FINANCING MANUFACTURING COMPANIES: A STUDY OF THE CAPITAL

STRUCTURE OF TRADED MANUFACTURING COMPANIES IN KENYA.
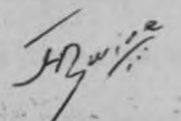
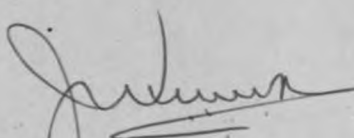HENRY J. BWIRE

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"A thesis submitted in part fulfilment for the degree of Master
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1984

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ACKNOWLEDGEMENTS

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ABSTRACT

The purpose of this study was to ascertain the financing patterns of traded manufacturing companies in Kenya. Also looked at was the effect of certain factors on debt and debt/equity ratios. A number of test variables were correlated against debt and debt/equity ratios: earnings, stability of earnings, fixed assets, capital intensity and competition.

Twenty manufacturing companies traded on the Nairobi Stock Exchange were selected. Financial statement data, covering five years between 1974 and 1978, were collected for each company. These data were analysed in various ways including correlations, ratio analysis and graphical presentations to test the hypotheses of the study.

Five hypotheses were tested. The first states that there is no relationship between the earnings of a company and the amount of debt it carries. Secondly, it is hypothesized that there is no relationship between the stability of earnings and the debt/equity ratio of a company. The third hypothesis states that there is no relationship between the book value of fixed assets and the amount of debt a company carries. Fourthly, it was hypothesized that there is no relationship between the capital intensity of a company and its debt/equity ratio. The fifth hypothesis states that the greater the degree of competition in an industry, the lower the debt/equity ratios of companies within that industry.

The results indicated, in the first instance, that manufacturing companies quoted on the Nairobi Stock Exchange tended to finance more with debt than equity capital. Secondly, the high and generally stable earnings enjoyed by these quoted companies does not seem to have a significant effect on the amount of debt these companies carry.

Thirdly, the value of fixed assets and the capital intensity of these companies do not seem to have a significant impact on the level of debt carried by the companies. Lastly, the nature of the competition which a company faces does not appear to affect the financing patterns of manufacturing companies traded on the stock exchange.

1.1   Introduction

The problem of de ciding whether to employ equity or
debt to finance a firm's operations is one which faces
corporate management at one time or another, The right
balance between equity and debt is of critical importance
because of the potential impact of debt on the firm's
profitability and solvency. Thus, for all companies
whether large or small, the decision on what form of
capital to employ, and in what quantity, is one to be
approached with considerable care.

This study is concerned primarily with the financing
patterns of certain manufacturing companies in Kenya. The
aim is, first to discover the balance between equity capital
and debt as employed by these companies, and second to
establish the relationship between certain factors which
appear to affect the financing decision. In pursuit of
these objectives, attention is focussed on the following
issues.

In the first instance, the effect of sales and or
earnings behaviour on the firm's choice of financing will
be assessed. Secondly, the influence of the asset structure
of the firm on its capital structure will be ascertained.
And finally, the relationship between the level of
competition which a firm is faced with and its debt/equity
ratios will be investigated.

1.2   <u>Justification of the Study</u>

The financing decision is of considerable importance
as it affects many aspects of the firm's operations.
Indeed, faulty financing decisions may, and usually do,
lead to business failures. Many companies in Kenya have
been liquidated or are currently under receivership due to
having indiscriminately incurred heavy debt, which has
resulted in lack of ability to meet the obligations that
arise from such debt. These companies include, among others,
the giant Kenatco Transport Company Limited, Guyfreight
Limited, Nakulines Limited, Kimani Court Hotel and KICOMI
which was only salvaged by the government.

On the other hand, an overly conservative management
may limit the level of debt far below the firm's debt
servicing capacity, thereby forfeiting the benefits that
financial leverage may have brought in terms of superior
residual earnings and enhanced returns on shareholders funds.

The Kenya government is emphasizing industrialisation
as a vehicle for the development of the economy and is
encouraging manufacturers to produce more goods for local
and export markets. This is because other forms of commercial
enterprise are more of a service nature that can prosper only
when productive sectors, including agriculture and industry
are well developed. Thus, a study of this type which attempts
to analyse an area in which the government has an interest,
is justifiable in the context of the nations level of economic
development.

It is also expected that the study will go someway towards filling the gap in the area of corporate finance. There is currently a dire shortage of reference material in this area not only in Kenya, but also. in many other developing countries.

The findings of the study will probably be of considerable use to many people and organisations whose work is related to the financing decision. Finally, the findings of the study will also be of help to management training institutions in the country, including the University of Nairobi's Faculty of Commerce and the Kenya Institute of management as reference material.

1.3.   Clarification of Concepts.

(a)   Capital Structure

Capital structure has been variably defined by different authors. It may be looked at as the total financing sources of the firm. This approach takes the entire "credit" side of the firm's balance sheet as defining its capital structure.[1] It considers all liabilities - long term debt and short term debt - and all equities as comprising the capital structure of the firm.

Other authors[2] define capital structure to mean the permanenet sources of capital to the firm. This definition includes only long term sources of capital - retained earnings and new equity on the one hand and long-term debt on the other.

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1.   Chapman M. Findlay III and Edward E. Williams, An Integrated Analysis for Managerial Finance. Prentice Hall Incl. N. Y. 1970.

2.   William H. Jean, The Analytical Theory of Finance, Holt, Rinehart and Winston, Inc. N. Y. 1970.

This approach is however unnecessarily restrictive in the Kenyan context as the bulk of debt is of a short term nature.

In this study, capital structure is defined to mean total sources of finance available to the firm. It includes all forms of indebtedness - trade creditors, short and long term loans - and all forms of equity capital.

(b)   Cost of Capital

The cost of capital to the firm is defined as the average weighted cost of total debt, equity capital and retained earnings.[3] Specifically, it is defined as the cost to the firm of obtaining funds, whether from shareholders in the form of equity capital, or from outsiders as debt or through the retention of earnings.[4]

(c)   Manufacturing Companies

In this study, manufacturing companies are defined in accordance with the Central Bureau of Statistics Classification.[4] It includes the following business activities under manufacturing.

1.   Foods/Beverages and other Processing

2.   Pharmaceuticals/Chemical Manufacture

3.   Mechanical/Electrical Products

4.   Textiles/Footwear

5.   Timber and other Wood Products

6.   Printing and Pulp

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3.   Basil J. Moore, An Introduction to the Theory of Finance, The Free Press N.Y. 1968.

4.   Central Bureau of Statistics, Directory of Industries in Kenya. Nairobi. 1977.

Thus, the firms considered in this study fall under these classifications.

(d)   Traded Companies

These are companies whose securities are listed on the Nairobi Stock Exchange.

(e)   Leverage

In finance, the word leverage finds usage in two different ways. One is operating leverage which refers to the impact of capacity expansion on earnings as a result of the lowering of fixed costs per unit of output that accompanies the expansion.[5] The other is financial leverage which is the ratio of total debt to the total value of the firm.[6] In this study, the term leverage is used to mean financial leverage, as there will be no involvement with operating leverage.

1.4   Plan of the Rest of the Thesis

In the second chapter is reviewed existing literature in the field of financing in general and capital structure in particular. In it will, in the first instance, be outlined the sources of capital for the firm. Then the traditional and the Modigliani - Miller views, including empirical tests of their theories, will be presented. Finally, the factors which seem to influence capital structure decisions will be discussed.

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5.   Chapman M. Findlay III and Edward E. Williams. op.cit.

6.   Ibid

In the third chapter, a number of hypotheses which are to be tested as part of the study are formally stated. In this chapter, the methodology used in data collection and analysis is also given.

The fourth chapter provides a formal presentation and analysis of the results. Various data analysis techniques including correlations, tabulations and other graphical presentations are applied. Chapter five contains a discussion of the results. It also draws conclusions about these findings and attempts to relate these to the wider sphere of manufacturing companies in the country.

The last chapter is a summary of:-
(1) What the study set out to accomplish,
(2) How it went about achieving that goal and
(3) The findings of the study. Limitations of the study and areas for further research are also identified.

C H A P T E R   II

L I T E R A T U R E   R E V I E W

2.1   Introduction

Most manufacturing companies, because of the nature of their operations, require a large amount of investment in expensive or costly plant and equipment. They also have to invest heavily in various types of inventories to enable them meet the demands of their customers and to cover shortages of raw material inputs. For these reasons, manufacturing companies are constantly faced with the decision about what source of finance to employ.

When faced with the decision to expand investment in new plant and equipment, firms will usually consider raising long term finance. They will consider whether to raise new equity capital or longterm debt. On the other hand, inventories are normally financed with short term capital such as trade credit, bank over-drafts, etc. This arrangement that tends to match the nature of assets to be financed with the maturity of liabilities minimizes the risk of default. It would be unwise to raise long term debt and invest it in working capital as there may not have been generated adequate funds to repay the loan when it matures.

The other decision which faces these companies is whether to raise the required capital from the shareholders in the form of equity or borrow from outsiders. However, there is a limit as to how much a firm can borrow, determined by many factors, some of which will be dealt with later in the chapter. For each industry, there is an acceptable balance between debt and equity - debt/equity ratio - which most firms within that industry usually maintain.

In developed economies, the debt/equity ratios for manufacturing companies fluctuate between 38 percent and 60 percent.[1] These, however, are averages and one can expect significant variations across industries. The same source also shows that whereas firms in the textiles industry carry only 41 percent debt, those in the electronics industry average 58 percent.

Lenders normally compare the debt/equity ratio of a given firm with those of other firms in the same industry before granting any loan to that firm. Conversely, lenders decide to grant their loans to any firm depending on the degree to which the firm is already indebted. An over indebted firm is an obvious risk that most lenders will normally shun.

Ostensibly, firms borrow to alleviate funds shortages resulting from the inability of owners to provide all the required capital. But for proper financial management, firms should borrow only when the cost of doing so is lower than that of other means of raising the required capital. This requires the comparison of the costs of the various financing sources available to the company.

The major issues to be reviewed in this chapter include:-

(1) Sources of capital available to the firm.

(2) Theory of the capital structure of the firm.

(3) Factors which influence the capital structure of companies.

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1. Leo Troy, Almanac of Business and Industrial Ratios, Prentice - Hall Inc. 1974.

2.2 Sources of Capital for the Firm

There are two ways in which one can classify sources of capital to the firm, especially a limited liability company with its independent legal existence. The first approach which indentifies the company with its shareholders classifies financing sources depending on whether funds are contributed by the owners of the company or by outsiders. According to this approach we have, on the one hand, equity capital, the contribution of the shareholders, and on the other debt capital or liabilities, being the outsiders interest in the company.

The second approach classifies sources of capital for the firm depending on whether funds are internally generated or injected from outside of the company. Internal sources are those which provide funds from the company's own operations, and they include all forms of retention of earnings. External sources include funds contributed directly by either shareholders through the purchase of shares or by lenders.

2.2.1. Equity Capital

This is the shareholders' interest in the company. It includes funds contributed directly by the owners through the purchase of shares and undistributed profits, either in the form of retained earnings or reserves. There are basically four main types of equity capital:

common stock, preference stock, retained earnings and reserves. The difference between the last two is discussed below.

Common stock is the security that represents the holders' proportionate share in the residual ownership of the company.[2]

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2. Chapman M. Findlay III and Edward E. Williams, An Integrated Analysis for Managerial Finance - Prentice Hall Inc. N.Y. 1970.

Common stockholders are the owners of the company and thus the
ultimate risk bearers in case of financial failure. They are
entitled to compensation by way of either cash or stock dividends.

Preference stock is another form of ownership of the company
where certain preferences are given to the holder in exchange for
certain limitations on the usual ownership rights.[3] It represents a
combination of various features of debt and common stock.[4] Like
commonstock, preference shareholders earn dividends that are usually
non-deductible for tax purposes by the company. Like debt, these
dividends usually have a fixed rate just like interest on loans.
Further, holders normally have no voting rights, and their issuance
may contain the same call, sinking fund and conversion features as
debt.[5]

Retained earnings may be defined as undistributed surplus. It
is evidence of reinvestment in the business of earnings which were not
paid out as dividends. It forms part of the equity of the common
stock holders, legally available for distribution to them. Large
retained earnings are also evidence of progress that increases the
residual value of the company.

Reserves are appropriations from the main surplus account -
retained earnings. The creation of a reserve implies that funds are
not presently available for distribution to shareholders as dividends.

2.2.2   Debt Capital

Debt capital takes the form of borrowed funds that create an
obligation on the part of the company in favour of the

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3.   Ibid
4.   Ibid
5.   J. Linter "the Financing of Corporations" in E.S. Mason (ed), The
        The Corporation in Modern Society (Cambridge Mass.) University Press
        1970.

the lender.[6] Debt may be classified as either short-term or long-term, the medium term category being a matter of refinement. There is a variety of methods through which a company may obtain loan capital, and the most common are mentioned below.

In the first instance, there are bank loans which may be either short or long term. Short term bank loans are usually in the form of notes and bank overdrafts. Notes are promises from the borrowing company to the bank to repay the borrowed funds on demand or at the end of a specified period.[7] Business firms acquire long-term bank loans through mortgages. A mortgage is a loan secured by real estate - land and buildings - which is repaid overtime in periodic instalments.[8]

Secondly, there are bonds which are the most important form of long term debt for companies in developed economies. These are long term promissory notes which can be issued either to the public or to a single lender such as a financial institution. The bond indenture, which is the contract, provides for the bond holders a guaranteed and prior claim over the shareholders to the firm's income. Bonds are secured by either a specific or general lien on the property of the company. When not secured, bonds are usually referred to as debentures, and are issued against the general credit of the company.

Lastly, bonds are either convertible or non-convertible. The conversion feature gives the bond-holder the right to convert his bonds into other securities of the company - usually common stock.[9]

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6. Ibid

7. Ibid

8. Ibid

9. Ibid

Convertible bonds are desirable when the credit standing of the company is not very high at the time of issue and debt elimination is necessary in future.[10] They are a temporary financing device and are nothing more than a delayed common stock issue.

2.3   Theory of the Capital Structure of the Firm

The question of the capital astructure of the firm is one which has attracted the attention of many writers on the subject of corporate finance. Indeed, according to Lintner "   the   literature is marked with confusion and even contradictions".[11]

There are divergent theories concerning the effect of financing decisions on the firm's overall valuation. Some authors[12] maintain - given certain assumptions such as tax effect of interest charges, bankruptcy costs etc - that there is an optimal capital structure for a firm. This optimal capital structure can be achieved as a result of a proper mix between equity and debt which minimizes the average cost of capital to the firm. At this optimal capital structure level, the value of the firm is at its highest.

Other authors, headed by Modigliani and Miller[13] argue that the value of the firm is independent of its capital structure. In essence they say, there is no optimal capital structure and a firm can any financing mix and at the same maximise the value of its shares.

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10.   Ibid

11.   Op.cit. pp 12

12   These authors and their studies will be outlined in the next section which dwells on their theories.

13.   Franco Modgliani and M.H.Miller, "The cost of Capital, Corporation Finance and the Theory of Investments" in Ezra Solomon (ed) The Management of Corporate Capital, The Free Press, 1959.

2.3.1   Optimal Capital Structure Proponents

There is a number of authors who contend that there exists an optimal financing mix which firms have to achieve in order to minimize their cost of capital. In his study, Schwatz[14] argues that as the generally expensive equity capital is replaced with cheaper debt capital, the average cost of capital tends to fall to a certain point. After this point is reached the average cost of capital rises because as more debt is added its cost begins to rise.

For an already indebted firm, the cost of debt rises because lenders require a higher rate of return on new debt issues. Thus, there is a turning point in the cost of capital curve and it is at this point that the optimal capital structure occurs. Schwatz further argues that bankruptcy costs are an important factor to be considered in capital structure decisions. Leverage that increases the risk of bankruptcy might depress the price of common stock and thus reduce the overall valuation of the firm.

Other authors who support the optimal capital structure theory include Kraus and Litzenberger,[15] Scott,[16] and Kim[17].

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14. Eli Schwatz, "The Theory of the Capital Structure of the Firm" Journal of Finance Vol. XIV, No. 1   1959.

15. A. Kraus and R. Litzenberger, "A State Preference Model of Optimal Financial Leverage "Journal of Finance, September 1973.

16. J. H. Scott, "A Theory of Optimal Capital Structure", The Bell Journal of Economics, Spring 1976.

17. E. H. Kim,"A Mean Variance Theory of Optimal Capital Structure and Corporate Debt Capacity "Journal of Finance March 1976.

In their various studies they demonstrate that when taxes and
bankruptcy costs are introduced in the analysis, the firm has
an optimal capital structure.

They contend that the deductibility of interest charges from
taxabale income increases after tax operating income of the levered
firm. This in turn acts as an inducement to increase leverage.
Such action may push debt to levels where the firm may default and
thus incur bankruptcy costs. Bankruptcy costs act as a counter
incentive to increasing the debt/equity ratio beyond certain
proportions. An optimal financing mix is achieved as a result of a
trade-off between the tax advantages of interest charges and
bankruptcy costs that might be incurred if debt is pushed too far.

The implication that can be drawn from their argument is that the
tax deductibility of interest reduces the actual cost of debt, making
it lower than the cost of equity. This in turn reduces the average cost
of capital, leading to a falling average cost function. The charater-
ristic turning point that indicates the optimal capital structure
comes in when lenders begin to demand higher returns on debt as the
risk of bankruptcy increases.

In another study, Scott[18] argues that secured debt can increase
the total value of the firm even in the absence of corporate taxes.
This according to him, explains the widespread use of secured debt
by companies.

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18.   J. H. Scott, "Bankruptcy, Secured Debt and Optimal Capital Structure"
Journal of Finance, March 1977

He argues that by issuing secured debt the firm can increase the
value of its securities by reducing the amount to pay in the form
of legal damages in the event of bankruptcy. This is because
the claims of secured creditors to assets rank ahead of claims for
legal damages.

The issuance of secured debt can increase the value of the
firm by reducing the probability that other unprotected future claims -
property raxes and administrative costs of bankruptcy - are not paid.
When the firm sells secured debt, it is selling not only a promise
to future repayment, but the right to be first in the order of priority
upon liquidation. Since shareholders cannot vote for themselves the
first priority in repayment of their capital, it follows that it is
optimal for them to sell that right for debt. They will continue
to do this until that level at which the disincentives of bankruptcy
costs outweigh the advantages of debt. At that level then, one can
expect to find the optimal capital structure.

The end result of all the studies reviewed above is a U-shaped
average cost of capital function as depicted below.

Figure   2 - 1

Leverage and the Cost of Capital - The Traditional View
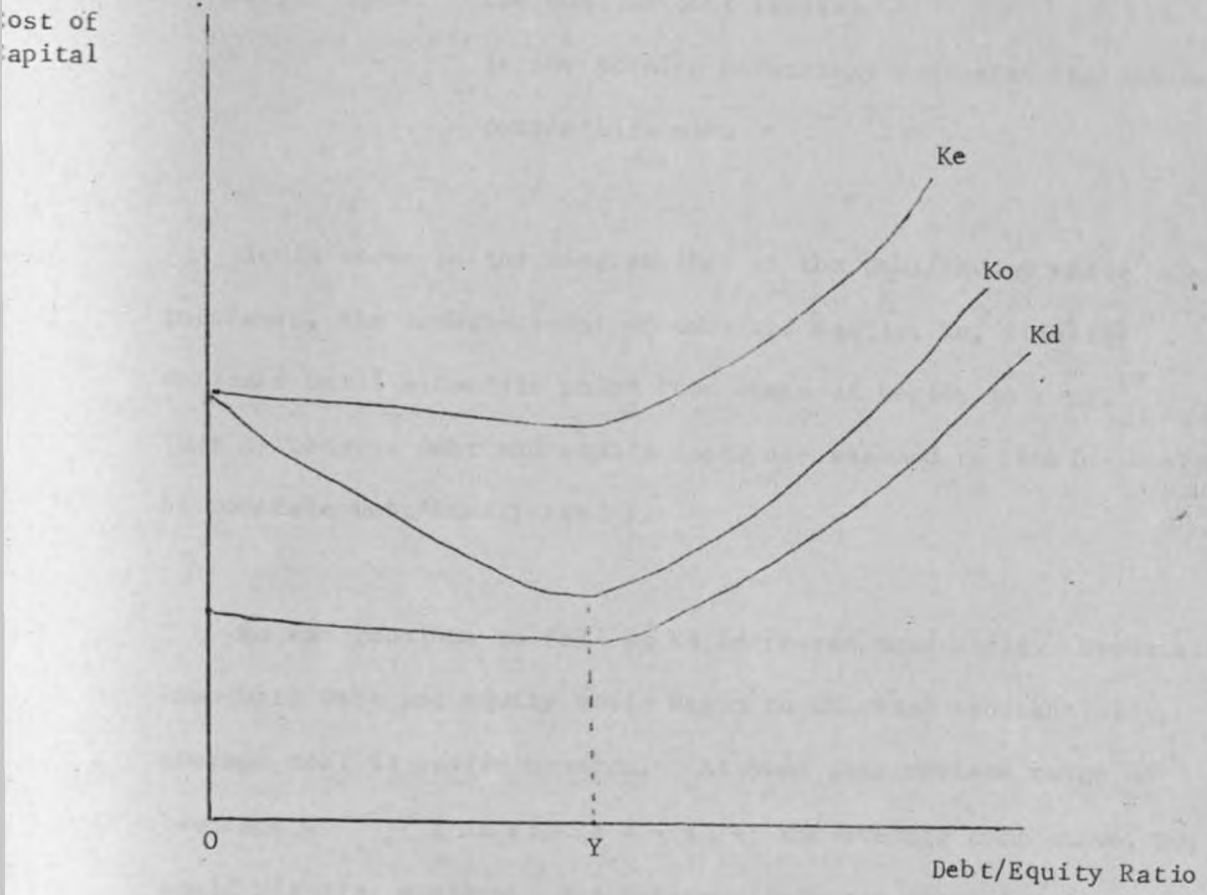
For the meanings of Ke, Ko, Kd and Y see next page.

In the diagram the symbols Ke, Ko, and Kd are:-

Ke   -   the cost of equity capital

Ko   -   the average cost of capital

Kd   -   the cost of debt capital

Y   -   is the turning point that indicates the optimal
            debt/equity mix.

It is shown in the diagram that as the debt/equity ratio
increases, the combined cost of debt and equity, Ko, steadily
declines until a certain point from where it begins to rise.[19]
This is because debt and equity costs are assumed to remain constant
at moderate debt/equity ratios.

Ko can continue to fall as Kd increases moderately. Eventually,
when both debt and equity costs begin to increase substantially,
average cost is pulled upwards. At some intermediate range of
leverage -   Y in Figure 2 - 1 - the average cost curve, Ko,
would hit its minimum. The debt/equity ratio corresponding to this
minimum level of average cost is what is termed the optimal capital
structure.

2.3.2   The Modigliani and Miller View

The other camp, headed by Modiglian and Miller[20] argues that
the valuation of the firm is independent of its capital structure.
They contend that the average cost of capital to a firm is constant
irrespective of its capitalization.

19.   B.G. Malkiel, The Debt-Equity Combination of the Firm and the Cost
        of Capital: An Introductory Analysis, General Learning Press,
        New York, 1971.

20.   F. Modigliani and M. H. Miller op.cit.

According to them the total market value of any firm, which is the market values of both debt and equity, is the same no matter how the total capitalization is divided between debt and equity. Contrary to the traditional view, they maintain that the value of the firm is governed by the characteristics of its income stream.[21]

The operation of arbitrage and homemade leverage, which are central concepts in their theory, cannot allow securities in the same risk class to sell at different prices in the same perfect market. Homemade leverage is a situation whereby an individual investor can borrow and invest the borrowed funds in an unlevered firm, thereby enjoying the advantages of leverage.

They go on to argue that the price of a share of stock is given by capitalizing its expected return at the continuously variable rate which is the yield.[22] This means that the expected yield on equity must increase linearly with the debt/equity ratio; provided that the cost of debt is less than the average cost of capital to the firm.

The relationship between the K_e, and K_o, in a cost of capital and debt/equity plane is depicted in Figure 2 - 2, according to the Modigliani and Miller postulates.

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21.   See B.G. Malkiel, op.cit.

22.   See Franco Modigliani and Merton H. Miller op.cit pp.158

Figure 2 - 2

Leverage and the Cost of Capital - The Modigliani and Miller View

Cost of
Capital

Ke

Ko

Kd

O

Debt/Equity Ratio
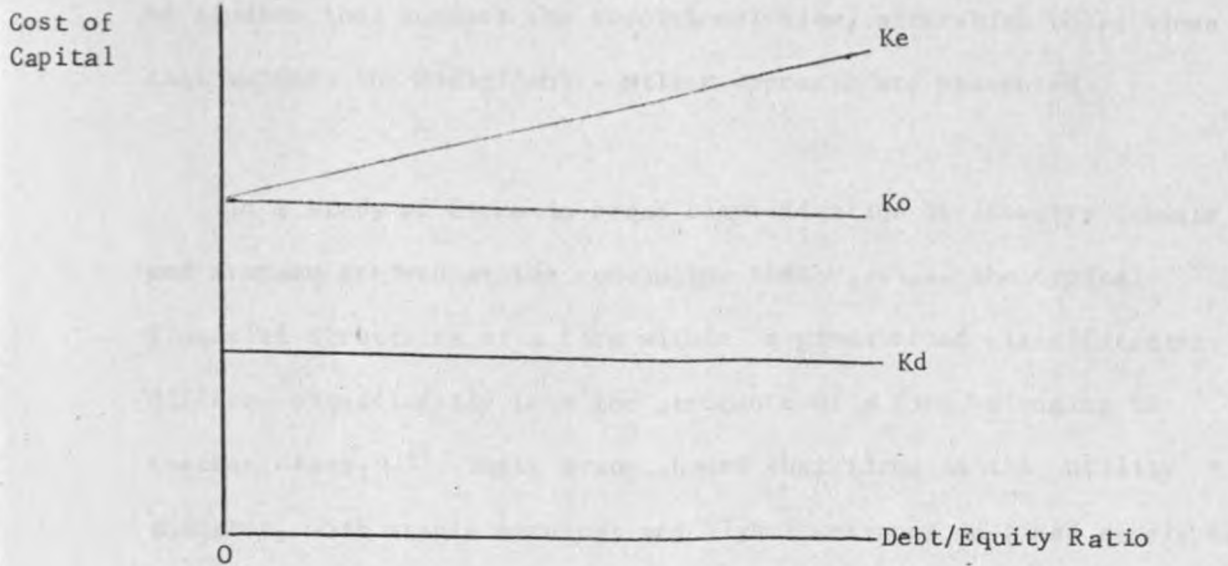
This diagram brings out the basic Modigliani and Miller hypotheses:
that the average cost of capital is independent of the capital
structure of the firm. The Modigliani - Miller view thus totally
rejects the existence of an optimal capital structure that can
minimize the cost of capital to the firm and thus enhance its market
value.

Lastly, Modigliani and Miller contend that the cut-off rate for
all investment in the firm will, in all cases, be the average cost
of capital, Ko, and is completely unaffected by the type of security
used to finance the investment. This implies that if a firm is. financed
entirely with equity, and stockholders demand a 10% rate of return,
then 10% is the relevant cut-off rate for all new investments.[23]

2.3.3   Empirical Tests of the Capital Structure Theories

In this section are presented a number of empirical studies which
have been carried out to test the two conflicting views on capital
structure.

23.   Ibid

In the first part of the section will be presented the findings

of studies that support the traditional view, afterwhich those views

that support the Modigliani - Miller approach are presented.

In a study of firms in broad classification by industry Schwatz

and Aronson arrived at the conclusion that "....... the typical

financial structu re of a firm within a given broad classification

differs significantly from the structure of a firm belonging to

another class." [24] Their study showed that firms in the utility

industry, with stable earnings and high investment in fixed assets can

borrow a considerable amount on a relatively small equity base.

Generally, firms in the utility industry have very high debt/equity

rations as risk of default is fairly low.

On the other hand, industrial firms with higher risk of default

would experience a sharp increase in financing charges if their

leverage exceeds certain proportions. Thus, the debt/equity ratios

of industrial concerns are lower than those of utilities. From a

statistical analysis of their data, the authors conclude that there

is some surrogate evidence of the existence of an optimal capital

structure for the firm.

Barges [25] investigated the relationship between the average cost

of capital and financial structure. His data was collected from sixty

one rail road companies.

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24.   E. Schwatz and R. Aronson, "Some Surrogate Evidence in support of the

Concept of Optimal Financial Structure" in K.B. Johnson et.al.(eds)

Readings in Contemporary Financial Management Scott. Foreman, 1965,

pp.426.

25.   A Barges, The Effect of Capital Structure on the Cost of Capital,

Prentice Hall Inc. N. Y. 1963.

Using a scatter diagram and fitting a line of best fit, Barges came
out with the traditional U - shaped average cost of capital curve.
At the point where the curve starts to turn upwards is to be found
the optimal debt/equity ratio.

In a study that somehow takes the middle of the road line,
Sametz[26] conluded that the ratio of debt to equity is constant over
time.   Studying the debt/equity positions of several American
Corporations during the fifties, he asserts that the task that
financial management faces is to vary the composition within each
component.   They have to compare the cost of fixed charges sources -
debt and preference stock - and choose that source with the least
cost.   They then compare the costs of variable charges items -
common stock and retained earnings - and again choose that with the
least cost.

Due to the fact that internal equity sources are usually cheaper
than primary equity, Sametz's approach would imply that management
will constantly utilise internal funds.   And because straight debt
is often more preferable to preference stock, firms would tend to
employ it more than preference stock.   However, Sametz's constant
debt/equity ratio is not the optimal one as he himself admits that,
"Of course, this is only a rough sub-optimising model because it
does not explain how the debt/equity ratios are determined."[27]

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26.   A. W. Sametz, "Trends in the Volume and Composition of Equity Finance
      Journal of Finance Vol. XIX Sept. 1964
27.   Ibid pp. 468

To prove their theories on capital structure and its effect on the value of the firm, Modigliani and Miller carried out two empirical studies. In their first study published in 1958 [28], they set out to prove that the cost of capital is independent of capital structure, maintaining the assumptions of a taxless environment and the absence of bankruptcy costs.

In this study, using cross-sectional samples of forty-three electric companies and forty-two oil companies, they regressed the average cost of capital against debt/equity ratios. This exercise was performed for each of the two industry groups separately. The results that were obtained showed that the average cost of capital did not fall as the debt/equity ratios increased. They concluded that these results were consistent with their hypotheses. Many criticisims have been levelled against this study [29] the most common being directed at the various unrealistic assumptions.

In their second study, Modigliani and Miller [30] tried to overcome some of the short comings of the earlier study. They admitted the existence of corporate taxes and the tax advantages of debt financing. They also allowed for the firm's growth.

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[28] Franco Modigliani and M. H. Miller op.cit. pp 167 - 173

[29]. For discussions of the procedural short comings of Modigliani and Miller's first study see B.G. Malkiel op.cit pp 29.

[30]. F. Modigliani & M. H. Miller, "Corporate Income Taxes and the cost of Capital; A Correction", in American Economic Review Vol. 53 June 1963.

For manufacturing concerns, Miller quotes the Federal Trade Commission as reporting that there was a very small increase in debt ratios during the 1960's. There was, however, a rapid increase in debt ratios during the early seventies. This rapid increase was however explained to be due to an increase in inventories as firms sought to hedge against shortages occasioned by embargos and price controls. Thus firms were borrowing against sizeable inventories that acted as security, as witnessed by the fact that most of the debts were short term.

Miller goes on to contend that there is very little advantage to be derived from debt financing. He states that "the gain (from leverage) evaporates or turns into a loss because investors hold securities for the 'consumption' possibilities they generate ...."[33] Given two levels of taxation - personal and corporate - the advantages of deductibility at one end are offset by the non-deductbility at the other. The investor may receive increased dividends as a result of the tax deductiblity of interest in a levered firm. But these increased dividends place him in a higher personal income tax bracket. Thus Miller concludes that in the final analysis, the owners of the corporation are no better off whether they finance with tax-deductible debt or equity.

2.3.4 <u>A Criticism of the Traditional and the Modigliani Miller Views</u>

This section brings together the criticisms that have been levelled against the two views. This is done on the lines of relevance to reality and to related empirical research. As it is, much of this analysis is contained in the various studies that have been carried out to support one or the other of the theories.

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33. Merton H. Miller, <u>op.cit.</u> pp 267

The strength of the optimal capital structure theory rests upon the nature of the corporation and investor behavoiur.[34] The corporate entity shifts a portion of financial risk from owners of the corporation to its creditors. Since risk to the shareholders is limited to the amount actually invested in the corporation, the owners reduce their probable loss. On the other hand, their gains are only limited by the profitability of the enterprise.

The traditional view also derives its strength from the realistic assumptions that it starts off with. These assumptions - such as the existence of income taxes and capital market imperfections - are more closely related to the conditions prevailing in the real world.

These strengths, however, do not imply that the traditional theory does not suffer from any limitations. The approach stresses the importance of an optimal capital structure but does not quantify the effect of debt on the cost of capital.[35] To what extent does the inclusion of debt in the capital structure increase the cost of equity capital to the Company.[36]

The second shortcoming is that the traditional theory does not define how a firm reaches the optimal capital structure. Corrollary to the foregoing, how does the firm know that it has attained its

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34. F. J. Weston, "A Test of the Cost of Capital Propositions" in H.A. Wolf and L. Richardson (eds), Readings in Finance Appleton, Century Crofts N. Y. 1966.

35. J. R. Franks et.al. Corporate Financial Management, Bower Press, London 1977, pp 202

36. Ibid

optimal capital structure?[37]

Other critics of the optimal capital structure theory point out
that its proponents place undue emphasis on bankruptcy costs.
According to Miller these costs, when adjusted, amount to no more than
2 percent of the total assets of the company.[38]

The Modigliani - Miller hypothesis has had more criticism than
support. In the majority of the available literature,[39] the only
strength which is mentioned in favour of their theory is the internal
consistency of their propositions. One of the requirements of a
good theory is its internal consistency - how it holds together as a
body of knowledge.

The major limitations of the Modigliani - Miller theory which
lead to its criticisms are connected with their assumptions.[40] These
are said not to conform to reality. Their theory basically stands
based on the assumptions of arbitrage, homemade leverage and, in the
earlier version, the absence of corporation taxes.

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37.   Ibid

38.   M. H. Miller op.cit. pp 262

39.   On this see A. Barges op.cit. and J. A. Boness op.cit.

40.   See B. G. Malkiel op.cit.

Critics[41] point out that homemade leverage may not be a perfect subtitute for corporate leverage. The corporate institution and investment standards make corporate leverage advantageous over personal leverage. An individual can borrow the same amount, and at the same interest rate as a corporation, only if he has the same asset base.[42] Very few individuals really have such an asset base.

Since homemade leverage is not a perfect substitute for corporate leverage, Modigliani and Miller's arbitrage operations are not possible. Further, the opration of arbitrage depends on the existence of more than one firm with the same pattern of returns. To identify two or more firms in equivalent risk class and the same pattern of returns is extremely difficult.[43]

The most important criticism levelled against Modigliani and Miller's theory concerns the role of corporate income taxes. Their theses has been attacked on the grounds that is assumes a taxless environment, which is an unrealistic asuumption given the fact that income taxes actually exist.

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41.   R. A. Haugen and L. W. Senbet, "The Insignificance of Bankruptcy Costs to the Theory of Optimal Capital Structure "Journal of Finance May, 1978.

42.   Ib id

43.   Ib id.

After taking into account the existence of income taxes, the Modigliani - Miller theory implies that the cost of capital continuously declines with leverage. Indeed, according to Haugen and Senbett[44] the Modigliani - Miller theorem, in the presence of taxes is troublesome since it implies the near exclusion of equity from the capital structure of the firm.

However, when corporate taxes are introduced, both the Modigliani - Miller and the traditional theories agree that leverage will lower the average cost of capital - at least over certain ranges of debt ratios.[45] Boness goes on to prove that the Modigliani - Miller theory and the traditional approach are actually consistent with each other.[46]

2.4   Factors which Influence Capital Structure Decisions

According to Modigliani and Miller, the capital structure of the firm is independent of its cost of capital. What, then are the factors which influence the capital structure of the firm?[47] Miller has advanced some of the factors which influence capital structure decisions, in his article quoted above. Other authors[48] have also advanced some of these factors. These are outlined below.

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44.   Ibid·
45.   See B. G. Malkiel, op.cit·pp 131
46.   J. A. Boness op.cit.
47.   M. H. Miller, op.cit.
48.   S·D Schwatzman and R. E. Bell, Elements of Financial Analysis D. Van Nostrand Co., 1972; and D. E. Vaugen, Financial Planning & Management Good Year Publishing Co., 1972.

1. ## Cyclical Movements in the Economy

    In demolishing the theory that the tax deductibility
    of interests favours debt financing, Miller argues that any
    increase in debt that had been observed during the thirty
    years was due to cyclical movements in the economy.[49]   He
    contends that during expansions of the economy, the debt/
    equity ratios tended to fall and vice-versa. This was
    mainly due to the lag in dividends in relation to earnings.

2. ## Cyclical Stability of Sales and or Earnings

    Sales Stability and debt ratios are closely related.[50]
    The suse of debt implies that earnings are sufficiently
    predictable to enable the company to meet the contractual
    obligations that debt entails. A past record of stable
    earnings implies that the firm is able to bear the burden of
    fixed interest charges with safety - provided that these
    earnings are above the breakeven level.

3. ## Asset Structure of the Industry

    Miller[51] attributes the rapid increase in debt in the
    early seventies to a large build up of inventories by
    companies. A strong asset base is a security that most
    lenders tend to value.

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49   M. H. Miller, op.cit.

50.   D. E. Vaugen op.cit.

51.   M. H. Miller op.cit.

These assets would serve as collateral security and firms

borrow against them. Thus, firms with a strong asset

base tend to have high leverage margins. Examples given

to support this argument include public utility companies

and rail-road companies, which have both high fixed asset ratios

and high leverage ratios.

4. Competition in the Industry

Firms in industries where competition is keen, leading

to relatively low and unstable earnings, would find them-

selves hard pressed if they carried excessive levels of

debt. As noted above, utilities which are usually

monopolies are able to carry a large amount of debt with

safety.

5. Attitudes Towards Risk and Control

The desire to maintain the company's voting power in

the hands of a particular group frequently influences its

choice of financing avenue. When such a desire exists, the

tendency is to finance through either bonds or non-voting

stock. In the case of a risk averse management group, the

tendency is to resort to variable charge securities such as

common stock where non payment of obligations thereon does

not threaten the existence of the comapny in the immeidiate

future.

C H A P T E R   III

HYPOTHESIS   AND   METHODOLOGY

3.1 ### Introduction

In the present chapter, the aim is to achieve two broad
objectives. In the first instance, hypotheses to be tested are
formally stated. Secondly, the methodology used is data collection
and analysis will be developed.

3.2 ### Hypotheses

In the last section of Chapter II were presented some of the
factors which have been observed to influence capital structures
in other countries. Some of these factors can be tested statistically
to verify whether they have any effect on the capital structures
Kenyan manufacturing companies have built. Thus, in this section
hypothesis will be developed out of these testable factors, which
will be subsequently tested in the following chapter.

The first factor that was stated was the effect of cyclical
movements in the economy on debt/equity ratios. This factor cannot
be meaningfully tested in the present study for a number of reasons.
In the first instance, cyclical economic movements are long-run
trends which cannot be tested over the five years which the present
study encompasses. Secondly, gathering data for such a test would
be extremely difficult in the context of the Kenyan economy where
no such information is readily available. Thus, no attempt will
be made to test this factor.

The second factor that was suggested is the cyclical stability
of sales and or earnings. Due to the fact that the Comapnies Act.
aoes not require disclorue of the sales figure, most companies
do not disclose it.

But earnings are required to be disclosed by the Act. Thus earnings were applied in testing this hypothesis. A company with sufficiently stable earnings can bear the burden of fixed interest charges with safety. To test the relationship between earnings and the companies' debt levels the following hypotheses are stated:

HYPOTHESIS 1

Null Hypothesis

Ho: There is no relationship between the earnings of a company and the amount of debt it carries in its capital structure.

Alternative Hypothesis.

Ha: There is a significant relationship between the earnings of a company and the amount of debt it carries.

HYPOTHESIS 2

Null Hypothesis

Ho: There is no relationship between the stability of earnings and the debt/equity ratio of the company.

Alternative Hypothesis

Ha: There is a significant relationship between the stability of earnings and the debt/equity ratio of the company.

The asset structure of companies is another factor that usually influences the amount of debt a company can carry. This is because sufficient assets can be collateral security for the loans. Firms with heavy investment in fixed assets can carry a substantial amount of debt without a very serious risk of default. Thus, what is involved here are:-

(1) the effect of the absolute value of fixed assets on the debt position of the company, and

(2) the relationship between the capital intensiveness of the company and its debt/equity ratio.

The following hypotheses are developed to test the effect of the asset structure of the company on its capitalisation.

HYPOTHESIS 3

Null Hypothesis

Ho: There is no relationship between the book value of fixed assets and the amount of debt a company carries.

Alternative Hypothesis

Ha: There is a significant relationship between the book value of fixed assets and the amount of debt a company carries.

HYPOTHESIS 4

Null Hypothesis

Ho: There is no relationship between the capital intensity of a firm and its debt/equity ration.

Alternative Hypothesis

Ha: There is a significant relationship between the capital intensity of a firm and its debt/equity ration.

The level of competition in the industry is another factor that is said to affect the capital structure of the company. This is because when competition is very keen, the earnings of firms within that industry may be low and unstable. Thus if firms in highly competitive industries carried excessive debt they may find themselves hard pressed to meet the contractual obligations the debt implies.

To ascertain the relationship between the level of competition and debt/equity ratios the following hypothesis was developed.

HYPOTHESIS 5

Null Hypothesis

Ho: The greater the degree of competition in an industry, the lower the debt/equity ratios of companies within that industry.

Alternative Hypothesis

Ha: The greater the degree of competition in an industry, the higher the debt/equity ratios of companies within that industry.

The last factor that was mentioned as affecting the capital structure of companies is the attitudes of management towards risk and control. This factor, like the first one is not testable within the context of this study. Measurement of attitudes is generally a complicated issue as what people may state in response to a question may not represent their true attitude.

3.3   Methodology

3.3.1 Data Required and Sources of the Data

There are just over sixty companies whose securities - mainly common stock and to a lesser extent preference stock - are traded on the Nairobi Stock Exchange. Out of these, twenty are manufacturing companies.

Both these figures are low as there are many more companies which are not quoted. However, the majority of those companies which are not quoted are either wholly-owned subsidiaries of multinational companies, or closely held family concerns.

This study concentrates on manufacturing companies, quoted on the stock exchange for the following reasons:

1. To enable concentration on a homogenous group that would make meaningful comparison. Such comparisons would be difficult, or would assume different dimensions if all the traded companies which include plantations, commercial firms and financial institutions were included.

2. As stated earlier in the section on the justification of the study, government emphasis is on industrialisation and thus a study which attempts to investigate an area of high priority by government is a defendable undertaking.

Data to accomplish the objectives of the study were collected only for the manufacturing companies quoted on the stock exchange. These data were collected from the following sources:

1. The Registrar General's Office to whom all public companies submit their annual statements. Due to its public nature, this office could not supply all the required financial statements as many were missing from the files.

2. Africa Registrars Limited who are secretaries to the Nairobi Stock Exchane for copies of financial statements which could not be traced at the Registrar General's office.

3. The stock brokerage firm of Dyer and Blair, a member of the Nairobi Stock Exchange.

3.3.2 Type of Data

The following data were required for the study:-

1. Earnings: These are the profits before taxes and financial charges. Most companies do not disclose their sales figure as this is not required under the provisions of the Companies Act.(Cap 486)

2. Fixed asset values were extracted from the balance sheets which are also included in the returns to the Registrar of Companies.

3. Equity, which included share capital, retained earnings and reserves.

4. External sources of finance including trade creditors, bank loans and overdrafts, debentures and other forms of indebtedness such as Eurodollar bonds.

5. Stock prices of common stock and preference stock were collected for the period. These were the year end market prices. These market prices are used in the discussion later in the study.

The study covered the period 1974 to 1978. This period was chosen because of the relative stability of the economy during that time. It was a period when the adverse effects of the oil price increases were cushioned off by the benefits derived from the coffee boom, before these benefits were wiped away from 1979.

3.3.3 Data Analysis and Presentation Techniques

The data collected as indicated above were analysed and presented in this study through the following techniques.

1. Ratio Analysis

The magnitude of debt in the total financing of the companies was determined through the computation of ratios. The ratios of debt to equity were computed through the formula:

$$\text{Debt Ratios} = \frac{D}{D + E} \times 100$$

Where D = Total debt

E = total equity

The debt/equity ratios derived through the formula above were then tabulated for all companies and all the years under study. Averages were then calculated for

(a) each company for the first five years and

(b) all companies in each industry group for the five years period.

(ii) Graphical Presentation

This technique is used to highlight any intertemporal patterns in the financing process of the companies under study. A graph is drawn to depict the debt/equity ratios of the industry groups over the five year study period. On the X - axis we have the years 1974 to 1978 and on the Y - axis are the percentages that represent the debt/equity ratios. It was not possible to sketch a graph with all the twenty companies as twenty curves could not meaningfully be represented on that one graph. Thus, only one graph depicting the industry averages was drawn.

(iii) Correlation Analysis

This is the main data analysis technique which relates the variables that are to either support or reject the hypotheses. e

The Pearson product - moment correaltion coefficient, r, was calculated to determine the extent of relationships between the following sets of variables.:

(a) Earnings and Debt

(b) Stability of Earnings and Debt/Equity ratios

(c) Fixed Assets and Debt

(d) Capital Intensity and Debt/equity ratios.

The formula applied to calculate the above correlation coefficient is[1]

$$r = \frac{\sum XY - (\sum X)(\sum Y)/n}{\sqrt{\left[\sum x^2 - (\sum X)^2/n\right]\left[\sum Y^2 - (\sum Y)^2/n\right]}}$$

The variables to be correlated, as indicated above, were quantified as shown below:

(a) Earnings - this is the absolute value of earnings before tax (EBT)

(b) Debt - this is the book value of debt

(c) Fixed Assets - this is also the book value of the fixed assets of the companies.

(d) Stability of Earnings - to determine the stability of earnings, the average absolute percentage change was calculated for each of the companies.

(e) Debt/Equity ratios - were computed as indicated in this section under the sub-heading Ratio Analysis.

(f) Capital Intensity - this is the ratio of fixed assets to total assets.

The Spearman's Rank Correlation Coefficient rs, is used to determine whether there was any relationship between the level of competition firms face and their capital structure. This form of correlation was applied because of the manner in which competition was quantified, which could not lend itself to manipulation through the Pearson products - moment correlation coefficient.

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1. S. Siegel, Non-Parametric Statistics for Behavioural Sciences, MacGrow - Hill Book Co. N.Y. 1956

Four possible classes of competition were decided upon, which
are: 1. Keen competition where there were more than ten companies
in the industry; 2. Fairly keen competition, where there are
between five and ten companies in the industry; 3. Moderate
competition where there are between two and five companies, and
4. Sole producer, where only one company manufacturers and sales
its product. To come up with this classification, all manufacturing
companies, including those not quoted, were considered by reference
to the Kenya Directory of Industries and the Kenya Manufacturers'
Association catalogue of members, both of which indicate the line
of business of each company.

The next stage was to assign values of 9, 6, 4 and 1 to these
four different levels of competition. Each of the companies in the
study was then assigned one of these numbers depending on the number
of firms that were observed to exist in the industry in which that
company was located. As many of the companies shared the same values,
rankings in competition equal to that of debt/equity ration.

The formula applied in the calculation of the rank correlation
coefficient is[2]

$$rs = 1 - \frac{6 \sum di^2}{N^3 - N}$$

To test whether the correlation coefficient calculated as shown
above were significant, the t values were computed. The formula
used in the computation of this test is[3]

$$t = r \sqrt{\frac{n - 2}{1 - r^2}}$$

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2.   Ibid

3.   Ibid

C H A P T E R   IV

RESULTS

4.1   Introduction

In this chapter are presented the findings of the study. In
Sec. 4.3 the financing patterns of traded manufacturing companies
in Kenya are presented in the form of debt/equity ratios. In later
sections, correlations of the various variables to test the hypotheses
are undertaken. A discussion of these findings will be presented in
a later chaper.

A total of twenty manufacturing companies traded on the Nairobi
Stock Exchange provided the sample for this study. Their financial
statements - mainly the balance sheets and income statementes - were
the main sources of data. A full list of these companies is found
Appendix 1.

Since it was neither feasible nor necessary to reproduce the
partial balance sheets and income statements of the twenty companies
for the five year period under review, only the ratios worked out of
these figures are presented. However, in the sections that deal with
correlations, the relevant variables are reproduced side by side.
Further, in the chapter that discusses the findings of the study,
actual financial data for the various companies are cited in support
of arguments.

4.2   Distribution of Firms Among Industry Categories

In this section is briefly outlined the manner in which the
twenty companies under review are distributed among the industry
categories as outlined by the Central Bureau of Statistics. This
classification is necessary at this stage because some of the analysis
that will follow will be on the lines of industry.

Table 4 - 1 shows these details.

Table 4 - 1

DISTRIBUTION OF FIRMS AMONG INDUSTRY CATEGORIES

INDUSTRY CATEGORY	Cos IN INDUSTRY	No.	%
Textiles/Footwear	06	1	5
Chemical/Pharm	02, 04, 05, 07, 10	5	25
Printing and Pulp	11, 18 2		10
Food and Beverages	01, 03, 08, 12, 14		
	15, 15, 17, 20	9	45
Mechanical/ Electricals	09,	1	5
Timber and Wood	13, 19	2	10
	TOTAL	20	100

The table shows that the majority of the companies - nine out
of twenty - are located in the Foods and Beverages industry. The
second largest industry group is the Chemicals and Pharmaceuticals
category. The remaining four industry groups share out six firms
ans indicated in the table.

This industry classification is broad and only according to
category, not specific industries. Thus it is seen that firms in
the cement industry such as Bamburi Portland Cement Co. Ltd. and
East African Portland Cement Co. Ltd. are grouped with firms in the
rubber industry as Chemicals and Pharmaceuticals. Similarly, firms
like E. A. Breweries Ltd in the beer industry are included in

the same group of Foods and Beverages with firms like Uplands Bacon

Co. Ltd. and Brooke Bond E. A. Ltd., although they are hardly

competitors in their respective markets.

Leading from the above observations is the fact that conclusions

which are drawn when there are marked differences between the

company debt ratios and the industry average are thus to be interpreted

with caution.

4.3   The Balance Between Equity and Debt in the Capital Structure

The measures of debt adopted for this study, as stated earlier,,

is total indebtedness of the firms which includes all external sources

of finance including trade creditors, short term bank and other loans,

long term secured or unsecured loans and deferred creditors including

income taxes.

For the purposes of this study, these external sources of

finance are stated at their book values.   This is because any other

valuation was not feasible.   Market valuation could not be applied

as there are relatively very few debt instruments traded on the open

market.   In fact, the bulk of the loans are either trade creditors

or short term bank loans that are negotiated bilaterally between the

borrower and the lenders.

In the study, equity financing includes all funds legally

"owned" to the shareholders.   These include common stock, preference

stock, retained earnings and all forms of reserves.   As in the case

of debt, the basis of valuing equity capital was book value.   The

market valuation approach could have been applied in this instance

but the idea was discarded for two   reasons.

In the first instance, the volume of shares traded on the stock exchange, in comparison with total issued shares is very small. For many of these quoted companies, hardly five percent[1] of their shares are traded on the stock exchange during the year. The "inflated" prices of these few shares could thus not be used to value the bulk of shares whose owners do not offer them for sale on the market.

Secondly, for proper comparison with the related debt financing which had to be valued at book value, we had also to state equity capital on the same basis.

To determine the debt/equity ratios for the companies under study the formula below was applied:

$$\text{Debt/Equity Ratio} = \frac{D}{D + E} \times 100$$

where, D is the total value of debt

E is the total value of equity.

Debt/equity ratios were computed for each of the five years to determine the degree to which these companies employ debt in their financing. Also computed were the industry averages. The table below summarises the position of the companies under study in respect of their utilization of debt.

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1. This estimate was given by officials of Africa Registrars Ltd., who are secretaries to the Nairobi Stock Exchange.

Table 4 - 2 shows the debt/equity positions for all the twenty

companies under study. Also calculated are the industry averages

derived as follows. For industry groups with more than one firm, the

measure of central tendency applied was the arithmetic mean. And

for industries with only one firm , as can be expected, the ratios

for that one firm became the industry averages.

These industry averages are reproduced in Table 4 - 3 for sharper

focus.

TABLE 4 - 2

DEBT/EQUITY RATIOS FOR THE COMPANIES - 1974 TO 1978

DUSTRY CATEGORY AND MPANY NUMBER	1974	1975	1976	1977	1978	AVERAGE
EMICALS/PHARM:AVERAGE	52.9	60.9	61.8	63.0	59.8	59.7
02	56.7	62.7	63.2	64.2	63.8	60.1
04	45.3	60.5	60.3	60.6	63.8	58.1
05	69.2	75.2	80.6	78.4	83.6	77.4
07	55.2	58.7	61.0	59.8	58.9	58.7
10	38.3	47.6	43.7	52.2	39.1	44.2
DS & BEVERAGES:AVER.	45.2	45.4	47.5	53.6	56.9	49.7
01	40.5	42.5	51.2	50.3	50.3	46.9
03	29.0	20.6	26.0	27.2	29.5	26.3
08	40.3	42.6	43.6	45.1	48.3	44.0
12	42.7	30.0	33.9	38.2	40.2	37.0
14	60.6	63.7	63.1	98.1	110.6	79.2
15	37.7	38.4	39.7	40.2	46.6	40.5
16	58.6	66.7	58.9	63.2	67.4	63.0
17	55.8	66.3	53.5	64.1	58.7	59.7
20	41.2	38.2	57.8	56.2	60.2	50.9
KTILES/FOOTWEAR:06	54.2	55.3	51.3	64.3	52.6	55.5
CHAN/ELECTR. 09	60.7	46.3	41.7	53.6	49.7	50.4
INTING/PULP:AVERAGE	57.6	64.6	62.3	55.4	49.8	57.9
11	66.8	73.9	63.4	51.5	45.6	60.2
18	48.7	55.0	61.2	59.3	59.3	55.6
MBER/WOOD:AVERAGE	55.5	59.8	67.4	62.9	67.7	62.6
13	35.2	41.1	52.4	47.8	57.4	46.8
19	75.8	78.5	82.1	78.0	77.9	78.5

DEBT EQUITY RATIOS ACCORDING TO INDUSTRY CATEGORIES

| INDUSTRY CATEGORY | Y E A R | | | | | INDUSTRY |
	1974	1975	1976	1977	1978	AVERAGE
CHEMICAL/PHARM	52.9	60.9	61.8	63.0	59.8	59.7
FOODS & BEVERAGES	45.2	45.4	47.5	53.6	56.9	49.7
TEXTILES/FOOTWEAR	54.2	55.3	51.3	64.3	52.6	55.5
MECHAN/ELECT.	60.7	46.3	41.7	53.6	49.7	50.4
PRINTING/PULP	57.6	64.6	62.3	55.4	49.8	57.9
TIMBER/WOOD	55.5	59.8	67.9	62.9	67.7	62.6
ANNUAL AVERAGE	54.4	55.4	55.3	58.8	56.1	60.6

Source: Extracted from the preceeding table.

Figure 4-1 presents the debt/equity ratios for industry categories in graphical form. This enables one to see at a glance how these ratios have been changing over time and compare for all industry categories.

Figure 4 - 1

<u>INDUSTRY DEBT/EQUITY RATIOS IN GRAPH FORM.</u>
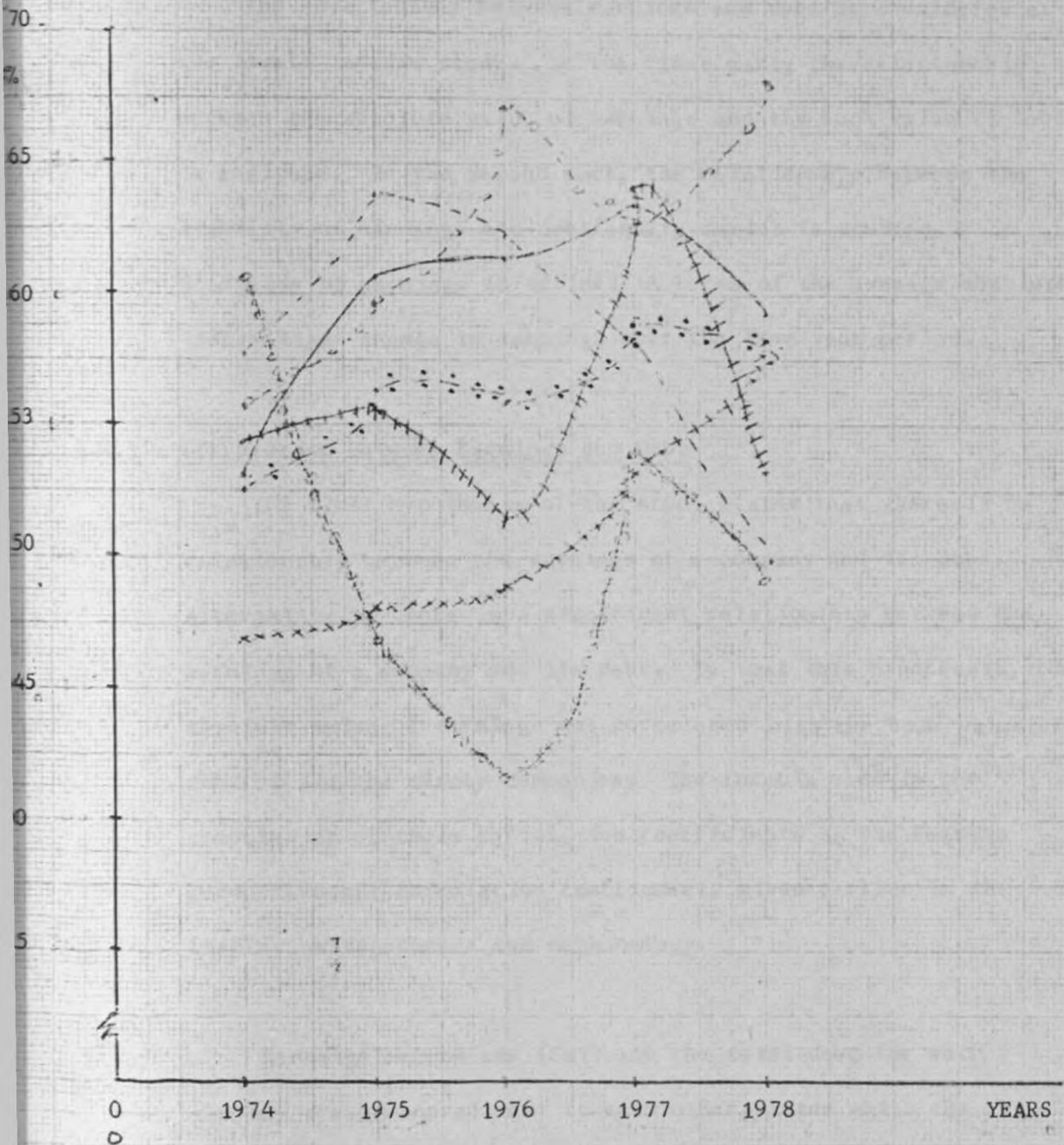
	Mechanical/Electrical
	Chemicals/Pharmaceuticals
	Foods and Beverages
	Textiles/Footwear
	Printing/Pulp
	Timber/Wood
	Average/Composite

4.4   The Relationship Between Earnings and Debt

The relationship between earnings and debt is considered at
two levels in this study. In the first part, the relationship
between the absolute value of earnings and the book value of debt
is analysed. In the second part, the relationship between the
stability of earnings and debt/equity ratios is studied.
Stability of earnings is defined in terms of the average absolute
percentage change in earnings over the five year period.

4.4.1   Correlation Between Earnings and Debt

The first hypothesis of the study states that there is no
relationship between the earnings of a company and its debt.
Alternatively, there is a significant relationship between the
earnings of a company and its debt. To test this hypothesis, the
absolute value of earnings was correlated with the book value of
debt of all the twenty companies. The formula used in the
computation of these correlation coefficients is the Pearson
product-moment correlation coefficient, given earlier in the
chapter on hypotheses and methodology.

Earnings before tax (EBT) and the total debt for each
company are presented next to each other, after which the
correlation coefficient is shown. In this section X, the
independent variable, is the profits before tax and Y, the book
value of debt. The aim is to ascertain whether there is any
relationship between the eranings and the debt levels of the
companies. The level of significance of this relationship is
also shown.

1. B.A.T.

    E. B. T. (000) = 2549 2657 3260 3369 4735 ΣX = 16601

    Debt + (000) = 3237 3668 5576 5368 9175 ΣY = 27024

    Correlation Coefficient = 0.99

    Level of Significance = 99.0%

2. Bamburi Portland Cement

    E. B. T. (000) = 1413 2472 2447 1448 1984 ΣX = 9764

    Debt (000) = 5540 10562 7419 6859 8689 ΣY = 39069

    Correlation Coefficient = 0.74

    Level of Significance 60.0%

3. Brooke Bond

    E. B. T. (000) = 1720 2323 5284 11415 9710 ΣX = 30452

    Debt (000) = 4510 4650 6402 12560 14136 ΣY = 42258

    Correlation Coefficient = 0.95

    Level of Significance 98.0%

4. Carbacid

    E.B.T (000) = 124 128 121 101 120 ΣX = 594

    Debt (000) = 130 223 242 334 272 ΣY = 1201

    Correlation Coefficient = - 0.76

    Level of Significance 60.0%

5. Dunlop

E,B,T, (000) = 2154   478   754   (357)   673 ΣX = 3702

Debt   (000) = 9388 11817 14697 13555 20185 ΣY = 69642

Correlation Coefficient   =   - 0.40

Level of Significance   50.0%

6. E. A. Bag & Cardage

E. B. T. (000) =   (12)   137   353   425   508 ΣX = 1141

Debt   (000) =   1008 1150 1080 2058 1796 ΣY = 7092

Correlation Coefficient   =   0.64

Level of Significance   80.0%

7. E.A.Portland Cement

E.B.T. (000) =   631   483   760   686   739 ΣX = 3299

Debt   (000) =   1441   2488   2983 3018 3646 ΣY = 13576

Correlation Coefficient   =   0.51

Level of Significance   60.0%

8. E.A.Breweries

E.B.T.   (000) = 5493   4073   3503 5836   5692 ΣX = 24596

Debt   - (000) = 8296 13317 12838 14524 19590 ΣY = 68565

Correlation Coefficient = 0.22

Level of Significance   50%

9.　　E.A. Cables

E.B.T.　(000) = 　271　　209　　260　　367　　528　ΣX = 1753

Debt　　(000) = 　938　　550　　523　　960　　1216　ΣY = 4187

Correlation Coefficient = 0.69

Level of Significance about 80.0%

10.　　E. A. Oxygen

E.B.T.　(000) = 　515　　611　　530　　1044　　778　ΣX = 3578

Debt　　(000) = 　757　　1163　　1163　　1129　　1470　ΣY = 5679

Correlation Coefficient = 0.43

Level of Significance　　60.0%

11.　　E.A. Packaging Industries

E.B.T　(000) = 　1526　　985　　608　　695　　735　ΣX = 4549

Debt　　(000) = 　3314　　5900　　3592　　2254　　1821　ΣY = 16881

Correlation Coefficient = 0.25

Level of Significance　　50.0%

12.　　Elliots Bakeries

E.B.T.　(000) = 　210　　110　　106　　142　　(35)　ΣX = 533

Debt　　(000) = 　686　　570　　674　　800　　817　ΣY = 3547

Correlation Coefficient = 0.15

Level of Significance = 90.0%

13. Hutchings Biemer

E.B.T. (000) = 40   72   83   89   95 ΣX =   379

Debt   (000) = 82   96   211   182   274 ΣY =   845

Correlation Coefficient   = 0.84

Level of Significance   90.0%

14. K. C. C.

E.B.T. (000) = 685   431   2   (2523)   (1459) ΣX = (2864)

Debt   (000) = 3133   3946   4274   6370   9450 ΣY = 27173

Correlation Coefficient   = 0.84

Level of Significance   85.0%

15. Kenya National Mills

E.B.T. (000) =   709   589   835   980   1409 ΣX =   4520

Debt   (000) =   2889   4184   2946   2953   2478 ΣY = 164500

Correlation Coefficient   =   0.89

Level of Significance   95.0%

16. Kenya Orchards

E.B.T. (000)   =   6   (8)   (6)   18   23 ΣX =   33

Debt   (000)   =   262   310   211   266   321 ΣY =   1370

Correlation Coefficient   =   0.84

Level of Significance   90.0%

17.　**K. P, C. U.**

E.B.T. (000) = 320　147　575　437　508 ΣX = 1987

Debt (000) = 1087　1595　1550　1846　1948 ΣY = 8026

Correlation Coefficient = 0.36

Level of Significance　50.0%

18.　**Nation Printers**

E.B.T. (000)　438　502　275　562　639 ΣX = 2416

Debt (000)　1738　2336　2417　2328　2215 ΣY = 11034

Correlation Coefficient = -0.35

Level of Significance　50.0%

19.　**Timsales**

E. B. T. (000) = 101　139　66　166　524 ΣX = 996

Debt (000) = 1392　1652　1960　1825　1819 ΣY = 8648

Correlation Coefficient = 0.20

Leve of Significance　50%

20.　**Uplands Bacon**

E,B,T, (000) = 21　(25)　(39)　(52)　18 ΣX = (76)

Debt (000) = 282　255　770　729　675 ΣY = 8648

Correlation Coefficient = 0.43

Level of Significance　60%

Below is a table that brings together all the correlation coefficients
coefficients and their respective levels of significance.

TABLE   4 - 4

CORRELATION BETWEEN EARNINGS AND DEBT

COMPANY	CORRELATION	LEVEL OF SIGNIFICANCE
B.A.T.	0.99	99.0%
BAMBURI PORTLAND	0.74	60.0%
CARBACID	-0.75	60.0%
BROOKE BOND	0.95	90.0%
DUNLOP	-0.40	50.0%
E.A.BAG & CARDAGE	0.64	80.0%
E.A.PORTLAND	0.51	60.0%
E.A. BREWERIES	0.22	50.0%
E.A. CABLES	0.69	80.0%
E.A. OXYGEN	0.43	60.0%
E.A. PACKAGING	0.25	50.0%
ELLIOTS BAKERIES	-0.41	50.0%
HUTCHINGS BIEMER	0.84	90.0%
K.C.C.	-0.75	85.0%
KENYA NAT. MILLS	-0.89	95.0%
KENYA ORCHARDS	0.84	90.0%
K. P. C. U.	0.36	50.0%
NATION PRINTERS	-0.35	50.0%
TIMSALES	0.20	50.0%
UPLANDS	-0.43	60.0%

4.4.2   The Correlation between the Stability of Earnings and
         Debt/equity Ratio.

         In this section, the stability of earnings, defined as the
percentage change in earnings from year to year, is correlated
with the debt/equity ratio. This is to test the second
hypotheses which states that there is no relationship between
the stability of earnings and the debt/equity ratio of the
company. Alternatively, there is a significant relationship
between the stability of earnings and the debt/equity ratio
of the company.

         A single correlation coefficient was calculated using
each company's average percentage change as the independent
variable and the average debt/equity ratios as the dependent
variable.

TABLE 4 - 5

CORRELATION BETWEEN STABILITY OF EARNINGS AND DEBT/EQUITY RATIO

COMPANY	VARIABILITY OF EARNINGS	AVERAGE D/E RATIO
B.A.T.	17.65%	46.9%
BAMBURI PORTLAND	38.42%	60.1%
BROOKE BOND	72.63%	26.3%
CARBACID	11.00%	58.1%
DUNLOP	142.33%	77.4%
E.A. BAG & CARDAGE	359.83%	55.5%
E.A. PORTLAND	24.55%	58.7%
E.A. BREWERIES	270.23%	44.0%
E.A. CABLES	33.10%	50.4%
E.A. OXYGEN	28.23%	44.2%
E.A. PACKAGING	23.48%	60.2%
ELLIÖTS BAKERIES	147.73%	37.0%
HUTCHINGS BIEMER	26.43%	46.8%
K.C.C.	31607.13	79.2%
KENYA NAT. MILLS	29.96	40.5%
KENYA ORCHARDS	171.53	63.0%
K.P.C.U.	96.38	59.7%
NATION PRINTERS	44.47	55.6%
TIMSALES	114.33	78.5%
UPLANDS BACON	105.70	50.9%

Correlation Coefficient   =   0.42   (0.09)

Level of Significance about   90.0%   (30%)

The numbers in brackets are the correlation and significance after excluding K.C C., and obvious outlier.

Computed below is the Rank Correlation Coefficient measuring the relationship between the stability of earnings and debt/equity ratios. The scores are the variability of earnings and debt/equity ratios respectively.

This computation aims at establishing the effect of including K.C.C., an outlier in the last calculation.

TABLE 4 - 6

RANK CORRELATION COEFFICIENT BETWEEN STABILITY

OF EARNINGS AND DEBT/EQUITY RATIO

COMPANY	R A N K	I N G S	di	di^2
01	2	7	5	25
02	9	15	6	36
03	11	1	10	100
04	1	12	11	121
05	15	18	3	9
06	19	10	9	81
07	4	13	9	81
08	18	4	14	196
09	8	8	0	0
10	6	5	1	1
11	3	16	13	169
12	16	2	14	196
13	5	6	1	1
14	20	20	0	0
15	7	3	4	16
16	17	17	0	0
17	12	14	2	4
18	10	11	1	1
19	14	19	5	25
20	13	9	4	16
				1078

$Vr = 1 - \dfrac{6 \times 1078}{7980} = 0.19$

Level of Significance about 60.0%

4.5   The Relationship Between Fixed Assets and Debt

In this section, as was the case in the preceeding one, the relationship between the two variables will be analysed at two levels. In the first part, the book value of fixed assets will be correlated to the book value of debt. In the second part, the capital intensity of the companies, defined as the ratio of fixed assets to total assets, will be correlated to the debt/equity ratios of these companies.

4.5.1   The Correlation between Fixed Assets and Debt

The third hypothesis of the study states that there is no relationship between the book value of fixed assets and the amount of debt. Alternatively, there is a significant relationship between the book value of fixed assets and the amount of debt a company carries. To test this hypotheses, the book value of fixed assets was correlated with the debt for each of the twenty companies.

The book value of fixed assets and the total debt of each company are presented against each other after which the computed correlation coefficient is shown. The independent variable is the book value of fixed assets while the total debt is the dependent variable. In this instance too, values are calculated to determine the level of significance of the correlation.

1.   B.A.T.

F.A.   (000) =   2116   2847   3578   4403   6943 $\Sigma X = 17982$

Debt   (000) =   3237   36668   5576   5368   9175 $\Sigma Y = 27024$

Correlation Coefficient   =   0.98

Level of Significance   99.0%

2. Bamburi Portland Cement

   F.A. (000) = 7286   13084   14264   13883   13802 $\Sigma X = 62319$

   Debt (000) = 5540   10562   7419   6859   8689 $\Sigma Y = 39069$

   Correlation Coefficient = 0.71

   Level of Significance   80.0%

3. Brooke Bond

   F.A. (000) = 11095   17691   19433   33862   32731 $\Sigma X = 114821$

   Debt (000) = 4510   4650   6402   12560   14136 $\Sigma Y = 42258$

   Correlation Coefficient = 0.96

   Level of Significance   99.0%

4. Carbacid

   F.A. (000) =   220   261   351   367   346 $\Sigma X = 1545$

   Debt (000) =   130   223   242   334   272 $\Sigma Y = 1201$

   Correlation Coefficient = 0.88

   Level of Significance   95.0%

5. Dunlop

   F.A. (000) = 12752   10053   13409   12204   19348 $\Sigma X = 67766$

   Debt (000) = 9388   11817   14697   13555   20185 $\Sigma Y = 69642$

   Correlation Coefficient = 0.82

   Level of Significance   90.0%

6. **E.A. Bag and Cardage**

F.A. (000) = 810 927 1334 1568 1948 $\sum X$ = 6587

Debt (000) = 1008 1150 1080 2058 1796 $\sum Y$ = 7092

Correlation Coefficient = 0.95

Level of Significance 99.0%

7. **E.A. Portland Cement**

F.A. (000) = 2251 2179 2424 2669 3898 $\sum X$ = 13421

Debt (000) = 1441 2488 2983 3018 3646 $\sum Y$ = 13576

Correlation Coefficient = 0.74

Level of Significance 90.0%

8. **E.A. Breweries**

F.A. (000) = 18016 21186 2078 20922 25635 $\sum X$ = 106535

Debt (000) = 8296 13317 12838 14524 19590 $\sum Y$ = 69565

Correlation Coefficient = 0.96

Level of Significance 99.0%

9. **E.A. Cables**

F.A. (000) 284 319 319 664 1075 $\sum X$ = 2661

Debt (000) 938 550 523 960 1216 $\sum Y$ = 4187

Correlation Coefficient = 0.69

Level of Significance 80.0%

8.   E.A. Breweries

F.A.   (000)   18016   21186   2078   20922   25635 $\sum X$ = 106535

Debt   (000)   8296   13317   12838   14524   19590 $\sum Y$ =   68565

Correlation Coefficient   = 0.96

Level of Significance   99.0%

9.   E. A. Cables

F. A.   (000)   284   319   319   664   1075 $\sum X$ =   2661

Debt   (000)   938   550   523   960   1216 $\sum Y$ =   4187

Correlation Coefficient   = 0.69

Level of Significance   80.0%

10.   E. A. Oxygen

F. A.   (000)   1013   1031   1062   1088   1611 $\sum X$ =   5805

Debt   (000)   757   1163   1159   1129   1470 $\sum Y$ =   5678

Correlation Coefficitn   = 0.78

Level of Significance   90.0%

11.   E. A. Packaging

F.A.   (000)   892   1431   1250   1208   1139   X =   5920

Debt   (000), 3314   5900   3592   2254   1821   Y = 16881

Correlation Coefficient   = 0.57

Level of Significance   80.0%

12.   Elliots Bakeries

F.A.   (000)   878   1388   1357   1287   1272 ΣX = 6182

Debt   (000)   686   570   674   800   817 ΣY = 3547

Correlation Coefficient   = 0.54

Level of Significance   60%

13.   Hutchings Biemer

F.A.   (000)   235   258   232   235   245 ΣX = 1205

Debt   (000)   82   96   211   182   274 ΣY = 845

Correlation Coefficient   0.56

Level of Significance   60.0%

14.   K. C. C.

F. A.   (000)   2270   2820   2836   2645   2606 ΣX = 13177

Debt   (000)   3133   3946   4274   6370   9450 ΣY = 27773

Correlation Coefficient   0.10

Level of Significance   50.0%

15.   Kenya National Mills

F.A.   (000)   6505   6144   6206   6408   7212 ΣX = 32475

Debt   (000)   3889   4184   2946   2953   2478 ΣY = 16450

Correlation Coefficient   =   -0.62

Level of Significance   70.0%

16.   Kenya Orchards

F.A.   (000)   119   115   108   115   122 $\sum X$ = 586

Debt   (000)   262   310   211   266   321 $\sum Y$ = 1370

Correlation Coefficient   = 0.78

Level of Significance   = 96.0%

17.   K. P. C. U.

F. A.   (000)   1234   1437   1070   1246   1136 $\sum X$ = 6123

Debt   (000)   1087   1595   1550   1846   1945 $\sum Y$ = 8026

Correlation Coefficient   = 6123

Level of Significance   = 90.0%

18.   Nation Printers

F.A.   (000)   878   867   1860   1678   1754 $\sum X$ = 7036

Debt   (000)   1738   2336   2417   2328   2215 $\sum Y$ = 11034

Correlation Coefficient   = 0.58

Level of Significance   = 60.0%

19.   Timsales

F.A.   (000)   1028   1272   1255   1207   1237 $\sum X$ = 5999

Debt   (000)   1392   1652   1960   1825   1819 $\sum Y$ = 8648

Correlation Coefficient = 0.79

Level of Significance   = 90.0%

20.   Uplands Bacon

F.A.   (000)   400   625   615   519   559 $\sum X$ = 2790

Debt   (000)   282   255   770   729   675 $\sum Y$ = 2711

Correlation Coefficient = 0.99

Level of Significance   99.0%

TABLE 4 - 7

CORRELATION BETWEEN FIXED ASSETS AND DEBT

COMPANY	CORRELATION	LEVEL OF SIGNIFICANCE
B.A.T.	0.98	99.0%
BAMBURI PORTLAND	0.71	80.0
BROOKE BOND	0.96	99.0
CARBACID	0.88	95.0
DUNLOP	0.82	90.0
E.A. BAG & CARDAGE	0.95	99.0
E.A. PORTLAND	0.74	90.0
E.A. BREWERIES	0.96	99.0
E.A. CABLES	0.69	80.0
E.A. OXYGEN	0.78	90.0
E.A. PACKAGING	0.57	80.0
ELLIOTS BAKERIES	-0.54	60.0
HUTCHINGS BIEMER	0.56	60.0
KENYA NAT. MILLS	-0.62	50.0
KENYA ORCHARDS	0.78	70.0
K.C.C.	0.10	90.0
K.P.C.U.	0.81	90.0
NATION PRINTERS	0.58	60.0
TIMSALES	0.79	90.0
UPLANDS	0.99	99.0

4.5.2   The Correlation Between Capital Intensity and Debt/Equity Ratio

Capital intensity of a firm is defined in this study as the ratio of fixed assets to total assets. The aim in this section is to ascertain whether there is any relationship between the capital intensity of the companies and their debt /equity ratios. The fourth hypothesis was developed to aid   in the accomplishment of this objective. This hypothesis states that there is no relationship between the capital intensity of a company and its debt/equity ratio. Alternatively, there is a significant relationship between the capital intensity of a firm and its debt/equity ratio.

In this section, the capital intensity of the selected companies is correlated with their debt/equity ratio. First will be presented, in tabular form, the capital intensity ratios of each company for the five year period. Then, in following tables will be presented the correlation coefficient, together with their related levels of signicance.

TABLE 4 - 8

THE CAPITAL INTENSITY OF COMPANIES

COMPANY	Y	E	A	R		AVERAGE
	1974	1975	1977	1978	1979	
B.A.T.	0.25	0.31	0.31	0.35	0.37	0.32
BAMBURI PORTLAND	0.69	0.78	0.70	0.67	0.64	0.70
BROOKE BOND	0.70	0.78	0.73	0.70	0.66	0.71
CARBACID	0.63	0.73	0.84	0.70	0.77	0.73
DUNLOP	0.93	0.64	0.72	0.71	0.80	0.76
E.A.BAG CARDAGE	0.45	0.45	0.63	0.71	0.61	0.57
E.APORTLAND	0.57	0.51	0.49	0.52	0.62	0.54
E.A.BREWERIES	0.70	0.67	0.70	0.65	0.65	0.67
E.A.CABLES	0.81	0.29	0.25	0.37	0.41	0.35
E.A.OXYGEN	0.51	0.42	0.40	0.33	0.42	0.42
E.A.PACKAGING	0.18	0.18	0.22	0.27	0.29	0.23
ELLIOTS BAKERY	0.63	0.74	0.69	0.63	0.63	0.66
HUTCHINGS BIEMER	0.70	0.63	0.58	0.62	0.51	0.61
K.C.C.	0.44	0.46	0.42	0.40	0.30	0.40
NATIONAL MILLS	0.65	0.61	0.59	0.58	0.55	0.59
KENYA ORCHARDS	0.27	0.25	0.30	0.27	0.26	0.27
K. P. C. U.	0.65	0.59	0.64	0.58	0.47	0.59
NATION PRINTERS	0.32	0.25	0.46	0.42	0.44	0.37
TIMSALES	0.55	0.60	0.53	0.51	0.47	0.39
UPLANDS BACON	0.61	0.60	0.46	0.45	0.43	0.39
ANNUAL AVERAGE	0.53	0.52	0.53	0.49	0.52	0.52

TABLE 4 - 9

THE CORRELATION BETWEEN CAPITAL INTENSITY OF COMPANY

AND DEBT/EQUITY RATIO.

COMPANY	CORRELATION	LEVEL OF SIGNIFICANE
B. A. T	0.78	90.0%
BAMBURI PORTLAND	0.52	50.0%
BROOKE BOND	-0.77	90.0%
CARBACIB	0.72	80.0%
DUNLOP	0.47	50.0%
E. A. BAG & CARDAGE	0.43	50.0%
E. A. PORTLAND	0.51	60.0%
E. A. BREWERIES	0.69	80.0%
E. A. CABLES	0.23	50.0%
E. A. PACKAGING	0.81	90.0%
ELLIOTS BAKERIES	0.95	99.0%
HUTCHINGS BIEMER	-0.96	99.0%
K. C. C.	-0.88	95.0%
KENYA NAT. MILLS	0.86	95.0%
K. I. C. U.	0.27	50.0%
KENYA ORCHARDS	-0.84	90.0%
NATION PRINTERS	0.63	80.0%
TIMSALES	-0.49	50.0%
UPLANDS BACON	-0.98	99.0%
E. A. OXYGEN	0.83	90.0%

Calculated below is the Rank Correlation Coefficient for capital intensity and debt/equity ratio. The average capital intensity of each company as shown in Table 4-8 and the average debt/equity ratios of Table 4-2 the two variables.

TABLE 4 - 10

THE RANK CORRELATION COEFFICIENT BETWEEN CAPITAL

CAPITAL INTENSITY AND DEBT/EQUITY RATIO

COMP NO.	R A N K I N G S		di	di^2
01	3	7	4	16
02	17	15	2	4
03	18	1	17	289
04	19	12	7	49
05	20	18	2	4
06	11	10	1	1
07	10	13	3	9
08	16	4	12	144
09	4	8	4	16
10	8	5	3	9
11	1	16	15	225
12	15	2	13	169
13	14	6	12	144
14	7	20	13	169
15	13	3	10	100
16	2	17	15	225
17	12	14	2	4
18	5	11	6	36
19	9	19	10	100
20.	6	9	3	9
				1722

$$Vr = 1 - \frac{6 \times 1722}{7980}$$

$$= -0.29$$

Level of Significance   80%

4.6   The Relationship between Competition and Debt/Equity .Ratio

The manner in which competition was quantified in this study was explained in the chapter on hypotheses and methodology. In the present section, the competition which was so quantified is correlated with the debt/equity ratios. This is undertaken to test the fifth hypothesis of the study which states that the greater the degree of competition in an industry, the lower the debt/equity ratios of the

companies within that industry. Alternatively, the greater the degree of competition in the industry, the higher the debt/equity ratios of companies within that industry.

The correlation analysis in this section will be undertaken for all the companies taken together for each year, using the Spearman's Rank Correlation Coefficient. Tables will be drawn for each year showing the rankings after which the correlation coefficient is computed together with their levels of significance.

TABLE 4 -11

THE RANK CORRELATION COEFFICIENT FOR 1974

COMPANY NO	SCORES		RANKINGS		di	di^2
	D/E RATIO	COMPET	D/E RATIO	COMPET		
01	40.5	01	14	19	5	25,00
02	56.7	4	7	12.5	5.5	30.25
03	29.0	4	20	12.5	7.5	56.25
04	45.3	4	12	12.5	0.5	0.25
05	69.2	9	2	3	1	1.00
06	54.2	4	10	12.5	2.5	6.25
07	55.2	4	9	12.5	3.5	12.25
08	40.3	1	15	19	4	16.0
09	60.7	1	4	19	15	225.00
10	38.3	4	16	12.5	3.5	12.25
11	66.8	6	3	6.5	3.5	12.25
12	42.7	6	13	6.5	6.5	42.25
13	35.2	9	19	3	16	256.00
14	60.6	4	5	12.5	7.5	56.25
15	37.7	9	18	3	15	225.0
16	59.5	4	6	12.5	6.5	42.5
17	55.8	4	8	12.5	4.5	20.25
18	48.7	9	11	3	8	64.0
19	75.8	9	1	3	2	4
20	38.2	4	17	12.5	4.5	20.5
	210	210				di^2 =1127

$$\text{Rank Correlation Coefficient} = 1 - \frac{6 \sum di^2}{n^3 - n} = 1 - \frac{6 \times 1127}{7980} = 0.153$$

Level of Significance   50.0%

TABLE 4 - 12

THE RANK CORRELATION COEFFICIENT FOR 1975

COMP NO	SCORES		RANKINGS		di	di^2
	D/E RATIO	COMPET	D/E RATIO	COMPET		
01	42.5	1	15	19	4	16
02	62.7	4	7	12.5	5.5	30.25
03	20.6	4	20	12.5	7.5	56.25
04	60.5	4	8	12.5	4.5	20.25
05	75.2	9	2	3	1	1
06	55.3	4	10	12.5	2.5	6.75
07	58.7	4	9	12.5	3.5	12.25
08	42.6	1	14	19	5	25
09	46.3	1	13	19	6	36
10	47.6	4	12	12.5	0.5	0.25
11	73.9	6	3	6.5	3.5	12.25
12	30.0	6	19	6.5	12.5	156.25
13	41.1	9	17	3	14	196
14	63.7	4	6	12.5	6.5	42.25
15	38.4	9	18	3	15	225
16	65.5	4	5	12.5	7.5	56.26
17	66.3	4	4	12.5	8.5	72.25
18	55.0	9	11	3	8	64
19	78.5	9	1	3	2	4
20	42.1	4	16	12.5	3.5	12.25
			210	210		di^2 = 1035

$$\text{Rank Correlation Coefficient} = 1 - \frac{6\,\overline{di}^2}{N^3 - N} = 1 - \frac{6 \times 1053}{7980}$$

$$- 0.208$$

Level of Significance   50.0%

TABLE 4 - 13

THE RANK CORRELATION COEFFICIENT FOR 1976

COMP NO	SCORES		RANKINGS		di	di^2
	D/E RATIO	COMPET	D/E RATIO	COMPET		
01	51.2	1	14	19	5	25
02	63.2	4	5	12.5	7.5	56.25
03	26.0	4	20	12.5	7.5	56.25
04	60.3	4	9	12.5	3.5	17.25
05	80.6	9	2	3	1	1
06	51.3	4	13	12.5	0.5	0.25
07	61.0	4	8	12.5	4.5	20.25
08	43.6	1	16	19	3	9
09	41.7	1	17	19	2	4
10	43.7	4	15	12.5	2.5	6.25
11	63.4	6	4	6.5	2.5	6.25
12	33.9	6	19	6.5	12.5	156.25
13	52.4	9	12	3	9	81
14	63.1	4	6	12.5	6.5	42.25
15	39.7	9	18	3	15	225
16	66.3	4	3	12.5	9.5	90.25
17	53.5	4	11	12.5	1.5	2.25
18	61.2	9	7	3	4	16
19	81.1	9	1	3	2	4
20	57.8	4	10	12.5	2.5	6.25
			210	210		Σdi^2 = 820

$$\text{Rank Correlation Coefficient} = 1 - \frac{6 \Sigma di}{N^3 - N} = \frac{-6 \times 820}{7980}$$

$$= 0.382$$

Level of Significance 90.0%

TABLE 4 - 14

THE RANK CORRELATION COEFFICIENT FOR 1977

COMP NO	SCORES		RANKINGS		di	di^2
	D/E RATIO	COMPET	D/E RATIO	COMPET		
01	50.3	1	15	19	4	16
02	64.2	4	4	12.5	8.5	72.25
03	27.2	4	20	12.5	7.5	56.25
04	60.6	4	6	12.5	6.5	42.25
05	78.4	9	2	3	1	1.0
06	53.9	4	11	12.5	1.5	2.25
07	59.8	4	7	12.5	5.5	30.25
08	45.1	1	17	19	2	4
09	53.6	1	12	19	7	49
10	52.2	4	13	12.5	1.5	2.25
11	51.5	6	14	6.5	7.5	56.25
12	38.2	6	19	6.5	12.5	156.25
13	47.8	9	16	3	13	169
14	98.1	4	1	12.5	11.5	132.25
15	40.2	9	18	3	15	225
16	56.4	4	9	12.5	3.5	12.25
17	64.1	4	5	12.5	7.5	56.28
18	59.3	9	8	3	5	25
19	78.0	9	3	3	0	0
20	56.2	4	10	12.5	2.5	6.25
			210	210		di^2 = 1114

Rank Correlation Coefficient $= 1 - \dfrac{6 \; di}{N^3 - N} = 1 - \dfrac{6 \times 1114}{7980}$

$$= 0.162$$

Level of Significance   50.0%

TABLE   4 - 15

THE RANK CORRELATION COEFFICIENT FOR 1978

COMP NO	SCORES		RANKINGS		di	di^2
	D/E RATIO	COMPET	D/E RATIO	COMPET		
01	50.2	1	13	19	6	36
02	53.8	4	11	12.5	1.5	2.25
03	29.5	4	20	12.5	7.5	56.25
04	63.8	4	5	12.5	7.5	56.25
05	83.6	9	2	3	1	1
06	52.6	4	12	12.5	0.5	0.25
07	58.9	4	7	12.5	5.5	30.25
08	48.3	1	15	19	4	16
09	49.7	1	14	19	5	25
10	39.1	4	19	12.5	6.5	42.25
11	45.6	6	17	6.5	10.5	110.25
12	40.2	6	18	6.5	11.5	132.25
13	57.4	9	9	3	6	36
14	110.6	4	1	12.5	11.5	132.25
15	46.6	9	16	3	13	169
16	67.5	4	4	12.5	8.5	72.25
17	58.7	4	8	12.5	4.5	20.25
18	53.9	9	10	3	7	49
19	70.3	9	3	3	0	0
20	60.2	4	6	12.5	6.5	42.25
			210	210		di^2 = 1029

$$\text{Rank Correlation Coefficient} = 1 - \frac{6 \cdot di^2}{N^3 - N} = 1 - \frac{6 \times 1029}{7980}$$

$$= 0.226$$

Level of Significance   = 50.0%

The correlation coefficients calculated for each year as
shown above are brought together in one table below.

TABLE 4 - 16

THE RANK CORRELATION COEFFICIENT 1974-1978

YEAR	CORRELATION	DEGREE OF SIGNIFICANCE
1974	0.153	50.0%
1975	0.208	50.0
1976	0.382	90.0
1977	0.162	50.0
1978	0.226	50.0

CHAPTER   V

DISCUSSIONS   AND   COMMENTS

5.1   Introduction

The data collected to help in fulfilling the objectives of
the study were analysed in the preceeding chapter. The present chapter
is an interpretation of the results in relation to the objectives and
hypothesis of the study stated in earlier chapters. The chapter is
divided into four sections. Section 5.2 deals with the data on the
balance between debt and equity in the capital structure as revealed
through the debt/equity ratios of the preceeding chapter.

Section 5.3 discusses the findings about the relationship
between earnings and debt. The correlation between the absolute value
of earnings and that of debt are discussed. Also discussed is the
correlation between the stability of earnings and the debt/equity
ratios of the selected companies. In section 5.4 the relationship
between fixed assets and debt is considered. Here too, the
correlation between the absolute value of fixed assets and debt is
discussed, followed by the correlation between the capital intensity of
the firm and its debt/equity ratio. And finally, in Section 5.5, the
influence of competition on the debt/equity ratios is considered.

5.2   Balance Between Debt and Equity in the Capital Structure

The debt/equity ratios of the selected companies during the
period 1974 - 1975 were presented in Section 4.3. In Table 4 - 2 were
presented ratios for each company and in Table 4 - 3 were presented
ratios for industry categories.

These computations showed an overall average of 60.0 percent debt/equity ratio for all the companies over the entire study period. However, as will be shown presently, there are wide variations from that overall average by the companies from year to year. In Figure 4-1, were depicted the industry debt/equity ratios in graph form to reveal dynamic trends in the financing patterns of these companies.

It is revealed from Table 4-2 that, for Kenya manufacturing companies traded on the stock exchange, their debt equity ratios fluctuated between 20.6 percent for the lowest in 1975 and 110.6 percent for the highest in 1978. Taking the findings on a year by year basis, it can be noted that in 1974, the debt/equity ratios fluctuated between 29.0 percent and 75.8 percent. In 1975, these ratios ranged from 20.6 percent to 78.5 percent. For the year 1976, these figures were 26.0 percent and 82.1. In 1977 the ratios were between 27.2 percent and 98.1 percent while in 1978 they ranged from 29.5 percent and 110.6 percent.

Looking at the average figures, it can be noted from Table 4-2 that over the five year period, the debt/equity ratios fell between 26.3 percent and 79.2 percent. The average figures for all the companies for each of the five years are: 54.4 percent in 1974; 55.4 percent in 1975; 55.3 percent in 1976; 58.8 percent in 1977 and 56.1 percent in 1978.

In the literature review, it was indicated that research in developed economies - specifically the United States of America - has revealed that the debt equity ratios of manufacturing companies fluctuate between 38 percent and 60 percent.

The average is calculated to be around 49 percent. This study looked at total debt of the company - encompassing all forms of indebtedness.

In absolute terms it can be said that on the average, Kenyan manufacturing companies traded on the stock exchange employ more debt capital than equity.
Even when compared to their American counterparts, these companies employ more debt in financing their operations.

It was earlier stated that debt financing entails financial obligations, and thus greater risk than equity financing.
Failure to meet the contractual obligations of debt - regular interest payments and repayment of principal - when due may lead to the company being placed under receivership. In recent years, quite a number of Kenyan companies have been placed under receivership by their lenders for failure to meet these obligations.

It should be noted, though, that the largest portion of these debts are short term in nature. These are mainly trade creditors and short term bank loans. Quite a large number of these companies carry no long term debt at all except deferred taxation. This situation may be risky for the companies as these short term debt obligations have to be repaid in short period, thus requiring the companies to earn adequate income from their operations in order to repay.

On the other hand financial theorists have argued that debt financing can enhance the value of the firm through the operation of the leverage mechanism.

By utilizing debt to the maximum, the management of these companies may be earning higher returns for the shareholders. It should be noted that in general, many of the companies in the study are highly profitable and that they regularly pay substantial dividends to their shareholders.

The above observation may explain the high share prices of most of the quoted manufacturing companies.

From the foregoing paragraphs it is concluded that Kenyan manufacturing companies traded on the stock exchange employ more debt than equity capital in financing their operations. Whether these capital structures are in any way influenced by the nature of earnings, the value of fixed assets or the nature of competition, will be considered in the following three sections.

5.3   The Effect of Earnings on the Level of Debt

To ascertain whether any relationship existed between the earnings of traded manufacturing companies and the level of debt, three correlations were carried out. In the first, the absolute value of earnings was correlated with the value of debt for each of the companies separately. These correlations are to be found in Section 4.4.1 of Chapter IV. In the second instance, the stability of earnings, measured in terms of variability, was correlated with the debt/equity ratios for all the companies. Thus a single correlation coefficient was calculated, which was found to be 0.42 when K. C. C., and outlier, was included and only 0.09 when that company was excluded. Also calculated was the Rank Correlation Coefficient to try to establish the effect of K. C. C.'s inclusion in the computations.

The correlation coefficient is a statistical measure that aims at establishing the closeness of the relationship between two or more variables.[1] The relationship is perfect when the values of the dependent variable are the same as those of the independent variable . In such a case, the correlation coefficient is plus or minus 1.0. The greater the deviations, i.e. the more unrelated the variables are, the closer to zero will be the correlation coefficient. When no relationship exists at all between the variables, the correlation coefficient is zero.

For the purposes of this study, a relationship between two variables isconsidered significant when the level of significance is more than or equal to 90.0% for a two tailed test.

In Section 4.4.1, the correlation coefficients measuring the relationship between the absolute value of earnings and those of debt were computed. In that section, values to the nearest thousand for E. B. T. and debt were tabulated alongside each other; for each company over the five year period. Computations were then carried out for all the companies. The calculated correlation coefficients together with the relevant levels of significance, were then tabulated in Table 4-4.

It can be seen from Table 4-4 that the correlation coefficients range between 0.99 for B. A. T. and 0.75 for K.C.C. with levels of significance of 99.0% and 85.0% respectively. Overall, five companies have got correlation coefficients that are significant at 90.0% and above levels.

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1. S. Siegel op.cit

These companies are: B. A. T., Brooke Bond, Hutchings Biemer, Kenya National Mills and Kenya Orchards. The rest of the companies have significance levels below 90.0%, which makes the correlation between earnings and debt not statistically significant.

Thus, taken as a group, the amount of debt carried by traded manufacturing companies does not seem to be influenced by the levels of earnings of these companies. This is because obly 25 percent of these companies, i.e. six companies, show a significant relationship between earnings and debt. Seventy five percent of these companies reveal no significant relationship between these variables.

As can be noticed from Table 4-4 and the individual figures from which these correlation coefficients were calculated, there are wide variations between the correlation coefficients of the companies under review. It is worthwhile to note that the majority of the companies whose debt is significantly related to earnings, have fairly stable earnings. These include B. A. T. with variablitity of earnings of 17.65 percent, Brooke Bond 72.65 percent, Hutchings Biemer 26.43 percent, Kenya National Mills 29.96 percent and Kenya Orchards 171.53 percent. The variability of earnings data are contained in Table 4-5 which is the topic of discussion in the following paragraphs.

In Section 4.4.2, the correlation coefficient measuring the relationship between the variability or stability of earnings and debt/equity ratios was calculated. In Table 4-5, the variability of earnings, which is a measure of how stable earnings were over the five year period for each company are tabulated alongside the average debt/equity ratios that are to be found in the last column of Table 4 - 2.

One correlation coefficient was calculated using variability
of earnings as the independent variable and average debt/equity
ratios as the dependent variable. As noted earlier in this
section, the Rank Correlation coefficient was also calculated
for the same variables.

From Table 4 - 5, it can be seen that the correlation
coefficient, with K. C. C. included, is 0.42 and only 0.09
without K. C.C. The levels of significance associated with
these coefficients are 90.0 percent and 30.0 per cent respectively.
The Rank Correlation Coefficient is 0.19 with a level of
significance of only 60.0 percent. When the influence of K.C.C.,
an obvious outlier, is eliminated, there is very little significant
relationship between stability of earnings and debt/equity ratios.

From the foregoing expositions based on the analysis in
Sections 4.4.1 and 4.4.2, the following conclusions are drawn:

(1) That there seems to be no relationship between the earnings
     of a company and the amount of debt it carries in it capital
     structure.

(2) There is little relationship between the stability of earnings
     and the debt/equity ratio of the economy.

5.4   The Relationship Between Fixed Assets and Debt

To ascertain whether any relationship existed between fixed
assets and debt, three correlations were made. In the first
instance, the correlation between the absolute value of fixed
assets and debt was calculated.

Secondly, the correlation between the capital intensity of the companies and their debt/equity ratios was calculated. Also calculated were the levels of significance for all the correlation coefficients. As in the preceeding section, in the present section, relationships between the variables are considered significant at 90.0% and above levels, again for a two tailed test.

The Rank Correlation Coefficient was also calculated based on the average capital intensity and average debt/equity ratios.

In Section 4.5.1, the correlation coefficients, measuring the relationship between the absolute value of fixed assets and debt were computed. In that section, values to the nearest thousand for fixed assets and debt were tabulated alongside each other for each company over the five year study period. Computations were then carried out using the Pearson product-moment coefficient formula. These computed coefficients were then tabulated, together with the relevant levels of significance in Table 4-6.

From Table 4-6, it can be seen that the correlation coefficients range from 0.99, for Uplands Bacon, to -0.62 for Kenya National Mills, with levels of significance of 99.0 percent and 70.0 percent respectively. Overall, seven companies have got correlation coefficients that are significant at the 90.0 percent and above levels. These companies are: B. A. T., Brooke Bond Carbacid, Dunlop. E. A. Bag and Cordage, E. A. Breweries and Uplands Bacon.

Another four companies E. A. Portland Cement, E. A. Oxygen,
Kenya Orchards, K. P. C. U. and Timsales - have levels of
significance of very close to 90.0 percent.

From the above, it can be noted that 35 percent of the
companies have significant relationships between fixed assets
and debt, while another 25 percent are very close to having a
significant relationship:
Thus, taken as a group, the absolute value of fixed assets
companies own does not significantly influence the amount of
debt carried by these companies. This is because 65.0 percent
of these companies do not reveal a significant correlation between
fixed assets and debt.

As can be noted from Table 4-7, one cannot generalize that
either large companies, with multimillion pound investments in
fixed assets, or small companies, with a few hundred thousand
pounds in fixed assets, are the ones with a significant relation-
ship between fixed assets and debt. In this group is to be found
companies like Brooke Bond with an average investment of K£22
million in fixed assets and Carbacid with only K£309,000 among
many examples. The same case applies to those companies which
do not exhibit a significant relationship between fixed assets
and debt.

In section 4.5.2, the correlations between the capital
intensity and debt/equity ratio were made. Table 4-8 presents
the capital intensity ratios of all the companies over the five
year period. These were computed as the percentage of fixed
assets out of toal assets.

These capital intensity ratios were correlated with the debt/
equity ratios at two levels. In the first instance, the
Pearson's product - moment coefficient was calculated for each
of the companies. Next the Rank Correlation coefficient was
computed for all the companies taken together.

It can be seen from Table 4-9 that the correlation
coefficients lie between 0.95 for Elliots Bakeries and -0.98
for Uplands Bacon, with levels of significant of 99.0 percent
for both of them. In this instance, there are eight companies
with significance of at least 90.0 percent. These are: E. A.
Packaging, Elliots Bakeries, Hutchings Biemer, K.C.C. Kenya National
Mills, Kenya Orchards, Uplands Bacon and E. A. Oxygen. B. A. T.
and Brooke Bond which are shown as having 90.0 percent are actually
near that level but below. These two, together with the remaining
ten form 60.0 percent of all the companies and represent companies
with no significant relationship between the intensity of capital
and debt/equity ratio.

Based on the revelations in the foregoing paragraphs as
supported by the analysis of data in Sections 4.5.1 and 4.5.2,
it is concluded that;

(1)   There is no significant relationship between the book
        value of fixed assets and the amount of debt a company
        carries, and

(2)   There is no significant relationship between the capital
        intensity of a firm and its debt/equity ratios. The little
        relationship there is, is weak and negative.

5.5   <u>The Relationship Between Competition and Debt/Equity Ratio</u>

To determine the effect of competition on debt/equity rat
ratios Spearman's Rank Correlation Coefficients were computed.
These computations were carried out for all the companies during
each of the five years. This was mainly due to the manner in
which competition was quantified, a method explained in the
chapter on hypotheses and methodology.

Tables 4-11 to 4-15 show the data in the form of scores and
rankings from which the rank correlation coefficients were
computed for each year. Each table shows the above data for each
company during each of the years from 1974 to 1978. Table 4-16
brings together the computed correlation coefficients, together
with their levels of significance for the five years.

As shown in Table 4-16 the rank correlation coefficients
vary from 0.153 for 1974 to 0.382 for 1976 with 50.0 percent and
90.0 percent levels of significance, respectively. Overall, it
was only during one year that the relationship between competition
and debt/equity ratio was significant. During the other four
years, there was no significant relationship between competition
and debt/equity ratios.

The above findings seem to be supported by the debt/equity
ratios of the companies themselves. Companies like Timsales,
with keen competition in their industries (competition defined
on a nationwide basis as stated in Section 3.3.3 on data analysis
and presentation techniques) carry very high levels of debt.

On the other hand, companies like B. A. T. which are monopolies in their markets carry very low debt - only 46.9 percent compared to 78.5 percent for Timsales. Other companies which face relatively keen competition and at the same time carry high levels of debt include Dunlop with a debt/equity ratio of 77.4 percent and Nation Printers with a ratio of 55.6 percent.

In conclusion, it can be stated that the greater the degree of competition in the industry the higher the debt/equity ratios of companies in that industry.

5.6   Conclusions

In this section is considered whether the hypotheses stated in chapter III can be accepted or rejected using the findings of the study. The criterion used in rejecting or accepting any hypothesis is whether the significantly correlated cases measure up to at leat 50 percent of the total number of observations. Thus, where twenty correlation coefficients and twenty levels of significance are calculated, a hypothesis can be tentatively accepted .when at least ten of these correlations are significant.

In the correlation between earnings and debt, it was found out that only 25 percent of the companies showed a significant relationship between the two variables. This outcome leads to the acceptance of the null hypothesis. It can thus be suggested that there is no significant statistical relationship between the earnings of a company and the amount of debt it carries in its capital structure.

It was also found out that there was no significant
correlation between the stability of earnings and debt/equity
ratio. This finding also accepts the null hypothesis which states
that there is no relationship between the stability of earnings
and the debt/equity ratio.

When the correlations between the fixed assets and debt were
analysed, it was revealed that only 35 percent of the companies
had a significant relatonship between the two variables. This
falls below the 50 percent level which can be a criterion for
accepting or rejecting hypothesis. In these circumstances,
therefore, the null hypothesis which states that there is no
relationship between the book value of fixed assets and the
amount of debt a company carries in accepted.

In the correlations between the capital intensity of the
companies and debt/equity ratio, it was found out that only 40
percent of the correlations are significant at the 90.0 percent
level. There was a very weak and negative correlation between
the two variables even when the Rank Correlation Coefficient was
calculated. This finding leads to the acceptance of the null
hypothesis that postulates a non-significant relationship between
capital intensity and debt/equity ratio.

Finally, when the correlation coefficients between competition
and debt/equity ratio were analysed, only one out of five years
showed a significant relationship between the variables. On further
analysis of the actual debt/equity ratios vis-a-vis the level of
competion faced by these companies, it was revealed that companies
facing high levels of competition tended to have high debt/equity
ratios.

This finding leads to the rejection of the null hypothesis
and acceptance of the alternative hypothesis which states
that the greater the degree of competition in the industry,
the higher the debt/equity ratios of companies within that
industry.

CHAPTER VI

SUMMARY   AND   CONCLUSIONS

6.1   Summary

The overall objective of the study was to identify the
financing patterns of traded manufacturing companies in Kenya.
It also attempted to establish whether certain factors which
are known to have an effect on the capital structure of
companies in other countries do exert any influence on the
financing decision of quoted manufacturing companies in Kenya.

To aid in the accomplishment of these objectives, the
following hypothesis were stated:

Hypothesis 1

There is no relationship between the earnings of a company
and the amount of debt it carried in its capital structure.

Hypothesis 2

There is no relationship between the stability of earnings
and the debt/equity ratio of the company.

Hypothesis 3

There is no relationship between the book value of fixed
assets and the amount of debt a company carries.

Hypothesis 4

There is no relationship between the capital intensity of
a firm and its debt/equity ratio.

Hypothesis 5

The greater the degree of competition in an industry, the lower the debt/equity ratios of companies within that industry.

The data required to accomplish the above objectives and also test the stated hypotheses, were collected from twenty manufacruring companies quoted on the Nairobi Stock Exchange. The data required included:

(1) Fixed Assets

(2) Earnings before Tax

(3) Short and Long term debt

(4) Shareholders' equity.

These data, covering the period 1974 to 1978, were extracted from the companies financial statements at the Registrar of Companies offices and the Africa Registrars Ltd., Secretaries to the Nairobi Stock Exchange.

The data thus collected were analysed in a number of ways. Ratio analysis was used in the determination of the importance of debt in the capital structure. These percentages are presented in tables in Section 4.2. Correlation analysis was applied in determining the nature of relationships between the various variables which were to test the hypotheses. The variables which were correlated are: earnings and debt; stability of earnings and debt/equity ratio; fixed assets and debt; capital intensity and debt/equity ratio; and finally competition and debt/equity ratio.

In Chapter V, the data analysed as shown above were interpreted and discussed. The fidnings were related to the objectives and the hypotheses of the study. These findings are summarised below.

6.1.1   Summary of the Findings

In summary, the findings of the study can be stated as:-

1. Manufacturing companies quoted on the stock exchange tended to finance more with debt than with equity capital. This is evidenced by the relatively high debt/equity ratios these companies exhibit.

2. The high and generally stable earnings enjoyed by quoted manufacturing companies in Kenya do not appear to have a significant effect on the amount of debt carried by these companies.

3. The absolute value of fixed assets and the capital intensity of these quoted manufacturing companies do not seem to have a significant impact on the level of debt carried by these companies.

4. The nature of competition which a company faces does not appear to affect the financing patterns of Kenyan manufacturing companies traded on the stock exchange in a manner similar to that suggested by theory and observed elesewhere. Rather these companies seem to incur more debt even when they are in highly competitive industries.

6.2   Conclusions

The objectives of the study have been largely accomplished.
The financing patterns of the traded manufacturing companies in
Kenya were identified. It was shown that these companies
tended to finance more with debt than equity capital during the
five year period under review. Correlations were carried out to
determine the significance of various factors on debt in general
and debt/equity ratios.

It was revealed that the value of earnings and their
stability appear not to have any significant relationship with
debt and debt/equity ratios. Likewise, the value of fixed assets
and the capital intensity of the firm appear not to have any
significant relationship with debt and debt/equity ratios
respectively.   The level of competition does not appear to be
taken into account when incurring debt by manufacturing companies
traded on the stock exchange.

6.3   Limitations of the study

This study, like any other, suffers from certain limitations.
A major limitation is the time covered of five years. In studies
of this type, a longer time period of say twenty years brings out
the trend in financing more accurately. However, the reasons for
choosing the five year period were explained in other parts of
the study.

Another limitation is to do with the inability to quantity
certain variables in order to develop testable hypotheses about
their relationshop with either debt or debt/equity ratios. Here
in particular reference is being made to the inability to
quantify the effect of cyclical movements in the economy and
attitudes of management towards risk and control.

Again the reasons why these factors could not be quantified are found earlier in the study.

Another limitation is the number of firms used in the study which are only twenty. From a statistical point of view, this is small. A larger sample would be desirable. However, the small sample of companies is justifiable on the basis of this being an exploratory study.

6.4   Suggestions for Further Research

The present study concentated on the financing of traded manufacturing companies. As mentioned in the introductory chapter, the majority of Kenyan companies are not quoted on the Nairobi Stock Exchange. Thus, many manufacturing companies which fall within the industry categories outlined were not included. This leaves a whole area of possible research. One can undertake a comparative study of traded manufacturing companies on one hand and the unlisted companies on the other.

Other possible areas of research arise from the limitations mentioned above. One can, in the first instance, look at the financing patterns of these companies over a longer period and thus establish the trends that have been exhibited in financing by the companies. In the second instance, arising from the above, a researcher can, given the longer duration that would be involved, be able to quantify those variables that could not be quantified in this study.

Lastly, another area of research lies in ascertaining

the effect of debt on the overall cost of capital

of the companies dealt with in this study. This would enable

comparison with the majority of those studies reviewed

in the third chapter of this thesis.

APPENDIX I

LIST OF COMPANIES STUDIED

01. B.A.T. Ltd.

02. Bamburi Portland Cement Ltd.

03. Brooke Bond Lieberg Ltd.

04. Carbacid Ltd.

05. Dunlop E. A. Ltd.

06. E.A. Bag and Cordage Ltd.

07. E. A. Portland Cement Ltd.

08. E. A. Breweries Ltd.

09. E. A. Cables Ltd.

10. E. A. Oxygen Ltd.

11. E. A. Packaging Co. Ltd.

12. Elliots Bread Ltd.

13. Hutchings Biemer Ltd.

14. K. C. C. Ltd.

15. Kenya National Mills Ltd,

16. Kenya Orchards Ltd.

17. K. P. C. U. Ltd.

18. Nation Printers Ltd.

19. Timsales Ltd.

20. Uplands Bacon Co. Ltd.

APPENDIX II

STOCK PRICES AS AT YEAR ENDS

Company	Par Value	1974	1975	1976	1977	1978
B.A.T.	10.00	30.25	45.50	33.00	46.75	42.50
Bamburi	5.00	8.85	11.75	10.60	11.60	11.75
Brooke Bond	10.00	13.25	18.00	13.50	35.00	32.00
Carbacid	5.00	14.60	12.00	12.50	11.50	9.75
Dunlop	5.00	19.00	12.00	8.50	10.00	11.25
E. A. Portland	10.00	7.75	7.25	7.25	11.25	9,30
E. A. Bag	5.00	1.90	3.15	3.75	5.25	5.60
E. A. Cables	5.00	10.25	12.60	6.75	11.25	12.50
E. A. Breweries	10.00	12.40	10.40	11.00	15.30	16.75
E. A. Oxygen	5.00	16.50	12.50	9.75	10.50	11.75
E. A. Packaging	5.00	11.10	12.90	6.50	12.25	9.10
Elliots (Ordinary)	10.00	9.25	9.75	6.85	4.00	10.10
Elliots:						
8% Preference	20.00	14.60	9.25	14.00	13.25	12.50
Hutchings Ordinary	5.00	4.00	6.00	6.50	7.10	8.75
6% preference	20.00	10.00	7.25	8.65	7.95	10.25
K. C. C. 5% Pref.	100.00	15.00	20.00	15.00	11.20	10.00
5% Pref. "A"	20.00	25.50	39.00	6.00	12.30	18.60
5% Pref. "B"	20.00	5.50	5.60	4.00	6.25	8.50
Cummulative Pre.	20.00	15.00	24.00	4.65	5.10	7.00
Kenya National Mills	5.00	3.60	3.60	2.40	5.40	4.60
Kenya Orchards	5.00	2.50	2.10	3.00	2.65	2.25
5⅔% Preference	20.00	7.00	7.00	7.55	7.75	8.00
K. P. C.U. (Loan St.)	10.00	5.10	8.00	6.90	8.00	8.25
Nation Printers	5.00	5.10	5.10	5.10	7.10	7.50
Timsales	20.00	17.25	19.25	18.75	17.00	18.00
Uplands - 5% Preference	20.00	6.30	5.75	5.75	7.25	7.25

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