TESTING FOR VARIATIONS IN THE CAPITAL STRUCTURE OF COMPANIES QUOTED AT THE NAIROBI STOCK EXCHANGE
AN EMPIRICAL STUDY

BY
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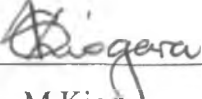A MANAGEMENT RESEARCH PROJECT PRESENTED IN PARTIAL FULFILMENT FOR THE REQUIREMENTS OF THE DEGREE OF MASTERS IN BUSINESS ADMINISTRATION OF THE UNIVERSITY OF NAIROBI.
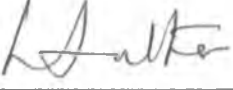
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DECLARATION

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

Signed _____

Glory M Kiogora

Date _____

This project has been submitted for examination with my approval as the university supervisor.

Signed _____

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DEDICATION

To my husband, Kiogora Mutai and my children Kajuju and Mawira Kiogora.

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May God Bless you all.

ABSTRACT

In 1958, when Modigliani and Miller came up with the irrelevancy theory of capital structure a number of controversies sprang up, most of which sought to establish the relationship between capital structure and the value of the firm or its cost of capital. The answers given by the theorists aim at assisting investors to make proper investment decisions.

This study aims at establishing the nature of capital structures employed by companies quoted on the Nairobi Stock Exchange, specifically whether the capital structures differ per industry category and whether the companies in the same sector have similar capital structures, hence lending support to the existence of an optimal capital structure. Discriminant analysis, regression analysis and variance analysis were the tests applied with the use of the computer SPSS program.

Secondary data obtained from the Nairobi Stock Exchange was predominantly used for the 51 companies for the period between 1991-1998. The relationship between returns and capital structure of the companies forming the 20-share index was also investigated.

The results indicate that there are indeed differences in the capital structures among industry groupings and that firms within a given sector tend to cluster towards some target equity / total assets ratio lending support to the existence of optimal capital structures as promulgated by the traditionalists. The results of the relationship between capital structure and returns indicate that returns increase with increased leverage also supporting the traditional view on capital structure.

Still a lot needs to be done in the area of capital structures of companies in Kenya, specifically to establish the nature of capital structures of companies not quoted on the Nairobi Stock Exchange and to use other ratios such as debt / equity in carrying out a similar study.

1.1.0 Background

Financing decisions are some of the most important decisions that corporate managers have to make on behalf of their companies. They impinge on both profitability and survival of the firm. Managers have to decide on the balance of equity and debt suitable for their organizations. Capital structure theories give very little practical guidance to the managers on financing decisions. Managers may play it safe by adapting to what everyone else is doing (Lumby,1991). This requires knowledge about the average level of gearing for the industry groups. Firms are expected to be rather cautious about moving gearing ratios too far from their industry average level of gearing (Lumby ,1991).

Studies have been carried out to find out the nature of capital structures adopted by business firms and whether the patterns occur by chance or not, a notable one being by Scott (1972).

This study aims at establishing the type of capital structures adopted by companies quoted at the Nairobi Stock Exchange and whether they can provide evidence on the existence of optimal capital structures and also to find out the kind of relationship that exists between the capital structures and returns of the companies.

In chapter one the various concepts to be used in the study are discussed and explained, these include risk, capital structure and returns. The statement of the problem is also detailed out together with the objectives of the study, assumptions and limitations that may be encountered in the course of the study.

The literature review is found in chapter two where important contributions on the concept of capital structure are discussed, these include the traditional view, Modigliani and Miller (1958), Miller (1977) among others. Locally, studies by Kamere (1987) and Omondi (1996) have also been referred to.

Chapter three outlines the research design where the hypotheses have been stated, the population details, which consists primarily of companies quoted at the Nairobi Stock Exchange, the sample frame, the data collection method and the data analysis techniques, which is mainly discriminant analysis.

In chapter four, the findings are discussed in accordance to the hypotheses being tested. The conclusions are drawn, recommendations made and any limitations encountered in the course of the study are discussed in this chapter.

The appendices and references are found in the final pages.

1.1.1 The concept of capital structure

Capital structure refers to the mix of debt and equity, which a firm employs in raising corporate finance. Studies have been carried out to establish the nature and trends of capital structure. This is due to the belief that debt-equity ratio has profound effects on the operation and viability of firms. The assumption is that the mix of debt and equity influences the attractiveness of individual firms in the eyes of investors thus, determining how successful finance managers might be in raising additional funds for worthwhile projects. One would expect high-risk firms to raise virtually all their capital in ordinary shares so that if the performance is not good they are not forced to pay a fixed charge interest. Other firms may be better off using a balanced mix of loans and equity. The less equity in the capitalization of the firm tends to enhance volatility of dividend payable to ordinary shareholders, but dividends to shareholders will be high in good times and low in bad.

Managers in financing new projects are advised to consider the implication of the same in gearing. As will be seen in the literature review, capital structure forms an important basis for modern finance. Modigliani and Miller (1958) came up with the irrelevancy theory of capital structure. This theory was later challenged by the introduction of market imperfections e.g. personal taxes by Miller. To date the controversies on capital structure still continue.

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1.1.2 The meaning of Business and Financial risk.

What is risk and who bears it?

Risk can simply be defined as exposure to change. It is the probability that some future events will occur making the expected and actual outcome to differ.

Risk may be divided into business and financial risk. Business risk is the uncertainty associated with projections of a firm's future returns on assets (Weston and Brigham 1993). Low business risks apply when prices for inputs and products remain relatively constant, a firm may not adjust its prices freely when its costs increase, and if a high percentage of its costs are fixed it may find it difficult honoring its fixed financial commitment while varying output and sales levels might take time. If the firm is financed only with equity then the shareholders bear all the risks.

Financial risk is the risk associated with financing decisions of the firm (Pandey 1981). It is the additional risk that the firm's shareholders bear when the firm is financed by both debt and equity. Thus two firms exposed to the same degree of business risk can differ with respect to financial risk when they use different forms of financing. A totally equity financed firm will have no financial risk but when debt is introduced into the capital structure of the firm, financial risk is added because the use of debt increases: -

i)   The variability of shareholders returns

ii)   The probability of solvency.

1.1.3 Measurement of risk

The more a firm relies on debt financing the riskier its common stock is. Risk can be divided into two: - **the unsystematic and systematic risk**. The risk that potentially can be eliminated through diversification is the unsystematic risk. The risk that cannot be diversified is called the systematic risk or market risk or unavoidable risk. Examples include variations in general economic conditions such as GNP, interest rate and inflation.

The (market) systematic risk of a security is measured in terms of its sensitivity to the market movements. This sensitivity is known as the security's Beta. The capital asset pricing model provides a measure of risk, and is used by many different firms to calculate the discount rate.

The beta of a stock is simply the slope of the regression line, when excess returns above risk-free rate for the stock are regressed against returns for the market portfolio.

Unsystematic risk derives from the variability of the stock's excess return not associated with the movements in the excess return of the market as a whole. The risk is described by the dispersion of the estimates involved in predicting a stock's characteristic line (Van Horne,1995).

In this study the focus is risk. A proxy indicator suggested in the literature as useful in estimating financial risk inherent in a firm is debt to equity or equity to assets ratio. Such a ratio measures the commitment of the owners in their own firm. This study will employ the equity to assets ratio as a measure of risk.

1.1.4 Measurement of returns

The stock returns are calculated using the following formulas:

$$R = \frac{(P_t - P_{t-1}) + Div_1}{P_{t-1}}$$

Where P_t = Closing stock price for the month

P_{t-1} = Stock price for the previous month

Div_1 = Dividends

$\dfrac{P_t - P_{t-1}}{P_{t-1}}$ Represents the capital gains

$\dfrac{Div_1}{P_{t-1}}$ Represents the dividend yield

Generally the returns for most companies remain stable over the years and where there is a sharp increase in returns this is caused by either payment of dividends or an excessive increase in the stock price as a result of announcements. Normally stock prices will increase if the announcements convey information about the organizations activities, which are likely to be permanent and indicate good prospects for the organization.

1.2 Statement of the problem

The mix of debt and equity is an important decision, which finance managers make on behalf of their companies. Increasing the amount of debt in the capital structure increases the amount of risk, which the shareholders have to face. On the other hand this may lead to increased returns for the shareholders if the funds are properly invested.

In Kenya, the high interest rates imposed by banks tend to make companies shy away from borrowing, while dilution of ownership and stringent listing rules tend to discourage equity financing. Since managers have no set method of financing

their activities, the safest thing that they may do would be to adapt to the financing method adopted by the industry as a whole.

As at now, it is not clear the nature of capital structures employed by companies quoted at the Nairobi Stock Exchange. The aim of this study is to determine the nature of capital structures adopted by companies quoted at the Nairobi Stock Exchange and to establish why managers adopt such structures. If companies find that their structures are so different from those of the industry then they maybe forced to rethink whether they are adopting the most cost effective combination/mix. On the other hand falling out of line with the industry average may not mean that a company has adopted a less than optimal capital structure, if the company uses more debt it may well mean that the other companies are more conservative in the use of debt.

1.3   Objectives of the Study

1.3.1   To find out whether companies quoted on the Nairobi Stock Exchange in the *same industry* have similar capital structures and to establish evidence on the existence of optimal capital structures, specifically whether on average the capital structures vary *from industry to industry.*

1.3.2   To find out whether the capital structures employed by companies quoted on the Nairobi Stock Exchange are consistent over time.

1.3.3   To establish the relationship between returns to shareholders and the capital structures of companies forming the 20 share index on the Nairobi Stock Exchange.

1.4   Justification of the study

1.4.1   The findings of the study will help our managers and other researchers understand the nature of capital structures of companies quoted at the Nairobi Stock Exchange.

1.5   ASSUMPTIONS

1.5.1   The firms grouped into the various sectors as per the Nairobi Stock Exchange listing experience similar levels of business risks.   If financial structure is an important consideration in the valuation of the enterprise the firms in a given industry should seek an optimal range of leverage.

1.5.2   The capital structures of firms are influenced by the basic business risk to which the firms are exposed.

1.5.3   Financial statements contain useful information.

1.5.4   The classification of listed companies into various industries by the Nairobi Stock Exchange is descriptive.

1.5.5   It can generally be accepted that the accounting practices of the firms within the same industry would be similar than inter-industry firms.

1.6   LIMITATIONS

1.6.1   The data is based on accounting data, however accounting practices used for determining profits and valuing assets may differ from firm to firm and may not conform to economic principles.

1.6.2   The results are summarized from only companies quoted on the NSE, because first the data will be readily available and this will save time, and secondly due to the difficulties in getting information from companies not quoted at the NSE as they do not have to comply with the requirement of publishing their accounts. However there should be room to investigate on other companies not quoted on the NSE to check whether they conform to the theories of capital structure. Published accounts are also independently audited.

1.6.3   The current poor economic situation and the trend towards liberalization may also affect the results that is, the structural changes.

2.0   LITERATURE REVIEW

The theories of capital structure touch on some of the most controversial areas in finance. The literature review consists of several stages, which are discussed as follows: -

2.1   Traditional View

The traditionalists hold that a firm can substitute debt for equity to lower the firm's cost of capital. Beyond an ill-defined point however due to excessive risk the securities market will not react favorably to further increases in the degree of leverage used by the firm and it's cost of capital will increase, hence there is an optimal capital structure which maximizes the cost of capital. (Scott,1972)

2.2   Modigliani and Miller (1958)

They argue that given certain conditions that is, if there are no taxes on corporate income and existence of perfect capital markets, the cost of capital is not influenced by a firm's financing mix. The market in return for being exposed to greater financial risk imposes a higher return on common equity. Hence the cost of capital is independent of the financing decisions of the firm and financing decisions are of minimal importance. (Scott,1972).

A firm cannot change the total value of its securities just by splitting it's cash flows, that is the value of the firm is unaffected by its capital structure. (Brealey and Myers,1981).

2.3   Miller (1977)

Miller introduced the element of personal taxes. MM had assumed that personal taxes are the same for debt and equity. Miller assumes that investors are subject

to different tax rates. Merton Miller proposed that with both corporate and personal taxes capital structure decisions by the firm are irrelevant that is changes in the capital structure have no effect on the firm's valuation. His model suggests that in market equilibrium corporate tax advantages are cancelled out by the effect of personal taxes (Van Horne,1997). Van Horne's view is that there is a tax advantage to borrowing for a typical corporation.

2.4   Other important contributions

Guthman and Dougall (1962) have pointed out that the similarity in financing patterns by firms in given industries is too prevalent to occur merely by chance, this tends to support the traditional view that an optimal capital structure exists. However, Modigliani and Miller argue that given certain conditions e.g. taxes financing decisions are of minimal importance. Solomon (1963) in his theoretical treatise argued that inter-industry financial structure differences are likely to be significant providing evidence on the optimal financial structure.

Shwartz and Aronson (1967) provided the first empirical work utilizing the surrogate approach. They investigated the effect of one factor industry on the proportion of common equity in a firm's financial structure obtaining significant results. They concluded that industries have developed optimum financial structures conditioned by their inherent business risks.

Scott (1972) investigated the twelve industries covering 77 firms. The industries were chosen on a priori basis and not according to any measure of variability. He concludes that various industries subject to varying degrees of business risk have indeed developed characteristically different financial structures. His studies indicate a definite tendency to cluster as a matter of practical business policy.

In Kenya, several notable researches have been carried out on capital structure. One of them was by Kamere (1987). The period of study selected was 1981-1985

because it was felt that the factors given by the respondents are more likely to be reflected in the latest capital structures. Since the study was explanatory and no hypothesis had been developed no hypothesis testing could be done and correlation rather than regression analysis was used to show how various items were correlated. He seeked to establish the factors that the management of quoted companies in Kenya consider in making capital structure decisions and also to establish whether some of the factors had more influence than others.

The study found that a number of factors influence the capital structure decision of a firm. The factors include, stability of future cash flows, the level of interest rates in the economy, the asset structure of a firm, the need for outside capital, lender attitudes towards a firm and attitudes of management towards risk. The research suggests that much remains to be done towards developing models that are suitable for empirical testing and that further research is needed to determine the place of theories of capital structures in Kenya. Kamere also notes that firms adjust towards some target debt-equity ratios. It is not known whether firms in Kenya have such target debt-equity structures. If these target debt-equity structures exist, it would be useful to establish what they are, what they are based on and how they are established.

Kamere points out in his industry data that long-term debt financing was found to be lowest in the plantations industry and highest in the construction materials industries. Low long-term borrowing and little investment in fixed assets characterize the finance and investment industry. The Kenya Power & Lighting Co. had the highest investment in Long-term debt. The Kenya Planters Co-operative Union and Kenya Co-operative Creameries are the most highly levered industries.

Omondi (1996) carried out another notable research. He set out to identify on the basis of past information which factors play a significant role in the capital structure decisions of publicly quoted companies. The past information used was

based on the findings of Kamere (1987). The factors that were tested included industry class, asset structure, profitability, interest charges, growth, changes in the cash flows, age and ownership. Correlation analysis is the means that was used to analyze the data from 1987-1994. For the factors, ownership and industrial class, it was not possible to use correlation analysis. The statistical tool used was the Duncan multiple range test. The results indicate that the mean debt-equity ratios are not significantly different. Since all the sectors that is Industrial, Agricultural, Financial and Commercial share the same Duncan grouping letter (A), it means that the respective mean D/E ratios are not significantly different at the 0.05 level of significance. However, the Industrial and Allied had the highest D/E ratio of .301. His was a replica of Kamere's study the only difference being the period of study from 1987-1994. Similar results to those of Kamere were however found.

3.0 RESEARCH DESIGN

3.1 Research Hypothesis

H_1: There is no significant difference among the means of the different industry groups and members within an industry group or sector have similar capital structures.

H_2: The capital structures of the various companies quoted at the Nairobi Stock Exchange vary over time.

H_3: Increase in the level of leverage does not increase the shareholders expected earnings.

3.2 Population

The population of the study consisted of all companies in Kenya, which are quoted on the Nairobi Stock Exchange. This was used because of the ease of availability of the relevant information on quoted companies compared to the unquoted ones.

To improve the validity of the results, insurance companies grouped in the financial sector were placed in a separate group named the insurance sector.

3.3 Sample Frame/Units

The sample consisted of companies quoted on the Nairobi Stock Exchange for nine years from 1991-1998. A sample of 51 companies in total was used.

3.4 Data collection and description method

The study used predominantly secondary data, which was obtained from annual reports of respective firms quoted on the Nairobi Stock Exchange from 1991-1998.

Capital structure or gearing may be calculated as equity/total assets, debt/equity, total debt/total assets or the ratio of fixed charges to operating income. For this project the equity/total assets ratio based on audited financial statements was used.

3.5 Data Analysis Technique

For each firm the percentage of equity to total assets in the capital structure was calculated and the mean for the industry obtained on a yearly basis.

Example-:

	Total Assets	Equity	Equity/Total Assets
Sasini Tea	44,000,000	30,000,000	0.68
Barclays Bank	80,000,000	58,000,000	0.73

The means were then arranged on an industry basis for the period of study. The various possible tests that can be used include the use of the t-test, use of ANOVA, chi-squared test, discriminant analysis, variance analysis and regression analysis.

Statistical tools used in the study include: -

Hypothesis 1

The objective was to establish a procedure to find the predictors that best classify the companies into their various industry groupings using discriminant analysis.

The discriminating variable being capital structure. Once the discriminate equation is found it can be used to classify any new company.

The linear equation will be of the form Y $=$ $a + X_i$

Where Y = Industry classification Xi = Capital structure

Example -:

Agriculture   1   (Equity/Total Assets)*Coefficient

Commercial   2 a $=$ Constant

Financial   3

Insurance   4

Industrial   5

Hence   Company   Class

                    KCB   3

                    Limuru Tea   1

                    CMC   2

                    EABL   5

                    Jubilee   4

If there are few misclassifications then it means that the null hypothesis will be rejected. Discriminant analysis was also used to test whether the observed pattern of calculated mean equity/total assets ratio within each industry category was due to chance or not.

Hypothesis 2

Stability of the capital structures was tested for the possible capital structures around the expected structures over the years for each company and for each industry using variance analysis.

Hypothesis 3

Regression analysis was used to test the relationship between the returns to shareholders of companies forming the 20-share index and their capital structures.

The above tests being used in this study will be different from that used by Omondi (1996) who used the Duncan multiple range test. Discriminant analysis will be used to establish a procedure to find the predictors that best classify the companies into their industrial groupings and also to establish whether there is any similarity in the capital structures of companies placed within an industry grouping.

4.0 ANALYSIS AND CONCLUSIONS

4.1 Introduction

In accordance to the objectives set out in 1.3, the conclusions were arrived at as set out below. A total of 51 companies as listed in appendix 1 for the period between 1991-1998 were used which were deemed sufficient to support the conclusions and interpretations arrived at in this chapter.

4.2 Summary of capital structures of companies quoted at the NSE

The average level of equity for all companies was 53.7% with a standard deviation of 25.4. The agricultural sector had the highest level of equity of 77% with a standard deviation of 11.42, followed by the insurance sector with 71% and standard deviation of 3.24, then the industrial sector with 58% and a deviation of 20.59, the commercial sector with equity of 51% and a standard deviation of 15.92 and finally the financial sector with equity of 26% and standard deviation of 29.19.

Table of means and standard deviations -:

Class	No. of Cases Weighted	Unweighted	Group mean	Group Std Dev	Fisher's discriminant function Average	Linear Constant
1	9	9	77.08	11.42	0.191	-8.97
2	13	13	50.68	15.92	0.125	-4.79
3	10	10	26.02	29.19	0.064	-2.44
4	2	2	71.48	3.24	0.177	-7.94
5	17	17	57.75	20.58	0.143	-5.74
Total	51	51	53.67	25.36		

The insurance companies although classified under the financial sector at the Nairobi Stock Exchange have been separated here because of the high level of equity which they use compared to the other companies in the financial sector.

These results are consistent with those of Kamere (1987) who points out that the plantations sector had the lowest long term debt financing.

The pattern of financing can be attributed to the ease with which companies are able to obtain finances. The financial sector finds it easiest to obtain finance through debt and therefore it employs the highest amount of debt financing and lowest amount of equity. For the agricultural and insurance sectors they find it easiest to use equity financing because debt is relatively expensive. The industrial and commercial sectors employ an average level of financing from both debt and equity.

Another factor that can be attributed to the method of financing is the level of business risk to which the firms are exposed to, companies exposed to a high level of business risk use more equity financing for example, in the agricultural sector while those exposed to lower levels of risk use more debt financing for example in the financial sector.

Firms, which require heavy investment in fixed assets such as those in the industrial sector and some in the commercial sector, also tend to use more debt financing.

4.3   The variation in capital structures among industry groupings

The results of discriminant analysis in appendix 4 show Box M Value of 10.70294, which is much smaller than the chi-square obtained of 25.863, which means that the performance of discriminant analysis is allowed.

Since several groups were being tested with one variable, the fisher's F test is used. The approximate F value is given as 8.438 with 4 and 46 degrees of freedom and wilks Lambda of 0.5768 from the table. The critical value of F with 4 and 46 degrees of freedom and significance of 0.05 is given as 2.61. It follows that there is a significant difference between the centroids of the groups that is, between the mean capital structure of the agriculture sector and that of the financial sector etc, taken together and taking their dispersions and mutual associations into consideration.

Table of Classification results-:

Actual Group	Predicted Group Membership				
	1	2	3	4	5
1	66.7%	0%	0%	11.1%	22.2%
2	7.7%	23.1%	30.8%	15.4%	23.1%
3	20%	0%	80%	0%	0%
4	0%	0%	0%	100%	0%
5	23.5%	17.6%	17.6%	17.6%	23.5%

Total Percentage of 45.1%

The classification results as indicated above show that out of all the 51 companies tested, 45.1% of the companies were correctly classified into their respective sectors. All companies falling under the insurance sector were correctly classified while those falling under the financial sector were 80% correctly classified the agricultural sector had 66.7% correct classification followed by the industrial with 23.5% and finally the commercial sector with 23.1% correct classification. The wide diversification of companies included in the industrial and commercial sectors might have contributed to the misclassifications of some of the companies.

However on the basis of the results it can be concluded that companies differ in their capital structure on the basis of the sectors to which they are grouped and that decision makers do adjust the composition of their sources of finance to the business risk to which they are exposed. Therefore the alternative hypothesis can be accepted that there is a significant difference among the means of the different industry groups.

4.4   The variation in capital structures within the industry.

The application of discriminant analysis is in fact not allowed if the within-groups covariance matrices are significantly different. Box's test is most general in nature and has been used to test the within industry variation. A look at the empirical significance level is sufficient, for a significance of 0.0467, as indicated in appendix 4 the Box M value of 10.70294 is much greater hence the difference between the matrices should not be significant. Also as noted earlier since M =10.70294 is much smaller than the chi-square of 25.863 there is no significant difference within the industry groupings and therefore capital structures within the sectors are similar. This means that companies within a sector tend to cluster around some target equity/total assets ratio.

This supports the traditional view on capital structure, which is a more sophisticated version of the net income approach by Durand. It recognises that there exists an optimal capital structure. The logic of the traditional position is that investors would be willing to bear greater amount of risk when greater amount of return is made possible by increasing the debt-equity ratio. At high levels of debt, the increase in expected return may not be sufficient to offset the increased risk. Thus the maximum market value of a firm is achieved at the point where the firm's marginal rate of substitution between expected return and risk coincides with the investor's marginal reference.

Modgliani and Miller however do not agree with the traditional view they criticise the assumption that the cost of equity remains unaffected by leverage upto some

reasonable level of debt. Even under MM assumptions, the cost of capital will reach a minimum point when the interest charges are tax deductible. If other imperfections are allowed such as bankruptcy costs and transaction costs, the MM position is further diluted and the traditional view strengthened.

Barges study clearly suggests that the average cost of capital first tends to decline and then to rise as debt capital increases in the capital structure supporting the traditional view.

Weston's study contribution was an improvement of the cost of capital model by including firm size (measured by assets) and growth (per share income over 10 year period) as additional explanatory variables in his model. When the influence of growth is isolated leverage is found to be negatively correlated with cost of capital. The results are consistent with the traditional view.

4.5 Stability of capital structures of companies quoted at the NSE

The variance analysis results in appendix 5 show that companies in the agricultural sector have a consistent level of equity from year to year for example; Kakuzi Ltd has an overall variance of only 0.42. Companies within the commercial sector have varying equity levels from year to year. The financial and Industrial sectors have the most stable level of equity from year to year with the aggregate variation ranging between 0.2 for Jubilee Insurance Company and 132.04 for National Industrial Credit. The industrial sector has a wide variation in equity patterns from year to year with the aggregate variance ranging from 1142.91 to 0.25.

The companies with inconsistent financing patterns may have experienced financial difficulties especially since 1995 when there was a decline in economic growth and the level of business forcing companies to make drastic changes in their financing patterns in order to survive. The profits for the motor industry for

example have been going down and Lonrho company has increased it's borrowing from 73% in 1994 to 88% in 1998 making it incur huge fixed interest charges.

Companies, which have had consistent financing patterns like in the financial sector and others like Total Kenya and Kakuzi Ltd, have also had a fairly consistent level of business and hence were able to finance themselves even during the difficult times. Companies with stable earnings use a high proportion of debt in their capital structure; those with unstable earnings and using high debt financing may have indications of problems. Ultimately each company aims at maximising its market value per share. Various factors come into play when managers are deciding on the financing patterns these have been dealt with by Omondi (1996) and Kamere (1987).

4.6   Relationship between returns and capital structure

Regression table

Year	Constant Coefficient	Std Dev	Capital aver coefficient	Std Dev
1993	0.3247	0.1732	-0.0026	0.0031
1994	0.1088	0.0556	0.00043	0.0009
1995	-0.0325	0.1097	0.0021	0.0018
1996	-0.0689	0.0435	0.0016	0.0007
1997	0.0895	0.152	-0.0003	0.0025
1998	0.404	0.1733	-0.0049	0.0028
Average	0.1174	0.0623	-0.00017	0.0011

X=Average capital structure

Y=Average returns

The regression of the returns to shareholders of companies forming the 20 share index between 1993-1998 against their capital structures as indicated in the above table shows a negative relationship that is, the returns decrease with increase in the level of equity and the average coefficient of capital structure is −0.00017 with a standard deviation of 0.0011.The constant coefficient has an average of 0.11743 with a standard deviation of 0.63. This agrees with the traditional view that the earnings yield is either constant or rises slightly with financial risk or leverage within an acceptable level of debt which contradicts MM's view that the value of a firm is unaffected by it's capital structure.

The traditional view has assumed that the use of debt upto the acceptable limit is considered favourable by investors because they feel that within an acceptable limit their expected return is higher than risk. As a result the market value of the firm increases or the cost of capital decreases with leverage. However when corporate income taxes are incorporated in the analysis, even MM have conceded that leverage would lower the average cost of capital due to the tax deductibility of interest charges Pandey (1981).

Pandey concludes that under favourable conditions, using debt in the capital structure could magnify the return to shareholders. But the use of debt also adds to financial risk by increasing the variability of shareholders earnings as well as chances of insolvency also called the risk of ruin by Baxter. A rational investor would therefore permit a firm to use debt only to the point where his expected earnings are equal to risk.

4.7   Limitations of the Study

4.7.1   Many companies have been grouped within the industrial and commercial sectors, most of which operate diverse businesses and therefore experience different levels of business risk for example hotels, oil companies, motor industry, Power and

Lighting company and uchumi supermarkets. This may have contributed to the misclassification of companies in the two sectors.

4.7.2   The size, quality of management and earnings power of the various companies have not been considered which may add to the differences in the levels of business risk experienced by the various companies and hence in their classifications.

4.8   Conclusions

Companies quoted at the Nairobi Stock Exchange do in fact differ in their capital structures according to the sectors to which they fall under. Although the discriminant analysis shows a 45.1 % correct classification of companies, there is evidence to indicate that companies within a sector have similar capital structures as indicated by the results of the agricultural, financial and insurance sectors and that the capital structures differ from sector to sector. The reason for the misclassification of companies within the commercial and industrial sectors maybe due to the wide diversification of companies included in the sectors and hence the differences in the levels of business risk experienced by the companies.

The results of Box M also indicate there is a similarity in the capital structures of companies within the industries themselves. This therefore means that the traditional view on capital structure holds true for companies listed on the NSE.

Although the results show similarity in the financing patterns within industry sectors, in reality managerial incentives are different with debt and equity contracts. Because of this and other differences between equity and debt, a firm's choice of financial structure may convey information about the firm's prospects to potential lenders and purchasers of equity. One financial theory posits that managers motivated to communicate insider information concerning the firm value to the public undertake costly capital structure changes that act as validated

signals of this information (Ross, 1977 and Leland-Pyle, 1977). It is suggested that firms signal an increase in firm asset value by increasing leverage in Ross and by decreasing leverage in Leland-Pyle.

However neither of these models specifies the new information that management is releasing concerning firm asset value making separation of this signalling effect from other hypothesised effects of capital structure change difficult. These considerations of adverse selection and moral hazard have been used to explain why firms' maybe credit-rationed or equity-rationed.

The risk attitude of managers may also influence them to use more debt or equity in their capital structures.

In practise, managers do not share complete information with shareholders, the gap between information available and what is actually shared with shareholders called information asymmetry leads to several conflicts. The dividend policy of a company helps reduce the conflicts and companies, which make regular dividend payments, raise capital more frequently from the primary markets.

The financing patterns do change over time and no clear generalization can be given as to the direction of change since management vary their financing patterns depending on the conditions prevailing at the time. However larger fast growing firms with stable earnings have lesser degree of liquidity and depend on borrowed funds as well as retained earnings to finance their expanding activities.

The regression analysis results show there is a positive relationship between the returns of firms quoted at the Nairobi Stock Exchange and their level of leverage, which again agrees with the traditional view that increasing the level of leverage upto a certain level increases the returns to shareholders. The role of leverage in magnifying return on equity is based on the fact that the fixed income capital can generally be obtained at a cost lower than the return of the firm. Thus when the

difference between the rate earned on these funds and their cost is distributed to shareholders they get a higher return.

The results of Pandey (1981) clearly support the traditional view that capital structure decisions of the firm affect the average cost of capital and reject the independence hypothesis of Modgliani and Miller.

Managers in Kenya do not appear to make any long-term plans for their sources of finance; this could be due to the turbulent environment in which they are operating. The effects of globalization and high interest rates coupled with problems of poor infrastructure, increased competition and bad weather have made it very expensive for companies to manufacture goods and compete effectively. Managers therefore seem to make their financing decisions on a reactive rather than proactive basis. They increase their borrowing and equity when business is poor and those who are not able to improve their profits have actually gone under or are facing severe financial problems for example the Lonrho Group. Of late a number of companies have changed their capital structures by taking up strategic partnerships with the aim of improving their efficiencies and profits such as the PanAfrican Insurance Company, Safaricom Kenya and Kenya Co-operative Creameries while others especially banks have entered into mergers. The results of these partnerships and mergers are yet to be seen, although positive results are expected.

4.9   Suggestions for further research

4.9.1   The same research project could be replicated using a different ratio such as debt/equity to establish whether similar results would be obtained.

4.9.2 Another study could be carried out to establish the relationship between capital structures and the value of a firm for companies quoted on the Nairobi Stock Exchange or between capital structure and cost of capital.

4.9.3 A similar study could also be done to establish the nature of capital structures of companies not quoted on the Nairobi Stock Exchange.

APPENDICES

Appendix 1

List of Companies used

Brooke Bond Kenya Limited

Eaagads ltd

George Williamson Kenya Ltd

Kakuzi Limited

Kapchorua Tea Company

Limuru Tea

Ol Pajeta Ranching Ltd

Rea Vipingo Plantations

Sasini Tea & Coffee Ltd

A.Baumann & co Ltd

Car & General (K) Ltd

CMC Holdings

Express Kenya Ltd

Hutchings Biemer

Kenya Airways Ltd

Lonrho Motors E.A

Marshalls E.A Ltd

Nation Media group

Pearl Dryleaners Ltd

The Standard Newspaper Ltd

TPS (Serena) Ltd

Uchumi Supermarkets Ltd

Barclays Bank of Kenya Ltd

CFC Bank

City Trust Ltd

Diamond Trust Bank Ltd

Housing Finance Co. Of Kenya

I.C.D.C Investments

Jubilee Insurance Co. Ltd

Kenya Commercial Bank Ltd

National Bank Of Kenya Ltd

NIC Bank Ltd

PanAfrican Insurance Co.

Standard Chartered Bank

Athi River Mining Co.

Bamburi Cement Co.

BOC Kenya Ltd

BAT Kenya Ltd

Carbacid Investments Ltd

Crown Berger Ltd

Dunlop Kenya Ltd

E.A Cables Ltd

E.A Packaging Industries Ltd

E.A. Portland Cement Ltd

Firestone E.A (1969) Ltd

E.A Breweries Ltd

Kenya National Mills Ltd

Kenya Oil Co. Ltd

Kenya Power & Lighting Co. Ltd

Total Kenya Limited

Unga Group Ltd

APPENDIX 2

Table of equity / Total Assets

Comp	Sector	Class	Average	1998	1997	1996
Bbond	Agri.	1	74.07	86.60	85.12	80.87
Eaag	Agri.	1	86.67	79.24	85.29	94.95
GWK	Agri.	1	76.08	86.86	74.12	76.14
Kakuzi	Agri.	1	85.52	80.89	86.56	82.99
Kapch	Agri.	1	82.64	90.75	72.20	84.36
Ltea	Agri.	1	59.23	62.26	55.98	82.11
Pejeta	Agri.	1	81.68	98.14	93.35	94.29
Rea	Agri.	1	56.63	60.33	60 13	62.18
Sasini	Agri.	1	87.50	92.56	93.62	95.23
Baum	Comm	2	68.32	79.11	72.35	79.17
C&G	Comm	2	58.40	43.77	51.53	52.33
CMC	Comm	2	36.37	33.33	29.68	29.49
Express	Comm	2	35.14	41.40	41.84	44.02
Hutch	Comm	2	78.10	22.58	49.24	84.49
KQ	Comm	2	50.54	43.41	48.59	52.91
Lonhro	Comm	2	26.76	12.76	22.93	20.01
Marsh	Comm	2	51.11	49.04	50.34	50 40
NMG	Comm	2	65.39	69.92	63.22	55.34
Pearl	Comm	2	65.47	52.63	64.34	69.03
Snews	Comm	2	29.42	18.60	32.17	27.94
TPS	Comm	2	55.87	58.42	57.42	52.76
Uchumi	Comm	2	45.43	39.68	39.90	45.78
BBK	Financial	3	8.98	11.61	11.34	10.87
CFC	Financial	3	15.76	25.00	22.06	19.62
CTrust	Financial	3	81.80	89.00	88.83	84.70
DTB	Financial	3	13.54	14.74	11.09	14.23
HFCK	Financial	3	15.98	12.03	14.48	14.91
ICDC	Financial	3	80.77	76 73	78.88	71.86
Jubilee	Financial	4	73.50	76.00	73.79	75.81
KCB	Financial	3	10.29	12.92	13.34	11.93
NBK	Financial	3	11.39	1.58	10.71	13.05
NIC	Financial	3	13.69	25.92	21.34	14.08
Pan	Financial	4	69.55	68.14	71.04	70.77
SCB	Financial	3	8.23	10.52	9.86	9.03
Athi	Industrial	5	23.29	61.51	68.10	50.10
Bamb.	Industrial	5	86 44	91.21	94.14	93.40
BOC	Industrial	5	79.12	81.08	79.38	81.55
BAT	Industrial	5	59.22	67.83	61.88	57.11
Carb	Industrial	5	89.78	89.48	94.36	93.75
Berger	Industrial	5	45.42	60.15	53.37	47.64
Dun	Industrial	5	70.14	79.40	82.41	68.61
Cables	Industrial	5	78.89	83.22	86.01	79.43
EAPac	Industrial	5	47.72	42.55	44.67	46.89
Port	Industrial	5	26.96	13.62	29.36	25.44
Fire	Industrial	5	66.91	70.72	67.12	68.68
EAB	Industrial	5	59 48	54.26	68.57	65.74

Comp	Sector	Class	1995	1994	1993	1992	1991
Knmill	Industrial	5	56.09	38.10	41.17	55.88	
Kenol	Industrial	5	47.03	63.07	58.90	64.14	
KPLC	Industrial	5	20.56	28.82	24.60	21.79	
Total	Industrial	5	25.37	26.52	24.20	24.39	
Unga	Industrial	5	67.08	50.54	66.84	61.00	

Comp	Sector	Class	1995	1994	1993	1992	1991
Bbond	Agri.	1	76.06	81.70	74.96	54.32	54.45
Eaag	Agri.	1	92.71	83.63	78.16		
GWK	Agri.	1	75.29	74.61	73.30	82.66	78.36
Kakuzi	Agri.	1	85.48	88.46	85.27	82.12	86.77
Kapch	Agri.	1	87.91	93.45	82.17	83.75	85.09
Ltea	Agri.	1	79.21	64.53	21.90	48.93	65.23
Pejeta	Agri.	1	73.89	74.20	73.78	77.10	73.44
Rea	Agri.	1	44.07				
Sasini	Agri.	1	96.52	84.56	72.30	85.41	78.72
Baum	Comm	2	83.84	83.61	51.42	53.04	50.79
C&G	Comm	2	62.03	65.49	61.52	63.83	58.96
CMC	Comm	2	29.95	33.45	46.21	49.07	43.41
Express	Comm	2	35.94	24.66	28.69	35.54	28.58
Hutch	Comm	2	88.15	84.81	91.78	89.67	87.45
KQ	Comm	2	55.46	47.13			
Lonhro	Comm	2	22.57	27.43	26.63	35.01	36.58
Marsh	Comm	2	49.68	54.86	58.74	46.73	47.81
NMG	Comm	2	75.93	71.81	66.44	58.25	68.89
Pearl	Comm	2	61.19	62.42	63.34	68.89	70.20
Snews	Comm	2	22.48	38.22	30.34	23.42	28.64
TPS	Comm	2					
Uchumi	Comm	2	45.61	48.97	52.43		
BBK	Financial	3	9.82	8.14	6.26	6.88	7.19
CFC	Financial	3	15.07	14.77	10.32	10.89	11.27
CTrust	Financial	3	85.35	81.00	77.56	75.84	72.27
DTB	Financial	3	16.37	12.14	14.96	14.06	14.38
HFCK	Financial	3	16.66	15.71	17.56	17.23	16.78
ICDC	Financial	3	75.61	79.76	84.70	89.85	86.61
Jubilee	Financial	4	74.89	73.88	71.09	73.91	70.87
KCB	Financial	3	11.10	7.52	8.30	8.44	8.38
NBK	Financial	3	16.39	16.64	10.05	6.85	6.76
NIC	Financial	3	12.46	12.02	13.01	8.42	6.86
Pan	Financial	4	74.66	63.67	64.72	70.44	70.08
SCB	Financial	3	7.83	7.05	7.48	7.67	7.11
Athi	Indistrial	5					
Bamb	Indistrial	5	90.23	84.64	81.65	83.00	70.32
BOC	Indistrial	5	80.25	78.28	77.77	78.98	77.35
BAT	Indistrial	5	61.09	62.95	55.33	62.55	50.93
Carb	Indistrial	5	91.29	92.67	90.84	80.10	80.83
Berger	Indistrial	5	35.42	46.59	47.57	44.20	35.19
Dun	Indistrial	5	68.03	74.38	69.08	59.81	56.38
Cables	Indistrial	5	80.06	78.94	77.12	73.11	70.44
EAPac	Indistrial	5	44.07	47.92	53.35	46.59	53.64
Port	Indistrial	5	24.02	7.42	28.65	29.56	41.89

Fire	Indistrial	5	60.42	73.27	64.82		
EAB	Indistrial	5	66.79	60.82	64.98	37.05	43.31
Knmill	Indistrial	5	50.47	58.97	51.78	71.19	78.06
Kenol	Indistrial	5	58.78	48.16	31.70	35.20	20.49
KPLC	Indistrial	5	18.99	16.59	14.27	21.50	22.17
Total	Indistrial	5	28.37	24.55	23.62	24.26	29.37
Unga	Indistrial	5	68.24	58.98	74.84	77.70	62.16

APPENDIX 3

Table of returns/capital structure

Company	Ret93	Cap93	Ret94	Cap94	Ret95	Cap95
Brooke Bo|	0.16	74.96	-0.02	81.69	0.07	76.06
George Wi	0.45	73.29	0.02	74.6	-0.05	75.28
Kakuzi Ltd	0.1	85.26	0.03	88.45	-0.02	85.47
Sasini Tea	0.25	72.29	0	84.55	-0.04	96.51
Ol Pajeta F	0.13	73.78	0.14	74.2	0.03	73.89
Lonrho	-0.02	26.63	0.11	27.42	0.07	22.56
Nation Prin	0.06	66.44	0.27	71.81	0.02	75.92
Uchumi Su	0.07	52.43	0.11	48.96	-0.03	45.6
Barclays B	0.08	6.25	0.08	8.14	-0.01	9.81
Diamond T	0.06	14.96	0.15	12.14	-0.03	16.37
Kenya Con	1.72	8.3	0.04	7.51	0.05	11.09
Standard C	0	7.47	0.03	7.05	-0.03	7.82
BAT(K) Ltd	0.11	55.33	0.13	62.94	-0.07	61.09
Bamburi C	0.19	81 64	0.48	84.64	0.76	90.22
BOC Keny	0.06	77.77	0.16	78.28	-0.02	80.24
E.A Packa	0.12	53.35	0.09	47.92	-0.07	44.06
E.A Brewe	0.1	64.98	0.13	60.81	0.79	66.78
Kenya Nati	0.18	51.78	0.27	58.97	0.06	50.46
Kenya Pow	-0.03	14.27	0.29	16.58	0.08	18.98
Total Keny	0.16	23.61	0.1	24.55	-0.02	28.37

080132|2001

Company	Ret96	Cap96	Ret97	Cap97	Ret98	Cap98	RetAvr	CapAvr
Brooke Bo|								
George Wi	0	80.86	-0.15	85.12	0.05	86.6	0.02	80.88
Kakuzi Ltd	0.01	76.14	0.09	74.12	-0.04	86.85	0.08	76.71
Sasini Tea	0	82.98	-0.04	86.56	-0.09	80.88	0.00	84.93
Ol Pajeta F	0.01	95.23	0.03	93.16	0.17	92.56	0.07	89.05
Lonrho	0.07	94.29	0.48	93.343	-0.23	98.14	0.10	84.61
Nation Prin	0.03	20.01	0.2	22.92	1.18	12.75	0.26	22.05
Uchumi Su	0.04	55.33	-0.21	63.21	-0.2	69.16	0.00	66.98
Barclays B	0.02	45.77	0.59	39.9	0.47	39.67	0.21	45.39
Diamond T	-0.28	10.86	-0.24	11.34	-0.23	11.6	-0.10	9.67
Kenya Con	0	14.23	0.67	11.09	0.75	14.74	0.27	13.92
Standard C	-0.07	11.92	-0.26	13.33	-0.14	12.92	0.22	10.85
BAT(K) Ltd	0	9.02	0.19	9.86	0.04	10.51	0.04	8.62
Bamburi C	0.1	57.11	-0.15	61.87	-0.03	67.83	0.02	61.03
BOC Keny	0.34	93.4	0.15	94.14	0.28	91.21	0.37	89.21
E.A Packa	-0.03	81.55	-0.03	79.38	-0.16	81.08	0.00	79.72
E.A Brewe	0	46.88	-0.06	44.66	0.24	42.54	0.05	46.57
Kenya Nati	0.01	65.73	-0.13	68.57	0.08	54.26	0.16	63.52
Kenya Pow	-0.02	55.87	0.83	41.17	1.02	38.1	0 39	49.39
Total Keny	-0.01	21.79	-0.18	24.59	-0.26	28.81	-0.02	20.84
	0.07	24.38	-0.35	24.2	0.32	26.52	0.05	25.27

Ret = Average returns for the year
Cap = Average capital structure for the year

APPENDIX 4

RESULTS OF D I S C R I M I N A ʁ A N A L Y S I S   - - - - - - - -

On groups defined by CLASS

53 (Unweighted) cases were processed.

2 of these were excluded from the analysis.

0 had missing or out-of-range group codes.

2 had both.

51 (Unweighted) cases will be used in the analysis.

Number of cases by group

		Number of cases		
CLASS	Unweighted		Weighted	Label
1	9		9	
2	13		13	
3	10		10	
4	2		2	
5	17		17	
Total	51		51	

Group means

CLASS	AVERAGE
1	77.0783
2	50.6751
3	26.0201
4	71.4831
5	57.7469
Total	53.6734

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Group standard deviations

CLASS	AVERAGE
1	11.4238
2	15.9257
3	29.1921
4	3.2452
5	20.5879
Total	25.3614

Pooled within-groups covariance matrix with 46 degrees of freedom

	AVERAGE
AVERAGE	403.25

Pooled within-groups correlation matrix

	AVERAGE
AVERAGE	1

Wilks' Lambda (U-statistic) and univariate F-ratio
with 4 and 46 degrees of freedom

Variable	Wilks' Lambda	F	Significance
AVERAGE	0.57679	8.438	0

Covariance matrix for group 1,

	AVERAGE
AVERAGE	130.504

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Covariance matrix for group 2,

	AVERAGE
AVERAGE	253.628

Covariance matrix for group 3,

36

```
                        AVERAGE
AVERAGE                 852.18
                            Covariance matrix for group 4,
                        AVERAGE
AVERAGE                 10.5313
                            Covariance matrix for group 5,
                        AVERAGE
AVERAGE                 423.861
Total covariance matrix with 50 degrees of freedom
                        AVERAGE
AVERAGE                 643.199
```

Classification function coefficients
(Fisher's linear discriminant functions)

CLASS =	1	2	3	4	5
AVERAGE	0.19114	0.125667	0.06453	0.177268	0.1432037
(Constant)	-8.9759	-4.79352	-2.44892	-7.945255	-5.7442213

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Canonical Discriminant Functions

Fcn		Pct of Eigen Pct	Cum Pct	Corr	Canonical	After Fcn
						0
1*	0.7337	100	100		.6505 :	

	Wilks' Lambda	Chi-square	df	Sig
	0.57679	25.863	4	0

Test of Equality of Group Covariance Matrices Using Box's M
The ranks and natural logarithms of determinants printed are those
of the group covariance matrices.

Group La	Rank	Log Determinant
1	1	4.8714
2	1	5.53587
3	1	6.7478
4	1	2.35436
5	1	6.0494
Pooled within-groups covariance matrix	1	5.99956

Box's M	Approximate F	Degrees of freedom	Significance
10.70294	2 43359	4, 467	0.0467

Classification results -

			Predicted Group Membership				
	No. of Actual Gr Cases		1	2	3	4	5
Group	1	9	6	0	0	1	2
			66.70%	0.00%	0.00%	11.10%	22.20%
Group	2	13	1	3	4	2	3
			7.70%	23.10%	30.80%	15.40%	23.10%
Group	3	10	2	0	8	0	0
			20.00%	0.00%	80.00%	0.00%	0.00%
Group	4	2	0	0	0	2	0
			0.00%	0.00%	0.00%	100.00%	0.00%
Group	5	17	4	3	3	3	4
			23.50%	17.60%	17.60%	17.60%	23.50%

Percent of   45.10%

24 Apr 80 SPSS for MS WINDOWS Release 6 0

Classification processing summary

53 (Unweighted) cases were processed.

0 cases were excluded for missing or out-of-range group codes.

2 cases had at least one missing discriminating variable.

51 (Unweighted) cases were used for printed output.

APPENDIX 5
RESULTS OF VARIANCE ANALYSIS USING EQUITY/TOTAL ASSETS 1991-1998

Year	Bbond	Eaag	GWK	Kakuzi	Kapch	Ltea	Pejeta	Rea
1991	54 45		78.36	86.77	85.09	65.23	73.44	
1992	54.32		82.66	82.12	83.75	48 93	77.10	
1993	74.96	78.16	73.30	85.27	82.17	21.90	73.78	
1994	81.70	83.63	74.61	88.46	93.45	64.53	74.20	
1995	76.06	92.71	75.29	85.48	87.91	79.21	73.89	44.07
1996	80.87	94.95	76.14	82 99	84.36	82.11	94.29	62.18
1997	85.12	85.29	74.12	86.56	72.20	55.98	93.35	60.13
1998	86.60	79.24	86 86	80.89	90.75	62.26	98.14	60.33
Variance	35.91	179.57	15.74	0.42	94.43	1614.91	1662.13	945.31

Year	Sasini	Baum	C&G	CMC	Express	Hutch	KQ	Lonhro
1991	78.72	50.79	58.96	43.41	28.58	87.45		36.58
1992	85.41	53.04	63.83	49.07	35.54	89.67		35.01
1993	72.30	51.42	61 52	46.21	28.69	91.78		26.63
1994	84.56	83.61	65.49	33 45	24.66	84.81	47.13	27.43
1995	96.52	83.84	62.03	29 95	35.94	88.15	55.46	22.57
1996	95.23	79.17	52.33	29.49	44.02	84.49	52.91	20.01
1997	93.62	72.35	51.53	29.68	41.84	49.24	48.59	22.93
1998 ·	92.56	79.11	43.77	33.33	41.40	22.58	43.41	12.76
Variance	275.18	498.71	262.07	108.61	167.01	45114.04	42.23	123.33

Year	Marsh	NMG	Pearl	Snews	TPS	Uchumi	BBK	CFC
1991	47.81	68.89	70.20	28.64			7.19	11.27
1992	46.73	58.25	68.89	23.42			6.88	10 89
1993	58.74	66.44	63.34	30.34		52 43	6.26	10.32
1994	54.86	71.81	62.42	38.22		48.97	8.14	14.77
1995	49.68	75.93	61.19	22.48		45.61	9.82	15.07
1996	50.40	55.34	69.03	27.94	52.76	45.78	10.87	19.62
1997	50.34	63.22	64.34	32.17	57.42	39.90	11.34	22.06
1998	49.04	69.92	52.53	18.60	58 42	39.68	11.61	25.00
Variance	15.89	85.87	42.66	10.76	7.42	44.19	1.72	78.60

Year	CTrust	DTB	HFCK	ICDC	Jubilee	KCB	NBK	NIC
1991	72.27	14.38	16.78	86.61	70.87	8.38	6.76	6 86
1992	75.84	14.06	17.23	89.85	73.91	8.44	6.85	8.42
1993	77.56	14.96	17.56	84.70	71.09	8.30	10.05	13.01
1994	81.00	12.14	15.71	79.76	73.88	7.52	16.64	12.02
1995	85.35	16.37	16.66	75.61	74.89	11.10	16.39	12.46
1996	84.70	14.23	14.91	71.86	75.81	11.93	13.05	14.08
1997	88.83	11.09	14.48	78.88	73.79	13.34	10.71	21.34
1998	89 00	14.74	12.03	76.73	76.00	12.92	1.58	25.92
Variance	67.07	0.31	0.86	81 63	0.20	2.97	9.74	132.04

Year	Pan	SCB	Athi	Bamb.	BOC	BAT	Carb		Berger
1991	70.08	7.11		70.32	77.35	50.93	80.83		35.19
1992	70.44	7.67		83.00	78.98	62.55	80.10		44.20
1993	64.72	7.48		81.65	77.77	55.33	90.84		47.57
1994	63.67	7.05		84.64	78.28	62.95	92.67		46.59
1995	74.66	7.83		90.23	80.25	61.09	91.29		35.42
1996	70.77	9.03	50.10	93.40	81.55	57.11	93.75		47.64
1997	71.04	9.86	68.10	94.14	79.38	61.88	94.36		53.37
1998	68.14	10.52	61.51	91.21	81.08	67.83	89.48		60.15
Variance	5.73	0.31	1142.91	98.84	0.47	9.56	2.84		178.37

Year	Dun	Cables	EAPac	Port	Fire	EAB	Knmill	Kenol
1991	56.38	70.44	53.64	41.89		43.31	78.06	20.49
1992	59.81	73.11	46.59	29.56		37.05	71.19	35.20
1993	69.08	77.12	53.35	28.65	64.82	64.98	51.78	31.70
1994	74.38	78.94	47.92	7.42	73.27	60.82	58.97	48.16
1995	68.03	80.06	44.07	24.02	60.42	66.79	50.47	58.78
1996	68.61	79.43	46.89	25.44	68.68	65.74	55.88	64.14
1997	82.41	86.01	44.67	29.36	67.12	68.57	41.17	58.90
1998	79.40	83.22	42.55	13.62	70.72	54.26	38.10	63.07
Variance	154.91	23.40	2.80	526.81	18.27	63.45	520.58	2973.29

Year	KPLC	Total	Unga
1991	22.17	29.37	62.16
1992	21.50	24.26	77.70
1993	14.27	23.62	74.84
1994	16.59	24.55	58.98
1995	18.99	28.37	68.24
1996	21.79	24.39	61.00
1997	24.60	24.20	66.84
1998	28.82	26.52	50.54
Variance	11.97	0.25	84.32

APPENDIX 6
Results of Regression Analysis of returns against capital structure

	Constant					Cap avr	
	Coef	Std Dev	t-ratio	p		Coef	Std Dev
1993	0.3247	0.1732	1.87	0.077		-0.002583	0.003075
1994	0.10879	0.05559	1.96	0.066		0.000425	0.0009467
1995	-0.0325	0.1097	-0.3	0.771		0.002113	0.001844
1996	-0.0689	0.04347	-1.57	0.133		0.001599	0.0007259
1997	0.0895	0.152	0.59	0.563		-0.000346	0.002519
1998	0.404	0.1733	2.33	0.032		-0.004943	0.002847
Average	0.11743	0.06298	1.86	0.079		-0.00017	0.001065

	t-ratio	p	s	R-sq	R-sq(adj)
1993	-0.84	0.412	0.3764	3.80%	0.00%
1994	0.45	0.659	0.1227	1.10%	0.00%
1995	1.15	0.267	0.2413	6.80%	1.60%
1996	2.2	0.041	0.09792	21.20%	16.80%
1997	-0.14	0.892	0.3425	0.10%	0.00%
1998	-1.63	0.12	0.3963	12.90%	8%
Average	-0.16	0.875	0.1389	0.10%	0.00%

X= Average Capital Structure
Y=Average Returns

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