3742	1.7780	-0.5058	7.5578
3.3160	5.3332	4.1960	1.9973	5.0980	-2.8241	9.9651
4.0220	7.2092	4.9004	0.1275	8.1624	-5.4223	18.1151
1.8240	3.5350	2.5004	-0.2362	-0.1786	-2.2405	6.0144
7.5678	5.4889	8.3217	3.0641	13.9207	-2.5387	17.1420
8.1809	6.1502	9.0016	3.7147	13.4563	-1.8554	16.7276
7.4266	5.4548	8.2739	3.3545	12.4688	-2.0381	15.5721
11.6406	8.3079	13.1470	5.7541	23.8967	-7.8449	28.6126
7.7693	6.3475	8.6798	4.9751	9.8064	0.6536	12.4277
14.4729	11.9546	16.3390	8.3515	18.9356	-0.8139	24.1975
6.0181	4.4974	7.7109	2.8420	7.4811	-0.1532	11.3145
8.4162	6.8164	10.1373	5.1148	9.9761	2.7909	13.2097
6.2770	4.4559	7.4897	3.9121	1.0813	8.5820	11.2344

LNCAPIT*LNAQ	LNDAR*LNAQ	LNDCR*LNAQ	LNAER*LNAQ	LNEPS*LNAQ	LNP/E *LNAQ	LNROE*LNAQ
8.1848	5.8843	9.5017	4.9368	1.7388	11.0509	13.3543
7.5755	3.8631	8.2831	2.8969	6.7656	1.3615	14.7262
8.1038	3.7140	8.8532	3.0703	8.3713	-0.4424	16.5401
11.6664	5.7724	12.6461	4.6085	12.0322	0.3627	21.1991
10.3618	4.2728	11.3290	2.9682	8.9451	-0.4971	21.0520
8.6348	3.5101	9.3486	2.4954	7.5059	-1.4012	16.2956
9.1585	4.9218	9.7858	4.0079	6.8326	2.4827	14.2907
9.5652	-0.0627	10.0003	-4.8810	5.3214	0.3330	16.7936
4.8999	1.7585	5.0308	-0.3956	3.4240	2.4930	9.7122
5.2961	3.0598	5.9680	1.6878	-3.6695	8.1829	10.1170
8.4599	6.0443	9.3112	3.8502	-2.0381	11.2158	15.0230
15.1415	0.3529	16.3627	5.7757	0.7740	11.0239	25.0032
6.9057	0.3300	7.4094	2.3991	1.0268	4.1128	11.5512
12.6562	1.7371	13.5325	4.8666	-2.6116	21.8764	19.4787
9.6471	1.1368	10.3500	3.3478	-2.1528	16.9705	15.3942
6.3465	1.1924	6.7227	2.4996	-0.4600	10.4376	9.5140
6.0774	-0.3633	6.4697	1.2144	-0.1267	10.3589	9.7495
5.3539	1.4244	5.6361	2.6372	-0.0745	5.8923	7.7455
7.0329	0.9902	7.4209	3.0659	-0.0857	8.2493	10.4196
9.8917	1.9402	10.2741	4.9266	1.6535	12.2577	13.6192
5.8877	0.7248	6.2054	2.5290	0.4082	8.1207	9.0014
6.6495	-2.3912	7.2452	0.4831	-2.7570	0.5358	13.5463
4.8833	-1.5007	5.8642	0.2826	-0.9808	1.2020	9.0429
12.2447	-3.4927	13.3395	2.1023	-1.5506	1.2867	25.5236
4.9819	-2.1870	5.5639	0.2676	-1.8055	-0.5677	11.1858
8.6795	-2.6430	9.5775	1.2076	-2.4386	-0.8261	17.7592
7.7620	-0.7322	8.5637	2.1692	-1.6126	0.3160	14.3379
7.8667	-3.4144	8.7751	-0.0094	-3.8895	0.4681	16.3280
10.9661	-1.7448	12.1002	2.0458	-1.3562	3.6045	22.8062
8.3484	-3.9080	8.9761	-0.9912	0.1936	-1.4756	19.0648
4.6637	-3.7614	5.5764	-3.4635	-3.0152	-6.7714	16.9948

Appendix IVI: NSE Listed Companies

Sector/Firm	Included/not included in the sample
AGRICULTURAL.	
1. Eaagads Ltd.	Not included
2. Kapchorua Tea Kenya Plc.	Not included
3. Kakuzi Plc.	Not included
4. Limuru Tea Co. Ltd.	Not included
5. Sasini Plc.	Not included
6. Williamson Tea Kenya Plc.	Not included
AUTOMOBILES & ACCESSORIES	
7. Car & General (K) Ltd.	Not included
BANKING	
8. ABSA Bank Kenya Plc.	Included
9. Stanbic Holdings Ltd.	Included
10. I & M Holdings Plc.	Included
11. Diamond Trust Bank Kenya Ltd	Included
12. HF Group Plc.	Not Included
13. KCB Group Plc.	Included
14. NCBA Group Plc.	Included
15. Standard Chartered Bank Kenya Ltd.	Included
16. Equity Group Holdings Plc.	Included
17. The Co-operative Bank of Kenya Ltd.	Included
COMMERCIAL & SERVICES	
18. Express Kenya Plc.	Not Included
19. Kenya Airways Ltd.	Included
20. Nation Media Group Plc.	Included
21. Standard Group Plc.	Not Included
22. TPS Eastern Africa (Serena) Ltd.	Not Included
23. WPP Scan group Plc.	Included
24. Uchumi Supermarket Plc.	Not Included
25. Eveready East Africa Ltd.	Not Included
26. Longhorn Publishers Plc.	Not Included
27. Deacons (East Africa) Plc.	Not included
28. Sameer Africa Plc.	Not included
29. Nairobi Business Ventures Ltd.	Not included
30. Homeboyz Entertainment Plc.	Not included
CONSTRUCTION & ALLIED	

31. ARM Cement Plc.	Not included
32. Bamburi Cement Ltd.	Included
33. Crown Paints Kenya Plc.	Not included
34. E.A Cables Ltd.	Not included
35. E.A Portland Cement Ltd.	Not Included
ENERGY & PETROLEUM	
36. Total Kenya Ltd.	Included
37. KenGen Plc.	Included.
38. Kenya Power & Lighting Plc.	Included.
39. Umeme Ltd	Not Included
INSURANCE	
40. Jubilee Holdings Ltd	Not Included
41. Sanlam Kenya Plc.	Not Included
42. Kenya Re - Insurance Corporation Ltd.	Included
43. Liberty Kenya Holdings	Included.
44. Britam Holdings Plc.	Included.
45. CIC Insurance Group Ltd.	Included.
INVESTMENT	
46. Olympia Capital Holdings Ltd.	Not Included
47. Centum Investment Plc.	Included
48. Trans - Century Plc.	Not Included
49. Home Afrika Ltd.	Not Included
50. Kurwitu Ventures Ltd.	Not Included
INVESTMENT SERVICES.	
51. Nairobi Securities Exchange Plc.	Not Included
MANUFACTURING & ALLIED	
52. B.O.C Kenya Plc.	Not Included
53. British American Tobacco Kenya Plc.	Included.
54. Carbacid Investments Plc.	Not Included
55. East African Breweries Ltd.	Included
56. Mumias Sugar Co. Ltd	Not Included
57. Unga Group Ltd.	Not Included
58. Kenya Orchards Ltd.	Not Included
59. Flame Tree Group Holdings Ltd.	Not Included
TELECOMMUNICATION	
60. Safaricom Plc.	Included
REAL ESTATE INVESTMENT TRUST	

61. ILAM Fahari I-REIT.	Not Included
EXCHANGE TRADED FUNDS	
62. ABSA New Gold ETF	Not Included

Appendix VI: Map of Study Area