The Effect of Leverage on Share Prices at the Nairobi Securities Exchange

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Abstract: *A diversity of views exists as to whether debt affects the value of the firm. The traditional point of view is that debt adds value to a firm until the optimal point is reached. The value of the levered firm will be the sum of the value of the unlevered firm and the gain from leverage. This study employed descriptive research design. The target population was the 47 firms listed at the Nairobi Securities Exchange. The sample was made up of 20 companies that had been consistently been quoted from 2006 to 2010 at the Nairobi securities exchange. The study was facilitated by use of secondary data which was extracted from published reports of quoted companies' i.e. financial statements. Simple linear regression analysis and correlation analysis was used to determine the relationship and also to determine other factors apart from leverage which influence share price. From the study, the researcher concluded that leverage had an effect on share price. The study also concluded that there was a general increase in share prices from year 2006 to year 2010. The researcher also concluded that for the firm to experience an increase in share price they must be an increase in dividends. The findings of the study were that there is a significant relationship between debt and the value of the firm based on the P-value and the correlation coefficient. The recommendation based on the findings of the study was that a firm should not employ more than 67% long term debt in its capital structure.*

I.   Introduction

The financing decisions are one of the important roles played by a modern finance manager. Managers strive to maintain a capital structure that minimizes financial and business risk of the firm while maximizing shareholders wealth. Leverage or gearing refers to the potential use of fixed financial costs sources of funds such as debt and preference share capital along with the owner's equity in the capital structure. The determination of an optimal capital structure has been one of the most contentious topics in the finance literature. Although there has been a lot of research done on the area of capital structure (leverage), the puzzle of how firms make capital structure decisions remain unresolved. This is the proportion of long term debt in the capital structure of a firm. A public corporation may leverage equity by borrowing money. The most obvious risk on leverage is that it multiplies losses. A corporation that borrows too much money might face bankruptcy during a business downturn, while a less levered corporation might survive. Leverage is not always bad however, it can increase the shareholders return on investment. As such leverage magnifies both gains and losses. In the business world, a company may use leverage to generate shareholders wealth but in it fails to do so, the interest expense and credit risk of default destroys shareholders value. This is the value of a single on a number of saleable stocks of a company. Once a stock is purchased the owner becomes a shareholder of the company that issued the share. In economics and financial theory analyst use random walk techniques to model behavior on share prices. This practice has its basis on the presumption that investors act rationally and without bias and that at any moment they estimate the value of an asset based on future expectations. Empirical studies however have demonstrated that share prices do not completely follow random walks. Low serial correlations exist in the short term and slightly stronger correlations over the longer term. At the Nairobi securities exchange the NSE 20 share index and all share index (NASI) is an overall indicator of the movement in share prices. The relationship between debt policy and the value on the firm has remained a puzzle in finance for many years. Research carried in finance has revealed conflicting results. There are those who argue that debt affects the value of the firm while others suggest the contrary. An article submitted by Miller and Shelton (1995) suggests that debt is relevant in determining the value of the firm. They concluded that irrespective of the incidence, the corporate income tax biases decision in favour of debt financing.

The Nairobi securities exchange (NSE) is the principal stock exchange of Kenya. It began in 1954 as an overseas stock exchange while Kenya was still a British colony with the permission of the London stock exchange. The NSE is a member of the African stock exchanges association. Africa's fourth largest stock

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exchange in terms of trading volumes and fifth in terms of market capitalization as a percentage of GDP. Currently the NSE has fifty five listed companies, of these 3 are in the agricultural sector, 12 in commercial and services, 15 in finance and investments, 17 in industrial and allied and 8 in alternative market segments. The main products at the NSE are shares and bonds.

Two indices are popularly used to measure performance. The NSE 20 share index has been in use since 1964 and measures the performance of 20 blue chip companies with strong fundamentals which are consistently returned positive financial results. In 2008, the NSE all-share index (NASI) was introduced as an alternative index. Its measure is an overall indicator of market performance. The index incorporates all the traded shares of the day. Its attention is therefore on the overall market capitalization rather than price movement of select counters. The objective of the study was to establish the effect of leverage on share prices of companies listed at NSE.

II. Literature Review

2.1 Theoretical framework
Given the great debate on capital structure, a number of theories have been advanced. Consideration were given to various capital structure theories that have been developed over a number of decades.

Traditional theory supports the fact that debt has been an effect on the value of the firm. According to this approach, the cost of capital declines and the value of the firm increase with leverage up to a prudent debt level. After reaching the optimum point, the cost of capital increase and the cost of the firm decline. It asserts that as long as the level of borrowing in a firm does not go beyond a certain level, the values of the firm will continue to grow with increased use of debt. It is based on the belief that the value of a firm can be maximized by a judicious mix of debt and equity

Modigliani-Miller View (1958) showed that financing decisions do not matter in perfect market. They disputed the traditional view that debt affects the value of the firm. According to the market values of any firm, is independent of its capital structure and is determined by its real assets. They 11 demonstrated that identical income streams could not sell at different prices under the assumption of perfect capital markets, the ability of individuals to borrow at the same rate as firms, absence of transaction costs, existence of equivalent risk classes and the absence of taxes. Arbitrage, they argued would ensure that market values of a levered firm and unlevered firm are the same thus making debt financing to be of no significance to the value of the firm.

Agency Cost theory put forward by Jensen and Meckling (1976) proposed that when a firm issues outside equity, it creates agency costs of equity that reduce the value corporate assets. Jensen's free cash flow theory alleges that if management is not closely monitored they will invest in capital projects and acquisitions that do not provide sufficient expected returns.

Pecking Order theory proposed by Myers (1984) indicated that, firms prefer internal financing to external financing of any sort, debt or equity. If a firm must obtain external financing, it will work down the Pecking Order of securities, beginning with very safe debt, then progressing through risky debt, convertible securities, preferred stock and finally stock as a last resort.

Signalling theory as forwarded by Ross (1978) based on asymmetric information problems between well-informed managers and poorly informed outsiders. Corporate executives with favourable inside information about their firms have an incentive to convey this positive information to outside investors in order to cause an increase in the firm's stock price.

2.2 Factors Influencing Debt Policy
Control: In designing capital structure, sometimes the existing management is governing by its desire to continue control over the company. This is particularly so in the case of forms promoted by entrepreneurs. The existing management team not only wants control and ownership but also to manage the company, without any outside interference. As such firm's which value control will employ more debt in their capital structure compare to equity. Growth Rate of Future Sales: The future growth rate of sales is a measure of the extent to which the EPS of a firm are likely to be magnified by leverage. If sales and earnings grow at a high rate then financing by debt with limed fixed charges magnifies the returns to owners of the stock. However, a firm must weigh the benefits of using leverage against the opportunity of broadening its equity when it chooses between future financing future financing alternatives.

Sales Stability: Sales stability and debt level are directly related with greater stability in sale and earnings a firm can incur the fixed with less risk of bankruptcy. As a result such a firm is likely to have leverage ratios.
Restrictive covenants are commonly included in long term loan agreements. These restrictions curtail the company's freedom in dealing with financial matters and put in an inflexible position. Covenants in loan agreements may include restrictions to distribute cash dividends, to incur capital expenditure, to raise additional

external finances among others. So before a firm increases its leverage it must consider the inflexibility which comes with it.

Debt serving ability is dependent upon the stability of the profit margins. The ease with which new firms may enter the industry and expand capacity will influence profit margins. A growth industry promises higher profit margins and is likely to use high debt ratios, but such margins are likely to narrow if the industry is one in which the number of firms can be easily increased through additional entry. Thus the higher the barriers of entry to an industry, the lower the competition hence the debt ratios are likely to be high.

Asset structure influences the sources of financing in several ways. Firms with long lived fixed asset use long term debt extensively. Firms whose assets are mostly receivables and inventory used short term debt.

The management's attitudes that most directly influence the use of debt are those relating to the control of the enterprise and risk. Large corporation's whose stock is widely owned may choose additional sales of common stock because they will have little influence on the control of the company

2.3 Indicators of Leverage

These measure the extent to which the firm has employed debt in its capital structure. A high level of debt implies that claims of creditors are greater than those of owners and this reduces flexibility in the firm's operations due to pressures from creditors. Debt ratios may be ascertained from the financial statements to determine the proportion of debt in total financing. The following have been forwarded by Brealey and Myers (2001).

2.4 Factors Influencing the Value of a Share

Profitability of the Company This is the most important factor that will influence the value of the company's shares. So long as the company can maintain profitability then it's share market price is bound to increase. This is so because many potential investors will be looking for such shares and they will increase in value due to high demand.

Dividend Policy of the Company This means the frequency and the amount of dividends a company pays to its ordinary shareholders. Usually companies with stable and good dividends will command higher market share prices than companies with small and unstable dividends i.e. less in amount and erratic dividends.

Price Earnings Ratio of the Company This will influence the company's share prices in that if a company has been having reasonable price earning rations for some time this will appeal to potential shareholders whose demand for such shares will rise and this will increase the price of such company's shares. This is so because the price earnings ratio will indicate the payback period of a share and the lower the P/E ratio the shorter will be the payback period and the more favourable the company's shares will be from the potential investor point of view.

The Size of the Company Usually companies which are still in their growing stages due to their size, many may not have accumulated sufficient assets and such a position may not be attractive to such investors and this will tend to lower the value of their shares. Moreover, such companies may not qualify for quotation on the stock exchange as this requires a minimum size. This means they remain private companies whose shares are not attractive as they are not freely transferable. This will tend to lower the share prices as their demand will be low.

Growth Prospects of the Company Companies with ambitious expansion or growth programmes will retain most of their earnings to facilitate growth.

Stability in political atmosphere is conducive to stable economic performance of a given country especially to long term Investments. Shares are usually long term Investments and potential shareholders will tend to have a high demand for shares of companies operating in politically stable countries than for those operating in politically unstable countries.

2.5 Company Valuation Methods

The book values of a firm refer to shareholders equity of a firm resulting from the number of shares outstanding multiplied by the par value. Market Values reflect the current value of a firm. They are obtained by multiplying the number of outstanding by the current share prices. For firms quoted at the Nairobi Stock Exchange, it is possible to obtain current share prices so as to ascertain the market value of a firm.

Dividend: This method involves determining the market price per share by discounting the future dividends at the required rate of return.

III. Methodology
This study employed descriptive research design. According to Kothari (2004) a descriptive research design is a scientific method which involves observing and describing the behaviour or subject without influencing it in any way. The study covered the period 2006 to 2010.

The target population was the 47 firms listed at the Nairobi Stock Exchange main investment segment during the period i.e. 2006 to 2010 (see Appendix). The main reason was that firms listed on NSE represent the various sectors that are broadly classified into agricultural, commercial and services, finance and investment and industrial and allied. They were therefore adequately representative of the Kenyan economy.

The sample design was made up of firms that constitute the NSE 20 share index and listed on the Nairobi Securities Exchange from 2006-2010, has employed long term debt in its capital structure, i.e. it is levered (geared), Data on stock prices, dates of release of Annual reports and accounts are available with the Nairobi Securities Exchange secretariat.

The study was facilitated by use of secondary data. The leverage data was extracted from published reports of quoted companies. Data on the value of the firm was obtained from share prices as reported by the Nairobi Securities Exchange.

Simple linear regression analysis was used to determine the relationship and also to determine other factors apart from leverage which influenced share price. Statistical package for social sciences (SPSS Version 17) was used to aid in the data analysis. The debt to total assets ratio was used as a proxy for capital structure while market price was used for firm value. The share price was modelled as a function of leverage and in this case it was assumed that share price would be synonymous with value although this is not always the case.

$$Y = \alpha + \beta_1 X_1 + e$$

Y is the annual share price, α is constant to be estimated, β_1 is the coefficient, X_1 is the leverage and it is measured by the ratio of long term debt to capital employed and e is the random error term. The confounding variables such as dividend paid were taken care of by the random error term. Z-test was used to ascertain the significant of the predictor variable. The choice was taken in testing the hypothesis because the sample size is less than 30 firms. A co-efficient of predictor variable is considered significant if it has a value ≥ 2.58 at 95% significance level.

IV. Results
4.1 Relationship between Share Price and the Leverage Variable
The results of leverage and share price for the year 2010 were presented in table 4.1.

Table 4.1 Analysis of leverage and share price year 2010

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95% Lower	Lower 95.0%	Upper 95.0%
Intercept	6.04	2.22	2.72	0.034	1.37	10.71	1.37	10.71
X Variable 1	-1.51	13.47	-0.11	0.01	-29.79	26.79	-29.79	26.79

From the findings, the study found that holding leverage constant share price would be 6.036461, while a factor increase in leverage cause decrease in share price by 1.505. P value is 0.012 thus there is a real relationship between leverage and share prices. There is about a 1% chance that the results were obtained purely by chance.

4.2 Analysis of Leverage and Share Price Year 2009
The results of analysis of leverage and share price for the year 2009 were presented in table 4.2.

Table 4.2: Leverage and Share Price Year 2009

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95% Lower	Lower 95.0%	Upper 95.0%
Intercept	3.10185	0.64	4.86	0.0001	1.76	4.44	1.76	4.44
X Variable 1	-2.724	4.05	-0.67	0.05	-11.22	5.79	-11.22	5.79

This show that share price will be 3.10185 when leverage is zero, while a factor increase in retained earnings will cause decrease in leverage by2.71534. P value is 0.05 thus there is a real relationship between leverage and share prices. There is about a 5% chance that the results were obtained purely by chance.

4.3 Analysis of Leverage and Share Price Year 2008
The results of leverage and share price for the year 2008 were presented in table 4.3.

Table 4.3: Leverage and Share Price Year 2008

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95% Lower	Lower 95.0%	Upper 95.0%
Intercept	3.747	1.40	2.67	0.02	0.80	6.69	0.80	6.69
X Variable 1	-3.31	7.82	-0.936	0.001	-23.75	9.11	-23.7	9.11

This clearly indicate that holding leverage constant share price will be 3.747205 while a factor increase leverage leads to decrease in share price by 3.31408. P value is 0.001 thus there is a real relationship between leverage and share prices. There is about a 0.1% chance that the results were obtained purely by chance.

4.4 Analysis of Leverage and Share Price Year 2007
The results of leverage and share price for the year 2007 were presented in table 4.4.

Table 4.4: Leverage and Share Price Year 2007

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95% Lower	Lower 95.0%	Upper 95.0%
Intercept	3.17	1.323	3.89	0.001	2.38	7.95	2.38	7.95
X Variable 1	-3.7279	7.49	-1.43	0.009	-26.48	5.03	-26.48	5.03

It clear that holding leverage constant share price will be 3.165252, while a factor increase in leverage leads a decrease in share price by 3.7279. P value is 0.009 thus there is a real relationship between leverage and share prices. There is about a 0.9% chance that the results were obtained purely by chance.

4.5 Analysis of Leverage and Share Price Year 2006
The results of leverage and share price for the year 2008 were presented in table 4.5.

Table 4.5: Leverage and Share Price Year 2006

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95% Lower	Lower 95.0%	Upper 95.0%
Intercept	2.53	0.58	4.38	0.0003	1.31	3.74	1.31	3.74
X Variable 1	-4.92	2.77	-6.14	0.05	-11.74	-0.09	-11.74	-0.09

From the findings in the above table, the study establishes that an increase in leverage by a factor will lead to a decrease in share price by -4.9203, while holding leverage constant share price will be equals to 2.526749. P value is 0.046 thus there is a real relationship between leverage and share prices. There is about a 0.4% chance that the results were obtained purely by chance.

4.6 Z Test Analysis
The run test converts the total number of runs into a Z statistic. For large samples the Z statistics gives the probability of difference between the actual and expected number of runs. A co-efficient of predictor variable is considered significant if it has a value ≥ 2.58 at 95% significance level. The Z test results are presented in table 4.6.

Table 4.6: Z Test Analysis

Particulars of the variables	Total Number of Runs(M)	Z	Asymp sig (2-tailed)
Leverage	882	153.9	0.0
1.	650	22.6	0.0
2.	600	13.4	0.0
3.	500	31.5	0.0
4.	462	17.8	0.0
5.	891	52.9	0.0
6.	630	31.3	0.0
7.	342	8.6	0.0
8.	431	54.3	0.0
9.	891	19.6	0.0
10.	321	24.4	0.0
11.	433	13.7	0.0
12.	891	46.3	0.0

13.	334	67.4	0.0
14.	980	20.4	0.0
15.	264	114.6	0.0
16.	378	17.4	0.0
17.	97	16.5	0.0
18.	321	28.9	0.0
19.	489	42.4	0.0
20.	182	76.2	0.0
21.	664	63.1	0.0
22.	782	13.7	0.0
23.	292	28.9	0.0
24.	742	32.1	0.0
25.	691	24.1	0.0
26.	862	36.7	0.0
27.	792	68.2	0.0
28.	793	36.1	0.0
29.	402	27.2	0.0
30.	910	52.6	0.0

The run test converts the total number of runs into a Z statistic. For large samples the Z statistics gives the probability of difference between the actual and expected number of runs. A co-efficient of predictor variable is considered significant if it has a value ≥ 2.58 at 95% significance level. As can be seen from the table below, the Z statistics of leverage is greater than 2.58. Moreover, the results of run test to individual companies leverage shows that among the individual companies, all companies Z value is positive and more than 2.58. The significant two-tailed with positive Z values more than 2.58 suggest leverage affects the share price .

V. Conclusion

We can therefore conclude that; there existed a regression equation that was relating the firms share price to its own leverage. The study also concludes that there was a general increase in share prices from year 2006 to years 2010, also some indicator such as stock split showed a decrease over the years, while dividend of the firm and leverage of the firm showed a considerable increase over the years. In addition an increase in leverage leads to decrease in companies share prices.

For a firm to increase its share price it must increase it dividends and stock split. The financing risk imposed by leverage should be rewarded with higher returns. This is because the findings are robust to other risk factors and are consistent with Penman et al (2007) who argue that leverage component of Book to Price ratio is negatively associated with future returns.

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