A STUDY OF CAPITAL STRUCTURE IN KENYA

by

OMONDI WOLFGANG AMADEUS

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DECLARATION

I Declare that this Project is my original work and has not been presented for a degree in any other University.

Signed: _____ Date: _____

This Project has been submitted for examination with my approval as University supervisor.

Signed: _____ Date: 21/1/97

Mr. V.O. Kamasara

Lecturer, Department of Accounting

University of Nairobi.

DEDICATION

To my late Uncles, Nashon B.Ed. History (Makerere) and Ibrahim LLB (Nairobi) and to my Family.

CONTENTS

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I am indebted to a great number of people whom I can not possibly all name in a single page.

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ABSTRACT

The capital structure of a firm is influenced by certain factors. However what these factors are is still not very clear. Different researchers e.g. Kamere(1987) and Baliga, (1987) Ferri and Jones (1979) etc. obtained differing conclusions on what the important determinants of capital structure are.

This study aims at first of all determining what the capital structures of Kenyan public firms are. Secondly, the study tries to find out on the basis of other researchers findings, which factors significantly influence capital structure in the Kenyan environment. The factors which were tested are The Firms Age, Industrial Class, Growth, Size, Interest Charges, Variability in Cashflows, Profitability, Asset Structure and Ownership.

The study found that though Industrial Class is not statistically significant, the capital structures of firms on the sectoral basis are quite different. The Industrial and Allied Sector has the highest debt-equity ratio of 0.301 followed by the Agricultural Sector with 0.108. Third comes the Financial and Investment Sector with 0.058 and last comes the Commercial and Allied Sector with a ratio of 0.009. A test was done to compare the pre-and post-liberalisation capital structures and the results indicated that the two periods are significantly correlated implying that liberalisation has so far not created

much impact on capital structures of Public Kenyan firms.

Regarding ownership, government-controlled enterprises had the highest debt-equity ratio follwed by the locally controlled enterprises and finally the overseas controlled enterprises.

The results obtained from the other tests indicate that in the combined run of the sectors, four out of eight factors tested, proved to be significantly correlated with capital structure and these were, Profitability, with a coefficient of 0.65017 Growth in Turnover with a coefficient of 0.48498, Growth in Asset Value with a coefficient of 0.55666 and Asset Structure with a coefficient of 0.40354. The least correlated factor was Interest Charges with a coefficient of 0.06939.

In the Agricultural Sector, the Changes in Movement of Working Capital was the only factor that turned out significantly correlated with Capital Structure. The factors Asset Structure and Grwoth in Turnover both had positive insignificant correlation coefficients while the factors Profitability, Interest Charges and Turnover had negative insignificant correlation coefficients with capital structure.

In the Industrial and Allied Sector, no factor tested had a significant correlation relationship with Capital Structure though the highest correlated factor was Growth in Turnover. The least correlated was the Changes in Movement of Working Capital. The factors Profitability and Interest Charges had negative correlation coefficients at -0.354 and

-0.381 respectively.

For the Commercial and Allied Sector, Profitability and Asset Structure proved to be significantly correlated with Capital Structure having positive values of 0.846 and 0.743 respectively. The least correlated factor was Interest Charges which was negatively correlated with a coefficient of -0.009. The other factors were positively correlated.

In the Financial and Investment Sector, no factor tested, showed any significant correlation with Capital Structure. However out of all of them, Profitability was the highest correlated with a coefficient of 0.761. The least correlated was Asset Structure which had a value of 0.09. The factors Changes in Movement of Working Capital and Turnover both had negative correlation coefficients suggesting opposite movements with capital structure.

All in all, the results from the sectoral tests do indicate that there are disparities in the factors that influence Capital Sttructure. Possible explanations for this are presented in this text however suffice to state that most differences arise from the very natures of sectors themselves.

CHAPTER ONE

1.0 Introduction

The decision of whether to finance an enterprise with long-term debt or equity sources of finance is what the capital structure decision comprises of. Studies highlighted in this text, have found that this decision is based on certain factors.

This project set out to identify on the basis of past information, which factors play a significant role in the capital structure decision for publicly quoted companies in the Nairobi Stock Exchange. The past information used is based on findings by Kamere (1987) who found that the Stability of Future Cashflows, The level of Interest rates, the firms Asset Structure, the firms Tax advantage of debt and the Maturity of debt are all important factors in deciding a firms capital structure. Other factors tested by Kamere were Age which proved to have a very low correlation coefficient of 0.1748 and Size of the firm which also had a low coefficient of 0.2727. These it must be pointed out, were not part of his main findings.

Apart from Kamere's findings, other factors have been highlighted in different studies to be important determinants of capital structure. Aggarwal and Baliga (1987) for example, in a study of Latin-American firms' capital structures found that while Size did not seem to be significant, both Country and Industry were significant determinants of Capital

Structure. To arrive at these findings, they used both bi-variate and multi-variate statistical tools.

Another notable study was done by Ferri and Jones (1979). They tested hypotheses that Industrial Class, Firm Size, Variability of Future Income, and Operating Leverage were significant.

Marsh (1982) studied 748 issues of equity and debt by U.K. Companies between 1959 and 1970 to see how companies select between financing instruments and found that firms are heavily influenced by market conditions and the past history of security prices in choosing between debt and equity. The study also presented evidence that the choice seemed to be made as if certain debt levels were borne in mind.

Jalilvand and Harris (1984) in a study of U.S. Corporations obtained results which suggested that financial decisions are interdependent and Firm size, Interest rate conditions and stock price levels affect speeds of adjustment to capital structure suggesting that they do influence it.

Williamson (1963) found some evidence that firms that had growth opportunities tended to have lower leverage policies. This suggests that the growth of the firm may be an important factor in the determination of capital structure.

This project is an empirical study set out to find out which factors out of those mentioned in Kamere's study and others highlighted in the

literature are significant determinants of capital structure in Kenya.

The factors that were tested were Industrial Class, Asset Structure, Profitability, Interest charges, Size, Growth, Changes in Cashflows, Age and Ownership. For all the factors tested apart from Industrial Class and Ownership correlation analysis was used to find out the correlation coefficients and test their significance. For the factors Ownership and Industrial Class, it was practically impossible to use correlation analysis. Instead tests for differences in the means were carried out. Hypotheses that Capital Structure and the respective factors are significantly correlated were tested. The tests were first of all done for all firms in the sample (Appendix II) combined and then similar tests were carried out using the NSE sectoral basis.

1.1 Nature and Statement of the Problem

Nature of the Problem

There are a number of factors that influence the capital structure decision of a firm and it would be useful to identify those that are significant in the Kenyan environment. In order to fulfil this objective, the study is based on the publicly quoted companies at the Nairobi Exchange. The factors tested were identified from the existing literature which is extensively addressed in Chapter two.

Statement of the Problem

The problem at hand is to find out empirically which factors out of

those tested are likely to significantly influence the capital structures of firms in Kenya.

1.2 Objectives of the Study

The objectives of this study include the following:

I. To determine typical Debt/Equity levels of Kenyan Companies.

II. To find out if factors found to be significant determinants of Capital Structure in other environments hold the same in Kenya.

III. To find out if Kamere's (1987) opinion survey findings on the main determinants of capital structure hold empirically.

1.3 Importance of the Study

The findings of this study will be of great use to the following groups of people.

a) Management of firms who will no doubt have more knowledge of the factors that influence their capital structures and therefore be able to make appropriate decisions.

b) Business and Investment advisors who may find this information useful in advising their clients.

c) Government Policy makers who could use these findings to set guidelines for firms.

d) Scholars who may also use this study as a basis for further research.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

A firms choice on whether to finance itself with debt/debt equivalent sources of finance or equity is what the Capital Structure decision is all about. Each of the two sources of financing have advantages and disadvantages. Debt on one hand because of the tax deductability of interest payments is a much cheaper form of capital (Taggart 1980). On the other hand, interest payments on debt are fixed irrespective of the firms present financial strength.This coupled with the risk of loans being recalled at short notice make debt risky. The danger of bankruptcy and liquidation of assets when a firm is unable to service its debt may increase at high levels of debt making debt even more risky.

The use of equity poses no bankruptcy or liquidation risks on one hand but on the other, the costs of issuing new equity are generally higher than those of acquiring debt. Flotation costs and a higher required rate of return both contribute in making the issuing of equity a prohibition for smaller concerns (Archer and Faeber 1966).

Making the choice of how to finance the firm is therefore not simple and to quote Brealey and Myers (1988), "....we cannot say that debt is better. Debt may be better than equity in some cases, worse in others".

Studies in capital structure have tried to address this issue together with their respective implications and their results are inconclusive. Whereas there is evidence from the Traditional School that an optimal Capital Structure exists, there is also evidence (e.g. MM 1958) that no such thing as an optimal Capital Structure exists. The proponents of the optimal Capital Structure view are said in financial literature to belong to the traditional school and they held that the value of the firm could be maximized by minimizing the cost of capital through careful use of debt. In 1958 Modigliani and Miller developed a new financial theory which cast doubt on this view. They came up with three propositions which changed the hitherto unchallenged belief on Capital Structure.

This Chapter consists of eight sub-sections which briefly explain the development of studies in capital structure beginning with the Traditional View in sub-section one. Subsection two looks at the MM theory without corporate taxes (1958). Sub-section three looks at MM with corporate taxes (1963). Sub-Section four looks at Post-MM studies, sub-section five is based on Miller's (1977) results after the introduction of personal taxes. Sub-section six studies the effects of the Costs of Financial Distress, Agency Costs and the Signalling Theory on Capital Structure. Sub-section seven highlights other studies in Capital Structure and sub-section eight looks at Capital Structure in the Kenyan environment.

Finally sub-section nine outlines the special features of the Kenyan environment.

2.1 THE TRADITIONAL VIEW

The views of finance theorists before 1958 are what are referred to as the Traditional view (Kamere 1987). In this view, the argument is that the value of the firm can be maximized by minimizing the cost of capital through careful use of debt. The basis of this argument is that at low levels of debt, increased leverage does not increase the cost of debt hence an incentive to borrow exists. This is the case until a certain level when the cost of debt begins to rise. Under these circumstances, the weighted average cost of capital curve is expected to decline to a minimal and then start rising implying that an optimal capital structure exists and it is at this point that the value of the firm is maximized. This trend according to Brealey & Myers (1988) arises because investors are ignorant of the increased risk at "moderate" debt levels and therefore continue demanding the same return on debt. However at "excessive" debt levels, they demand a higher return.

Regarding the cost of equity, traditional theorists argue that borrowing at first increases the expected return on equity at a slow rate which then shoots up with excessive borrowing. It must be pointed out here however that this argument is not supported by all literature viewed. All the same, they are in agreement that share prices increase because the increase in earnings exceeds the added risk on debt

financing (Kamere 1987).

The shape of the cost of capital curve is also an area in which traditionalists are not agreed. Some see it as V-Shaped suggesting a unique optimal debt level at which capital structure is optimized. Empirical evidence does show that firms expected to have the same debt-ratio actually vary within a range (Wambugu 1992) and this supports the argument of a U-Shaped cost of capital curve. One issue worth raising here, however, is that excessively low debt or high debt levels should be avoided if the value of the firm is to be maximised.

The traditional view by virtue of the arguments it presents does have a logical appeal and has therefore not been discarded completely. It has rather been complemented with encouraging more analysis in the contemporary ways of looking at capital structure for example the Signalling theory (Ross 1977) and the Agency theory (Jensen, 1976).

2.2 MM WITHOUT CORPORATE TAXES

Modigliani and Miller in 1958 developed a new financial theory which cast doubt upon the traditional view. On the basis of the assumptions that there exists a homogenous risk class, homogeneous expectations, capital markets, risk-less, debt and zero growth, they concluded that the capital structure of a firm is irrelevant to its value in a world without corporate taxes. These findings were based on the arbitrage process which refers to the buying and selling of identical assets at different prices. According to MM, if two companies differed only in the way they were financed and in their total market values, then investors

would sell their stock of the over-valued firm and buy those of the under-valued firm. This process would continue until the two firms stock prices had the same market value.

In MM's second proposition, they stated that the cost of equity to a levered firm is the sum of the cost of equity to an unlevered firm and a financial risk premium. This risk premeium's size depends on the differential between the costs of equity to the unlevered firm, the cost of debt and the amount of leverage used.

2.3 MM WITH CORPORATE TAXES

One important limiting assumption with MM (1958) was the assumption of a zero corporate tax rate. They revised this assumption in 1963. On this new basis, they concluded that leverage will increase a firm's value because interest on debt is a tax deductible expense, and hence more of a leveraged firm's operating income flows to investors. In otherwords, the value of the levered firm equals to the value of an unlevered firm in the same risk class plus the gain from leverage which is the value of the tax savings defined by the corporate tax rate times the amount of debt that the firm uses. In equation form, this is

$VL = Vu + TD$ where VL represents what the value of the levered firms, Vu, the unlevered firm and TD the tax savings.

Their second proposition stated that the cost of equity to a levered firm is equal to the cost of equity to an unlevered firm in the same risk class plus a financial risk premium whose size depends on the

difference between the costs of equity and debt to an unlevered firm, then amount of leverage and the corporate tax rate. This in equation form is expressed as

$$Ksl = Ksu + (Ksu - Kd)(1-T)(D/S)$$ where:

Ksl = Cost of Equity to the levered firm

Ksu = Cost of Equity to the unlevered firm

Kd = Interest rate on the firm's debt

T = Corporate tax rate

D = Market value of the firm's debt

S = Market value of the firm's common stock.

2.4 DEVELOPMENTS POST-MM 1963

MM's proposition that the value of a firm is increased by the use of debt due to the debt-interest tax shield makes one wonder why firms are not wholly debt financed. This was an empirical oversight and scholars notably Warner (1977), Krantz and Litzenberger (1977), and Altman (1984) tried to solve this anomally by introducing bankruptcy costs. The higher the debt ratio, the higher the probability of bankruptcy or

financial distress. This as Altman (1984) argues, has the effect of reducing the interest tax shields and in this process we end up with an optimal capital structure. Indeed Flath and Knoeber (1980) add empirical support to this by showing that taxes and failure costs do imply an optimal Capital Structure for industries.

Schwartz and Aronson (1967) also present some evidence that in a capital market where sources of funds may be somewhat segregated, the various classes of firms have developed some typical financial structures that are optimal for their operational risks and asset structures.

Scott (1977) supports MM in as far as the value of the firm is increased by debt and he even goes further by stating that the same can happen even where there exist no corporate taxes. He contends that by the issuance of secured debt, the firm can increase the value of its securities by reducing the amount available to pay legal damages in the event that the firm should go bankrupt.

Some scholars have re-examined the MM theories and notable among them was Stiglitz (1969) who noted five limitations of MM studies which were:-

- The dependence on the existence of risk class.

- The use of risk classes seemed to imply objective rather than subjective probability distributions over the possible outcome.

- It was based on partial equilibrium rather than general equilibrium analysis.

- It was not clear whether their studies held only for competitive markets.

- Except under special circumstances, it was not clear how the possibility of firm bankruptcy affected the validity of their findings.

Other criticisms (e.g Brigham and Gapenski, 1990) are the assumption that personal and corporate leverage are perfect substitutes and the assumption that corporations and investors can borrow at the risk-free rate.

2.5 THE MILLER MODEL:

One other weakness with the MM studies is the fact that personal taxes are ignored. Miller (1977) on the basis of a number of assumptions introduced a model designed to show how leverage affects firms values when both personal and corporate taxes are taken into account. He found that when personal taxes are introduced, the usable income

available to investors reduces when dividends are paid, thus reducing the value of the unlevered firm. One important point worth noting with regard to Miller's analysis is the fact that it only differs from MM (1963) by the introduction of personal taxes.

Taggart (1980) extended Miller's analysis to conditions of incomplete capital markets and special costs associated with corporate debt. He concluded that Miller's findings could be upheld to the extent that the tax saving from corporate debt is seen as less valuable than was previously supposed and all equity capital structures are seen as perfectly rational for at least some firms.

2.6 CAPITAL STRUCTURE, COSTS OF FINANCIAL DISTRESS, AGENCY COSTS AND THE SIGNALLING THEORY:

Costs of Financial Distress:

Financial distress occurs when promises to creditors are broken or honoured with difficulty. Sometimes financial distress leads to bankruptcy. Sometimes it means only that the firm skates on thin ice (Brealey and Myers 1988).

Brigham and Gapenski (1990) outline a number of things that can happen when a firm is faced with financial distress.

i) Arguments between claimants often delay the liquidation of assets thus leading to physical deterioration and/or obsolescence of inventories and fixed assets.

ii) Lawyers fees, court costs and administrative expenses can absorb a large part of the firm's value.

Together costs of physical deterioration plus legal fees and expenses are called direct costs of financial distress.

iii) Managers and other employees generally loose their jobs when a firm fails. Knowing this, the management of a firm that is in financial distress may take actions which keep it alive in the short-run but which also dilute long-run value.

iv) Both customers and suppliers of companies that are experiencing financial difficulties are aware of problems that can arise and they often take evasive action.

Non-optimal managerial actions associated with financial distress, as well as the costs imposed by customers, suppliers and capital providers are called indirect costs of financial distress.

Costs of financial distress are peculiar to leveraged firms only and they can be high especially as the level of debt rises. As a matter of fact, Altman (1984) on the basis of a sample of 26 bankrupt companies found

that bankruptcy costs often exceeded 20% of firm value. These costs therefore do take a toll on the value of the firm and the higher they are, the lower the value of the firm is likely to be. Also, the higher the probability of financial distress, the higher the required yield on debt. Haugen and Senbet (1978) argue on the other hand that bankruptcy costs are not sufficient to influence capital structure.

Agency Costs:

There is always a possibility of stockholders because of their rights, trying to take advantage of bondholders. Because of this, hondholders may have to be protected by some convenants.

These covenants hamper the corporations legitimate operations to some extent. The costs of lost efficiency plus those incurred by monitering the covenants are what are referred to as Agency costs (Jensen 1976). These costs also increase the cost of debt to the firm and at the same time they reduce the value of equity and thus the advantage of debt.

A notable study on agency costs was done by Jensen and Meckling (1976) who argued that regulated firms such as utilities face lower debt costs because regulating authorities restrict the ability to shift its investment plan and thus expropriate wealth from bondholders. This implies that public utilities would be expected to have higher debt ratios than other companies.

Signalling Theory and Capital Structure:

This theory was introduced by Ross (1978) and in it he suggested that managers can use capital structure as well as dividends to give signals concerning the firms future prospects. In otherwords, increasing the amount of debt or dividend may be interpreted as a sign of confidence in the firms future.

Related to this signalling theory, Harris and Raviv (1990) contend that in general, managers do not always behave in the best interests of their investors i.e. maximizing returns, as such they therefore need to be disciplined. Debt according to them serves this purpose by giving creditors the option to force the firm into liquidation and it also generates information that can be used by investors to evaluate major operating decisions including liquidation. This suggests that if investors are uncertain about the quality of management and the efficacy of business strategy they can use debt to generate information about these aspects. This being the case, one would expect a debt equity ratio that is balanced between the demands of the firm and the expectation of the investors and the public in general.

Firm Value and the Cost of Capital with Financial Distress and Agency Costs.

These costs reduce the value of the levered firm which subsequently

would have the effect of adjusting the equation of the levered firm's value to incorporate them. Thus

$$VL = VU + TD - (\text{Present Value of expected financial distress Costs}).$$

$$- (\text{Present Value of Agency Costs}).$$

where Vu represents the value of the unlevered firm and TD represents the interest tax-shield from debt.

With this evidence, there is reason to believe that an optimal capital structure does exist and it is found by balancing the tax-shield benefits of leverage against the financial distress and agency costs of leverage.

Myers (1984) issues two statements about financial behaviour in light of the importance of costs of financial distress. First, risky firms because of high chance of default ought to borrow less other things being constant and secondly, firms having tangible assets with active second hand markets will borrow less than firms with specialized intangible assets or than firms with growth opportunities. This is probably because if an active second hand market exists, then a default could lead to an immediate liquidation.

2.7 Other Studies in Capital Structure:

There exist other theories which have attempted to explain the capital structure issue and some notables are as follows.

Hodder and Senbet (1990) looked at the international setting with corporate taxes and personal taxes on the basis of Millers (1977) study. They found that an international "Miller-type" equilibrium obtains under differential international taxation with capital market conditions which are otherwise analogous to these required for a Miller equilibrium. They also found that although inflation and/or exchange rate movements may affect real corporate tax subsidy rates and real personal tax penalties, there exists no induced preference for corporate borrowing in a particular currency. This study assumed that government restrictions do not preclude corporate and individual responses to differences in international tax rates.

Myers (1984) talks about a Pecking Order Theory and according to it, firms prefer to use internal finance when available and they prefer debt over equity when external finance is required. This could partly explain why less profitable firms borrow more. This is so because they need more external financing and also because debt is next in the Pecking Order when internal funds are exhausted.

More appropriate to this study, there have been studies that have looked at the relationship between Capital Structure and various

organisational aspects like Size, Interest rates, Industry, Profitability and others. Some findings warrant mentioning.

Brigham and Gapenski (1990) mention some factors which they consider important for the capital structure decision. Asset structure they found important since firms whose assets are suitable as security for loans tend to use debt rather heavily. Also if the firms assets are of high business risk then it is less able to comfortably add financial risk than a firm whose assets are not of high business risk. This being the case, it follows that factors such as Sales stability and operating leverage, which influence business risk also influence the firms capital structure.

The Growth rate of the firm to them is also an important factor. To Brigham and Gapenski (1990) high growth firms use more debt financing than low growth firms which rely mainly on their retained earnings. As the Pecking Order theory mentions, firms first turn to debt financing to meet external financing needs.

Profitability is also important and their observation is that firms with high returns on investment use relatively little debt and this behaviour is consistent with the logical belief that highly profitable firms simply do not need much debt financing. Their high rates of return enable them to do most of their financing with retained earnings.

Because of the corporate tax-deductability of interest and the non tax-deductability of dividends, the higher a firms corporate tax rate,

the greater the advantage of using corporate debt.

Brealey and Myers (1988) in addition to Taxes and Asset Structure find Risk and Financial Slack crucial. According to them firms with high business risk because of the high costs of financial distress and bankruptcy, shy away from debt. Concerning financial slack, they believe that in the long-run, a company's value rests more on its capital investment and operating decisions than on financing. Therefore the firm wants to make sure it has sufficient financial slack so that financing is quickly accessible when good investment opportunities arise. Their reasoning is that that is why growth companies aspire to conservative capital structures. This is in disagreement with Brigham and Gapenski (1990) on their stance concerning growth opportunities.

Ross, Westerfield and Jaffe (1990) note some empirical regularities which are worth considering when formulating a capital structure policy. First, most corporations have low debt-equity ratios (based on Gordon & Malkiel (1981). This is most likely due to the positive correlation between debt levels and bankruptcy costs. Second, based on a study by Masulis (1980), they found that changes in financial leverage affect firm value. This is also in line with the argument in the previous paragraph where bankruptcy costs lower the firms value. Third, they found that there are differences in the capital structures of different industries. Most likely because the very nature of the industries themselves. This was based on a study by Kester (1986). The authors also highlight the importance of Taxes and Financial distress costs in the setting of the target debt-equity ratio.

2.8. A Survey of Capital Structures

i) A View of International Capital Structure:

There is no general consistency in the capital structures in different countries. A notable study on this issue was done by Rutterford (1985) and she studied these differences and concluded that Japanese firms depend heavily on debt whereas U.K. and U.S. firms tend to have more equity. She went on to state that tax factors do not appear to explain these differences. Agency Costs however are one possible answer. In both Japan and what was West Germany, there is a closer relationship between banks and their client firms and this may have the effect of reducing agency costs of issuing debt than in the U.S. or U.K.

Rutterford's findings are not consistent with those of Kester (1986). In a comparison between U.S. and Japanese Manufacturing corporations, he found that Japanese manufacturing is not as highly leveraged as previously thought. On a market value basis there appeared to be no national differences in leverage between US and Japan after controllin for attributes of firms and industries.

ii) A View of Capital Structure in the Kenyan Environment

A number of Capital Structure and Capital Structure related studies have been done in Kenya and notable among them is Kamere (1987) who performed an opinion survey to find out from auditors and financial managers what factors they considered to be important in their Capital Structure Decisions. Most notable in his findings were the significant influence of the following factors in the D/E ratio.

i) The stability of future cashflows
ii) The level of interest rates
iii) The firm's Asset Structure
iv) The firm's tax advantage of debt
v) The maturity of debt.

Kamau (1985) looked at the Magnitude and Causes of Corporate Failure in Kenya and found that under-capitalization, overborrowing and poor financial management accounted for 18.4%, 13.2% and 10.6% of business failures respectively.

One peculiarity with the Kenyan environment as highlighted by Kamere (1987) is the dual role of some lending institutions. They are both lenders and shareholders of many of the companies that they support. This fact definitely influences the capital structure of the respective

firms since the lenders being shareholders are aware of the status of these firms and are much more comfortable lending when need arises even if the debts are large.

2.9 Special Features of the Kenyan Environment:

Over the past three years some far-reaching economic changes have been made in Kenya. A process of liberalisation was began in the early part of this decade and some of the economic reforms which the Kenyan government has taken are:-

- Removal of price controls
- Liberalisation of the marketing of goods and services
- Removal/Relaxation of exchange controls
- Adoption of more flexible/market determined exchange rates
- Adoption of indirect instruments of monetary control
- Privatization of state-owned enterprises
- Reform of the civil service

To augment these reforms, is the implementation of appropriate fiscal and monetary policies intended to achieve a stable macro-economic framework. An emphasis on the private sector as the engine of economic growth has also been made.

The results over the past few years have been encouraging. Our real Gross Domestic Product (GDP) growth has improved from 4.0 in 1990 to 5.0 in 1995. Indeed a study of the GDP's based on the Economic Survey (1994/95) sectoral classifications tend to confirm this growth of GDP.

The Agricultural Sector GDP's at current prices show consistent growth. In 1990, it stood at Kshs.44709.2 million and it has been rising consistently and stood at Kshs.108575.80 million in the provisional 1995 results.

In the Manufacturing and Repair enterprises, the GDP value at 1990 was Kshs.1948.0 million and stood at Kshs.43184.8 million in provisional

1995 results.

In the Banking, Insurance and Real Estate enterprises the value for 1990 was Kshs.1373380 million and it has also risen consistently standing at Kshs.49417.60 million in 1995 (provisional).
In the Trade, Restaurant and Hotels the GDP value for 1990 was Kshs.18952.6 million and it also rose consistently reaching Kshs.60500.8 million in 1995 (provisional).

The inflation trends over the ten-year period between 1985 and 1995 measured by the interest rates on 90-day Treasury Bills (Appendix) suggest fluctuating movements. In 1985, the interest rates on the bills was 13.76 per cent. This reduced to a low of 12.84 percent in 1987. In 1988, the rate stood at 13.45 per cent and it increased gradually to 16.59 percent in 1992. In 1993, the interest rates on the 90-days bills shot up to 48.12 percent. By 1994 it reduced to 24.02 per cent and reduced gradually to 18.74 in August of 1995. By the end of 1995 the rate had increased to 20.56 percent.

These trends in one way or other affect the firms decision to borrow. It is however logical to assert that even though they do, the firms long-term objectives are expected to remain the same and it is therefore only in the short-run objectives that changes are made.

In the pre-liberalisation period the government maintained a tab on almost all aspects of the economy and this hampered investment and the general smooth flow of economic activity. Presently, the Government is now implementing a comprehensive Public Enterprise Reform Programme aimed at among other things, reducing the demand of Public Enterprises on the Exchequer and reducing the role and rationalizing the operations of the

Public Enterprise Sector. One however must bear in mind that it is still too early to state clearly whether the desired results have been achieved or not (Policy Paper on Public Enterprise Reform and Privatization, 1994).

Regarding the trend in borrowing by enterprises both government and private, Appendix (iv) presents a break-down sector by sector of borrowing trends from Commercial Banks and other financial institutions. Private financial institution lendings have increased gradually over the eight year period (1987) to 1994) slumping slightly however between May, 1993 and June of the same year and then continuing the gradual rise reaching 57 billion shillings in February, 1994.

Commercial banks lending increased gradually reaching Kshs.69 billion and reducing to Kshs.64 billion in July of the same year and then gradually rising to Kshs.68 billion by March, 1994.

To augment Objective I, a comparison will be made between Debt-Equity ratios in the Pre and Post-liberalisation era to test whether the two periods are significantly different.

CHAPTER THREE

RESEARCH DESIGN

3.0 The Population:

The population of this study consists of all the companies listed in the Nairobi Stock Exchange over the eight year period between January, 1987 to December, 1994. This period was chosen for two reasons. Firstly, it was assumed that Kamere's study (1987) covered the period before and secondly in order to control for the far reaching changes in the economy that have taken place in the early part of this decade it was felt necessary to include a period before 1991.

3.1 The Sample:

In order for a firm to qualify to be included in the sample, it must have fulfilled the conditions of having been quoted in the NSE continuously since 1987 to 1994 and it also must have had ordinary shares in its portfolio. Only 31 companies fulfilled these conditions, four in the Agricultural Sector, nine in the Commercial and Allied Sector, twelve in the Industrial and Allied Sector and six in the Financial and Investment Sector. A list of all the companies included in this study is in Appendix II.

3.2 Data Collection:

This study was based wholly on secondary data available from the published annual reports of the respective firms at the NSE library. The information sought from the reports as stated in the Introduction consists of the following data variables:

i) Capital Structure which is represented by the mean Debt-Equity ratios for the eight years.

ii) Asset Structure which is represented by the book-value of Fixed Assets to Total Assets ratio.

iii) Size which is represented by Turnover.

iv) Interest rates which are represented by the Interest Coverage ratio for all the eight years.

v) Profitability which is represented by Earnings Before Interest and Taxes divided by Total Net Assets.

vi) Growth of the firm which is represented by the percentage changes in Total Assets and in Turnover.

vii) Variability of cashflows which is represented by Changes in Movement of Working Capital.

viii) The Age of the firm which is represented by the Incorporation Year for local firms and the Incorporation in Kenya Year for overseas firms.

xi) The Industry Classification which is represented by the NSE classification of firms.

x) Ownership which will be classified as (Local-Government), Local (Non-Government) and Foreign.

For a few companies, not all the annual reports were available and the respective means were calculated on the basis of those that were available. For factors Growth in Asset Value and Asset Structure, in order to control for revaluation of assets, the respective revaluation values were subtracted from asset values for the years in which revaluation took place and the subsequent comparisons made.

The Data was collected with the help of a data collection sheet, a sample of which can be seen in Appendix I.

3.3 Design of Data Analysis:

For the factors Asset Structure, Profitability, Interest, Changes in Movement of Working capital, Growth in Turnover, Growth in Asset Value and Turnover, the annual figures for the eight year period under study were totalled and the means calculated. The same treatment was carried out for the

respective Debt-equity ratios. Data analysis was based on these means.

Correlation Analysis is the tool that was used to analyse the data mentioned in the preceding paragraph. The correlation coefficient r is determined and then hypotheses of the significance of the coefficient were tested. The correlation coefficient r measures the strength and the direction of the relationship between the two variables Capital Structure and each of the respective factors. This value helps determine when there exists a potentially useful linear relationship between two variables. Perfect correlation is approached as the coefficient approches 1 indicating a perfect positive correlation and indicating perfect negative correlation as it approaches - 1. If the coefficient turns out to be 0 then this indicates that no correlation whatsoever exists.

With regard to testing for the significance of the relationships, the following hypotheses were tested;

Null-Hypothesis Ho : $r = 0$

Alternative Hypothesis Hl : $r \neq 0$

To fail to reject the null-hypothesis, the correlation coefficient must fall within a critical region which is obtained from the table of the Critical values for the Linear correlation cofficient (Appendix III).

In this case, one can conclude that no significant correlation exists between the two variables. If on the other hand r falls outside the critical region, then it signifies that significant correlation exists between the two variables.

The factors, Assets Structure, Size, Interest Rates, Profitability, Growth, Changes in Cashflow were first tested for all the sectors combined followed by tests for each sector individually.

For the factors, Ownership and Industrial class, it was not practically possible to use correlation analysis. This was due to the fact that capturing the two variables as absolute numbers is not possible and that therefore made it impossible to use correlation as a tool of analysis. As such a test was employed to find out if statistically significant differences existed between the respective means. The statistical tool used was the Duncan Multiple Range Test. This test is said to have a high power to detect real differences in the means when they exist and also to protect against the type 1 error (Crorner & Swanson, 1973). In addition the Duncan Method gives a large single value when the sample F-value indicates that the means are homogeneous and small when means appear to be heterogeneous. Further, its power to detect real differences does not depend on the number of means being compared.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSION

4.0 Introduction

This Chapter is divided into six sub-sections. The first sub-section presents the results of tests on Industrial Class, Ownership and Sectors combined and the results of tests between Capital Structures in the pre and post liberalisation periods. are also included. Sub-section two presents the results of the tests in the Agricultural sector, sub-section three, the results for the Industrial and Allied sector, sub-section four, the results of the Commercial and Allied sector, sub-secion five, the results of the Financial and Investment Sector and finally sub-section six discusses the results in light of the objectives of this study. The computer-run of the respective results can be seen in the appendix section.

4.1 State of Capital Structure

1. Industrial Class.

The results indicate that the mean debt-equity ratios are not significantly different. Since all the sectors i.e. Industrial,

Agricultural, Financial and Commercial share the same Duncan grouping letter (A) it means that the respective mean D/E ratios are not significantly different at the 0.05 level of significance. However, the Industrial and Allied sector had the highest D/E ratio of 0.301 followed by the Agricultural sector with a mean ratio of 0.108. Third in line was the Financial sector with a mean ratio of 0.058. Finally came the Commercial sector with a mean D/E ratio of 0.009. These differences exist for certain reasons. The Industrial sector had the highest ratio probably because the type of assets in this sector are highly specialised involving large amounts of investment.Firms would therefore be expected to borrow to acquire them.The Agricultural sector came second probably because the firms here tend to rely on debts as an important source of of finance as opposed to equity. The firms tested, have over a long period not issued any new equity despite their growth rates. The Financial sector had the second lowest mean D/E ratio most likely because in this sector there is not much need for debt. This could be for two reasons, one being the high reliance on trade credit and the other being the high returns on investment. Finally, the Commercial and Allied sector, had the lowest mean D/E ratio probably for the same reasons as in the Financial Sector i.e. high reliance on trade credit and a high return on investment.

2. **Ownership:**

For Ownership as with in Industrial Class, there are no statistically

significant differences in the mean D/E ratios of the three groups of firms, Local, Local-Government and Overseas owned firms. However out of the group, the government owned enterprises have the highest mean D/E ratio. This is expected because these enterprises have easier access to financing whether from the government or from other lending agencies, the government being the guarantor.

The local non-government owned enterprises have the next highest D/E ratio and this could be expected because they are local based and have less funds available than say their multi-national counterparts making the use of external sources of finance play a crucial role in their financing. More so for large undertakings.

Foreign owned enterprises have the lowest D/E ratio and this could be explained by the fact that most of these enterprises are the offspring of large multi-nationals which tend to finance some of their activities internally. The use of debt if any, is generally short-term.

3. Pre and Post Liberalisation

It was felt that a survey of the mean capital structures in the periods before and after liberalisation would give an idea of the impact of liberalisation on capital structure although it may still be a little too early to get the full feel. The results indicate a strong significant positive correlation coefficient of 0.73558 implying that liberalisation has so far not had any impact on borrowing trends of firms.

4.2 The Results of all Sectors Combined:

(In order of Strength of Correlation)

I	Profitability	Coefficient
	Reject Ho	.65017
II	Growth in Asset Value	
	Reject Ho	.55666
III	Growth in Turnover	
	Reject Ho	.48498
IV	Asset Structure	
	Reject Ho	.40354
V	Age	
	Fail to reject Ho	.09837

VI Turnover

Fail to reject Ho .07893

VII Changes in Movement of Working Capital

Fail to reject Ho .07327

VIII Interest

Fail to reject Ho .06939

Profitability is the highest correlated factor in this combined run with a positive value. From the literature e.g. Brigham and Gapenski, (1990) one would have expected a negative value however this is not the case. This result indicates that Kenyan firms tend to borrow more when their profits are high. An explanation for this is that high profits may serve as an incentive to the firm to invest more and this is what may warrant borrowing for expansion of business. The high profits may also indicate greater ability to serve interest payments.

The fact that Growth in Asset Value is also positively correlated with Capital Structure may give credence to the above reasoning. As the firms asset values increase, its debt-equity ratio increases to enable it to finance the asset increases.

Growth in Turnover which also served as a measure for Growth of the firm is positively correlated with capital structure. As the firm grows in size, it may have to use more debt to finance its growth especially if the growth rate is fast. Retained earnings are normally not sufficient to finance fast growth rates.

The Asset Structure is positively correlated with capital structure and this is logical since firms tend to borrow using their fixed assets as securities. Also, firms whose assets are suitable security for loans can be expected to use more debt than firms whose assets are not suitable securities for loans.

Age is positively but not significantly correlated with capital structure. The coefficient is at a very low level and this leads to a conclusion that there is no correlation rather than that correlation exists. It would of course make sense that older firms are likely to borrow more for updating of equipment and operations, however the coefficient is too low for us to make any firm conclusions on this basis. One would rather say that age cannot be expected to play a significant role because the capital structure decision would be expected to be made on the basis of other factors like Profitability, Growth, Asset Structure as the results show.

Turnover too is positively but insignificantly correlated with capital structure with an even lower correlation coefficient than age. One would expect this kind of result since large firms may be expected to borrow more, thus the positive relationship. However as with age, the

capital structure cannot be based on size but on more important attributes of the firm like Profitability, Growth Asset Structure etc.

The Changes in Movement of Working Capital, is positively correlated with Capital Structure at a low and insignificant level. This can be explained by the fact that funds flows are not closely related to Capital Structure per se. Most inflows and outflows of funds are routine and day to day whereas the Capital Structure decision is one that is made once over a certain period.

Interest Charges is the least correlated factor with Capital Structure with a positive value. One would have expected a negative coefficient even if low because if interest rates are high then there should be less incentive to borrow. It is positive however probably because interest rates tend to move with the inflation rate and in times of high inflation firms have been known to make abnormally high returns which may prompt borrowing for expansion.

Results on the Basis of Industrial Classification

4.3 Results of the Commercial and Allied Sector:

I	Profitability	Coefficient
	We fail to reject Ho	.84642
II	Asset Structure	
	We fail to reject Ho	.74281
III	Growth in Turnover	
	We fail to reject Ho	.55143
IV	Change in Movement of Working Capital	
	We fail to reject Ho	.24403
V	Turnover	
	We fail to reject Ho	.08454
VI	Interest Charges	
	We fail to reject Ho	-.00881

Profitability in this sector is significantly positively correlated with capital structure. This relationship can be expected since high profits are likely to influence more expansion which in turn may require more external financing. The Commercial and Allied Sector is the most diversified sector with investments in all sorts of different commercial undertakings and therefore with high profits, one can be sure that opportunities to invest or even to diversify are unlimited.

Asset Structure too is significantly positively correlated with capital structure. This relationship as with profitability, is expected since in Kenya as elsewhere firms whose assets are suitable securities for long-term loans are likely to use them when the need to borrow arises. A different scenario is likely in the Industrial and Allied Sector because the nature of the bulk of their assets is specialized making them not have a secondary market and therefore not good security as far as lending institutions are concerned.

Growth of the firm here is positively correlated with Capital Structure although not significantly. The positive relationship arises probably because fast growth firms at some stage after exhaustion of internal resources rely mainly on external financing and this is the case with firms in this sector. The insignificant relationship arises because growth rates are generally not high averaging less than 15 percent.

Changes in Movement of Working Capital is also positively correlated with Capital Structure but not significantly. This result occurs for the same reasons that it occurs in the combined run. Funds

flow movements are expected to be positively correlated with Capital Structure but not highly because most fundflow movements are based on routine day to day decisions as opposed to the Capital Structure decision which is made once over a period of time. In otherwords, the movements of the two variables should be expected to be in the same direction but not very closely.

Turnover is positively correlated however insignificantly and with a very low coefficient of 0.08454. The result here indicates more that there is no relationship than that there is. However the low positive value could be expected since turnover to some extent, represents the level of activity and high activity is largely associated with debt even if to a very low extent. However Turnover cannot really be expected to be highly correlated with Capital Structure because for a firm to be eligible to borrow, it must prove its ability to pay back. Turnover most certainly does not tell much. Factors like Assets Structure, Profitability etc as stated ealier are more important as stated earlier.

The Prevailing Interest Charges are negatively correlated with Capital Structure and also at a very insignificant value of -0.00881. The negative correlation does imply an opposite direction of the movements between the two variables which makes sense because if interest rates are high then firms are expected to borrow less. However as in the case with Turnover, the coefficient is too small to confidently conclude that correlation exists.

4.4 Results of the Agricultural Sector:

		Coefficient
I	Changes in Movement of Working Capital	
	Reject Ho	.96370
II	Profitability:	
	Fail to reject Ho	- .63635
III	Interest Charges:	
	Fail to reject Ho	- .43446
IV	Asset Structure:	
	Fail to reject Ho	.32246
V	Turnover:	
	Fail to reject Ho	- .19684
VI	Growth in Turn Over:	

Fail to reject Ho .15041

In this sector, Changes in Movement of Working Capital is very highly correlated with Capital Structure. A possible explanation for this is the fact that the fundsflow movements in this sector rely heavily on debt, probably because of the nature of the industry. It was noticed that firms in this industry depend more on debt as opposed to other sources of finance to operate.

Profitability is insignificantly and negatively correlated with Capital Structure implying that when profits are high then the D/E ratio is low most likely due to the fact that profits in this sector depend largely on nature and if for a reason they are low, the firms may be faced to borrow and thus increase the D/E ratio.

Interest Charges too are insignificantly and negatively correlated with Capital Structure and this should be the case since high interest rates are likely to discourage firms from borrowing.

Asset Structure is positively correlated with capital structure although at an insignificant level. This implies that if the firm has a suitable asset structure for borrowing then it does so and if not then it is unlikely to borrow.

Size measured by Turnover is negatively correlated with capital

structure and also at a very low insignificant level. The implication from this is that the smaller the company, the higher its debt-equity ratio. This could be expected because larger firms can be expected to have comparatively low D/E ratios because it can be assumed that they are to a greater extent able to finance themselves with internal sources of finance than smaller enterprises in such an unpredictable market.

Growth of the firm measured by Growth in Turnover is positively correlated with capital structure but at a very low and insignificant level of 0.15041. A positively correlated relationship is expected however, since firms normally borrow to expand. The low coefficient can be explained by the fact that most of the firms in this sector seem to be able to finance themselves quite sufficiently from internal sources and therefore their growth rates cannot be expected to play a major role in the Capital Structure decision.

4.5 Results of the Industrial and Allied Sector

I	Growth in Turnover	Coefficient
	Fail to reject Ho	.50702
II	Interest Charges:	

	Fail to reject Ho	-.38057
III	Profitability:	
	Fail to reject Ho	-.35433
IV	Turnover:	
	Fail to reject Ho	.23131
V	Asset Structure:	
	Fail to reject Ho	.14783
VI	Change in Movement of Working Capital:	
	Fail to reject Ho	.02302

In this sector, no factor tested, had any statistically significant relationship with capital structure. However Growth in Turnover proved to have the highest correlation coefficient of 0.50702. One would expect this result in this sector since expansions normally comprise of colossal amounts of financing which firms might not easily provide themselves with internally. Long-term borrowing would therefore serve as the second alternative and thus the positive correlation. This corraborates the Pecking Order Theory.

Interest Charges are negatively correlated with capital structure and this should be the case because high interest rates are normally expected to discourage debt financing and vice-versa.

Profitability too, is negatively correlated with capital structure and a possible explanation for this would be that if profits are high then the firms are able to finance themselves more with retained earnings than debt and this results in an opposite movement between the two variables.

Turnover is positively correlated with capital structure albeit at a low level. Most firms which are large in size are expected to have some debt and this should explain the pattern between the two. Brigham and Gapenski (1990) are also of this view.

The Asset Structure of the firms here, is positively correlated with capital structure though at an even lower level than even Turnover. The nature of Assets in this sector are highly technical and specialised and therefore do not have a large resale market. This makes them (the Assets) not very suitable for loans as might be the case with say the Assets of the Commercial and Allied Sector. This explains the low positive correlation between the the two variables.

The relationship between Changes in Movement of Working Capital in this sector is positive but very low and as was the case with Interest in the Commercial and Allied sector, there is good reason to conclude that no worthwhile correlation exists. However, the positive value can

be attributed to the fact that fundsflow movements are not dependent on on debt per se but rather the day to day running of the firm.

4.6 Results of the Financial and Investment Sector:

I Profitability :

Fail to reject Ho .76059

II Growth in Turnover:

Fail to reject Ho .40327

III Turnover:

Fail to reject Ho -.32449

IV Change in Movement of Working Capital:

Fail to reject Ho -.28298

V Interest Charges

Fail to reject Ho .11976

VI Asset Structure

Accept Ho .08980

In this sector, there is no factor that turned out to be significantly correlated with capital structure negative or positive. Profitability, however had the highest positive coefficient. This is probably for the same reasons that were given in the combined run and that was that large profits seem to serve as an incentive to expand and this may warrant more borrowing.

Growth in Turnover too is positively correlated though at a much lower level. This is most likely so for the same reasons that profitability is positively correlated. Growth of the enterprise warrants debt especially if the growth rate is very high.

Turnover is negatively correlated with capital structure and this is probably so because larger firms are more likely to be able to finance themselves adequately with less debt than smaller firms. Thus the opposite movements between the two variables.

A negative correlation coefficient also exists for changes in Movement of Working Capital which is insignificant. The opposite movement between the two variables could best be explained by the fact that the ability of the firms in this sector to issue long-term debt depends to a great extent on whether they themselves are in debt. In otherwords these firms can lend more when they are less in debt.

Interest charges in this sector are positively correlated with capital structure even though at a very low level. It must however be mentioned here that three out of the six companies in this sector registered no interest charges. In otherwords they had no debt. One explanation for this trend however, is that institutions in this sector are known to make abnormally high returns when interests are high. As such when rates are high they would be expected to seek all sorts of methods to enable them to lend even if they are in difficulty.

Asset Structure is positively correlated with capital structure however at a very low level which may be interpreted to imply no correlation. An explanation for this is that firms in this sector tend to invest most of their funds in assets that are not fixed for example treasury bills and bonds and therefore as indicated by the results, asset structure by virtue of the way it was measured is not expected to be highly correlated with capital structure.

4.7 Discussion of Findings in Relation to Objectives:

The findings of this study indicate that the mean debt-equity levels of Kenyan firms on the basis of Industry Class are not significantly different statistically, although the Industrial and Allied Sector had the highest mean ratio of 0.301. This was followed by the

Agricultural Sector with 0.108. Third came the financial sector with 0.058 and finally the Commercial and Allied Sector with a mean of 0.009.

On the basis of Ownership, the Government-controlled enterprises had the highest debt-equity ratio of 0.709 followed by the Local Non-government controlled-enterprises with 0.096. Third came the Overseas controlled enterprises with a mean D/E of 0.069.

In the pre-liberalisation and post-liberalisation periods, the debt-equity ratios compared, are significantly positively correlated with a coefficient of 0.73558. This implies that liberalisation has so far had no serious impact on the borrowing pattern of Kenyan firms.

In relation to the second objective where factors that were found to be significant determinents of capital structure in other environments were tested, this study found that Profitability was significantly positively correlated with capital structure in the combined run. In the Agricultural Sector it turned out negatively and insignificantly correlated with capital structure. It also turned out negatively and insignificantly correlated in the Industrial and Allied Sector. In the Commercial and Allied Sector, Profitability turned out to be positively and significantly correlated with capital structure and finally in the Financial and Investment Sector it turned out positively but insignificantly correlated with capital structure.

Overally Size, which was measured by Turnover proved positively

correlated with capital structure however at an insignificant and very low level. In the Agricultural Sector, it turned out negatively correlated also at a low and insignificant level. Turnover in the Industrial Allied Sector turned out positively but not significantly correlated with Capital Structure. It was the same case in the Commercial and Allied Sector and the value of the coefficient was much lower. Finally, in the Financial Sector, the correlation coefficient was negative and also insignificant.

For the factor Growth, measured by the Growth in Turnover, the results in the combined run indicate a positive significant correlation with capital structure. In the Agricultural Sector, the result was a positive, insignificant and very low correlation with capital structure. In the Industrial and Allied Sector, the result was a positive and insignificant coefficient. In the Commercial and Allied Sector the result was the same as the Industrial and Allied Sector i.e. a positive insignificant coefficient. Finally in the Financial and Investment Sector a similar result as in the Commercial and Allied and the Industrial and Allied Sectors was obtained. When Growth was measured by the Growth in Asset Value in a combined run, the result was the same as in the Growth in Turnover which was a significant positive relationship. The combined results seem to contradict the sectoral results.

Age was tested only in the combined run and the result obtained was a positive, insignificant and very low coefficient.

Industry Class and Ownership which were tested on the basis of differences in means are not significantly different statistically however some rather large differences do exist.

On the basis of Kamere's main findings which were tested, the results were as follows, Interest Charges were positively and insignificantly correlated in the combined run at a very low level. In the Agricultural Sector, the Commercial and Allied and the Industrial and Allied Sector, Interest Charges turned out to be insignificantly and negatively correlated with capital structure. Finally, in the Financial and Investment Sector, Interest Charges turned out positively but insignificantly correlated with capital structure.

Asset structure turned out positively significantly correlated with capital structure in the combined run. In the Agricultural Sector the result was an insignificant positive correlation coefficient. The same result was obtained in the Industrial and Allied and the Financial and Investment Sectors however, with very low coefficients. In the Commercial and Allied Sector however the relationship turned out to be a positive significant value.

The Stability of Future Cashflows which was represented by the Changes in Movement of Working Capital was positive but insignificant and very low in the combined run. In the Agricultural Sector the result was a positive significant relationship. In the Industrial and Allied Sector, the result was positive however very low coefficient. In the Commercial and

Allied Sector, the result was also a positive and insignificant relationship between the two. In the Financial and Investment Sector, a negative and insignificant correlation coefficient was obtained.

Overally with regard to Kamere's findings one could say that they held true.

CHAPTER FIVE

SUMMARY AND CONCLUSIONS

5.0 Summary of Findings:

Whether a factor turned out significantly correlated only in a certain sector, there is sufficient reason to believe that it does influence Capital Structure. This being the case, this summary is based on whether or not there was a significant relationship between Capital Structure and the respective factors.

Asset Structure is significantly correlated with capital structure in the Commercial and Allied Sector and also in the combined run.

Profitability like Asset Structure, is also significantly correlated with Capital Structure in the Commercial and Allied Sector and in the combined run.

Changes in Movement of Working Capital is significantly correlated with Capital Structure only in the Agricultural Sector.

Growth in Asset Value is significantly correlated with capital structure in the combined run where it was tested.

The mean debt-equity ratios of the Ownership classes are not statistically different however some sizable differences do exist and this leads to the conclusion that Ownership plays a role in the Capital Structure of a firm.

The mean debt-equity ratios for the Industrial classes are also not significantly different statistically. However as was the case with Ownership, some large differences do exist and this leads us to the conclusion that Industrial class does play a role in Capital Structure.

Interest rates, Growth in Turnover, Size and Age are not significantly correlated with capital structure at all, whether Sectoral or Combined.

These findings show that out of three factors that Kamere found significant which were tested, only two were found significant in this case. These were Asset Structure and the Stability of Cashflows.

Out of the factors from other environments tested i.e. Age, Industrial Class, Growth, Size and Ownership, are not significantly correlated with capital structure at all. Growth in Turnover however, is significantly correlated in the Combined run of the Sectors. Ownership and Industrial class means are both not statistically different though some sizable differences do exist.

5.1 Limitation of the Study:

Like all studies, this study has its limitations too. The first limitation is with regard to the sample consisting of only publicly quoted companies. This may have led to results that give only one side of the picture especially since some of Kenyas largest firms e.g. East African Industries, Galsheet are not publicly quoted. This limitation also serve as the basis for further research.

The period under study 1987 to 1994 was probably not the most stable since over the past few years, a number far reaching economic/ political beginning 1990, the government embarked on a restructuring programme which is still going on and this therefore limit this study.

Correlation Analysis which was used for the greater part of the data analysis does have some limitations most notable among them being that it only measures the strength of the linear relationship and not whether a cause-effect relationship exists. Also important to note is that tests of significance are very sensitive to sample size and therefore as can be seen in the results of the Agricultural Sector the coefficients seem high but are not statistically significant.

The government, which still has substantial investments in many sections was only represented by 3 (ICDC, KP&LCo and E.A. Portland Cement). This may have led to a less representative of the Kenyan environment.

5.2 Suggestions for Further Research:

Capital Structure is still a controversial issue and indeed as the findings of this study have shown, the factors that influence the capital structure of firms vary almost from study to study.

An important suggestion for further research is to carry out the same research outside the Nairobi Stock Exchange. The basis of this is that a large number of firms e.g. East African Industries, Galsheet Kenya Limited are not quoted and a study based only on quoted companies may not give a real feel of what the situation really is like. This is also a limitation of this study.

A similar kind of study may also be carried out with the objective of addressing the Financial structure of firms as opposed to capital structure. This would be worthwhile since it was noticed that a number of firms e.g. Brooke Bond, CMC, Mashalls etc. use large amounts of short-term borrowing rather than long-term debt. This infact precipitated the including of exceptionally large amounts of short-term debt as part of the Capital Structure for those firms.

Testing empirically the theories of capital structure e.g. the Traditional school, MM, Signalling theory etc. in Kenya may also be considered.

A P P E N D I C E S

APPENDIX I

DATA COLLECTION SHEET

FIRMS NAME:

SECTOR:

AGE:

YEAR	D/F	ASSET STRUC-TURE	PROFICT	INTEREST CHARGES	CASHFOLW	TURN-OVER	GROWTH IN ASSET VALUE	GROWTH IN TURN-OVER
1987								
1988								
1989								
1990								
1991								
1992								
1993								
1994								

MEAN

APPENDIX II

COMPANIES STUDIED

AGRICULTURAL SECTOR

Company	Debt-Equity Ratio
1) Brookebond	0.062
2) George Williamson	0.322
3) Kakuzi Limited	0.034
4) Sasini Tea and Coffe	0.013
COMMERCIAL & ALLIED SECTOR	
1) A Baumann & Co.	0.062
2) Car & General	0.501
3) CMC Holdings	0.266
4) Express Kenya	1.471
5) Marshalls	0.859
6) Motor Mart (Lonrho Motors)	0.010
7) Nation Printers and Publishers	0.181
8) Pearl Drycleaners	0.026
9) Phillips International	-3.294
INDUSTRIAL & ALLIED SECTOR	
1) B.A.T. Kenya Limited	0
2) Bamburi Portland Cement	0.066
3) Carbacid Investments	0.219
4) Dunlup Kenya Limited	0.265
5) Kenya Brewries Limited	0.250
6) E.A. Cables	0
7) E.A. Oxygen	0.009
8) E.A. Packaging	0.106
9. E.A. Portland	0.814
10.Kenya National Mills	0.251
11.KP&L Co.	1.289
12.Unga Ltd.	0.343

FINANCIAL & INVESTMENT SECTOR

1) Barclays Bank of Kenya	0
2) Diamond Trust	0
3) ICDC	0.024
4) Jubilee Insurance	0
5) NIC	0.233
6) PanAfrica Insurance	0.092

APPENDIX III

Test Results in order of Analysis.

General Linear Models Procedure

Duncan's Multiple Range Test for variable: DERATIO

NOTE: This test controls the type I comparisonwise error rate, not the experimentwise error rate

Alpha= 0.05 df= 27 MSE= 0.586293
WARNING: Cell sizes are not equal.
Harmonic Mean of cell sizes= 6.545455

Number of Means	2	3	4
Critical Range	0.868	0.912	0.942

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	SECTOR
A	0.301	12	ind
A			
A	0.108	4	agr
A			
A	0.058	6	fin
A			
A	0.009	9	com

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: A:LIBERAL LABEL: Pre & Post Liberalisation

NUMBER OF CASES: 31 NUMBER OF VARIABLES: 2

Pre

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
D/E	D/E	5.131846E+00	3.410929E+00	1.136976E-01	1.00000
D/E	D/E	4.303372E+00	3.676642E+00	1.225547E-01	.73558

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
D/E	D/E	7.552528E+00	7.324283E+00	2.441428E-01	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: A:LIBERAL LABEL: Pre & Post Liberalisation

NUMBER OF CASES: 31 NUMBER OF VARIABLES: 2

Pre

	D/E	D/E
D/E	1.00000	
D/E	.73558	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .30127
CRITICAL VALUE (2-tail, .05) = +/- .35441

N = 31

SAS 13:39 Thursday, March 9, 1995

General Linear Models Procedure

Duncan's Multiple Range Test for variable: DERATIO1

NOTE: This test controls the type I comparisonwise error rate, not the experimentwise error rate

Alpha= 0.05 df= 28 MSE= 0.545528
WARNING: Cell sizes are not equal.
Harmonic Mean of cell sizes= 6.290323

Number of Means	2	3
Critical Range	0.853	0.896

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	OWNER
A	0.709	3	govn
A			
A	0.096	15	lngo
A			
A	0.069	13	over

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:MA LABEL:

NUMBER OF CASES: 31 NUMBER OF VARIABLES: 2

PROFITABILITY COMBINED

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
X	X	3.137070E+00	2.089005E+00	6.963352E-02	1.00000
Y	X	4.621083E+00	3.798444E+00	1.266148E-01	.65017

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
Y	Y	1.698460E+01	1.633890E+01	5.446302E-01	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:MA LABEL:

NUMBER OF CASES: 31 NUMBER OF VARIABLES: 2

PROFITABILITY COMBINED

	X	Y
X	1.00000	
Y	.65017	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .30127
CRITICAL VALUE (2-tail, .05) = +/- .35441

N = 31

NUMBER OF CASES: 31 NUMBER OF VARIABLES: 2

GROWTH IN ASSET VALUE

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
X	X	2.100305E+04	1.490738E+04	4.969127E+02	1.00000
Y	X	3.374659E+02	2.747286E+02	9.157620E+00	.55666

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
Y	Y	1.698460E+01	1.633890E+01	5.446302E-01	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:GAV LABEL: GROWTH IN ASSET VALUE

NUMBER OF CASES: 31 NUMBER OF VARIABLES: 2

GROWTH IN ASSET VALUE

	X	Y
X	1.00000	
Y	.55666	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .30127
CRITICAL VALUE (2-tail, .05) = +/- .35441

N = 31

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:MS LABEL:

NUMBER OF CASES: 31 NUMBER OF VARIABLES: 2

ASSET STRUCTURE COMBINED

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.

HEADER DATA FOR: C:BA LABEL: GROWTH IN TURNOVER

NUMBER OF CASES: 27 NUMBER OF VARIABLES: 2

GROWTH IN TURNOVER COMBINED

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
X	X	2.019969E+04	4.265208E+03	1.640465E+02	1.00000
Y	X	2.274605E+02	1.278578E+02	4.917608E+00	.48498

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
Y	Y	1.691832E+01	1.629573E+01	6.267588E-01	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:BA LABEL: GROWTH IN TURNOVER

NUMBER OF CASES: 27 NUMBER OF VARIABLES: 2

GROWTH IN TURNOVER COMBINED

	X	Y
X	1.00000	
Y	.48498	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .32375
CRITICAL VALUE (2-tail, .05) = +/- .38009

N = 27

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:MS LABEL:

NUMBER OF CASES: 31 NUMBER OF VARIABLES: 2

ASSET STRUCTURE COMBINED

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
X	X	1.519402E+01	3.367971E+00	1.122657E-01	1.00000
Y	X	5.756878E+00	2.993534E+00	9.978445E-02	.40354

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
Y	Y	1.698460E+01	1.633890E+01	5.446302E-01	1.00000

CORRELATION MATRIX

HEADER DATA FOR: C:MS LABEL:

NUMBER OF CASES: 31 NUMBER OF VARIABLES: 2

ASSET STRUCTURE COMBINED

	X	Y
X	1.00000	
Y	.40354	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .30127
CRITICAL VALUE (2-tail, .05) = +/- .35441

N = 31

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:AGE LABEL: AGE

NUMBER OF CASES: 30 NUMBER OF VARIABLES: 2

AGE

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
X	X	7.399800E+04	7.728000E+03	2.664828E+02	1.00000
Y	X	2.290680E+02	3.491100E+01	1.203828E+00	.09837

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
Y	Y	1.686696E+01	1.629812E+01	5.620040E-01	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:AGE LABEL: AGE

NUMBER OF CASES: 30 NUMBER OF VARIABLES: 2

AGE

	X	Y
X	1.00000	
Y	.09837	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .30645
CRITICAL VALUE (2-tail, .05) = +/- .36034

N = 30

HEADER DATA FOR: C:IN LABEL: TURNOVER

NUMBER OF CASES: 27 NUMBER OF VARIABLES: 2

TURNOVER COMBINED

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
X	X	5.271983E+05	3.594804E+05	1.382617E+04	1.00000
Y	X	5.141680E+02	1.910272E+02	7.347200E+00	.07893

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
Y	Y	1.691832E+01	1.629573E+01	6.267588E-01	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:IN LABEL: TURNOVER

NUMBER OF CASES: 27 NUMBER OF VARIABLES: 2

TURNOVER COMBINED

	X	Y
X	1.00000	
Y	.07893	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .32375
CRITICAL VALUE (2-tail, .05) = +/- .38009

N = 27

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:GAV LABEL: GROWTH IN ASSET VALUE

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:ALL1 LABEL: change of movement in working capital/a
NUMBER OF CASES: 31 NUMBER OF VARIABLES: 2

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
x	x	3.847677E+07	3.297025E+07	1.099008E+06	1.00000
y	x	3.586187E+03	1.700569E+03	5.668562E+01	.07327

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
y	y	1.698460E+01	1.633890E+01	5.446302E-01	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:ALL1 LABEL: change of movement in working capital/a
NUMBER OF CASES: 31 NUMBER OF VARIABLES: 2

---

	x	y
x	1.00000	
y	.07327	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .30127
CRITICAL VALUE (2-tail, .05) = +/- .35441

N = 31

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:FI LABEL: FINANCING CHARGES

NUMBER OF CASES: 31 NUMBER OF VARIABLES: 2

FINANCING CHARGES

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
X	X	2.533525E+06	2.169463E+06	7.231544E+04	1.00000
Y	X	7.172573E-01	-4.131188E+02	-1.377063E+01	-.06939

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
Y	Y	1.698460E+01	1.633890E+01	5.446302E-01	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:FI LABEL: FINANCING CHARGES

NUMBER OF CASES: 31 NUMBER OF VARIABLES: 2

FINANCING CHARGES

	X	Y
X	1.00000	
Y	-.06939	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .30127
CRITICAL VALUE (2-tail, .05) = +/- .35441

N = 31

---------- CORRELATION MATRIX

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:C&A-P LABEL: Profitability

NUMBER OF CASES: 9 NUMBER OF VARIABLES: 2

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
x	x	1.526553E+00	1.456328E+00	1.820410E-01	1.00000
y	x	3.844202E+00	3.836959E+00	4.796198E-01	.84642

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
y	y	1.411130E+01	1.411055E+01	1.763819E+00	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:C&A-P LABEL: Profitability

NUMBER OF CASES: 9 NUMBER OF VARIABLES: 2

---

	x	y
x	1.00000	
y	.84642	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .58607
CRITICAL VALUE (2-tail, .05) = +/- .66422

N = 9

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:C&A-A LABEL: Asset structure

NUMBER OF CASES: 9 NUMBER OF VARIABLES: 2

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
x	x	3.941925E+00	6.331640E-01	7.914550E-02	1.00000
y	x	2.270010E+00	2.220291E+00	2.775363E-01	.74281

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
y	y	1.411130E+01	1.411055E+01	1.763819E+00	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:C&A-A LABEL: Asset structure

NUMBER OF CASES: 9 NUMBER OF VARIABLES: 2

---

	x	y
x	1.00000	
y	.74281	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .58607
CRITICAL VALUE (2-tail, .05) = +/- .66422

N = 9

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:C&A-GT LABEL: Growth in Turnover

NUMBER OF CASES: 8 NUMBER OF VARIABLES: 2

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
x	x	9.698048E+03	3.699637E+03	5.285196E+02	1.00000
y	x	1.275230E+02	1.259895E+02	1.799851E+01	.55143

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
y	y	1.411062E+01	1.411023E+01	2.015747E+00	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:C&A-GT LABEL: Growth in Turnover

NUMBER OF CASES: 8 NUMBER OF VARIABLES: 2

---

	x	y
x	1.00000	
y	.55143	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .62658
CRITICAL VALUE (2-tail, .05) = +/- .70477

N = 8

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:COMMER LABEL: Change of movement in working capital/2
NUMBER OF CASES: 9 NUMBER OF VARIABLES: 2

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
x	x	8.263250E+05	5.162987E+05	6.453734E+04	1.00000
y	x	6.738738E+02	6.586546E+02	8.233183E+01	.24403

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
y	y	1.411130E+01	1.411055E+01	1.763819E+00	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:COMMER LABEL: Change of movement in working capital/2
NUMBER OF CASES: 9 NUMBER OF VARIABLES: 2

---

	x	y
x	1.00000	
y	.24403	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .58607
CRITICAL VALUE (2-tail, .05) = +/- .66422

N = 9

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:GT2 LABEL: TURNOVER

NUMBER OF CASES: 8 NUMBER OF VARIABLES: 2

Commercial and Allied

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
X	X	2.377504E+04	9.108330E+03	1.301190E+03	1.00000
Y	X	3.270601E+01	3.030823E+01	4.329747E+00	.08454

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
Y	Y	1.411062E+01	1.411023E+01	2.015747E+00	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:GT2 LABEL: TURNOVER

NUMBER OF CASES: 8 NUMBER OF VARIABLES: 2

Commercial and Allied

	X	Y
X	1.00000	
Y	.08454	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .62658
CRITICAL VALUE (2-tail, .05) = +/- .70477

N = 8

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:C&A-F LABEL: Financing charges

NUMBER OF CASES: 9 NUMBER OF VARIABLES: 2

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
x	x	3.996549E+04	3.410916E+04	4.263645E+03	1.00000
y	x	-4.020190E+00	-6.111919E+00	-7.639899E-01	-.00881

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
y	y	1.411130E+01	1.411055E+01	1.763819E+00	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:C&A-F LABEL: Financing charges

NUMBER OF CASES: 9 NUMBER OF VARIABLES: 2

---

	x	y
x	1.00000	
y	-.00881	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .58607
CRITICAL VALUE (2-tail, .05) = +/- .66422

N = 9

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:COMPANY LABEL: Change of Movement in Working capital
NUMBER OF CASES: 4 NUMBER OF VARIABLES: 2

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
x	x	1.298352E+05	1.067312E+05	3.557706E+04	1.00000
y	x	1.114103E+02	7.865430E+01	2.621810E+01	.96370

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
y	y	1.088530E-01	6.241275E-02	2.080425E-02	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:COMPANY LABEL: Change of Movement in Working capital
NUMBER OF CASES: 4 NUMBER OF VARIABLES: 2

---

	x	y
x	1.00000	
y	.96370	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .92820
CRITICAL VALUE (2-tail, .05) = +/- .96112

N = 4

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:PR LABEL: PROFITABILITY

NUMBER OF CASES: 4 NUMBER OF VARIABLES: 2

Profitability

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
X	X	2.095860E-01	3.402500E-02	1.134167E-02	1.00000
Y	X	6.097000E-02	-2.932450E-02	-9.774833E-03	-.63635

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
Y	Y	1.088530E-01	6.241275E-02	2.080425E-02	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:PR LABEL: PROFITABILITY

NUMBER OF CASES: 4 NUMBER OF VARIABLES: 2

Profitability

	X	Y
X	1.00000	
Y	-.63635	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .92820
CRITICAL VALUE (2-tail, .05) = +/- .96112

N = 4

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:FC LABEL: FINANCING

NUMBER OF CASES: 4 NUMBER OF VARIABLES: 2

Financing Charges

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
X	X	1.036236E+06	7.569452E+05	2.523151E+05	1.00000
Y	X	1.945020E+01	-9.443724E+01	-3.147908E+01	-.43448

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
Y	Y	1.088530E-01	6.241275E-02	2.080425E-02	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:FC LABEL: FINANCING

NUMBER OF CASES: 4 NUMBER OF VARIABLES: 2

Financing Charges

	X	Y
X	1.00000	
Y	-.43448	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .92820
CRITICAL VALUE (2-tail, .05) = +/- .96112

N = 4

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:AS LABEL: ASSET STRUCTURE

NUMBER OF CASES: 4 NUMBER OF VARIABLES: 2

Asset Structure

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
X	X	2.583433E+00	5.374275E-02	1.791425E-02	1.00000
Y	X	3.614280E-01	1.867525E-02	6.225083E-03	.32246

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
Y	Y	1.088530E-01	6.241275E-02	2.080425E-02	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:AS LABEL: ASSET STRUCTURE

NUMBER OF CASES: 4 NUMBER OF VARIABLES: 2

Asset Structure

	X	Y
X	1.00000	
Y	.32246	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .92820
CRITICAL VALUE (2-tail, .05) = +/- .96112

N = 4

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:GT LABEL: TURNOVER

NUMBER OF CASES: 4 NUMBER OF VARIABLES: 2

Turnover

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
X	X	2.390621E+04	1.414279E+04	4.714265E+03	1.00000
Y	X	1.544534E+01	-5.848215E+00	-1.949405E+00	-.19684

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
Y	Y	1.088530E-01	6.241275E-02	2.080425E-02	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:GT LABEL: TURNOVER

NUMBER OF CASES: 4 NUMBER OF VARIABLES: 2

Turnover

	X	Y
X	1.00000	
Y	-.19684	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .92820
CRITICAL VALUE (2-tail, .05) = +/- .96112

N = 4

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:I&A-GT LABEL: Growth in Turn over

NUMBER OF CASES: 10 NUMBER OF VARIABLES: 2

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
x	x	4.857200E+03	3.032440E+02	3.369378E+01	1.00000
y	x	8.531950E+01	1.069352E+01	1.188169E+00	.50702

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
y	y	2.689809E+00	1.466908E+00	1.629898E-01	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:I&A-GT LABEL: Growth in Turn over

NUMBER OF CASES: 10 NUMBER OF VARIABLES: 2

---

	x	y
x	1.00000	
y	.50702	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .55240
CRITICAL VALUE (2-tail, .05) = +/- .62972

N = 10

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:I&A-F LABEL: Financing charges

NUMBER OF CASES: 12 NUMBER OF VARIABLES: 2

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
x	x	1.425612E+06	1.141393E+06	1.037630E+05	1.00000
y	x	3.936015E+01	-5.165236E+02	-4.695669E+01	-.38057

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
y	y	2.701126E+00	1.613914E+00	1.467195E-01	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:I&A-F LABEL: Financing charges

NUMBER OF CASES: 12 NUMBER OF VARIABLES: 2

---

	x	y
x	1.00000	
y	-.38057	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .49932
CRITICAL VALUE (2-tail, .05) = +/- .57400

N = 12

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:I&A-P LABEL: Profitability

NUMBER OF CASES: 12 NUMBER OF VARIABLES: 2

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
x	x	9.412530E-01	3.133343E-01	2.848493E-02	1.00000
y	x	5.742710E-01	-2.519740E-01	-2.290673E-02	-.35433

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
y	y	2.701126E+00	1.613914E+00	1.467195E-01	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:I&A-P LABEL: Profitability

NUMBER OF CASES: 12 NUMBER OF VARIABLES: 2

---

	x	y
x	1.00000	
y	-.35433	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .49932
CRITICAL VALUE (2-tail, .05) = +/- .57400

N = 12

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:GT4 LABEL: TURNOVER

NUMBER OF CASES: 10 NUMBER OF VARIABLES: 2

Industrial and Allied

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
X	X	2.208297E+05	1.061770E+05	1.179745E+04	1.00000
Y	X	4.657327E+02	9.128791E+01	1.014310E+01	.23131

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
Y	Y	2.689809E+00	1.466908E+00	1.629898E-01	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:GT4 LABEL: TURNOVER

NUMBER OF CASES: 10 NUMBER OF VARIABLES: 2

Industrial and Allied

	X	Y
X	1.00000	
Y	.23131	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .55240
CRITICAL VALUE (2-tail, .05) = +/- .62972

N = 10

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:I&AA LABEL: Asset Structure

NUMBER OF CASES: 12 NUMBER OF VARIABLES: 2

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
x	x	8.518850E-00	6.715487E-01	6.104988E-02	1.00000
y	x	3.074807E+00	1.539030E-01	1.399118E-02	.14783

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
y	y	2.701126E-00	1.613914E+00	1.467195E-01	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:I&AA LABEL: Asset Structure

NUMBER OF CASES: 12 NUMBER OF VARIABLES: 2

---

	x	y
x	1.00000	
y	.14783	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .49932
CRITICAL VALUE (2-tail, .05) = +/- .57400

N = 12

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:INDUSTRY LABEL: Change of movement in working capital/3
NUMBER OF CASES: 12 NUMBER OF VARIABLES: 2

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
x	x	3.535242E+07	2.937472E+07	2.670429E+06	1.00000
y	x	2.707792E+03	1.584725E+02	1.440659E+01	.02302

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
y	y	2.701126E+00	1.613914E+00	1.467195E-01	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:INDUSTRY LABEL: Change of movement in working capital/3
NUMBER OF CASES: 12 NUMBER OF VARIABLES: 2

---

	x	y
x	1.00000	
y	.02302	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .49932
CRITICAL VALUE (2-tail, .05) = +/- .57400

N = 12

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:F&I-P LABEL: Profitability

NUMBER OF CASES: 6 NUMBER OF VARIABLES: 2

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
x	x	4.596780E-01	1.683973E-01	3.367947E-02	1.00000
y	x	1.416400E-01	6.474367E-02	1.294873E-02	.76059

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
y	y	6.332900E-02	4.302883E-02	8.605767E-03	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:F&I-P LABEL: Profitability

NUMBER OF CASES: 6 NUMBER OF VARIABLES: 2

---

	x	y
x	1.00000	
y	.76059	1.00000

CRITICAL VALUE (1-TAIL, .05) = - Or - .73972
CRITICAL VALUE (2-tail, .05) = +/- .81165

N = 6

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:F&I-GT LABEL: Growth in turnover

NUMBER OF CASES: 5 NUMBER OF VARIABLES: 2

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
x	x	2.768220E+03	3.977200E+01	9.943000E+00	1.00000
t	x	2.912400E+00	2.026400E-01	5.066000E-02	.40327

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
t	t	9.040000E-03	6.348800E-03	1.587200E-03	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:F&I-GT LABEL: Growth in turnover

NUMBER OF CASES: 5 NUMBER OF VARIABLES: 2

---

	x	t
x	1.00000	
t	.40327	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .82213
CRITICAL VALUE (2-tail, .05) = +/- .88233

N = 5

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:GT3 LABEL: TURNOVER

NUMBER OF CASES: 5 NUMBER OF VARIABLES: 2

Financial

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
X	X	2.586873E+05	2.052130E+05	5.130325E+04	1.00000
Y	X	2.839200E-01	-1.171234E+01	-2.928084E+00	-.32449

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
Y	Y	9.040000E-03	6.348800E-03	1.587200E-03	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:GT3 LABEL: TURNOVER

NUMBER OF CASES: 5 NUMBER OF VARIABLES: 2

Financial

	X	Y
X	1.00000	
Y	-.32449	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .82213
CRITICAL VALUE (2-tail, .05) = +/- .88233

N = 5

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:FINANCE LABEL: Change of movement in working capital/4
NUMBER OF CASES: 6 NUMBER OF VARIABLES: 2

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
x	x	2.168188E+06	1.022898E+06	2.045797E+05	1.00000
y	x	9.311040E+01	-5.936770E+01	-1.187354E+01	-.28298

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
y	y	6.332900E-02	4.302883E-02	8.605767E-03	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:FINANCE LABEL: Change of movement in working capital/4
NUMBER OF CASES: 6 NUMBER OF VARIABLES: 2

---

	x	y
x	1.00000	
y	-.28298	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .73972
CRITICAL VALUE (2-tail, .05) = +/- .81165

N = 6

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:F&I-F LABEL: Financing charges

NUMBER OF CASES: 6 NUMBER OF VARIABLES: 2

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
x	x	3.171044E+04	2.318873E+04	4.637746E+03	1.00000
y	x	1.693557E+01	3.782923E+00	7.565847E-01	.11976

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
y	y	6.332900E-02	4.302883E-02	8.605767E-03	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:F&I-F LABEL: Financing charges

NUMBER OF CASES: 6 NUMBER OF VARIABLES: 2

---

	x	y
x	1.00000	
y	.11976	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .73972
CRITICAL VALUE (2-tail, .05) = +/- .81165

N = 6

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:F&I-A LABEL: Asset Structure

NUMBER OF CASES: 6 NUMBER OF VARIABLES: 2

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
x	x	1.498150E-01	4.181083E-02	8.362167E-03	1.00000
y	x	5.063300E-02	3.808833E-03	7.617667E-04	.08980

ROW	COL.	RAW SSCP	ADJUSTED SSCP	VAR-COVAR.	CORR
y	y	6.332900E-02	4.302883E-02	8.605767E-03	1.00000

---------- CORRELATION MATRIX ----------

HEADER DATA FOR: C:F&I-A LABEL: Asset Structure

NUMBER OF CASES: 6 NUMBER OF VARIABLES: 2

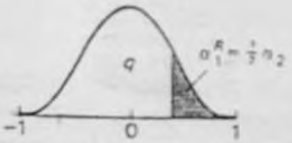
---

	x	y
x	1.00000	
y	.08980	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .73972
CRITICAL VALUE (2-tail, .05) = +/- .81165

N = 6

Critical values for the sample linear correlation coefficient r



0.95	0.975	0.99	0.995
	2½%		½%
10%		2%	
–	–	–	–
–	–	–	–
0.9877	0.9969	0.9995	0.9999
0.9000	0.9500	0.9800	0.9900
0.8054	0.8783	0.9343	0.9587
0.7293	0.8114	0.8822	0.9172
0.6694	0.7545	0.8329	0.8745
0.6215	0.7067	0.7887	0.8343
0.5822	0.6664	0.7498	0.7977
0.5494	0.6319	0.7155	0.7646
0.5214	0.6021	0.6851	0.7348
0.4973	0.5760	0.6581	0.7079
0.4762	0.5529	0.6339	0.6835
0.4575	0.5324	0.6120	0.6614
0.4409	0.5140	0.5923	0.6411
0.4259	0.4973	0.5742	0.6226
0.4124	0.4821	0.5577	0.6055
0.4000	0.4683	0.5425	0.5897
0.3887	0.4555	0.5285	0.5751
0.3783	0.4438	0.5155	0.5614
0.3687	0.4329	0.5034	0.5487
0.3598	0.4227	0.4921	0.5368
0.3515	0.4132	0.4815	0.5256
0.3438	0.4044	0.4716	0.5151
0.3365	0.3961	0.4622	0.5052
0.3297	0.3882	0.4534	0.4958
0.3233	0.3809	0.4451	0.4869
0.3172	0.3739	0.4372	0.4785
0.3115	0.3673	0.4297	0.4705
0.3061	0.3610	0.4226	0.4629

0.95	0.975	0.99	0.995
	2½%		½%
10%		2%	
0.3009	0.3550	0.4158	0.4556
0.2960	0.3494	0.4093	0.4487
0.2913	0.3440	0.4032	0.4421
0.2869	0.3388	0.3972	0.4357
0.2826	0.3338	0.3916	0.4296
0.2785	0.3291	0.3862	0.4238
0.2746	0.3246	0.3810	0.4182
0.2709	0.3202	0.3760	0.4128
0.2673	0.3160	0.3712	0.4076
0.2638	0.3120	0.3665	0.4026
0.2605	0.3081	0.3621	0.3978
0.2573	0.3044	0.3578	0.3932
0.2542	0.3008	0.3536	0.3887
0.2512	0.2973	0.3496	0.3843
0.2483	0.2940	0.3457	0.3801
0.2455	0.2907	0.3420	0.3761
0.2429	0.2876	0.3384	0.3721
0.2403	0.2845	0.3348	0.3683
0.2377	0.2816	0.3314	0.3646
0.2353	0.2787	0.3281	0.3610
0.2329	0.2759	0.3249	0.3575
0.2306	0.2732	0.3218	0.3542
0.2284	0.2706	0.3188	0.3509
0.2262	0.2681	0.3158	0.3477
0.2241	0.2656	0.3129	0.3445
0.2221	0.2632	0.3102	0.3415
0.2201	0.2609	0.3074	0.3385
0.2181	0.2586	0.3048	0.3357
0.2162	0.2564	0.3022	0.3328
0.2144	0.2542	0.2997	0.3301

0.95	0.975	0.99	0.995
	2½%		½%
10%		2%	
0.2126	0.2521	0.2972	0.3274
0.2108	0.2500	0.2948	0.3248
0.2091	0.2480	0.2925	0.3223
0.2075	0.2461	0.2902	0.3198
0.2058	0.2441	0.2880	0.3173
0.2042	0.2423	0.2858	0.3150
0.2027	0.2404	0.2837	0.3126
0.2012	0.2387	0.2816	0.3104
0.1997	0.2369	0.2796	0.3081
0.1982	0.2352	0.2776	0.3060
0.1968	0.2335	0.2756	0.3038
0.1954	0.2319	0.2737	0.3017
0.1940	0.2303	0.2718	0.2997
0.1927	0.2287	0.2700	0.2977
0.1914	0.2272	0.2682	0.2957
0.1901	0.2257	0.2664	0.2938
0.1888	0.2242	0.2647	0.2919
0.1876	0.2227	0.2630	0.2900
0.1864	0.2213	0.2613	0.2882
0.1852	0.2199	0.2597	0.2864
0.1829	0.2172	0.2565	0.2830
0.1807	0.2146	0.2535	0.2796
0.1786	0.2120	0.2505	0.2764
0.1765	0.2096	0.2477	0.2732
0.1745	0.2072	0.2449	0.2702
0.1726	0.2050	0.2422	0.2673
0.1707	0.2028	0.2396	0.2645
0.1689	0.2006	0.2371	0.2617
0.1671	0.1986	0.2347	0.2591
0.1654	0.1966	0.2324	0.2565

For description, see page 35.

The Fisher z-transformation

$$z(r) = \tfrac{1}{2}\log_e\left(\frac{1+r}{1-r}\right) = 1.1513\log_{10}\left(\frac{1+r}{1-r}\right)$$

0.0000	0.0100	0.0200	0.0300	0.0400	0.0500	0.0601	0.0701	0.0802	0.0902
0.1003	0.1104	0.1206	0.1307	0.1409	0.1511	0.1614	0.1717	0.1820	0.1923
0.2027	0.2132	0.2237	0.2342	0.2448	0.2554	0.2661	0.2769	0.2877	0.2986
0.3095	0.3205	0.3316	0.3428	0.3541	0.3654	0.3769	0.3884	0.4001	0.4118
0.4236	0.4356	0.4477	0.4599	0.4722	0.4847	0.4973	0.5101	0.5230	0.5361
0.5493	0.5627	0.5763	0.5901	0.6042	0.6184	0.6328	0.6475	0.6625	0.6777
0.6931	0.7089	0.7250	0.7414	0.7582	0.7753	0.7928	0.8107	0.8291	0.8480
0.8673	0.8872	0.9076	0.9287	0.9505	0.9730	0.9962	1.0203	1.0454	1.0714
1.0986	1.1014	1.1042	1.1070	1.1098	1.1127	1.1155	1.1184	1.1212	1.1241
1.1270	1.1299	1.1329	1.1358	1.1388	1.1417	1.1447	1.1477	1.1507	1.1538
1.1568	1.1599	1.1630	1.1660	1.1692	1.1723	1.1754	1.1786	1.1817	1.1849
1.1881	1.1914	1.1946	1.1979	1.2011	1.2044	1.2077	1.2111	1.2144	1.2178
1.2212	1.2246	1.2280	1.2315	1.2349	1.2384	1.2419	1.2454	1.2490	1.2526
1.2562	1.2598	1.2634	1.2671	1.2707	1.2745	1.2782	1.2819	1.2857	1.2895
1.2933	1.2972	1.3011	1.3050	1.3089	1.3129	1.3169	1.3209	1.3249	1.3290
1.3331	1.3372	1.3414	1.3456	1.3498	1.3540	1.3583	1.3626	1.3670	1.3714
1.3758	1.3802	1.3847	1.3892	1.3938	1.3984	1.4030	1.4077	1.4124	1.4171
1.4219	1.4268	1.4316	1.4365	1.4415	1.4465	1.4516	1.4566	1.4618	1.4670
1.4722	1.4775	1.4828	1.4882	1.4937	1.4992	1.5047	1.5103	1.5160	1.5217
1.5275	1.5334	1.5393	1.5453	1.5513	1.5574	1.5636	1.5698	1.5762	1.5826
1.5890	1.5956	1.6022	1.6089	1.6157	1.6226	1.6296	1.6366	1.6438	1.6510
1.6584	1.6658	1.6734	1.6811	1.6888	1.6967	1.7047	1.7129	1.7211	1.7295
1.7380	1.7467	1.7555	1.7645	1.7736	1.7828	1.7923	1.8019	1.8117	1.8216
1.8318	1.8421	1.8527	1.8635	1.8745	1.8857	1.8972	1.9090	1.9210	1.9333
1.9459	1.9588	1.9721	1.9857	1.9996	2.0139	2.0287	2.0439	2.0595	2.0756
2.0923	2.1095	2.1273	2.1457	2.1649	2.1847	2.2054	2.2269	2.2494	2.2729
2.2976	2.3235	2.3507	2.3796	2.4101	2.4427	2.4774	2.5147	2.5550	2.5987
2.6467	2.6996	2.7587	2.8257	2.9031	2.9945	3.1063	3.2504	3.4554	3.8002

For description, see page 35.

APPENDIX IV

Lendings of Commercial Banks

and Private Financial Institutions

1967 to 1994

COMMERCIAL BANKS — ANALYSIS OF BILLS, LOANS AND ADVANCES
(shillings million)

Table 1.8.2

End of	PUBLIC SECTOR		PRIVATE ENTERPRISES									PRIVATE HOUSEHOLDS etc	Total
						TRADE							
	Government	Commercial Statutory Boards and other Public entities	Agriculture	Manufacturing	Building and Construction	Export	Import	Domestic	Transportation	Financial Institutions	Other Business		
1967	23.78	40.26	132.96	244.46	29.80	205.08	214.67	191.20	22.90	72.80	131.74	50.44	1,360.04
1968	21.44	39.92	155.48	254.42	35.72	173.32	192.80	196.80	28.58	67.04	115.18	55.06	1,335.76
1969	12.12	22.30	172.38	302.56	43.54	160.20	157.26	204.68	58.20	68.74	121.60	76.92	1,400.50
1970	53.38	48.47	185.74	311.62	67.42	200.56	215.48	259.68	59.10	54.64	131.20	151.62	1,738.89
1971	119.94	55.82	215.48	495.92	105.88	225.32	206.46	337.34	78.89	67.82	238.86	218.72	2,402.46
1972	117.72	66.20	240.34	486.58	141.62	177.62	156.16	344.00	61.58	78.14	303.66	250.34	2,427.48
1973	133.46	90.78	355.96	558.38	159.40	240.56	188.48	384.76	73.18	236.42	415.44	391.30	3,228.12
1974	54.97	110.18	481.39	796.07	294.07	354.38	302.90	522.38	140.17	137.97	589.73	379.00	4,183.21
1975	113.25	184.42	736.96	838.51	217.31	303.22	265.52	518.69	143.17	128.02	793.55	439.14	4,681.78
1976	88.50	136.35	813.18	924.01	296.65	314.50	289.59	530.95	178.66	200.62	983.63	557.35	5,314.40
1977	105.39	148.42	1,087.90	1,225.88	341.72	348.93	338.01	838.89	269.31	418.69	1,369.68	732.43	7,225.23
1978	15.79	181.76	1,450.33	1,847.63	469.46	367.84	605.43	989.43	389.00	336.00	1,681.05	940.05	9,273.77
1979	20.95	206.96	1,799.98	2,124.89	720.26	489.12	466.67	1,059.05	473.96	699.41	1,886.57	689.71	10,637.63
1980	11.64	337.42	2,047.23	2,565.60	724.49	490.41	647.85	1,247.74	564.63	325.77	2,535.50	727.20	12,225.48
1981	8.96	333.03	2,211.83	3,196.60	678.10	594.85	562.64	1,409.17	685.93	236.68	2,370.14	916.08	13,193.81
1982	29.13	540.04	2,257.84	3,501.43	856.04	617.05	707.64	1,496.92	660.20	598.29	2,676.11	698.90	14,622.95
1983	16.03	1,138.09	2,769.82	3,542.17	848.27	753.40	512.20	1,618.33	539.31	1,078.40	2,593.93	825.01	16,234.96
1984	17.84	1,526.07	2,729.44	3,606.75	1,036.08	980.99	792.44	2,362.43	548.95	832.99	3,034.05	728.92	18,196.95
1985	18.75	1,734.62	2,967.87	4,402.83	1,174.05	1,033.47	1,100.83	2,490.81	726.03	1,114.77	3,211.34	924.31	20,890.88
1986	122.37	1,756.43	2,942.23	4,791.41	1,146.86	1,280.54	1,377.94	2,926.39	942.26	1,369.62	4,526.20	1,378.79	24,561.04
1987 March	19.05	1,927.41	3,577.41	4,734.48	1,257.37	1,284.10	1,199.14	3,445.43	928.83	1,029.80	4,550.55	1,210.75	25,163.32

NEW SERIES

End of	PUBLIC SECTOR		PRIVATE ENTERPRISES										Total
	Government*	Parastatals	Agriculture	Manufacturing	Building and Construction	Domestic Trade	Transportation	Finance and Insurance	Real Estate	Business Services	Other Business	Social Community and Personal Services	
1987	114.94	3,490.68	4,094.33	6,052.92	1,318.07	4,720.31	878.77	477.39	612.23	690.84	4,657.83	750.63	27,858.94
1988	77.63	3,346.35	5,120.31	7,213.24	1,579.24	5,704.69	1,115.08	308.95	776.04	685.50	4,837.65	758.01	31,522.69
1989	1,231.34	2,709.83	5,834.51	8,403.17	2,119.42	6,475.71	1,273.03	754.35	864.83	826.89	5,892.95	879.35	37,265.32
1990	1,241.91	2,149.90	6,014.62	9,019.32	2,434.26	7,113.70	1,680.24	995.05	885.25	1,418.68	6,349.48	1,159.08	41,461.48
1991	2,809.31	3,909.54	6,724.69	11,136.29	2,855.33	8,639.17	1,655.05	2,171.02	1,646.42	1,565.56	8,447.04	1,368.42	52,927.84
1992													
January	2,856.77	4,400.43	6,975.44	11,135.21	3,296.09	8,535.52	1,734.34	1,617.61	1,524.12	1,555.42	8,427.66	1,339.35	53,392.96
February	2,873.89	4,530.12	6,814.14	11,170.60	2,986.05	8,739.20	1,826.78	1,381.74	1,870.66	1,545.89	8,698.47	1,363.51	53,801.05
March	2,909.43	4,393.14	7,044.57	11,273.80	3,077.00	8,916.94	1,731.57	1,312.89	2,313.40	1,596.39	8,939.15	1,559.25	55,067.53
April	2,964.19	4,234.26	6,925.55	11,673.54	3,093.34	8,790.19	1,785.25	1,216.95	2,304.02	1,593.00	9,609.99	1,469.28	55,659.56
May	1,465.49	3,674.38	7,036.09	11,836.35	3,385.57	9,131.89	2,198.42	1,161.90	2,562.37	1,569.64	10,896.23	4,408.99	56,327.32
June	1,383.96	3,496.49	7,259.10	11,600.87	3,604.89	9,086.86	2,291.11	923.88	2,709.69	1,733.21	11,603.10	1,647.08	57,340.24
July	1,413.70	3,594.45	7,871.45	12,247.56	3,759.31	9,293.24	2,317.97	1,296.75	2,931.37	2,441.29	11,058.77	1,785.99	60,011.85
August	1,395.45	3,546.26	8,247.00	12,084.20	3,997.87	8,999.12	2,205.15	1,162.48	3,094.30	2,107.53	11,806.23	1,808.24	60,253.83
September	1,460.04	3,691.10	8,060.34	11,736.14	3,926.37	9,207.26	2,121.68	1,322.03	4,391.07	1,933.22	11,330.68	1,640.47	60,820.40
October	1,486.91	3,396.40	8,538.55	12,007.68	4,022.01	9,894.37	2,310.10	1,010.77	3,996.59	1,877.57	11,125.71	1,752.04	61,418.70
November	1,511.29	4,055.99	8,653.09	11,309.85	4,053.75	10,376.17	2,259.56	1,191.76	4,273.49	2,032.86	11,285.41	1,943.93	62,947.09
December	1,572.09	3,513.75	8,243.75	11,620.56	4,248.31	9,823.15	2,306.77	1,274.05	4,361.98	1,990.02	13,656.09	1,860.81	64,471.33
1993													
January	1,588.71	3,826.05	8,543.27	11,723.37	4,522.29	9,402.63	2,521.66	1,224.40	4,432.02	2,242.14	12,513.36	1,897.56	64,437.46
February	1,621.70	3,443.56	8,621.21	11,366.40	5,022.45	9,040.74	2,376.22	934.87	4,867.95	1,956.75	14,719.68	1,724.68	65,696.21
March	1,629.46	3,043.70	9,283.75	12,193.63	5,406.29	9,596.48	2,568.54	906.32	5,395.26	3,001.01	14,599.25	2,208.71	69,832.40
April	929.05	2,870.92	9,699.21	13,184.27	4,745.16	10,384.03	2,896.82	1,151.28	1,866.62	2,201.38	16,749.05	2,161.23	68,639.02
May	934.21	2,709.44	10,057.96	13,511.96	3,380.65	9,459.46	2,589.31	1,456.37	1,743.87	3,443.13	15,262.49	2,274.40	66,823.27
June	967.82	2,793.79	9,844.34	15,148.64	3,443.70	9,717.70	2,659.47	1,508.93	1,758.52	2,802.34	14,501.12	2,155.81	67,302.18
July	908.05	2,253.21	9,068.14	15,179.10	3,395.50	9,456.78	2,686.93	1,734.50	1,661.77	2,158.01	13,682.05	1,890.77	64,074.81
August	889.97	2,367.98	9,335.12	15,000.29	3,567.22	9,561.56	2,963.20	1,593.87	1,632.12	2,590.52	13,995.64	2,147.42	65,695.01
September	953.14	2,487.13	9,563.18	14,867.06	3,585.30	9,923.36	3,014.32	1,695.36	1,766.67	2,405.66	12,743.87	2,337.46	65,302.45
October	972.39	2,173.85	9,933.72	15,501.52	3,519.45	9,868.51	3,019.28	1,734.28	1,700.16	3,081.00	12,691.21	2,289.36	66,470.73
November	1,004.58	2,667.62	9,650.02	15,433.44	3,438.16	9,183.05	2,815.19	1,940.42	1,529.45	2,240.05	13,393.42	2,118.65	65,413.55
December	1,008.67	3,649.67	9,575.75	15,509.45	3,557.86	9,235.02	2,724.80	1,896.54	1,662.89	2,412.51	13,645.99	2,446.67	67,325.95
1994													
January	1,030.86	3,975.44	9,706.39	14,946.79	3,523.38	9,030.58	2,488.80	1,400.44	1,687.18	2,356.15	13,484.01	2,350.14	65,960.16
February	1,090.20	3,857.86	9,783.16	14,702.88	3,548.41	9,246.84	2,582.45	1,849.65	2,036.82	2,190.25	13,736.63	2,377.48	66,502.63
March	1,190.44	3,729.09	10,073.64	15,131.28	3,479.12	9,634.04	2,968.93	1,463.25	1,794.10	2,438.49	14,054.60	2,496.40	68,363.38

*Includes local government. Also includes E.A. Community institutions up to 1977.
Source: Central Bank of Kenya.

PRIVATE FINANCIAL INSTITUTIONS – ANALYSIS OF LOANS TO PRIVATE SECTOR BY RECIPIENT AND TYPE OF SECURITY

(shillings million)

Table 2.3

End of	Agriculture	Manufacturing	Building and Construction	Housing	Export	Trade: Import	Trade: Domestic	Other Business Enterprises including Partnerships	Personal	Total
1973	42.94	35.76	10.56	248.14	3.57	25.44	29.20	141.34	110.24	682.69
1974	32.23	40.19	12.82	342.89	2.71	10.02	47.80	165.83	136.73	891.92
1975	27.52	98.05	35.80	425.56	13.20	38.17	77.52	118.15	194.44	1,034.41
1976	96.75	119.06	199.34	388.29	19.69	52.85	109.58	187.91	247.17	1,409.41
1977	121.19	153.52	254.63	421.26	18.79	90.18	148.95	272.57	350.68	1,771.35
1978	118.95	313.17	138.86	721.23	10.94	88.80	273.22	710.71	414.78	2,486.64
1979	136.70	364.96	218.15	821.25	26.30	99.83	274.07	456.24	467.31	2,934.81
1980	162.89	540.10	430.24	1,415.47	31.07	114.22	488.92	826.55	329.60	4,138.06
1981	211.07	619.77	586.09	1,707.72	30.96	109.86	642.91	747.11	323.79	5,209.81
1982	780.13	923.41	724.07	2,063.77	47.14	173.35	890.80	944.87	362.77	8,310.31
1983	1,011.59	1,097.57	697.68	2,332.39	87.02	114.82	1,042.48	1,277.89	297.18	7,978.40
1984	1,174.84	1,278.91	926.74	2,607.94	158.82	149.31	1,457.84	2,075.24	448.29	10,323.72
1985	1,427.65	1,446.12	1,196.80	2,944.22	144.73	104.76	1,810.43	2,696.88	497.77	12,790.36
1986	1,240.57	1,658.83	983.99	3,700.51	116.36	123.78	1,765.83	2,731.89	631.29	12,956.22
1987										
March	1,772.58	1,838.51	1,323.87	3,827.54	208.91	155.66	1,948.27	1,944.64	693.81	14,594.39

NEW SERIES

ANALYSIS OF CREDIT FACILITIES BY SECTOR

End of	Public sector	Private Sector		(i) Enterprises										
	Central Government*	Parastatals	Agriculture, Forestry and Fishing	Mining and Quarrying	Manufacturing	Electricity and Water Supply	Building and Construction	Wholesale, Retail Hotels & Restaurants	Transport and Communications	Finance and Insurance	Real Estate	Business Services	Other	(ii) Social Community & Personal Services	Total Credit
1987	3,236.32	179.73	1,179.92	46.48	1,387.09	8.27	1,482.21	2,581.48	1,290.65	127.95	384.98	455.73	1,587.57	3,209.23	17,945.69
1988	2,735.28	180.82	1,350.42	47.91	1,285.11	46.61	1,720.22	3,132.80	1,860.89	177.40	573.22	857.06	1,710.42	3,847.45	20,610.45
1989	3,530.23	157.05	1,526.06	56.92	2,829.20	78.18	2,186.56	3,536.77	2,110.04	282.72	846.05	1,144.92	2,120.18	4,497.81	24,903.68
1990	3,202.53	586.29	2,235.36	137.21	4,347.89	238.66	2,881.85	4,892.74	2,049.46	482.83	916.78	1,585.23	2,485.80	5,287.18	31,439.79
1991															
March	3,856.13	590.49	2,447.47	61.08	4,929.72	269.00	3,204.82	4,485.91	2,421.53	412.38	1,138.63	1,700.85	2,355.42	5,784.25	33,151.46
June	3,525.58	681.12	2,481.36	65.15	4,487.10	137.82	3,281.82	4,678.44	2,426.31	378.43	1,159.42	1,377.22	2,498.06	6,159.30	33,415.13
September	4,387.08	594.81	2,313.23	89.06	4,644.80	236.42	3,332.91	4,880.68	2,451.99	338.77	1,256.61	1,420.40	2,534.42	6,280.81	34,762.07
December	4,424.37	628.33	2,496.14	78.05	4,825.34	477.41	3,491.23	4,636.57	2,556.75	415.58	1,347.03	1,511.23	2,784.38	6,414.84	36,188.70
1992															
March	5,387.92	548.79	2,468.35	74.84	4,695.89	421.77	3,220.07	4,295.94	2,580.48	351.39	1,183.19	1,458.63	2,701.09	6,431.05	36,198.00
June	6,363.12	497.43	2,387.39	62.61	4,684.16	446.14	3,415.64	5,132.48	2,540.70	359.39	1,257.80	1,454.79	2,590.77	6,599.78	38,213.18
September	6,980.63	406.93	2,390.50	112.77	5,080.81	466.92	3,527.93	5,433.85	2,954.17	397.25	1,350.30	1,666.64	2,895.63	7,093.71	40,366.84
December	7,426.12	391.43	2,733.23	100.49	4,723.28	283.14	3,927.67	5,905.62	2,787.90	348.97	1,582.81	1,516.48	2,961.71	7,347.92	42,254.82
1993															
January	8,738.58	415.00	2,641.67	94.20	4,551.32	284.40	4,200.48	5,777.75	2,478.96	444.64	1,572.44	1,571.73	3,174.96	7,454.91	42,848.54
February	9,653.16	318.40	2,522.39	103.71	4,759.76	248.99	4,301.87	5,825.27	2,536.99	373.57	1,566.08	1,448.30	3,438.74	7,514.67	43,906.49
March	9,982.69	249.83	2,100.82	183.29	4,735.54	327.96	4,157.34	5,956.24	2,124.34	338.64	1,656.77	1,840.60	3,396.39	7,259.90	44,138.64
April	11,638.79	263.63	2,135.18	108.83	4,615.78	873.64	4,099.24	5,818.27	2,401.45	193.48	1,493.89	1,597.11	3,261.25	7,358.58	45,506.10
May	11,402.15	260.99	2,051.72	109.32	4,689.68	790.09	3,572.44	5,767.61	2,518.70	264.84	1,590.90	1,478.93	3,033.36	7,754.48	44,853.21
June	10,650.85	418.64	2,367.05	109.77	4,641.27	278.51	3,950.02	5,794.30	2,518.08	261.29	1,479.10	1,370.11	2,697.43	7,154.08	43,717.00
July	12,155.68	359.28	2,314.19	116.43	4,820.29	286.27	4,028.82	4,739.03	2,410.44	231.56	1,399.12	1,545.82	3,047.53	7,493.99	46,223.72
August	12,199.66	314.34	2,437.07	108.03	5,197.49	289.08	5,858.82	4,887.86	2,292.71	221.64	1,287.19	1,279.19	2,957.58	5,813.82	46,741.29
September	12,298.28	305.88	2,531.60	107.90	5,572.00	291.81	5,634.88	4,849.83	2,442.06	221.81	1,592.53	2,450.93	2,665.16	5,815.08	47,529.76
October	13,524.99	313.28	2,410.43	107.01	5,420.08	288.00	3,902.97	4,961.11	2,475.65	378.71	1,381.92	3,102.19	2,827.69	7,727.83	48,621.76
November	17,868.99	314.64	2,368.64	113.41	5,525.14	289.73	5,436.09	5,034.40	2,435.75	348.05	1,498.43	3,193.89	2,291.60	5,944.48	52,315.25
December	18,649.83	332.71	2,392.67	175.01	5,137.56	278.48	5,399.96	5,338.89	2,427.39	395.41	1,591.91	3,454.00	2,451.97	6,115.70	54,045.52
1994															
January	20,660.71	440.00	2,224.42	115.16	5,078.84	301.79	5,506.75	5,315.22	2,464.90	396.92	1,339.09	3,354.71	2,433.41	6,154.18	55,625.71
February	22,024.89	437.19	2,331.89	156.48	5,268.15	358.24	5,727.64	5,259.68	2,529.30	419.85	1,394.71	3,368.60	2,491.36	6,204.49	57,416.56

*Includes Local Government Authorities

(i) (ii) : Figures do not necessarily add up due to rounding

Source: Central Bank of Kenya

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