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RELATIONSHIP BETWEEN DETERMINANTS OF CAPITAL STRUCTURE AND STOCK RETURNS OF NON-FINANCIAL FIRMS LISTED IN THE NAIROBI SECURITIES EXCHANGE

Frashiah Wanjiku Mwangi [1], Dr. Moses Kiptui, PhD [2] & Dr. Tobias Olweny, PhD [3]

[1] Student, Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya, Kenya
[2, 3] Lecturer, Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya, Kenya

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ABSTRACT

This paper established the relationship between determinants of capital structure and stock returns of non-financial firms listed on the Nairobi Stock Exchange. Specifically, the study determined the relationship between stock return and firm's profitability, liquidity, asset tangibility of non-financial firms listed in the NSE. Secondary data used in the study was obtained from audited published financial statements for ten years for 45 non-financial listed firms in Kenya. Panel data of thirty-five firms from NSE between the years 2011 to 2020 was used to conduct the research. Ten non-financial firms did not have complete records as they were either not listed at stock market as at year 2011 (NSE, Umeme ltd, Home Boyz Ltd) or they were delisted and not trading at the stock market by year 2020 (Uchumi Supermarket ltd, Mumias Sugar, Deacons ltd). The data series were established to be highly stochastic and skewed hence the need to transform the series to logs in order to establish normal distributions and ensure Gauss normality assumptions would apply. A panel multiple regression model was adopted in order to test the influence of the four variables on stock returns. Profitability, Liquidity, firm size and tangibility were established to influence stock returns to the tune of 68.26% while 31.74% of changes on stock returns was determined by other factors not included in the analysis. This may be attributed to the firm's internal factors and external factors beyond the control of the firm, for example the macroeconomic factors, social and political factors and legal environment in which a firm operates on. The coefficients of the variables were assumed to be the same across the firms. Low p-values for profitability, liquidity and firm size revealed that the three factors are significant in influencing stock returns across the firms at 95% level of significance. Tangibility exhibited p-value of 0.908 which is higher than 0.05, hence not significant in influencing stock return despite the positive relationship. This implies that firms need to focus more on profit, their ability to convert their fixed assets to liquid assets (liquidity) and the size of the firm in order to have a significant impact on stock returns.

Keyword: *Profitability, Liquidity, Asset Tangibility, Firm Size, Stock Returns*

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INTRODUCTION

Capital structure refers to the combination of debt and equity that a specific firm uses to fund its operations and growth. It is the way a firm finances its operations which can be through either debt or equity capital or combination of both (Koech, 2013). Capital structure has been the most important issue in financial economics ever since Modigliani and Miller revealed in 1958 that capital structure decision of the firm is irrelevant given frictionless markets and homogeneous expectations (Ogebe, 2013). According to Hall (2004), financing and investment are the main decision making areas in a firm, whereby in the financing decision, firm's management is keenly concerned with determining the best financing mix the firm. The choice of capital structure is determined by various factors that includes the market forces, type of industry, internal policies of the firm, size of the firm, profitability, asset tangibility, firm growth rate and liquidity among others. On the other hand, the investment decision involves the firm selecting the most suitable type of assets in which the resources can be invested. This is significant as it could lead to an optimal financing mix, which makes best use of the market price per share of the firm.

According to Mutwiri (2015), the global financial crisis spells out the significance of a strong corporate governance and financial management for a company in order to deal with the effects of unanticipated predicament and uncertainties that bear future business events. In an effort to create a competitive advantage for a firm, some of the major considerations for the management to put in mind includes effective financial management decisions, insurance of short-term and long-term capital, maintaining liquidity and solvency of the firm. For this reasons, capital structure decisions made can have significant consequences on the value and cost of capital for the firm (Gathogo,2014), where inappropriate capital structure decisions could lead to an increase in cost of capital thus lowering the net present value (NPV) of the firm's investment projects to the point of making many investment projects unacceptable. Alternatively, effective capital structure decisions steer towards a reduction of the cost of capital therefore raising the firm's NPV of investment projects. This will propagate to more projects being acceptable to undertake and in so doing increasing the overall value of the firm (Ondiek, 2014).

The capital structure of a firm is a crucial aspect for its business and it plays a vital role in its survival, performance and growth (Voulgaris, Asteriou & Agiomirgianakis, 2010). Firms can choose different levels of financial leverage in order to attain an ideal capital structure. A capital structure policy involves a trade-off between a business risk and return. When there is arise in firm's profit, the risk of firm's earnings increases, which ultimately leads to a higher rate of return to investors (Mohamed, 2017). A firm can spread over its assets in the business in order to make a stream of operating cash flows. After paying taxes, the firm makes distributions to the shareholders and retains the balance for use in its business as reserve. When the firm is fully owned by the shareholder, the whole after tax operating cash flow each period accrues to the benefit of its shareholders in the form of dividend and retained earnings. Alternatively, if the firm has borrowed a portion of its capital, it must cut a share of the cash flow to service the debt. Furthermore, the debt holders have a higher claim of the firm's cash flow and shareholders are only entitled to the residual (Stulz, 1990). A firm can do a selection of different combination of raising funds which could be either through debt, equity or other financial obligation in order to increase its market value thereby maximize its shareholders' benefits. Some firms could be all equity financed and thereby do not have debt at all that is unlevered, while others could have low levels of equity and high levels of debt that is levered. With the aim of determining the type of capital structure to use to finance the business, firm majorly focus to the maximization of its value through the great mixture of equity and debt. This is the optimal capital structure and it is predestined to minimize the cost of capital (Orangi, 2017). The choice of an optimal capital structure is always a critical issue for every firm because of the financial risk and tax advantage that are essentially influenced by selection of capital structure. Furthermore, capital structure decisions are highly dependent on both the firm-specific factors and the market-related factor which comprises of the economic and institutional environment in which the firm operate on, its corporate governance practices, firm's exposure to capital markets and the level of investor

protection. A majority of the corporate failures amongst companies in Kenya are linked to the financing behavior adopted by the firms. The significant efforts to revitalize the ailing and liquidating companies focus mainly on financial restructuring (Kiprop, 2014), with the main dilemma for both the firm's management and investors is whether there exists an optimum financial mix and how the various capital structure decisions both short-term and long-term influences the business performance (Salim & Raj, 2012).

Statement of the Problem

Stock market returns is the change in value of an investment or asset over time, where the change can be positive or negative. A positive change indicate that a profit has been made to the investment through capital gain while the negative change displays a loss on the investment. Stock market returns for listed firms is a major source of investment which ordinarily results to a high rate of returns to its investors. Stock return can be used to predict the output and investment to be done since investors are forward looking for variables that outline future discount rates and cash flow expectations and function as an index to investors in making their investment decisions. Investors of different financial capacity are able to invest in stock in consideration that they get a return that is higher than their cost of capital. The stock market is considered to be the primary indicator of a country's economic strength and development as the rising of share prices tends to be associated with increased business investment. Stock prices forms a significant part of the dynamics of economic activity that can influence or be a pointer of social mood since an economy where the stock market is on the rise is considered to be a promising economy as share prices can affect the wealth of households and their consumption.

The stock market prices varies according to the market activity exposed by the forces of demand and supply. When the demand for stock is high, the price moves upwards as more people want to sell than to buy. This makes the prices to move downwards as the market experiences excess supply (sellers) than demand (buyers) and as a result of this the stock prices fluctuates. This movement of change is significant in the capital market as it helps in determining the market returns of the respective companies (Gatuhi, 2015). The share prices are affected by both internal and external factors. The internal factors of the firm are those that relate to individual firm's characteristics for example its size, profitability, liquidity and asset tangibility. These internal factors may drive firm's share price up because of the increase in demand as investors choose to put their money where they will earn high returns. The external factors that may influence the fluctuation of stock prices are beyond the control of the firm. For example, the macroeconomic factors, social and political factors and legal environment in which a firm operates on. The potential investors evaluate the overall climate and other firm's specific factors before making the investment decisions. Thus, making the relationship between the capital structure and stock market a subject of interest.

According to CMA report (2020), the total shares on issues are 23 trillion which ranges from year 2006-2020. On the capital markets front, equities market recorded a market capitalization of Kshs.2.34 Trillion as of December 31, 2020 compared to Kshs.2.54 Trillion recorded in year 2019. This indicated that overall of Kshs.200 billion erosions in domestic investors net worth. The decline recorded was as a result of the onset of Covid-19 in March 2020. The NSE-20 index closed the year at 1,868.39 points, a 29.6% drop from the 2,654.39 points recorded at the beginning of the year. This is because both the local and foreign investors shifted their investments away from listed equity to other investments trying to mitigate against the declining value of their portfolios (CMA Report, 2020).

Various studies have observed the determinants of either capital structure or stock returns, few have investigated the relationship between capital structure determinant and stock return. Some of the research findings show that stock returns and determinant of capital structure are correlated as Ndungú, (2014), Kibet (2013), Chisti (2013), Sarlija & Harc (2012) and Muema (2013). Olowoniyi and Ojenike (2013). Mohamed (2017) study, the findings showed that there was insignificant effect. Fan,Titman & Twite (2006), Masnoon and Saeed (2014), Siregar & Panggabean (2017) show a negative findings. Only a few studies have been

conducted on the nexus between determinant of capital structure and stock returns of non-financial listed firms in the NSE. Therefore, this creates a research gap which this study attempts to fill. The investors in the stock market seek out to know the trend of share prices, thereby making the relationship between capital structure determinants and stock market a subject of interest. With this background information, this study will therefore seek to examine the nexus between determinants of capital structure and stock returns of the non-financial firms listed firms in NSE.

Objectives of the Study

The general objective of this study was to determine the relationship between determinant of capital structure and stock returns of non-financial listed firms in NSE. The specific objectives were;

- To determine the relationship between profitability and the stock return of non-financial firms listed firms in NSE.
- To determine the relationship between liquidity and stock return of non-financial firms listed firms in NSE.
- To evaluate the relationship between asset tangibility and stock return of non-financial firms listed firms in NSE.
- To determine the relationship between the size of firm and stock return of non-financial firms listed firms in NSE.

The study was guided by the following research questions

- What is the relationship between profitability and stock returns of non-financial firms listed in NSE?
- What is the relationship between liquidity and stock returns of non-financial firms listed in NSE?
- What is the relationship between asset tangibility and stock returns of non-financial firms listed in NSE?
- What is the relationship between firm size and stock returns of non-financial firms listed in NSE?

LITERATURE REVIEW

Theoretical review

Irrelevance Theory of Modigliani and Miller

The theory was established by Modigliani and Miller in 1958. It recommends that the valuation of a firm is irrelevant to its capital structure. Modigliani and Miller (1958), challenged the traditional theory of capital structure by developing a new theory. They did their work with certain assumptions, which include existence of homogenous risk class, homogenous expectations, efficient capital market, riskless debt and zero growth. They concluded that capital structure of a firm is irrelevant to its value in a world without corporate taxes. The market value of a firm is determined solely by the magnitude and risk of the cash flow generated by the capital assets. The debt equity ratio only indicates hoe the stream of future cash flow will be among the debt holder and shareholders. The assumption of zero tax rate was seen as a serious limiting factor and hence the need to come ups with a model that incorporate taxes.

This theory is relevant to the study as it holds, that capital structure of a company refers to the financing of its assets. A company can fund its operations by either debt or equity or combinations of both sources. Capital structure of a company can have a majority of debt constituent or majority of equity, only one of the two mechanisms or an equal mix of both debt and equity. Every approach has its own set of return. The theory is significant as the study supported the view that tangibility of assets and liquidity are considered important determinants to a firm's capital structure

Trade-off Theory

This theory was propounded by Kraus and Litzenberger (1973). It reflects on a balance between the dead-weight of bankruptcy costs and the tax saving benefits of debt. The optimal capital structure of a firm is

determined by the trade-off between the benefits and the costs of debt. The firms should balance the tax benefits of debt against the burden costs of liquidation or bankruptcy (DeAngelo & Masulis, 1980). The debt benefits include tax shields (saving) induced by the deductibility of interest expenses from pre-tax income of the firm (Modigliani and Miller, 1963). Also the reduction of agency costs through the threat of liquidation which causes personal losses to managers of salaries, reputation, perquisites and through the need to generate cash flow to pay interest payment (Grossman and Hart, 1982; Williams, 1987). High leverage enhance the firm's performance by mitigating conflicts between shareholders and managers concerning the free cash flow (Jensen, 1986), optimal investment strategy (Myers, 1977), the amount of risk to be undertake (Jensen and Meckling, 1976). On the other hand, debt costs include direct and indirect bankruptcy costs; debt financing brings with it commitment for future cash outflows in terms of periodic interest and the principal borrowed and these commitments increase the likelihood of firm's financial default and bankruptcy

The main disadvantage of this theory is how to limit the extent to which debt can be used in order to offset tax effects and to avoid the risk of extreme debt. It has failed to explain the observed corporate behaviour witnessed with the stock market reaction to leverage-increasing and leverage-decreasing transactions which constantly yields to stock price increase and decrease respectively (Addae,2013). The theory recommends that a firm can attain an optimal capital structure by adjusting the debt and equity level in that way balancing its tax shield and financial distress cost (Mohamed, 2017).

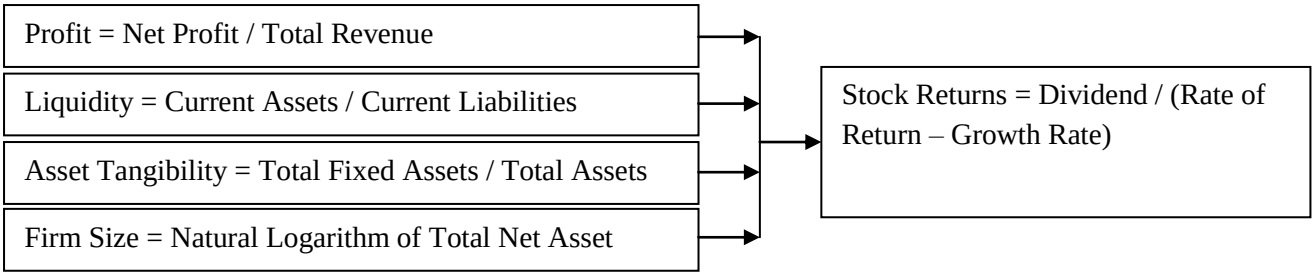
Pecking Order Theory

The theory was initiated by Myers and Majluf (1984) that firm managers follow a hierarchy when considering sources of financing. The theory is a preference order and its state that firms choose to finance new investments through retained earnings when sufficient and will choose use debt financing over equity when extra external funding is required. It demonstrates that the issue of share by a firm is usually observed negatively by the investors because firm managers tend to issue shares when they are overpriced. Therefore, it recommends that in order to avoid the information effects of issuing new share, a firm will preferably issue debt than equity. There is no clear mixture of debt and equity finance but each firm's leverage reflects its aggregate demand for external finance. The investors normally discount the firm's share price when managers issue equity instead of riskless debt. This make managers to reject equity whenever possible in order to evade this discount.

The disadvantage of this theory is that it does not explain how the taxes, bankruptcy costs, security issuance costs, agency problems and firm's investment opportunity set have effects on the capital choice (Quan,2002). There is usually a reverse relationship between leverage and profitability for high profitable firms, that is it will be able to generate more funds through retained earnings and then have less leverage (Mburu, 2016).

Conceptual Framework

This is the diagrammatic presentation of variables which showed the relationship between the independent variable and dependent variables. The independent variables in the study were profitability, liquidity, asset tangibility and the firm size while the dependent variable will be stock returns.



Independent Variables **Dependent Variable**

Figure 1: Conceptual Framework

METHODOLOGY

Research Design: According to Kothari (2014), research design describes the blueprint for collecting, measuring and analyzing the data needed for a study. In this study causal design approach is preferred because it is structured in design and quantitative in nature. It is ideal for the study as it explains the cause and effect relationship between variables and also assist one to understand which variable is the cause and which one is the effect. Furthermore, it is appropriate for achieving the research objectives of this study because the data and the study depend wholly on the secondary data that will be collected from the annual report of NSE listed firms. It also examines the causal relationship between the related variables of the study. Also it makes it possible to deduce since the inferences from the test of statistical hypotheses lead to general inferences about the features of the population (Harwell, 2011).

Target Population: A population can be described as a number of things such as individuals or groups, the researcher wants to investigate Neuman (2000). Whereas, Saunders, Lewis and Thornhill (2009) refer to it as an entire group that allows data to be sourced and investigated while Mugenda (2010), sees it as an entire group of individuals, events or objects having common characteristics that conform to a given specification. The target population comprises all the 45 non-financial listed firms in Kenya. They include the firms listed in the following sectors Agricultural sector, Automobiles & Accessories, Commercial & Services, Construction & Allied, Energy & Petroleum, Manufacturing & Allied Telecommunication & Technology market segment and investment services.

Data Collection Methods: The study employed a secondary method of data collection. According to Kothari (2014), secondary data is the data already available or which have already been collected and analyzed by someone else. The data to be used in this study will be obtained the annually audited financial statements of listed companies and Nairobi Stock Exchange Market between 2011-2020. The income statement, statement on change in equity, cash flow statement, statement of financial position and notes to the accounts will be used to extract relevant data relating to the study's variables. Stock prices will be obtained NSE data on daily stock prices

Data analysis: The data was analyzed using descriptive statistics correlation analysis and panel data multiple regression analysis. The panel data involves observations on cross section of units over time periods. According to Dougherty (2011), it is preferred over cross-section and time-series data, since it aids for solving the problem with cross-section samples called unobserved heterogeneity and improves the degree of freedom and quantity of data. Panel data also provides a major means to analyze data longitudinally especially when the data are from various sources and time series.

Regression model for panel data

$$Y_{it} = \beta_0 + \beta_1 X_{1,it} + \beta_2 X_{2,1t} + \beta_3 X_{3,it} + \beta_4 X_{4,1t} + \varepsilon_{it} \qquad (1)$$

Where,

Y_{it} = dependent variable (stock returns)

$$R_{it} = \frac{P_{it} - P_{it-1}}{P_{it-1}}$$

Where P_{it} is the price of the stock i on day t and P_{it-1} is the price of stock i on day t-1

X1 = PR_{it} - profitability for firm i in time t (Net profit/Total revenue).

X2 = CR_{it} - liquidity for firm i in time t (Current asset/ Current liabilities of the firm)

X3 = SZ_{it} -size of the firm for firm i in time t (Natural logarithm of Total Net Assets)

X4 = AT_{it} -Asset tangibility for firm i in time t (Fixed Asset/ Total Asset)

β_0 - The regression constant

β_1- **β_5** -Regression coefficient indicating the various levels of importance

ε- is the error term

Equation (1) considers all the variables for each firm *i* at a given time period *t*, thus more cross-sectional regression, more degrees of freedom and incorporates changes within forms (within variation) and changes across firms. This accounts for changes of firm-specific attributes, location, management philosophy, customer orientation and culture.

$$Y_{it} = \beta_0 + \beta_1 X_{1,it} + \beta_2 X_{2,1t} + \beta_3 X_{3,it} + \beta_4 X_{4,1t} + w_{it} + \varepsilon_{it} \qquad (2)$$

Number of firms, (i) = 35 while t = Time = ten years (2011 to 2020). Annual data with 350 observations.
Equation (2) above can be expanded as

$$Y_{it} = \beta_0 + \beta_1 X_{1,it} + \beta_2 X_{2,1t} + \beta_3 X_{3,it} + \beta_4 X_{4,1t} + [y_1 \delta_{1t} + y_2 \delta_{2t} + \cdots y_n \delta_{nt}] + [(w_{1t} + v_{1t}) + (w_{2t} + v_{2t}) + \ldots + ((w_{nt} + v_{nt})]$$

This can be simplified as follows

$$Y_{it} = \beta_0 + \beta_1 X_{1,it} + \beta_2 X_{2,1t} + \beta_3 X_{3,it} + \beta_4 X_{4,1t} + [y_1 \delta_{1t} + y_2 \delta_{2t} + \cdots y_n \delta_{n_t}] + \varepsilon_{it}$$

ε_{it} being the sum of independent error term and the idiosyncratic error term of the panel series

$$(w_{1t} + v_{1t}) + (w_{2t} + v_{2t}) + \ldots + ((w_{nt} + v_{nt})$$

ε_{it} are unobserved factors that affect variables over time and are not firm-specific (for example improvement in economic conditions and inflation).
w_{it} are firm's dependent error-term (for example dividend policy, location, corporate culture, capital structure policy and board diversity).

ANALYSIS

Descriptive statistics

Table 1: Descriptive Statistics

	STOCK RETURN	PROFITABILITY	LIQUIDITY	FIRM SIZE	TANGIBILITY
Mean	9.700223	0.046571	2.211466	9.772775	0.610096
Median	9.681856	0.041665	2.340144	9.831057	0.618220
Maximum	12.90246	0.486727	8.310222	13.11209	1.782519
Minimum	6.659072	-0.402626	-5.868199	-1.639003	-0.457654
Std. Dev.	1.183576	0.168264	2.517172	1.272148	0.388778
Skewness	0.072088	0.036127	-0.208491	-1.999452	0.024333
Kurtosis	2.809280	2.924203	2.991621	20.32510	2.684179
Jarque-Bera	0.833599	0.159918	2.536689	4610.526	1.489119
Probability	0.659153	0.923154	0.281297	0.000000	0.474943
Sum	3395.078	16.29978	774.0130	3420.471	213.5336
Sum Sq. Dev.	488.8974	9.881208	2211.318	564.8078	52.75081
Observations	350	350	350	350	350

From the descriptive statistics table above it shows that all variables have a positive means. Stock return had a mean of 9.70 across all the firms for the 10 years' period with a maximum of 12.90 and a minimum of 6.59 with low skewness of 0.0721, an indication of low asymmetry. The variable is highly peaked with kurtosis statistic of 2.81, which is greater than 1. A standard deviation of 1.184 is an indication that there was a significant variation in stock return across the non-listed firms. The mean of profitability among non-financial listed firms at NSE was 0.046, with a maximum of 0.4867 and a minimum of -0.4026. Most firms were profitable within the period as accounted for, which signifies that majority of non-financial listed firm rely on internally generated finances within the period of analysis. There is absence of skewness in profitability (Chi-Square statistic of 0.036), which is less than test statistic 1 and an indication of symmetry. Profitability was also fairly peaked with a statistic of 2.92 and it recorded a standard deviation of 0.17 thus the profitability levels did not vary significantly across the firms with the ten-year period.

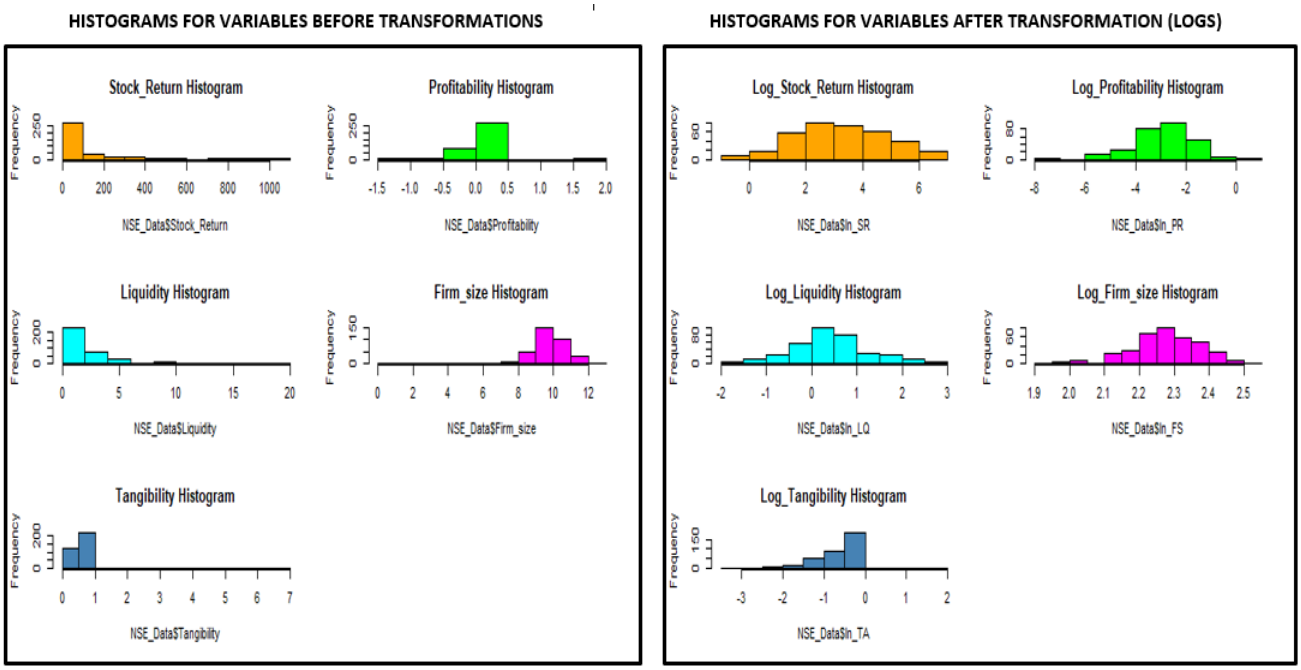
Liquidity mean across the 35 non-financial listed firms was 2.21 with a minimum of 0.15 and a maximum of -5.87 and standard deviation of 2.52 with a coefficient of skewness of -0.21 an indication of low asymmetry. Kurtosis index of 2.99 also indicates high peakness (mesokurtic) of the variable. Low standard deviation of 2.52 across the firms implies no significant difference in their ability to convert fixed assets to illiquid assets. The mean of tangibility of asset was at 0.61, with a minimum of -0.46 and a maximum of 1.78. Most non-financial firms listed in NSE had a high portion of non-current assets and 39% in current assets. High kurtosis index of 2.68 (which is greater than2) indicates the variable was highly peaked and a low skewness index of 0.024, which is less than test statistic of 1 and signifies symmetry in the distribution. The minimal variations in asset tangibility as indicated by the standard deviation of 0.39 revealed that most companies had high proportions in non- currents assets. Size of firm mean is 9.77 within a minimum of 0 and a maximum of -1.63. This is an indication that majority of the non-financial listed firm are firms are large firms. A low Standard deviation of 1.27 and a skewness of -1.99 indicates that firm exhibited an asymmetric distribution with a high kurtosis index of 20.33. These findings show that many non-financial listed firms in the NSE had a strong asset base and thus their returns were high towards their investment in assets. Stock returns have the highest mean of 9.70, an indication of an increase in stock return within the study period. The standard deviation of stock returns is also high indicating a high variation in the rates of returns for stock for non-financial listed firm in the NSE.

Variable Transformations

The preliminary descriptive statistics above informed the need to transform the variables to logs to attain normal distributions. The panel regression model calls for Gauss normality assumptions as follows:

1. Regression coefficients $\beta_1, \beta_2, \beta_3, \& \beta_4$ are the same for all the firms.
2. Regressors are non-stochastic to mean no correlation between the errors and the explanatory variables **Cov(X_{it}, v_{it}) = 0**
3. Error term is independent and identically distributed v_{it}**~ iid (0, σ_v^2)**

Table 2: the histograms of the variables before and after transformations



The table above showed the original graphs before transformation and after transformations. Where after transformation of the variables, the Jarque-Bera test statistic was applied as measure of normality in the

distribution of residuals. This was in order to test whether capital structure characteristics under this study and the stock market returns for non-financial listed firms individually follow a normal probability distribution.

ADF Unit root test

This test was applied for all variables used in this analysis in order to avoid spurious regression results between the dependent and the explanatory variables. The Fisher-type unit root test requires specification of Dickey-Fuller to test whether a variable has unit root. This study determined that all the variables under consideration did not have unit root, therefore used in levels instead of the first difference. ADF p-values of logs of profitability, liquidity, firm size and tangibility were 0.032, 0.024, 0.019 and 0.033 respectively as indicated in Tables 3 below. The p-values are all less than 0.05 and thus fail to reject null hypothesis of stationarity. The panel series attained stationarity at 95%. Application of the OLS would not lead to spurious results (Gujarati, 2003). Justification of application of the pooled OLS was also indicated by the significance of the F statistics.

Table 3: Augmented Dickey-Fuller Test

Null Hypothesis: LOG_PROFITABILITY has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=16)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-18.70886	0.03187
Test critical values:	1% level	-3.448889	
	5% level	-2.869605	
	10% level	-2.571135	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOG_PROFITABILITY)
Method: Least Squares
Date: 03/02/23 Time: 16:40
Sample (adjusted): 2 350
Included observations: 349 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG_PROFITABILITY(-1)	-1.006110	0.053777	-18.70886	0.0000
C	0.047045	0.009363	5.024411	0.0000

R-squared	0.502168	Mean dependent var	0.000763
Adjusted R-squared	0.500733	S.D. dependent var	0.238762
S.E. of regression	0.168706	Akaike info criterion	-0.715599
Sum squared resid	9.876268	Schwarz criterion	-0.693507
Log likelihood	126.8720	Hannan-Quinn criter.	-0.706804
F-statistic	350.0216	Durbin-Watson stat	1.990166
Prob(F-statistic)	0.000000		

Null Hypothesis: LIQUIDITY has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=16)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-17.91115	0.00235
Test critical values:	1% level	-3.448889	
	5% level	-2.869605	
	10% level	-2.571135	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LIQUIDITY)
Method: Least Squares
Date: 03/02/23 Time: 16:35
Sample (adjusted): 2 350
Included observations: 349 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LIQUIDITY(-1)	-0.960510	0.053626	-17.91115	0.0000
C	2.119940	0.179756	11.79341	0.0000

R-squared	0.480391	Mean dependent var	-0.006729
Adjusted R-squared	0.478893	S.D. dependent var	3.492669
S.E. of regression	2.521279	Akaike info criterion	4.693124
Sum squared resid	2205.826	Schwarz criterion	4.715216
Log likelihood	-816.9501	Hannan-Quinn criter.	4.701918
F-statistic	320.8093	Durbin-Watson stat	1.990973
Prob(F-statistic)	0.000000		

Null Hypothesis: FIRM_SIZE has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=16)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-19.95827	0.0187
Test critical values:	1% level	-3.448889	
	5% level	-2.869605	
	10% level	-2.571135	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FIRM_SIZE)
Method: Least Squares
Date: 03/02/23 Time: 16:31
Sample (adjusted): 2 350
Included observations: 349 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FIRM_SIZE(-1)	-1.071211	0.053673	-19.95827	0.0000
C	10.46637	0.529213	19.77721	0.0000

R-squared	0.534436	Mean dependent var	-0.008092
Adjusted R-squared	0.533094	S.D. dependent var	1.860912
S.E. of regression	1.271570	Akaike info criterion	3.324096
Sum squared resid	561.0612	Schwarz criterion	3.346189
Log likelihood	-578.0548	Hannan-Quinn criter.	3.332891
F-statistic	398.3325	Durbin-Watson stat	1.992376
Prob(F-statistic)	0.000000		

Null Hypothesis: TANGIBILITY has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=16)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-18.99099	0.0325
Test critical values:	1% level	-3.448889	
	5% level	-2.869605	
	10% level	-2.571135	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(TANGIBILITY)
Method: Least Squares
Date: 03/02/23 Time: 16:38
Sample (adjusted): 2 350
Included observations: 349 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TANGIBILITY(-1)	-1.019433	0.053680	-18.99099	0.0000
C	0.622836	0.038865	16.02561	0.0000

R-squared	0.509650	Mean dependent var	-6.42E-05
Adjusted R-squared	0.508237	S.D. dependent var	0.555408
S.E. of regression	0.389485	Akaike info criterion	0.957730
Sum squared resid	52.63934	Schwarz criterion	0.979822
Log likelihood	-165.1239	Hannan-Quinn criter.	0.966525
F-statistic	360.6576	Durbin-Watson stat	1.998123
Prob(F-statistic)	0.000000		

Co-integration test

The test is useful for testing for the existence of an equilibrium relationship between the variables in this study. The test aims at establishing existence of correlation between two or more series in the long run. Johansen and Juselius (1990) propose the use of a relatively simple model outlining a vector valued autoregressive (VAR) process including constant, seasonal dummies with independent Gaussian errors.

The Johansen co-integration analysis was conducted in order to examine whether the variables are co-integrated of the same order taking into account the maximum Eigen values and trace statistics tests. The null hypothesis is the testing hypothesis for non-co-integration against the alternative hypothesis of existence of co-integration using the maximum likelihood procedure. If the variables are non-stationary at levels and differenced. That is,

Ho: r=0 (No co-integrating)
H_1: r=1; r=2 (Cointegrating factor exists)

The null hypothesis states that there is no cointegration in the series while the alternative hypothesis states that there is presence of cointegration in at least 2 or more series (based on the co-integration factor). The test statistics (15.49, 3.84 for Trace Statistics while 14.264, 3.841 for Max. Eigen Statistics) are all less than their respective critical statistics (134.11, 62.88-Trace Statistics while 71.23, 62.88 Max. Eigen Statistics). 60 and 47.20 are all less than critical values 9.24, 19.96, 34.91 and 53.12. Thus, the null hypothesis of no co-integration is not rejected. Hence there is lack of co-integration in the series at 95% significance level.

Table 4: Johansen Cointegration test

Date: 03/02/23 Time: 17:16
Sample (adjusted): 6 350
Included observations: 345 after adjustments
Trend assumption: Linear deterministic trend
Series: FIRM SIZE LIQUIDITY
Lags interval (in first differences): 1 to 4

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.186551	15.49471	134.1122	0.523
At most 1 *	0.166614	3.841465	62.87918	0.358

Rank Test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.186551	14.26460	71.23283	0.478
At most 1 *	0.166614	3.841465	62.87918	0.396

Unrestricted Cointegration Rank Test indicates no cointegration at 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

FIRM_SIZE	LIQUIDITY
-1.674942	0.513719
-0.824517	-0.791325

Unrestricted Adjustment Coefficients (alpha):

D(FIRM_SIZE)	0.522399	0.278632
D(LIQUIDITY)	-0.526981	0.999009

1 Cointegrating Equation(s): Log likelihood -1403.393

Normalized cointegrating coefficients (standard error in parentheses)

FIRM_SIZE	LIQUIDITY
1.000000	-0.306709
	(0.06381)

Adjustment coefficients (standard error in parentheses)

D(FIRM_SIZE)	-0.874987
	(0.11776)
D(LIQUIDITY)	0.882663
	(0.24557)

Diagnostic Tests

Correlation Analysis

Table 5: Correlation Matrix for variables

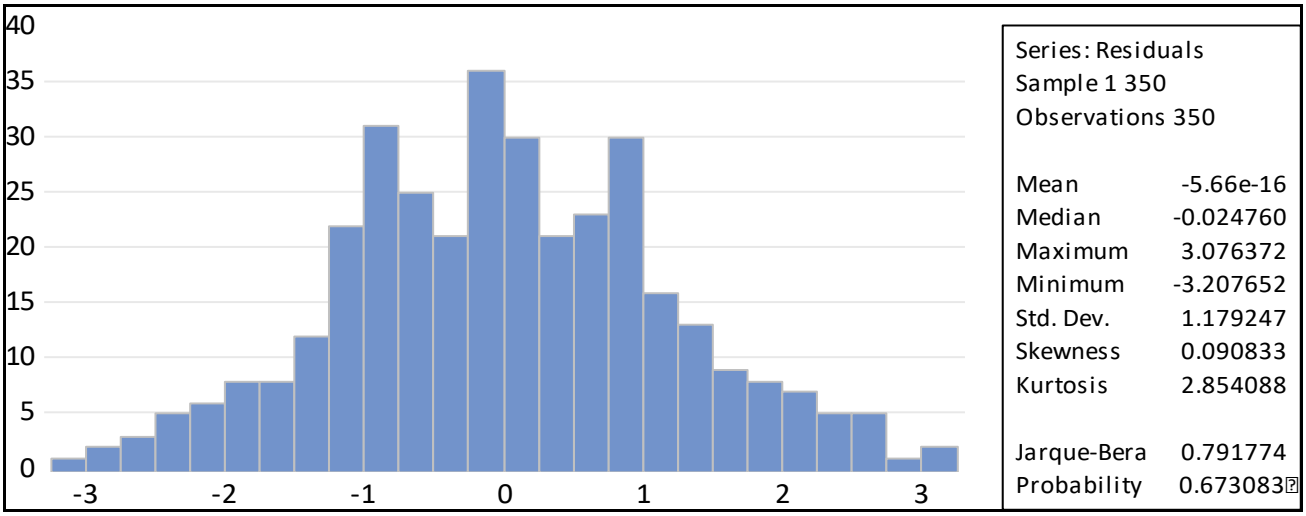
	PROFITABILITY	LIQUIDITY	FIRM_SIZE	TANGIBILITY
PROFITABILITY	1	0.14	0.09	-0.01
LIQUIDITY	0.14	1	-0.21	0.06
FIRM_SIZE	0.09	-0.21	1	0.04
TANGIBILITY	-0.01	0.06	0.04	1

The correlation matrix was used to examine the linear relationship between the explanatory variables and to establish the existence of multicollinearity between the explanatory variables. Guajarati & Sangeetha (2007), define multicollinearity as existence of perfect or exact relationship among some or all the independent variables of a model. In addition, they indicate that when correlations between two variables is 0.8 and above, there is evidence of high multicollinearity. From the above table 5, all the coefficients of between the independent variables are less than 0.8, which is a clear indication of absence of multicollinearity in the data.

Normality test

This test was conducted in order to establish the extent of residual deviations in the model to be used during the study. This is in line with the normality assumption whereby the error terms should be normally distributed. Skewness and Kurtosis are the common tests used to perform a normality test.

Table 6: Jarque-Bera test



The null hypothesis is that the data set is normally distributed and the alternative is that the series is not normally distributed. From Table 6 above, Jarque-Bera of 0.79177 and p value of 0.6731. The null hypothesis of normality is not rejected in this case at 5% level of significance. Thus the residuals of logs of stock returns, profitability, liquidity, tangibility and firm size are normally distributed.

Heteroskedasticity test

This is a systematic trend in which variances in the residuals is not constant. This assumption of equal variance of the errors is referred to as homoscedasticity. The existence of an unequal scatter of the error terms results into biased linear estimators.

H_0: No heteroscedasticity

H_1: Presence of heteroscedasticity

Table 7: Breusch- Pagan Heteroskedasticity test

Heteroskedasticity Test: Breusch-Pagan-Godfrey Null hypothesis: Homoskedasticity			
F-statistic	1.503594	Prob. F(4,345)	0.2007
Obs*R-squared	5.996994	Prob. Chi-Square(4)	0.1994
Scaled explained SS	5.401769	Prob. Chi-Square(4)	0.2485

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 03/02/23 Time: 16:51
Sample: 1 350
Included observations: 350

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.209716	0.800239	0.262067	0.7934
PROFITABILITY	0.187363	0.601311	0.311591	0.7555
LIQUIDITY	0.031620	0.040278	0.785047	0.4330
FIRM_SIZE	0.136304	0.079508	1.714340	0.0874
TANGIBILITY	-0.383189	0.260368	-1.471721	0.1420

R-squared	0.017134	Mean dependent var	1.386650
Adjusted R-squared	0.005739	S.D. dependent var	1.890833
S.E. of regression	1.885400	Akaike info criterion	4.120340
Sum squared resid	1226.383	Schwarz criterion	4.175453
Log likelihood	-716.0594	Hannan-Quinn criter.	4.142277
F-statistic	1.503594	Durbin-Watson stat	2.001775
Prob(F-statistic)	0.200663		

The test was conducted using the Breusch-Pagan test where 'statistic' assumes a Chi-Square $\chi 2$. A Chi-Square Statistic of the estimated model is 1.18, which is less than the test statistic 3.84 and p-value of 0.200663 (higher than 0.05). That is a clear indication that the null hypothesis of homoscedasticity (equal variances) is not rejected. Conclusively, findings ascertain that the model did not suffer from heteroscedasticity.

Durbin Watson test

Table 8: Autocorrelation test

```
        Durbin-Watson test

data:  NSE_Regression_Model2
DW = 2.0843, p-value = 0.5546
alternative hypothesis: true autocorrelation is greater than 0
```

The null hypothesis is that there is no autocorrelation in the model. Durbin Watson test of correlation was conducted and from the results in table 8 above, where a Durbin Watson statistic of 2.0843 which when truncated to a whole number is 2.00. Since the statistics is neither greater or less than 2 then the model of estimation does not suffer from autocorrelation.

Hausman test

In order to choose a model to use in analysis between fixed or random effects, a Hausman test was done. The null hypothesis was that the random effects model was preferred to the fixed effect model. In random effects model, the variation across entities is usually assumed to be random and uncorrelated with the predictor

variables in the model thus enabling time invariant characteristics to be included in the model as predictors (Stock & Watson, 2003). This study used a 5% level of significance to determine which model to use.

Test of fixed and random effects model

A linear regression of stock return versus the four variables (profitability, liquidity, firm size and tangibility) is conducted with the four variables treated as fixed effects while standard interaction term (1|Company: Year) treated as the random effect. The between firm variation is given some weight in the random effects estimator of β. Both fixed and random effects were tested and the outputs established as indicated in the outputs below.

The fixed and random effects models were tested in order to establish the appropriate model applicable between fixed and random effects model. If the p-value are less than 5% (thus significant) then fixed effects model is better than random effects model and if it is insignificant, random effects model is better than the fixed effects model.

Table 9: Fixed Effects Model Output

Dependent Variable: STOCK_RETURN
Method: Panel Least Squares
Date: 03/02/23 Time: 18:26
Sample: 2011 2020
Periods included: 10
Cross-sections included: 35
Total panel (unbalanced) observations: 349

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PROFITABILITY	19.42761	24.57636	0.790500	0.0025
FIRM_SIZE	1.720830	5.353618	0.321433	0.0035
LIQUIDITY	-2.659967	2.282182	-1.165536	0.0244
TANGIBILITY	4.753568	10.32769	0.460274	0.0078
YEAR	-2.847211	1.216314	-2.340852	0.0199
C	5808.874	2445.792	2.375048	0.0182

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.846456	Mean dependent var	84.79920
Adjusted R-squared	0.827077	S.D. dependent var	152.9522
S.E. of regression	63.60370	Akaike info criterion	11.25072
Sum squared resid	1250038.	Schwarz criterion	11.69256
Log likelihood	-1923.250	Hannan-Quinn criter.	11.42660
F-statistic	43.67827	Durbin-Watson stat	0.874129
Prob(F-statistic)	0.000000		

Table 10: Random Effects Model Output

Dependent Variable: STOCK_RETURN
Method: Panel EGLS (Cross-section random effects)
Date: 03/02/23 Time: 18:17
Sample: 2011 2020
Periods included: 10
Cross-sections included: 35
Total panel (unbalanced) observations: 349
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PROFITABILITY	29.40282	24.40056	1.205006	0.2290
FIRM_SIZE	0.630775	5.174212	0.121907	0.9030
LIQUIDITY	-1.138883	2.223208	-0.512270	0.6088
TANGIBILITY	3.646451	10.26117	0.355364	0.7225
YEAR	-2.692324	1.215042	-2.215827	0.3373
C	5503.989	2443.740	2.252280	0.0249

Effects Specification	S.D.	Rho
Cross-section random	120.4938	0.7821
Idiosyncratic random	63.60370	0.2179

Weighted Statistics

R-squared	0.020973	Mean dependent var	13.96707
Adjusted R-squared	0.006701	S.D. dependent var	64.95364
S.E. of regression	64.73861	Sum squared resid	1437543.
F-statistic	1.469545	Durbin-Watson stat	0.766623
Prob(F-statistic)	0.199144		

Unweighted Statistics

R-squared	0.008301	Mean dependent var	84.79920
Sum squared resid	8073659.	Durbin-Watson stat	0.136500

From the results in the tables 9 and 10 above, the p-values of the four explanatory variables in the fixed effects model (0.0025, 0.0035, 0.0244, 0.0078 and 0.0199) are all less than 5%, an indication that the model is better than the random effects which has p-values of 0.2290, 0.9030, 0.6088, 0.7225 and 0.3373 which were all greater than 5%.

F-test

This is for comparison between random effects model and OLS model where F-test is conducted with a null hypothesis that random estimation model is better than OLS (OLS assumes that stock returns are same across states i.e. they have common intercept).

Table 11: F-test (random_est, NSE_OLS)

```
        F test for individual effects

data:  ln_SR ~ Profitability + Liquidity + Firm_size + Tangibility +  ...
F = 209.47, df1 = 9, df2 = 336, p-value < 0.1588
```

From results in table 11, p-value is 0.1588 (greater than 0.05) thus insignificant, an implication that the random effects are not statistically significant. That implies that the pooled OLS model is applicable for this case.

Model specification

In this study, panel data was used to explore the relationship between capital structure characteristics and stock returns of non-financial listed firms at the NSE. The below regression equation stated was adopted for the study. The pooled OLS model is defined in equation below:

$$\mathbf{Y_{it}} = \beta_0 + \beta_1 \mathbf{PR_{it}} + \beta_2\ \beta_0 + \beta_3 \mathbf{AT_{it}} + \beta_4 \mathbf{SZ_{it}} + [y_1\delta_{1t} + y_2\delta_{2t} + \cdots y_n\delta_{n_t}] + \varepsilon_{it}$$

$\mathbf{Y_{it}}$ -Stock return,

$\mathbf{PR_{it}}$ - profitability for firm **i** in time **t**

$\mathbf{CR_{it}}$ - liquidity for firm **i** in time **t**

$\mathbf{AT_{it}}$ - the asset tangibility for firm **i** in time **t**

$\mathbf{SZ_{it}}$ - the size of the firm for firm **i** in time **t**

Table 12: Regression Analysis

Dependent Variable: STOCK_RETURN
Method: Least Squares
Date: 03/02/23 Time: 13:42
Sample: 1 350
Included observations: 350

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.599080	0.646611	4.020	0.000168
PROFITABILITY	3.527404	0.432246	8.161	0.000072
LIQUIDITY	0.188597	0.188597	6.197	0.000015
FIRM_SIZE	0.007380	0.063894	0.016	0.000000
TANGIBILITY	0.028860	0.184625	0.156	0.908

R-squared	0.682615	Mean dependent var	9.700223
Adjusted R-squared	0.674069	S.D. dependent var	1.183576
S.E. of regression	1.186063	Akaike info criterion	3.193339
Sum squared resid	485.3274	Schwarz criterion	3.248452
Log likelihood	-553.8343	Hannan-Quinn criter.	3.215276
F-statistic	0.634435	Durbin-Watson stat	2.00235
Prob(F-statistic)	0.0231		

Table 12 presents the data findings on the regression model. According to the table the findings indicated an intercept of 2.599081. This means that, when all other determinants of capital structure under the (profitability, liquidity, tangibility and firm size) are held constant, then the stock return of the non-financial listed firms at NSE is equal to 2.6. The coefficients for profitability was 3.5274, liquidity coefficient was 0.189. Tangibility coefficient was 0.029 while firm size coefficient was 0.0074. This shows that all the explanatory variables have a positive effect on stock returns. This gives the regression model below:

$$\mathbf{Y_{it}} = 2.5991 + 3.5274\mathbf{PROF} + 0.1886\mathbf{CR} + 0.00738\mathbf{FS} + 0.0289\mathbf{AT} + \varepsilon$$

According to the model, an increase in profitability by one unit while holding liquidity, firm size and tangibility constant would increase stock returns by 3.527. Similarly, a reduction in profitability by one unit while holding the other three explanatory variables constant would reduce stock return by 3.527. The p-value of profitability is 0.000072, which is less than 0.05. The null hypothesis of profitability being insignificant in determining stock prices is rejected in this case. Thus findings indicate that profitability is significant in determining stock prices. An increase in firm liquidity by one unit while holding profitability, firm size and tangibility constant would increase stock returns by 0.188. Similarly, a reduction in liquidity by one unit while holding the other three explanatory variables constant would reduce stock return by 0.188. The variable's p-value is 0.000015 (less than 0.05). The alternative hypothesis of liquidity being significant in determining

stock prices holds. Increasing firm size by one unit while holding profitability, liquidity and tangibility constant would increase stock returns by 0.074. Similarly, a reduction in firm size by one unit while holding the other three explanatory variables constant would reduce stock return by 0.074. The p-value of firm size is 0.00, which is less than 0.05. That leads to reject the null hypothesis of firm size is not significant in determining stock prices. An increase in asset tangibility by one unit while holding profitability, firm size and liquidity constant would increase stock returns by 0.0289. Similarly, a reduction in tangibility by one unit while holding the other three explanatory variables constant would reduce stock return by 0.0289. The variable's p-value is 0.908 (greater than 0.05). The alternative hypothesis of tangibility being significant in determining stock prices is rejected. The Probability of F-statistic was 0.0231 (less than 0.05). The null hypothesis states that the overall model is not significant in estimating stock returns while the alternative indicates that it is significant. Given the small p-value of F-Statistic, the null hypothesis is rejected in this case. In addition, the small p-value indicates overall significance of the model. Hence, the overall model is significant in estimating stock returns.

Findings

In order to achieve the objectives, set out in the study, a descriptive research design was used and a panel data regression model employed to analyze the data for the period between 2011 and 2020. There were four specific objectives guided the study that to determine the relationship between determinants of capital structure (profitability, liquidity, asset tangibility and firm size) with the stock return of non-financial listed firms in the NSE. Further four research questions were adopted based on the research objectives. The above results indicate that there exists a positive correlation between the four explanatory variables (profitability, liquidity, firm size, asset tangibility) on stock returns at NSE for the non -financial listed firms. The influence on stock return for profitability, liquidity, tangibility was statistically significant while firm size was not statistically significant. All the four variables in the study were non-stationary at levels implying that the data had spiking statistical properties over time. However, log for all the variables was conducted to achieve stationarity.

The results were in consistent with Sarlija & Harc (2012) who investigated the effect of liquidity on capital structure, a case study of Croatian firms involving a sample size of 1058 Croatian firms and established that liquidity affects the capital structure of the firm. Devraj (2014) who examined the effect of liquidity on the financial performance of non-financial companies listed at the NSE using multiple regression analysis and the study established that liquidity positively affects the financial performance of non-financial companies listed at the NSE. Muema (2013) who examined the determinants of capital structure across different industries for companies quoted on the Nairobi Securities Exchange using multiple regression analysis where a regression was run separately for each market with the result showing that profitability and liquidity are positively correlated to stock returns. However, the results were inconsistent with those of Kibet (2013) who conducted a panel data regression to the energy sector for five years period from 2006-2011 and established a negative relationship between profitability and stock returns. Masnoon & Saeed (2014) who analysed the factors of capital structure of KSE 16 listed firms in automobile sector in Pakistan for a period of five years from 2008-2012 using panel data regression analysis and their results showed that tangibility is statistically insignificant to stock return. Ndungú (2014) study to determine the relationship between capital structure and stock returns of firms quoted in the Nairobi Securities Exchange using the empirical research design for a duration of a three-year period between 2011-2013 established that firm's profitability had no major impact on the stock returns and an increase in firm size decreases stock return.

The heteroscedasticity test showed their means and variances are stable and not evolving over time. All this tests confirm that the data used in the analysis satisfied all the panel least square assumptions thus correct in yielding unbiased estimates on the underlying relationships under study. Variance-covariance matrix indicated lack of serial correlation between the explanatory variables with the entire statistic being less than 0.8. The

results from table above showed an R squared of 0.6826 and an adjusted R-squared of 0.67407. This means that the panel regression analysis carried out revealed that the four explanatory variables under this study accounts for up to 68.26% of the changes in stock returns while 31.74% of the changes are not determined by the four factors, but rather by exogenous factors not discussed in this paper. The R-squared and adjusted R squared were close, an indication that most of the variables (three out of four) other than asset tangibility were significant in determining stock market return.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

This paper sort to establish the nexus between the determinants of capital structure and stock market returns for non-financial listed firm in the NSE for the period of ten years. Towards this objective, causality tests were carried out while employing a panel regression model. In addition, diagnostic test, unit root test, co-integration tests and panel regression analysis were tested.

The descriptive statistics findings of this study show that many non-financial listed firms in the NSE had a strong asset base and thus their returns were high towards their investment in assets. Stock returns have the highest mean of 84.76, an indication of an increase in stock return within the study period and a high standard deviation of 153, indicating a high variation in the rates of returns for stock for non-financial listed firm in the NSE. The Jarque-Bera statistic was employed as measure of normality in the distribution of residuals. This was to test whether capital structure determinant under this study and the stock market returns for non-financial listed firms individually follow a normal probability distribution. A probability value exceeding 5% for all the variables leading to the conclusion that the profitability, liquidity tangibility and firm size and the independent variable stock market returns data followed a normal distribution.

The null hypothesis was accepted at levels that variables did not have unit root. On first differencing all the variables exhibited no unit root and were stationary at 5% significance level. The absolute critical values were less than the computed ADF statistics in absolute terms. The null hypothesis for the Johansen co-integration test that there existed no long run equilibrium relationship between determinants of capital structure (profitability, tangibility, liquidity, size) and the stock returns in Kenya for the period covered was accepted at 5% significance level. The Johansen co-integration test is suitable for series that exhibit stationarity at first difference. The dependent and the independent variables were also found to be normally distributed with their p-values exceeding the 5% significance level. The heteroscedasticity test showed their means and variances are stable and not evolving over time. Hausman test was conducted in order to establish the appropriate model applicable between fixed and random effects model, where the random effects model was found to be significant for this case. All this tests confirm that the data used in the analysis satisfied all the panel data assumptions thus correct in yielding unbiased estimates on the underlying relationships under study.

The data series for the study were established to be highly stochastic and skewed hence there was need to transform the series to logs in order to establish normal distributions and ensure Gauss normality assumptions would apply. A panel multiple regression model was adopted in order to test the influence of the four variables on stock returns. Profitability, Liquidity, firm size and tangibility were established to influence stock returns to the tune of 68.26% while 31.74% of changes on stock returns was determined by other factors not discussed in this paper. The coefficients of the variables were assumed to be same across the firms. The low p-values for profitability, liquidity and firm size (0.000072, 0.000015, 0.0000) revealed that these three factors are significant in influencing stock returns across the firms at 95% level of significance. Tangibility exhibited p-value of 0.908 which is higher than 0.05, hence not significant in influencing stock return despite the positive relationship. This results implies that firms need to focus more on profit, their ability to convert their fixed assets to liquid assets (liquidity) and the size of the firm have a significant impact on stock returns. The ability to pay off debts given available stock (tangibility) does not affect the stock returns.

Recommendations

Investors should take into consideration profitability, liquidity and tangibility of firms in the stock market in the short run when making decisions on their investment strategies. This is because as evidenced by the findings that the aforementioned factors drive the stock market and as such will be a key determinant of how the stock market will perform in future. Investors should take little consideration in firm size while making investment decisions in the short run given that it has an insignificant influence on stock returns in the short run.

Share prices are also affected by both internal and external factors. The internal factors are those that relate to individual firm's characteristics, its size, profitability, liquidity and asset tangibility. They push the firm share price up as there is an increase in demand because investors prefer to put their money where they will earn high returns. The external factors that may influence the fluctuation of stock prices are beyond the control of the firm. For example, the macroeconomic factors, social and political factors and legal environment in which a firm operates on. The potential investors will evaluate the overall climate and firm's specific factors before making the investment decisions. Firms should establish a realistic level of fixed assets and liquidity since there exists a tradeoff between the two factors as established in the research.

Conclusion

The research empirically studied the nexus between the determinants of capital structure and stock market returns for non-financial listed firm in the NSE for the period of ten years between 2011 and 2020. The characteristics of capital structure used in the study included the profitability, liquidity, tangibility and size of the firm while the independent variable was the stock market return. From the research findings, this study concludes that profitability, liquidity, firm size and tangibility influence stock returns to 68.26% while other factors influence the remaining percentage of 31.74%. These factors may be micro that is, firm-related factors such as dividend policy and management or macro that is, factors beyond firms' control, such as inflation and international, stock prices, social and political factors and legal environment in which a firm operates on. This implies that firms need to focus more on profit, their ability to convert their fixed assets to liquid assets (liquidity), and ability to pay off debts given available stock (tangibility) in order to have a significant impact on stock returns. This is because the three factors were established to be statistically significant in determining stock returns. Increasing the firm size may not necessarily increase stock returns in the short run given the large capital outlay required which reduces profitability in the short run.

Notably, there was an inverse relationship between firm size and liquidity. This could be explained by the fact that increasing firm size requires deploying more assets which reduces the ability of the firm to convert its illiquid assets into liquid assets.

Areas of further research

The research used panel data of five variables namely, stock returns and how it is affected by profitability, liquidity, firm size and tangibility for 35 non-listed NSE firms for a ten-year period (2011 to 2020). Based on the findings of this study, similar research for a longer period of study, say thirty years. This would establish coefficients that are more reliable for a longer period that would inform on policy especially on prediction and planning for the firms. This would still ascertain the significance of firm size on stock return, given that the research established that it was insignificant within the 10-year period. An intuitive research with more variables would help more in accounting changes in stock returns, given that the research was not able to account for 31.74% of changes on stock return

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