

**EFFECTIVE CORPORATE TAX RATE  
AND FIRM FINANCING:**

**AN ANALYSIS OF THE LISTED FIRMS AT NAIROBI STOCK  
EXCHANGE**

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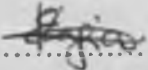
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**A RESEARCH PROJECT SUBMITTED  
IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE  
DEGREE OF MASTER OF BUSINESS ADMINISTRATION,  
UNIVERSITY OF NAIROBI**

**2009**

## Declaration

I, the undersigned, declare that this is my original work and has not been submitted to any other college, institution or university other than the University of Nairobi for academic credit:

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This project proposal has been presented for examination with my approval as the appointed supervisor;

Signed:  ..... Date: 21/11/09 .....

**Mr. Vincent Kamasara**

## **Acknowledgement**

My foremost gratitude goes to our Almighty God for enabling and guiding me through my academic life. I am grateful to the University of Nairobi for admitting me to their MBA programme. My vote of thanks goes to my supervisor Mr. Vincent Kamasara, who guided me as I crafted this paper. I also owe a lot to my classmates; they deserve special recognition. I also thank my family members and friends; they stood by me in the entire course.

## **Dedication**

I dedicate this paper to my family: My parents, Mr. and Mrs. Njoroge and my brother, Ben Waithaka, and not forgetting my fiancée Rose Karanja, who inspired and stood by me throughout this programme.

## Abstract

Financing a firm is basically a mix of debt and equity which a firm deems appropriate to enhance its operations. Firm financing constitutes its capital structure, which decision is crucial for any business organization because of the need to maximize returns to various organizational constituents and also because of the impact such a decision has on a firm's ability to deal with its competitive environment. However, the tax paid by the firm affects the two, both debt and equity ratios. Thus, tax constitutes a potentially important consideration in firms' financing decisions. The question is, how does effective corporate tax rate affect the financial leverage of corporations? Therefore, this study assessed how the corporate tax rate affects financing for firms listed at Nairobi Stock Exchange. Specifically the study aimed to establish the relationship between effective corporate tax rate and debt ratio for firms listed at Nairobi Stock Exchange between 2003 and 2007.

To achieve this objective of the study both correlation matrix and regression analysis were used. A regression equation:  $X = a + rY + e$ , was specified and estimated; where X represents the debt ratio, Y represents the effective corporate tax rate, a is the intercept, and r is the correlation coefficient which measures of the strength of linear association between the two variables, i.e., X and Y.

The result revealed that there was a negative correlation between effective corporate tax rate and the debt ratio. First, the correlation matrix coefficient was -0.217. This linear correlation was negative at 5% level of significance, indicating that there was negative relationship between effective corporate tax and debt ratio. Secondly, the regression result revealed that the coefficient between the effective corporate tax and debt ratio was -0.43. This indicated there was a negative relationship between effective corporate tax rate and debt ratio. The negative relationship supports the Pecking Order theory where firms prefer to use internal financing before resorting to external funds, mainly debt. The theory supports the negative relationship between tax ratio and the debt ratio as opposed to the Trade-off theory which supports a positive relationship between debt and tax ratio where the higher the tax ratio, the higher the debt ratio. Pecking order theory also explains negative intra-industry correlation between profitability and debt ratio, where the higher the profitability, the lower the debt ratio.

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## CHAPTER ONE: INTRODUCTION

### 1.1 Background of the Study

Does the tax policy have a role to play in corporate financing decisions in developing countries? Not much, it would seem from the literature on finance and development, which has largely been concerned with the implications of market liberalization and regulatory reform (Levine, 1997). For tax policy itself, the emphasis has been on the reduction of tax rates, compliance issues and on the maintenance of fiscal stability, with the detailed incentives structure of the tax system regarded as of second-order importance, at least in the earlier stages of financial reforms. However, tax policy can, in theory and in practice, have an important impact on corporate financing decisions.

Modigliani and Miller (1963) laid out the foundation of modern theory of corporate financing. They pointed that if corporations can deduct debt interest before arriving at taxable profits, a wedge is driven between the cost of equity and of debt, and this creates an exception to their irrelevancy theorem (Modigliani and Miller, 1958). Modigliani and Miller (1958)'s capital structure irrelevance theory states that the firm's overall market value and the weighted average cost of capital is independent of capital structure in a perfect market without taxation. However, the tax free perfect market does not hold in the real world. Later, Modigliani and Miller (1963) proposed the modified capital structure relevance theory, which analyzed the present value of interest tax shields at the corporate level and found that the higher the debt ratio, the higher the firm value. Miller (1977) extends the Modigliani and Miller 1963 model to personal as well as corporate taxes, and introduced the Miller theory which considered the relative tax advantage of debt over equity.

The Trade-off theory initially between taxation and financial distress and later extended to cover the trade-off between debt and equity arising from agency problems was formulated by Bradley *et al* (1984). They assert that there are advantages and drawbacks to the use of debt against

equity. Companies therefore select a capital structure that balances between debt and equity at the margin.

Financial distress relates to bankruptcy costs that are directly incurred when there is perceived probability that a firm will default on debt financing. As the firm increases its debt level the financial risk of the firm increases, thus increasing the probability of the firm failing to service its obligations to the bond holders. Despite the high risk associated with debt financing, there is a benefit to the company in form of the debt tax shield.

On the other hand, the Pecking Order theory propagates for the use of internal financing (retained earnings and effects of depreciation) of firms before going for any form of external funds. Internal funds incur no flotation costs and require no additional disclosure of proprietary financial information that could lead more severe market discipline and a possible loss of competitive advantage. In comparison, the trade-off model is useful for explaining corporate debt levels while the pecking order is superior for explaining capital structure changes. The Trade-off theory assumes a relatively static capital structure as opposed to the Pecking Order theory which allows for a dynamic capital structure.

Capital structure is a critical resource of finance since it deals with the management of sources of funds. Over the years, there has been an increase in the need and demand to maximize organizational returns to the stakeholders. Questions have been raised as to the best capital structure that maximizes firm value, which is the sum of the financial claims of the firm. Therefore organizations seek to choose the capital structure that will maximize the organizations overall value. However, as firms try to maximize their value, the question is how the tax on profits affects their capital structure.

### **1.1.1 Effective Tax**

Tax incidence refers to the change in real incomes that result from the imposition of a tax. It can also be defined as the “ultimate economic obligations” which measures the changes in people’s after-tax incomes after all the economic adjustments to the tax has occurred across all affected markets as consumption behavior, resource use, and incomes shift to their new patterns, (Stephen, 2007).



The true measure of the obligations of a tax is the change in people's economic situations as a result of the tax. (Stephen, 2007). What is the importance of the tax obligations? Taxes affect taxpayers' behaviour, triggering economic changes that regularly shift some or even the entire economic obligations of a tax to other parties, and alter total output and incomes. Taxes reduce and distort the mix of what people are willing to produce in their roles as workers, savers, and investors. Taxes increase what these producers seek to charge for their services or products. Changes in the prices and quantities of output in turn affect people in their roles as consumers when they try to spend their incomes.

Taxes imposed on corporations forces various corporations to develop different ways of tax planning to increase or maintain the firm's value. While the complexities involved in tax planning for the multinational corporation are greater than for the domestic firm, so are the possible payoffs. The major decisions that must be made in global tax planning include first, determining the legal form of organization for the firm's foreign operations, second, deciding when, how, and from where to bring back funds, third, arranging for the optimal use of tax havens, bilateral tax treaties, and special corporate tax incentive vehicles such as the Foreign Sales Corporation (FSC). The appropriate decisions, in turn, are influenced by home and host country policies concerning taxation of foreign-source income and the allocation of expenses among corporate units; bilateral tax treaties in effect; the various relevant tax rates and tax differentials; corporate investment policies and sources of financing; the distribution of required and available funds; and the existence of other corporate goals besides tax minimization, such as accessing blocked currencies. These decisions also depend on likely changes in current tax laws. In making these decisions, managers need to understand the international tax environment and the basic principles that have helped to shape it (Shapiro, 2002).

Nearly everyone believes taxes must be important to financing decisions, but little has been found in empirical analyses. Theory predicts that firms with low expected marginal tax rates on their interest deductions are less likely to finance new investments with debt. Tax shields should matter only to the extent that they affect the marginal tax rate on interest deductions. However, although deductions and credits always lower the average tax rate, they only lower the marginal

rate if they cause the firm to have no taxable income and thus face a zero or relatively low or relatively low marginal rate on interest deductions (tax exhaustion), Mackie-Mason (1990).

### 1.1.2 Marginal Tax Rate

The marginal tax rate is the rate of tax applied to the last shilling added to the taxable income. As income increases, more taxes are paid on this “top” level of income. As a result, each additional shilling of investment income is taxed at the highest rate applicable to total income, Lynn Lewis (2004).

### 1.1.3 Corporate Tax

Corporation tax is applicable to incorporated companies and unincorporated organizations and associations (excluding partnerships) which are resident for tax purposes and have taxable income as defined under the Income Tax Act. Corporate income tax (CIT) is charged on profits of limited liability companies at a flat rate of 30 percent for local companies and 37.5 percent for foreign companies. Companies under export processing zone pay no tax for the first ten years of their establishment, 25% for ten years after expiry of ten years of establishment, 30% or 37.5% thereafter depending on either foreign firm or domestic firm respectively. Companies that are newly listed at the Nairobi Stock Exchange attract lower rates of 20 percent for an initial period of five years. Table 1.1 below shows the current applicable corporate tax rates since year 2000.

**Table 1.1: Corporate Tax Rates**

Corporation		Rate (%)
Resident companies		30%
Permanent establishments of non-resident companies		37.5%
Export processing zone enterprises	First ten years	Nil
	Next ten years	25%
	Thereafter (depending on either domestic or foreign firm)	30% or 37.5%
Newly listed companies		20%

*Source: Income Tax Act (2007 Revised Edition)*

There is differential treatment of domestic and foreign companies. This is because of the perception that domestic companies needed some form of protection as opposed to foreign companies. The increased need for investment and intensified competition for investment funds in a globalized world necessitated major reforms in corporate taxation. Major changes have involved the lowering of tax rates. The local company tax rates were reduced from 45 percent in 1974 to the current 30 percent, while tax rates on foreign companies were reduced from 52.5 percent in 1974 to 37.5 percent currently. These measures have been aimed at increasing the disposable income for both corporate and individuals, thus encouraging private investment. In 2006/07, newly listed companies at the Nairobi Stock Exchange started enjoying lower corporation tax rates of 20. percent for the initial five years of inception.

The difference in effective corporate tax among companies is brought about by the different expenses either allowed or disallowed for tax purposes. More disallowed expenses brings about more effective corporate tax while more allowable expenses tend to decrease the effective corporate tax suffered by corporations. The more the allowable expense for corporations the better is their shield from paying more taxes and vice versa for expenses that are disallowed for tax purposes. This is very critical for corporations and they go to great lengths to demonstrate the expenses they treat as allowable for tax purposes to the tax authorities in order to avoid paying more taxes.

#### **1.1.4 Financing Pattern of Listed Firms in Kenya**

Firms listed at Nairobi Stock Exchange in Kenya are mostly financed by both equity and debt as shown in Table II. The table shows that, on average, the capital structure of firms for 12 years from 1996 to 2007 consisted of 42.75% equity and 58.25% debt. During this period (1996-2007), listed firms were more debt than equity financed. Equity financing ranged from 38.20% to 39.43%, while debt accounted for 61.80% to 60.80% respectively. This may have been due to financial regulations making equity financing less accessible to firms than debt, or firms preferring debt to equity financing as a result of relatively lower cost of debt capital.

**Table II.1: Financial Structure of Listed Firms in Kenya (from 1996-2007 in percentages)**

Year	Equity/CE	TDebt/CE	ST Debt/CE	LTDebt/CE	Tax/Profit
1996	38.20	61.80	22.37	39.43	14.60
1997	49.80	50.20	12.20	38.00	17.60
1998	46.31	53.69	13.32	40.37	20.80
1999	44.53	55.47	15.38	40.10	21.60
2000	36.77	63.23	19.22	44.02	19.87
2001	40.07	59.93	25.26	34.67	21.00
2002	32.91	67.09	24.76	42.32	20.79
2003	30.00	70.00	27.82	42.18	20.68
2004	39.30	60.70	24.85	35.85	23.32
2005	39.20	61.70	32.75	28.05	19.60
2006	45.07	61.20	23.84	37.36	19.40
2007	39.43	60.80	28.05	32.75	20.60
Average	40.13	60.48			

Note: CE = capital employed, Tdebt = total debt, ST Debt = short term debt, LT Debt = long term debt, Equity, Total debt, short and long term debt were deflated by Capital employed. The above figures are book values.

Equity/CE = Equity Ratio

TDebt/CE = Debt Ratio

Tax/Profit = Effective Tax

Source: Annual Reports of Companies at Nairobi Stock Exchange Fact books, 1996-2007.

## 1.2 Statement of the Problem

Financing a firm is basically a mix of debt and equity which a firm deems appropriate to enhance its operations. Firm financing constitutes its capital structure, which decision is crucial for any business organization because of the need to maximize returns to various organizational constituents and also because of the impact such a decision has on a firm's ability to deal with its competitive environment.

Investors are normally interested in the performance of a company at the point they intend to invest in that given company. Return on equity (ROE) is one measure that is accepted as a good measure of a company's financial performance. Thus, investors take interest in the size and trend of this ratio. The level of indebtedness of a company has cost implications on the company as well the company's commitment to meet its obligations to the financiers. Investors therefore should not only be concerned about the ROE but also on the debt equity ratio and its implications on the company's earnings. This is further explained by the Trade-Off Theory of

Capital Structure, which refers to the idea that a company chooses how much debt finance and how much equity finance to use by balancing costs and benefits. The classical version of the hypothesis goes back to Kraus and Litzenberger (1973) who considered a balance between the dead-weight costs of bankruptcy and the tax saving benefits of debt. Often agency costs are included in the balance. In general, tax treatment of equity and debt affects the overall cost of capital and firm value, rendering it a high priority area for research in corporate finance. How the taxes affect firm financing remains an empirical issue. The relationship between effective tax rate and debt ratio remain unknown, especially in the developing countries. This is the gap this study attempts to fill. Over the years, studies have examined the differential impact of tax treatment of debt and dividends on corporate financial policy in developed countries. However, the existing studies in this area are scanty in Kenya, hence the need for this study.

Tax effects on the allocation of activity across organizational forms appear to be very statistically significant. It is hard to imagine that the ability to deduct interest payments from taxable income does not contribute to the decision to issue corporate debt. This implies that tax status affects corporate debt policy, although much previous academic research fails to validate this hypothesis. Graham's paper (1996) simulates marginal tax rates that are consistent with the federal tax code. These explicitly calculated marginal tax rates are used to empirically document a positive relation between tax status and incremental debt policy. This result is consistent with a growing body of research (Mackie-Mason, 1990; Scholes, Wilson, and Wolfson, 1990; Givoly, Hahn, Ofer, and Sarig, 1992) that finds that tax status affects corporate decision-making. Two common themes running through this research are the use of incremental financing and/or an appropriately specified measure of tax status.

The tax-code-consistent marginal tax rates calculated in Graham's (1996) paper indicate that there is substantial variation in marginal tax rates across time and across firms. There is also variation for subsets of the data which include just large (small) firms, as well as for firms with (without) net operating loss (NOL) carryforwards. With respect to NOL status, firms do not appear to be as responsive to the tax incentives associated with debt when they have NOL carryforwards, relative to when they do not. This suggests that expected bankruptcy costs are relatively high when a firm is in the NOL state, dampening the intensity of debt usage. The

results suggest that a net operating loss dummy variable is a reasonable tax status proxy. However, the NOL dummy variable only accounts for a small part of the explanatory power of the simulated tax variables.

On the other side, the pecking order theory explained the negative relationship between the tax ratio and the debt ratio. Higher profitability leads to high tax ratio, meaning that the debt ratio is low as firms opt to utilize their internal sources of finance. The pecking order theory of capital structure state that firms have a preferred hierarchy of financing decisions. The highest preference is to use internal financing (retained earnings and effects of depreciation) before resorting to any form of external funds.

Finally, the following two questions pose challenges to financial studies: 1) given the large number of theories available to explain the use of debt, why is our ability to empirically explain debt policy not much better than it is, and 2) given the strong tax incentives associated with debt issuance, why do taxes not explain a larger portion of debt policy?, Graham (1996).

This explains the need to do more research to ascertain the relationship between debt policy and effective corporate tax.

### **1.3 Research Questions**

This study was guided by the following research question;

- What is the relationship between the effective corporate tax rate and firms' debt ratio?

### **1.4 Objective of the Study**

This study assessed how the corporate tax rate affects financing for firms listed at Nairobi Stock Exchange. Specifically the study aimed to establish the relationship between effective corporate tax rate and debt ratio for firms listed at Nairobi Stock Exchange between 1996 and 2007.

### **1.5 Significance of the Study**

Studies on the incidence of corporate tax and its impact on financing decisions of firms have concentrated on developed countries, with different political environment, especially in the United States. However, some of the factors identified by these studies may not be considered applicable to the African environment (Ariyo, 1988). Hence this research constitutes an attempt at a study of a phenomenon that may impact the financing decisions of corporate firms.

recognized in developed countries, but not previously observed in a developing country's environment. These findings should provide information in developing a positive insight of corporate finance and taxation for developing countries.

The findings can be used by corporations when making financing decisions, whether to utilize debt and/or equity finance depending on how both are affected by the tax component in the profits. The study contributes to the existing literature by using firm level data from Kenya to examine the relationship between debt policy and firm tax payment.

### **1.6 Organization of the study**

The remainder of the study was organized as follows. Chapter two reviewed both the empirical and theoretical literature on the issue under investigation. Chapter three discussed the methodology adopted by the study. This includes the conceptual framework, specification of the model relevant to the study, the measurement of the variables, the sources of data used in the study, and the limitations of the study. Chapter four presented the empirical analysis and interpretation of results, while chapter five dealt with findings of the study and policy recommendations.

## CHAPTER TWO: LITERATURE REVIEW

### 2.1 Taxation

Taxation is the primary method by which governments finance themselves. Essentially all taxes transfer resources from the private to public sector, where government decision makers (both elected and unelected) will choose how those resources will be allocated between services and redistribution (Feld and Matsusaka, 2003). Essentially all taxes shift resources to the government by threatening current resource holders (property owners, labour, international trading firms, etc.) with punishments of various sorts if they do not "give" their resources to the government's tax collectors. In this sense, all taxes are coercive at the point of collection. This contrasts with government bonds and ordinary fees for services, because such transactions are voluntary at the point of collection. Bond buyers and public service purchasers feel better off after the purchase, whereas tax payers normally feel worse off after paying the tax (although better off than had they not paid and been placed in jail) (On the other hand, insofar as taxes are used to fund desired public services, taxation as a method of government finance can be regarded as voluntary in much the same sense that the amounts paid can be regarded as voluntary. In such cases, voters prefer to "tax themselves" to pay for desired governmental services, rather than go without those services) (Stephen, 2007).

Tax imposed on corporation can be measured in two ways: First, it can be calculated as a cash payment--in much the same way that payments for ordinary goods are calculated. (This is the most widely used measure by macro-economists, accountants, and newspaper reporters.) Second, it can be calculated by determining the losses imposed on tax payers as a consequence of the tax; that is to say the opportunity cost of the tax. This representation of the obligations of a tax can be measured as the reduction of consumer surplus and profits induced by the tax. (This measure of obligations is the most widely used among micro-economists and public finance economists.). This differs a bit from the money paid to the government, because the existence of a tax often reduces the extent of market transactions (Stephen, 2007). Most taxes have a deadweight loss, which can be measured as the extent to which "social surplus" is reduced by the existence of a particular tax, which as we will see depends partly on how the taxes are spent. The advantage of calculating the total obligations of a tax as the change in surplus generated by



that tax rather than tax payments is that tax payments are often made by persons or firms who are little affected by a given tax. For example, sales taxes are paid by firms in the sense that firms (or firm owners) actually write the checks deposited in the government's treasury. Thus, calculated as cash payments, one could say that the obligations of a sales tax falls entirely on firms. On the other hand, if firms simply increase their prices to pay for the tax, which is what they appear to do at the cash register, then the tax obligations has really been "shifted" forward onto their customers, even though consumers never actually write checks for sales taxes and send them into the treasury. Depending on the type of the tax the obligations can either be borne by the firm or the consumers.

There are a multitude of other tax provisions that differ by organizational form, hence affecting the tax paid by these organizations (Mackie Mason and Gordon, 1990). Some of the tax shelters in financing organizations and affecting the tax obligations include:

**Rules Governing Election.** A business must satisfy some restrictions in order to avoid corporate taxes. In general, a firm will be taxed as a corporation unless it fails two of the following criteria: (1) continuity of life; (2) centralized management; (3) easy transferability of ownership shares; (4) limited liability.

**Pensions and Fringe benefits.** Opportunities for tax-deferred savings and fringe benefit deductibility have varied across organizational forms and time. More fringe benefits provided provided to employees are deductible for corporations that for partnerships and sole proprietorships (including, until 1986, health insurance premiums).

**Loss offsets and At-Risk Rules.** A corporation can offset losses only against its own past or future profits. Losses can offset profits in any of the prior years, or be carried forward without interest to offset future profits. The importance of tax losses has also varied over time.

**Passive and Foreign Income.** With the U.S. 1986 Tax Reform Act, passive losses accruing to corporations could be offset only against other sources of passive income and not against ordinary income. Beginning 1972 a corporation could receive favoured tax treatment on export business, thus providing much needed tax shelter.

**Capital Gains Provisions.** In general capital gains were taxed more favourably at the personal than at the corporate level, creating an incentive not to incorporate for firms earning substantial income in the form of capital gains. However, under the General Utilities doctrine, corporations

could separately incorporate an asset before it was sold and then distribute the liquidation proceeds directly to shareholders without incurring capital gains tax at the corporate level. This provision was repealed in 1986. When the capital gains tax rate is low enough, relative to the ordinary tax rate, then firms may have an incentive to churn assets. When an asset is sold, capital gains taxes must be paid on the book profits, but the asset can then be depreciated based on the new book value. The lower the relative value of the capital gains tax rate, the more likely this transaction is to be profitable. Churning can occur for firms as a whole, through acquisitions and deacquisitions, or can occur for particular assets, e.g. buildings, airplanes, computers etc. The opportunities for profitable churning have varied over time – since 1986, they have basically disappeared. Since “churned” assets would normally generate tax losses, profitable corporations would have had the incentive to shift ownership of “churnable” assets to high-tax-bracket noncorporate investors during periods when churning was profitable (Mackie-Mason and Gordon, 1991).

## **2.2 Why do countries choose different tax policy strategies?**

Feld and Matsusaka (2003) group the potential determinants of the tax policies chosen by different countries into three categories. The first two of these, political institutions and preferences for redistribution and equality, essentially determine the amount of government revenues required. The third category, position in the processes of globalization and growth, mainly explains strategies in company taxation. They discussed these groups as follows:

### **2.2.1 Political institutions**

Feld and Matsusaka (2003) analyze tax policy in Switzerland. They find that democracy as an important institutional determinant of the tax obligations. They show that localities with referenda on tax policy have lower levels of government spending and taxation compared to those in which parliament decides alone. In representative democracies, the electoral system may have an impact on the overall tax obligations. In countries with proportional representation, coalition governments are common, while in countries with a plurality system, typically one winning party alone forms a government. Since in a coalition more special interests are

represented, it is harder for such a government to reduce spending since they have to please all those interests. Thus taxes are likely to remain high (see Stegarescu, 2005).

A similar effect may be at work in countries with a bicameral or presidential system where law making effectively needs the consensus of both major political camps. The high effective tax rates in Germany, Italy, and France fit this explanation. Conversely, the fact that the United Kingdom taxes more moderately may be attributed to the generally clear majority of the ruling party in Britain's Lower House. A further characteristic distinguishing Switzerland from most of the other countries is her federal structure and the strong tax autonomy enjoyed by jurisdictions at the sub national level. Since Swiss cantons and municipalities experience tax competition even inside their own country, they have a stronger incentive to keep tax obligations on mobile capital low than a unitary state where such internal tax competition is absent. As shown by recent theoretical (Keen and Kotsogiannis, 2002) and empirical (Esteller-Moré and Solé-Ollé, 2001) research, however, the joint exploitation of the same tax base by several layers of the state induces excessively high tax rates in federations. A similar effect occurs when local jurisdictions participate in a system of equalizing grants (see Büttner and Schwager, 2003). Despite the unquestionable relevance of tax competition on the municipal level, Germany has exceptionally high effective tax obligations on companies.

### **2.2.2 Preferences for redistribution**

Alesina et al. (2001) discuss the causes for the different extent of the welfare state in the United States and Europe. Based on many indicators, they show that the majority of the population in the United States is much less inclined to support the poor and to redistribute income via the public budget than the electorate in most European countries. By consequence, the higher overall level of taxation in most continental European countries may simply reflect the citizens' stronger taste for redistribution. In that respect, the two English speaking European nations in our sample, the United Kingdom and Ireland, seem to be closer to the United States than to Europe. Similar to a revenue requirement deriving from flaws in the electoral system, also the revenue requirement originating from a desire to redistribute income mainly explains the tax obligations on employees. Nevertheless, the tax obligations on capital may in itself be considered an issue for social justice, in the sense that equity requires to tax capital at least as

heavily as labour income. If this is the case, a high effective tax rate for companies follows from a strong demand for redistribution alongside a high tax obligations on qualified labour.

### **2.2.3 Globalisation and growth**

According to Devereux et al (2000) the position of a country in the growth process may be important for her choice of tax strategy since it affects the benefits and costs of taxing capital for redistributive reasons. Devereux et al (2000) state that whereas the countries EU 15, with the exception of Ireland, are characterized by a high GDP per capita and low growth rates, the accession countries are fast growing, but starting from a very low level. By consequence, in the EU accession countries there is very little capital which could be expropriated by taxation, implying that it is not really worthwhile to impose high corporate income taxes. Contrary to that, company taxation in the EU 15 countries generally promises substantial revenue and thus a high effective tax rate on companies is attractive (Devereux et al, 2000). The cost of redistributing income by capital taxation is also closely linked to a country's growth rate. It is likely that in relatively poor countries, a high effective marginal tax rate on investment is particularly harmful in terms of foregone growth since the potential for growth is still large in such countries. It is striking that the Eastern European countries typically choose a strategy of low or very low company taxation, combined with a relatively high tax on skilled employees (Devereux et al. 2000).

In 2004 this strategy of the enlargement countries is confirmed by a further significant decrease of the company tax obligations in Poland and the Slovakia (Devereux et al, 2000). Thus, while these societies seem to adhere to the continental European model of the welfare state, they are not ready to jeopardize their growth prospects by taxing corporate investment heavily. An observation confirming this conclusion is the prevalence of specific investment incentives e.g. in Slovenia and the Czech Republic which particularly reduce EMTRs, the measure of tax obligations relevant for the level of investment. All countries are exposed to globalization, but not all are so to the same degree (Devereux et al, 2000). According to international trade theory, small countries generally benefit from international trade and factor movements and thus are more open than large countries. Consequently, small countries should be more aware of tax induced international relocation of capital than large countries. Since EATRs are relevant for

location decisions, this fact implies that we should expect small open countries to display comparatively low EATRs, whereas large countries are more likely to stick to high EATRs despite globalization. The results are largely in line with this hypothesis.

The big European countries Germany, France, and Italy impose high effective tax obligations on companies while smaller countries like Switzerland, Ireland, Hungary, Slovenia, Sweden, Finland, Luxemburg, and Belgium display lower company tax obligations (Devereux et al, 2000). This is particularly remarkable in the cases of Belgium and the two Scandinavian countries which definitely do not follow a general low tax – low spending strategy. Instead, these countries keep personal income taxes high so as to finance the desired amount of expenditure, but they explicitly want to attract internationally mobile firms by reducing company tax obligations, for example by a dual income tax regime. Devereux et al, (2000) give an example of United States. Despite a culture of low state involvement and low taxes, the US tops the list of effective average tax rates on companies. A possible explanation for this fact is that the US is so large that an international relocation of production is relevant for only a small fraction of her companies. By consequence, the pressure to keep profit taxes low is felt much less intensely than in other countries.

There is yet another possible interpretation of the strategy pursued by the USA, France, Germany, and Italy in the process of globalization. Since companies do not only pay taxes but also benefit from public infrastructure, it might be that these countries try to position themselves as suppliers of high value public goods which are worth the high price in terms of taxes (Devereux et al, 2000). Compared with the Eastern European countries, the superior infrastructure in these countries certainly compensates to some extent for the tax differential. However, Switzerland, the Scandinavians, and Luxemburg are able to offer a similar package of public services together with lower tax rates, not to mention Ireland. Thus, the benefit provided by high taxes can at best explain a small part of the difference in EATRs measured.

Devereux et al., 2000 studied effects of tax obligations on capital investment. He asserted that companies pay taxes on profits and capital. Also, under competitive markets tax on each element constitute a tax obligation on companies and influence the attractiveness of a particular

region as a location for investment. He argued that due to the great number of relevant tax rules, effective tax obligations may differ significantly from statutory tax obligations. For company taxation, he included the corporation tax with surcharges, other profit related taxes, real estate taxes, and specific taxes based on capital. He calculated effective average tax rates (EATRs), which are relevant for international location decisions, and effective marginal tax rates (EMTRs), which are important indicators for a firm's investment opportunities and competitiveness from a tax perspective at a given location. He identified three potential causes in order to explain the different tax policy strategies of different countries: (1) political institutions, (2) preferences for redistribution and quality, and (3) the position in globalization and growth. The first two categories mainly concern the income tax revenue and the tax obligations on individuals; the latter category rather concerns the tax obligations on the mobile factor capital investments. His findings on the effective tax rate of companies and highly skilled manpower strongly reflect these different tax strategies. However, each country shows a mix of tax strategies which lead to the country-specific tax obligations. Small countries, high growth rates, and federal structure with high tax autonomy stand for countries that offer lower tax obligations, especially on companies. Large countries, representative democracies with coalitions, and a high preference for redistribution are likely to induce higher tax obligations on both highly qualified employees and companies and thus are less attractive locations for an investment from a tax perspective.

### **2.3 Corporations and taxes**

A corporation is an artificial being, invisible, intangible and existing only in contemplation of the law. Being a mere creature of the law, it possesses only those properties which the charter of its creation confers upon it, either expressly or as incidental to its existence, (Van Horne and Wachowicz, 2001). The principal feature of this form of business organization is that the corporation exists legally separate and apart from its owners. An owner's liability is limited to his or her investment. Limited liability represents an important advantage over the proprietorship and general partnership. Capital can be raised in the corporation's name without exposing the owners to unlimited liability. Therefore, personal assets cannot be seized in the settlement of claims.

Most business decisions are affected either directly or indirectly by taxes. Through their tax power, federal, state and local governments have a profound influence on the behaviour of businesses and their owners. What might prove to be an outstanding business decision in the absence of taxes may prove to be inferior with taxes (and sometimes vice versa), (Van Horne and Wachowicz, 2001). A corporation's taxable income is found by deducting all allowable expenses, including depreciation and interest, from revenues. The taxable income is then subjected to corporate tax. In Kenya, corporate tax is currently at 30%. Ownership of the corporation is itself evidenced by shares of stock, with each stockholder owning that proportion of the enterprise represented by his or her shares in relation to the total number of shares outstanding (Shapiro, 2002). These shares are easily transferable, representing another important advantage of the corporate form. Moreover, corporations have found what the explorer Ponce de Leon could only dream of finding – unlimited life. Because the corporation exists apart from its owners, its life is not limited by the lives of the owners (unlike proprietorships and partnerships). The corporation can continue even though individual owners may die or sell their stock. Because of the advantages associated with limited liability, easy transfer of ownership through the sale of common stock, unlimited life and the ability of the corporation to raise capital apart from its owners, the corporate form of business organization has grown enormously in the twentieth century. According to Shapiro (2002) with the large demands for capital that accompany an advancing economy, the proprietorship and partnership have proven unsatisfactory and the corporation has emerged as the most important organizational form. A possible disadvantage of the corporation is tax related. Corporate profits are subject to double taxation. The company pays tax on the income it earns and the stockholder is also taxed when he or she receives income in the form of a cash dividend. Minor disadvantages include the length of time to incorporate and the red tape involved, as well as the incorporation fee that must be paid to the country in which the firm is incorporated. Thus, a corporation is more difficult to establish than either a proprietorship or partnership.

### **2.3.1 How Much Should a Firm Borrow?**

Debt financing has one important advantage under the corporate income tax system. The interest that the company pays is a tax-deductible expense. Dividends and retained earnings are

not. This may influence a company into utilizing debt finance to reduce or avoid its tax obligations. Thus the return of bondholders escapes taxation at the corporate level.

**Table 2.1: Illustration of tax calculation**

	Income Statement of Firm U	Income Statement of Firm L
Earnings before interest	\$1,000.00	\$1,000.00
And taxes		
Interest paid to bondholders	0.00	80.00
Pretax income	1,000	920.00
Tax at 46%	460	423.80
Net income	\$540	\$496.80
to stockholders		
Total income to both bondholders and stockholders	\$0+540=540	\$80+496.80=576.80
Interest tax shield (0.46 x interest)	\$0	\$36.80

The above illustration 1 shows simple income statements for firm U, which has no debt, and firm L, which has borrowed \$1,000 at 8 percent. The tax bill is \$36.80 less than that of U. This is the tax shield provided by the debt of L. In effect the government pays 46 percent of the interest expense of L. The total income that L can pay out to its bondholders and stockholders increases by that amount. Tax shields are valuable assets. Suppose that the debt of L is permanent (that is, it plans to refinance its present debt obligations when they mature and to keep "rolling over" its debt obligations indefinitely). It looks forward to a permanent stream of cash flows, \$36.80 per year. The risk of these flows is likely to be less than the risk of the operating assets of L. The tax shields depend only on the corporate tax rate and on the ability of L to earn enough to cover interest payments, (Myers and Brealey, 1984). The ability of L to earn its interest payments must be reasonably sure; otherwise it could not have borrowed at 8 percent.

In choosing the company's debt-equity ratio, we cannot say that more debt is always better. Debt may be better in some cases, worse in others. If a company is in a taxpaying position, an increase in leverage reduces the income tax paid by the company and increases the tax paid by investors. If the company has large accumulated losses, an increase in leverage cannot reduce



corporate taxes but does increase personal taxes. Firms with high and stable income streams are more likely to remain in a taxpaying position, but even they may be unable to take full advantage of the interest tax shields if they borrow too much; hence according to Myers and Brealey, 1984, there is a tax advantage to borrowing for companies that are reasonably sure that they can use the interest tax shields and a disadvantage for those that are unlikely to use them. However, borrowing is not the only way to shield income, hence reduce or avoid increased tax obligations on the companies. For example, accelerated write-offs of plant and equipment can be used to reduce corporate taxes.

In agency-cost models, financing decisions affect value because they produce behaviour that affects profitability. Jensen and Meckling (1976) submit that higher leverage allows managers to hold a larger part of its common stock and this reduces agency problems by closely aligning the interest of the manager and other stockholders. According to Jensen (1986) leverage also enhances value by forcing the firm to pay out resources that might otherwise be wasted on bad investments by managers. Fama and Miller (1972) and Jensen and Meckling (1976) argue that leverage can also increase the incentive of the stockholders to make risky investment that shift wealth from bondholders but do not maximize the combined wealth of security holders. Myers (1977) argues that leverage can make firms to under invest because the gains from investments are shared with the existing risky bonds of the firm. The agency effects of financing decisions work through profitability and they can make firms to take better or worse investments and to use assets more or less efficiently. In the pecking order model and asymmetric information problems that arise when issuing debt and equity cause firms to prefer internal financing. External financing is seen as bad news about earnings (Myers, 1984; Myers and Majluf, 1984)).

On the tax effects of debt, Miller (1977) argue that common stock is priced as if it is tax-free, but the personal tax rate built into the pricing of corporate interest payments is the corporation tax rate. Here, the debt tax shield at the corporate level is offset by taxes on interest at the personal level, and debt does not affect firm value. Miller and Scholes (1978) consider a situation in which investors avoid personal taxes on all returns on investment, and all corporate securities are priced as if they are tax-free. Modigliani and Miller (1963) argue that corporate debt tax shield will increase firm value by the market value of the corporate tax savings on

expected interest payments. The predictions of these hypotheses for the debt slopes will depend on whether or not we control for profit before or after tax. Miller (1977) submits that if there are two firms with the same earnings before interest and taxes, the more levered firm's higher after-tax earnings are just offset by the higher personal taxes paid by its bondholders. Given pre-tax earnings, there is no relation between debt and value. But the more levered firm has lower value because its investors pay more taxes, if two-firms have the same earnings after tax. Therefore, the relationship between debt and value is negative when after tax earnings are controlled for. In contrast, Modigliani and Miller (1963) predict a positive relation between debt and value in regressions that control for earnings before tax because earnings before tax do not capture the debt tax shield. Profit after tax captures the benefit of interest deductions. Thus there is no relation between debt and value when controlling for earnings after tax.

Mackie-Mason (1990) and Graham (1996) find that companies with high marginal tax rates are more likely to issue debt than firm with low marginal tax rates, although this does not imply that debt increases firm value. Miller (1977) asserts that where there is no relation between debt and firm value, firms issue debt only when they expect to use the interest deductions to offset taxes. In such a case, debt financing is preferred than equity financing.

According to Mackie-Mason (1990), a number of factors other than tax status may influence a firm's financing decisions. Two distinguishing characteristics of debt other than tax treatment are the commitment to make periodic payments and the priority of debt claims over equity. These features lead to three differences between the values of incremental debt and equity issues: 1) marginal financial distress costs for debt due to the fixed interest commitment, 2) efficiency costs for debt due to priority of debt claims, and 3) signaling costs that are higher for equity because equity is the residual claim. The desirability of debt finance at the margin increases with the firm's effective marginal tax rate on deductible interest. When high shields substantially increase the probability of tax exhaustion, the firm faces a lower expected marginal tax rate and thus should be less likely to use debt.

#### **2.4 The Financing Mix: Tradeoffs and Theory**

We consider three ways commonly used firms to choose their financing mix on where they are in the growth cycle, others choose a mix similar to that used by comparable firms, and still

others follow a financing hierarchy. The tradeoff between the costs and the benefits is implicit in each of these cases (Damodaran, 1999).

### **2.4.1 The Benefits of Debt**

Firms that use debt rather than equity benefit in two ways. First, they obtain a tax benefit because interest on debt is tax deductible, whereas dividends paid to stockholders are not. Second, debt allows firms to impose discipline on managers. Firms have to make regular payments to debt holders, and managers who choose to invest in poor investments increase the likelihood that they will be unable to make these payments. We look at each of these benefits here.

### **2.4.2 The Tax Advantages of Debt**

Tax laws that allow firms to deduct interest payments on debt from taxable income – but that do not provide a similar deduction for cash flows from equity – make debt a more attractive financing vehicle than equity. In the United States, interest paid on debt is tax deductible, whereas cash flows to equity (such as dividends) have to be paid out of after-tax cash flows. For the most part, this is true in other countries as well, though some countries try to provide partial protection against the double taxation of dividends. They do so either by providing a tax credit to investors who receive the dividends for the dividends for the corporate taxes paid (Britain) or by taxing retained earnings at a rate higher than dividends (Germany). We can compute the tax benefits from debt in one of two ways. One is to compute the present value of the tax savings from interest payments and then add the amount to the firm's value. The other way is to measure the savings from the tax deduction as the difference between the pre-tax and after-tax rate of borrowing (Damodaran, 1999).

### **2.4.3 The Tax Savings from Interest Payments**

Consider a firm that borrows  $\$B$  to finance its operations, on which it pays an interest rate of  $r\%$ , and assume that its marginal tax rate is  $t\%$  of its income. The annual savings from the interest tax deduction can be calculated as follows:



Interest Tax Savings

$$\begin{aligned} &= (0.08 \times 0.4 \times \$ 100 \text{ million}) \text{ (PV of Annuity, 8\%, 10 years)} \\ &= \$ 21.47 \text{ million} \end{aligned}$$

In addition, the net tax benefit can be computed if dividends also provide a tax benefit, albeit one that is smaller than that conferred by debt (Damodaran, 1999). In such a case, the present value of the net tax savings from debt can be written as:

$$\frac{\text{Present Value of Net Tax Savings from Debt}}{\text{PV of Tax Savings from Dividend}} = \frac{\text{PV of Tax Savings from Debt Payments}}{\text{PV of Tax Savings from Dividend}}$$

#### 2.4.4 The After-tax Cost of Debt

The tax benefit from debt can also be expressed in terms of the difference between the pre-tax and after-tax cost of debt. To illustrate, if  $r$  is the interest rate on debt and  $t$  is the marginal tax rate, the after-tax cost of borrowing ( $k_d$ ) can be written as follows:

$$\text{After-tax Cost of Debt } (k_d) = r(1-t)$$

This is the equation used for calculating the cost of debt in the cost of capital calculation. In this equation, the after-tax cost of debt is a decreasing function of the tax rate. A firm with a tax rate of 40%, which borrows at 8%, has an after-tax cost of debt of 4.8%. Another firm with a rate of 70%, which borrows at 8%, has an after-tax cost of debt of 2.4%. We should emphasize two points regarding this calculation. First the tax rate to be used is the marginal tax rate and not the average rate, since interest tax deductions are offset against the marginal dollar of income. Second, this calculation makes sense only if the firm is making money and paying taxes; a firm that has large accumulated losses and no taxable income will not get a tax benefit from debt in the current period (Damodaran, 1999).

In summary, using debt instead of equity yields a tax advantage and could make managers more disciplined in their choice of investments. However, using debt instead of equity increases the expected cost of bankruptcy, exacerbates the conflict between stockholders and lenders, and reduces the flexibility to raise additional financing later. Table A below brings together the benefits and costs of debt. Overall, if the marginal benefits of borrowing exceed the marginal costs, the firm should borrow money. Otherwise it should use equity.

**Table A, the Tradeoff: Debt versus Equity**

Advantages of Debt	Disadvantages of Debt
<p>1. Tax Benefit Higher tax rates-leads to higher tax benefit.</p>	<p>1. Bankruptcy cost Higher business risk-leads to higher cost</p>
<p>2. Added Discipline Greater separation between Managers and stockholders - leads to greater benefit.</p>	<p>2. Agency cost Greater separation between stockholders and lenders - leads to higher cost.</p>
	<p>3. Loss of future Financing Flexibility Greater uncertainty about future financing needs - leads to higher cost.</p>

### **2.5 The Trade-off for Equity Investors**

The tradeoff between debt and equity can also be presented in terms of the higher returns equity investors can make with higher leverage, if earnings are good, against the higher losses they will incur with this leverage, if earnings are poor. To see the consequences of borrowing more on the returns to equity investors, assume that a firm has the following earnings before interest and taxes under three different scenarios: a recession, moderate economic growth, and an economic boom (Damodaran, 1999):

Economic scenario	Earnings before Interest and Taxes (EBIT)
Recession	\$ 4 million
Moderate growth	\$ 10 million
Economic boom	\$ 18 million

Assume that this firm has 10 million shares outstanding, no debt, and a tax rate of 40%, and that it faces two alternatives:

Under Option 1 (all equity), it will remain an all-equity financed firm while under option 2 (mixed financing), it can borrow \$ 50 million at 10%, buy back half the outstanding shares, and reduce the number of shares outstanding to 5 million.

The earnings per share (EPS) under the two options are computed in Table B below for all three scenarios.

Table B: Financing Options at different periods of an economy

	Recession		Moderate Growth		Economic Boom	
	Equity	Equity+Debt	Equity	Equity+Debt	Equity	Equity+Debt
EBIT	\$4.00	\$4.00	\$10.00	\$10.00	\$18.00	\$18.00
- Interest Expense	\$0.00	\$5.00	\$0.00	\$5.00	\$0.00	\$5.00
=Taxable Income	\$4.00	\$(1.00)	\$10.00	\$5.00	\$18.00	\$13.00
-Taxes	\$1.60	\$0.00	\$4.00	\$2.00	\$7.20	\$5.20
=Net Income	\$2.40	\$(1.00)	\$6.00	\$3.00	\$10.80	\$7.80
Number of shares	10.00	5.00	10.00	5.00	10.00	5.00
=EPS	\$0.24	\$(0.20)	\$0.60	\$0.60	\$1.08	\$1.56

*The EPS is the same for both options under the moderate growth scenario, but they are much more variable for the mixed (equity + debt) financing option – much lower in recession scenario and much higher in the economic boom scenario.*

## 2.6 The Irrelevance of Debt in a Tax-free World

In their initial work, Modigliani and Miller (1958) made three significant assumptions about the markets in which their firms operated. First they assumed there were no taxes. Second, they assumed firms could raise external financing from debt or equity, with no issuance costs. Third, they assumed there were no costs – direct or indirect – associated with bankruptcy. Finally, they operated in an environment in which there were no agency costs; managers acted to maximize stockholder wealth, and bondholders did not have to worry about stockholders expropriating wealth with investment, financing, or dividend decisions. In such an environment, it is clear that all the advantages and disadvantages disappear, leaving debt with no marginal benefits and no costs. In the assumptions above, debt creates neither benefits nor costs and thus has a neutral effect on value. In such an environment, the capital structure decision becomes irrelevant. Modigliani and Miller (1971) presented an alternative proof of the irrelevance of leverage, based on the idea that debt does not affect the underlying cash flows of the firm, in the absence of taxes.

Value of Levered Firm = Value of Unlevered Firm +  $t_c B$ , where  $t_c$  is the corporate tax rate and  $B$  is the dollar borrowing. Note that the second term in this valuation is the present value of the interest savings from debt, treated as a perpetuity.

### 2.6.1 The Irrelevance of Debt with Taxes

The Modigliani-Miller model makes it clear, that when taxes are introduced into the model, debt does affect value. In fact, introducing both taxes and bankruptcy costs into the model creates a tradeoff, in which the financing mix of a firm affects value and there is an optimal mix. Merton Miller (1978) argued that the debt irrelevance theorem could apply even in the presence of corporate taxes, if taxes on the equity and interest income individuals receive from firms were included in the analysis.

To demonstrate the Miller (1978) proof of irrelevance, assume that investors face a tax rate of  $t_d$  on interest income and a tax rate of  $t_e$  on equity income. Assume also that the firm pays an interest rate of  $r$  on debt and faces a corporate tax rate of  $t_c$ . The after-tax return to the investor from owning debt can then be written as:

$$\text{After-tax Return from owning Debt} = r(1-t_d)$$

The after-tax return to the investor for holding equity can also be estimated. Since cash flows to equity have to be paid out of after-tax cash flows, equity income is taxed twice – once at the corporate level and once at the equity level:

$$\text{After-tax Return from owning Equity} = k_e(1-t_c)(1-t_e)$$

The returns to equity can take two forms – dividends or capital gains. The equity tax rate is a blend of the tax rates on both. In such a scenario, Miller noted that the tax benefit of debt relative to equity becomes smaller, because both debt and equity now get taxed, at least at the level of the individual investor.

$$\text{Tax Benefit of Debt, relative to Equity} = \frac{1-(1-t_c)(1-t_e)}{1-t_d}$$



With this relative tax benefit, the value of the firm, with leverage, can be written as

$$VL = Vu + \left[ \frac{1 - (1 - t_c)(1 - t_e)}{1 - t_d} \right] B$$

where VL is the value of the firm with leverage, Vu is the value of the firm without leverage, and B is the dollar debt. With this expanded equation, which includes both personal and corporate taxes, several scenarios are possible, first, Personal tax rates on both equity and dividend income are zero. Secondly, the personal tax rate on equity is the same as the tax rate on debt. Thirdly, the tax rate on debt is higher than the tax rate on equity. Fourth, the tax rate on equity income is just enough to compensate for the double taxation.

Miller's (1979) analysis brought investor tax rates into the analysis for the first time and provided some insight into the role of investor tax preferences on a firm's capital structure. As Miller (1979) himself notes, however, this analysis does not reestablish the irrelevance of debt under all circumstances. Rather, it opens up the possibility that debt could still be irrelevant, despite its tax advantages.

The impact of differential tax treatment of debt and equity on corporate financial decision has been the subject of considerable research and scrutiny by financial economists in developed nations; the available empirical studies are scanty in developing countries, Kenya included. Therefore, this study is useful in order to determine the relationship between the effective corporate tax and the financial leverage of companies. This would be of great use to companies in determining the optimal level of debt that a company should borrow with regard to the taxation effect.

## **2.7 The Pecking Order Theory**

Pecking order of capital structure states that firms have a preferred hierarchy for financing decisions. The highest preference is to use internal financing (retained earnings and effects of depreciation) before resorting to any form of external funds. Internal funds incur no flotation costs and require no additional disclosure of proprietary financial information that could lead to more severe market discipline and a possible loss of competitive advantage. If a firm must use external funds, the preference is to use the following order of financing sources: debt, convertible securities, preferred stock and common stock, (Myers, 1984). This order reflects the

motivations of the financial manager to retain control of the firm (since only common stock has a “voice” in management), reduce the agency costs of equity, and avoid the seemingly inevitable negative market reaction to an announcement of a new equity issue. (Hawawini & Viallet, 1999).

Implicit in pecking order theory are two key assumptions about financial managers. The first of these is asymmetric information, or the likelihood that a firm’s managers know more about the company’s current earnings and future growth opportunities than do outside investors. There is strong desire to keep such information proprietary. The use of internal funds precludes managers from having to make public disclosures about the company’s investment opportunities and potential profits to be realized from investing in them. The second assumption is that managers will act in the best interests of the company’s existing shareholders. The managers may even forgo a positive-NPV project if it would require the issue of new equity, since this would give much of the project’s value to new shareholders at the expense of the old. (Myers & Majluf, 1984).

In comparison, while the traditional trade-off model is useful for explaining corporate debt levels, pecking order theory is superior for explaining capital structure changes. The important differences between the two theories are as follows:

	TRADE-OFF THEORY	PECKING ORDER THEORY
1	Conforms with value maximizing construct	Considers managerial motivations
2	Assumes a relatively static capital structure	Allows for a dynamic capital structure
3	Considers the influence of taxes, transaction costs and financial distress	Considers the influence of financial slack and availability of positive-NPV projects
4	Ignores the impact of capital market “signals”	Acknowledges capital market “signals”
5	Ignores concerns regarding proprietary data	Acknowledges proprietary data concerns
6	Cannot explain many real-world practices	Explains many real-world practices

As shown by the table above, both trade-off and pecking order theories have both their advantages and disadvantages. Thus, including a combination of both theories will give researchers a more rounded view of capital structure theory and practice.

In practice, where the pecking order theory is in effect, managers valued financial flexibility showing consistency with pecking order model. Insufficient internal funds influenced debt issuance. Under the theory, firms do not time their credit worthiness. Firms used convertible debt to attract investors unsure about risk level of firms. Valuation of flexibility is not driven by pecking –order factors.

## 2.8 Corporate Tax regime in Kenya

The corporate tax in Kenya is currently at 30% for companies incorporated in Kenya (Cap 470: Income Tax Act). The corporate tax payable is arrived at after adding back various disallowable expenses and deducting allowable expenses from the Accounting Profit Before Tax (PBT) as shown in appendix AI:

As viewed in the tax computation (see appendix AI), the taxable profit has increased as compared to the initial accounting profit before tax figure. This demonstrates that the effective tax rate of companies is different across companies depending on the operating environment.

The effective corporate tax rate =  $\frac{\text{Tax paid}}{\text{Accounting Profit before tax}} \times 100$

In our case here, effective tax rate =  $\frac{19,880,115}{59,232,000} \times 100 = 33.5\%$

The effective corporate tax rate for Company R is therefore 33.5%, which is different from the uniform corporate tax rate of 30%.

The conclusion is that different companies will have different effective corporate tax rates depending on the expenses disallowed and expenses allowed for tax purposes. The allowable and disallowables are mainly dependent on, first, the nature of the environment they are operating in, secondly, the location the companies are situated, third, the industry in which the companies operate, forth, the government policies affecting the companies and fifth but not least, the source of resources for instance raw materials, among other factors. Depending on the above factors, corporations will most of the times incur different kinds of expenses, resulting in different effective tax rates among the corporations. High taxes paid indicate high profitability for firms and low taxes paid indicate low profitability for firms.

## CHAPTER THREE: METHODOLOGY

### 3.1 Introduction

This chapter outlines the general methodology to be used to conduct the study. It specifies the research design, target population, sampling design, data collection method and instruments, and data analysis and interpretation.

### 3.2 Research Design

Descriptive research design was used for collecting data to answer the current status of the subject of study. Descriptive research involves either identifying the characteristics of an observed phenomenon or exploring possible correlations among two or more phenomena. This is a major limitation of descriptive research since it cannot help determine what causes a specific behaviour, motivation or occurrence. Therefore descriptive research was justified for this study since the objective was to provide a systematic description that was factual and accurate as possible.

### 3.3 Population size and unit analysis

To study the effects of the effective corporate tax rate on corporation capital structure (debt ratio) we utilized data from 37 companies that were listed at the Nairobi Stock Exchange as at 2007 under the Agriculture, Commercial and Services, Industrial and Allied and the Alternative Investment segments. The study considered a 5-year period, 2003 to 2007, because data for the period is available at the stock exchange and the data obtained closely reflects the current scenario for the listed companies in the Kenyan environment. This formed the population frame and hence the units of analysis. Some firms were excluded from the study due various reasons. for instance some firms were not trading for the period, some were suspended for some of the years under the study like Uchumi Supermarkets. The researcher utilized firms that were consistently trading under the period of study.

### 3.4 Data Collection Methods

The study used secondary data from 2003 to 2007. Data was obtained from the NSE handbook (1<sup>st</sup> Quarter, 2008 issue) and the respective companies (Balance sheets and Income Statements) of the companies. A comparison was done of the information obtained from the NSE and from the companies to ensure the reliability for the purpose of this study. Data collected include; total debt as a ratio of capital employed (total equity plus total debt) and tax paid as a ratio of accounting profit before tax.

### 3.5 Data Specification

The study utilized effective corporate tax rate, which is a ratio of the corporate tax paid to the accounting profit before tax;

$$\text{Effective corporate tax} = \frac{\text{Corporate tax paid}}{\text{Accounting profit before tax}}$$

The Debt Ratio in this study represents the ratio of the amount of debt borrowed to the capital employed;

$$\text{Debt ratio} = \frac{\text{Total Debt}}{\text{Total Capital employed}}$$

Equity in this case is the total shareholders capital, meaning that;

$$\text{Equity ratio} = \frac{\text{Total Shareholders Capital}}{\text{Total capital Employed}}$$

$$\text{Total Capital Employed (CE)} = \text{Total Equity Value (Ve)} + \text{Total Debt Value (Vd)}$$

The study approximated the book value of debt to be the market value. This was because much of the debt was non-traded. On the other hand, the study utilized the market capitalization at the

year end to compute the equity ratios for each of the firms under study. Market capitalization is a product of the share price at the year end and the number of shares in issue for each of the firms.

For graphical presentation, the data points used in this study represented the mean values of debt ratios and tax ratios for each of the companies studied. A data point would be arrived at by getting the total value of, for instance, debt ratio of each company over the five year period from year 2003 to year 2007 and obtaining its average by dividing the total debt ratio by five years. Thus, for debt ratio, the data points were the mean debt ratios. Likewise, for tax ratios, the study considered the data points to be the tax ratio for each company over the five-year period divided by five to arrive at the mean tax ratio. Thus the data points were the mean tax ratios for each company.

### 3.6 Data Analysis

To achieve the objective of the study, regression and correlation analysis were used.

Regression analysis is the statistical technique that identifies the relationship between two or more quantitative variables: a dependent variable whose value is to be predicted, and an independent or explanatory variable (or variables), about which knowledge is available. The technique is used to find the equation that represents the relationship between the variables. A simple regression analysis can show that the relation between an independent variable X and a dependent variable Y is linear, using the simple linear regression equation  $Y = a + bX$  (where a and b are constants). Multiple regression will provide an equation that predicts one variable from two or more independent variables,  $Y = a + bX_1 + cX_2 + dX_3$

Regression analysis is used to understand the statistical dependence of one variable on other variables. A variable is a quality characteristic that can be measured and expressed as a number on continuous scale of measurement. The relation between the variables can be illustrated graphically, or more usually using an equation.

For correlation analysis, the study specified the equation to be estimated as follows;

$$X = a + rY + e$$

X represented the debt ratio, Y represented the effective corporate tax rate, a is the intercept, where the rate of effective corporate tax rate was equal to the absolute corporate tax paid divided by the accounting profit before tax and r was the correlation co-efficient and e was the error term. A simple correlation coefficient represented by the symbol "r", similar to that applied by Jabbyin, 2002 was calculated. Correlation co-efficient is defined as a measure of the strength of linear association between two variables, i.e., X and Y. Correlation co-efficient will always be between -1.0 and +1.0. If the correlation co-efficient is positive, we have a positive relationship. If it is negative, the relationship is negative. Formula employed is,

$$\text{Correlation co-efficient}(r) = \frac{n\sum xy - (\sum x)(\sum y)}{\text{Sqrt}([n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2])}$$

where n = Number of values or elements

x = First Score

y = Second Score

$\sum xy$  = Sum of the product of first and Second Scores

$\sum x$  = Sum of First Scores

$\sum y$  = Sum of Second Scores

$\sum x^2$  = Sum of square First Scores

$\sum y^2$  = Sum of square Second Scores.

The use of the above formula would enable us to tell whether there is any relationship between effective tax rate and debt ratio and if so, be able to tell the significance of the relationship. Trade-off theory would explain positive relationship between the effective tax rate and the debt ratio, where the higher the effective tax rate, the higher the debt ratio. On the other hand, the pecking order theory would explain negative relationship between the effective tax rate and the debt ratio. High taxes paid would indicate high profitability for firms meaning that firms can utilize internal sources of finance leading to a low debt ratio for the firms.

## CHAPTER FOUR: DATA ANALYSIS AND PRESENTATION OF THE RESULTS

### 4.1 Introduction

This section presents the data description, analysis and findings of the study. The section is divided into two main parts. The first part deals with descriptive statistics of the variables used in the study while the other part deals with the broad objective of the study: examination of the relationship between effective corporate tax rate and capital structure. Data from 37 listed companies (*See Appendix II*) at the Nairobi Stock Exchange for a five-year period between 2003 and 2007 was used. In specific terms, the study examined the relationship between effective corporate tax rate and debt ratio.

### 4.2 Data Description

The study targeted 37 companies that were listed at the Nairobi Stock Exchange as at 2007 under the Agriculture, Commercial and Services, Industrial and Allied and the Alternative Investment segments. The study considered a five-year period, 2003 to 2007, because data for the period is available at the stock exchange and the data obtained closely reflects the current scenario for the listed companies in the Kenyan environment. First, for all firms studied, the study established effective corporate tax as ratio of profit before tax and debt as a fraction of capital employed.

The study computed the average debt and equity ratios for the respective companies over the study period. The study computed the ratios for each of the years and divided the total figure of ratios by the number of years to arrive at the mean ratios.

The debt ratio was generally lower than the equity ratio for most of the firms under the study. This showed that most firms preferred to utilize equity finance compared to debt finance. The ratios for the firms studied were as indicated in *appendix IV*.



The debt ratio computed below was arrived at as follows:

$$\text{Debt ratio} = \frac{\text{Total Debt}}{\text{Total Capital Employed}}$$

The equity ratio was computed as follows:

$$\text{Equity ratio} = \frac{\text{Total Equity}}{\text{Total Capital Employed}}$$

$$\text{Tax ratio} = \frac{\text{Corporation Tax}}{\text{Accounting Profit Before Tax}}$$

Equity in this case is the total shareholders capital.

Total Capital Employed = Total Equity plus total debt.

Under the agriculture sector, all the firms except Kakuzi Limited have a low debt ratio of 35 per cent. Kakuzi Limited has an exceptionally high debt ratio of 63 per cent, depicting its stability in the industry as compared to the other firms in the sector. The firm was able to utilize more debt finance than the rest of the firms in this sector as it was able to repay its debts due to its long outstanding performance in this industry. The mean debt ratio for the agricultural sector was 0.42 (*see appendix V*). This was arrived at by taking the average ratio for the four firms in the sector.

The mean equity ratio in this sector was 0.58, which was arrived at by getting the average for the four firms in this sector. The mean equity ratio is  $(0.65 + 0.37 + 0.65 + 0.65)/4 = 0.58$ .

From the above results, it was observed that the mean equity ratio was higher than the mean debt ratio. This indicated that the sector mainly preferred equity finance to debt finance.

In the commercial and services sector, the mean debt ratio was 0.47 (*see appendix VI*). The mean equity ratio was 0.53 (*see appendix VII*).

The mean debt and equity ratio are almost comparable with the mean debt ratio being slightly lower at 0.47 than the mean equity ratio at 0.53. In this sector, the firms preferred utilizing equity capital to debt capital. However, Kenya Airways and Marshalls East Africa had the highest debt ratio in this sector of 0.70 and 0.78 respectively indicating that the two firms financed their operations mainly through debt over the study period. Kenya Airways' business require immense capital to purchase the aeroplanes mainly on long term leases.

The industrial and allied sector had most firms with low debt ratio, meaning that the firms mainly depended on equity finance to support their operations. The mean debt ratio for the sector was 0.31 (*See appendix VIII*). The firms in this sector preferred equity finance to debt finance as indicated by the ratios. Bamburi cement, East Africa Breweries and Sameer Africa had the lowest debt ratios in this sector of 0.08, 0.09 and 0.07 respectively during the study period. Over this period, shares for Bamburi Cement and East African Breweries were performing very well in the market. The firms that had high debt ratios were East Africa Portland Cement, Olympia Capital Holdings, Kenya Power and Lighting and Unga Group of 0.44, 0.47, 0.69 and 0.62 respectively. In the alternative investment sector, the mean debt ratio was 0.29 (*see appendix IX*).

Compared to the agriculture sector with 0.42, the commercial and services sector with 0.47 and the industrial and allied sector with 0.31, the alternative investment sector had the lowest mean debt ratio at 0.29.

The study also determined the standard deviation for each sector. The **standard deviation** measures the spread of the data about the mean value. It is useful in comparing sets of data which may have the same mean but a different range.

The standard deviation is given by the formula:

$$\sigma = \sqrt{\frac{\sum (x - \bar{x})^2}{n}}$$

$\sigma$  = lower case sigma

$\sum$  = capital sigma

$\bar{x}$  = x bar

$\sigma$  refers to the 'standard deviation'.

$\sum$  refers to the 'the sum of'.

$\bar{x}$  refers to 'the mean'.

$n$  is the number of observations.

$x$  refers to the values given in the question.

For the agricultural sector, whose mean debt ratio was 0.42 the standard deviation was 0.12 (*see appendix X*). For the commercial and services sector, whose mean debt ratio was 0.47, the standard deviation was 0.24 (*see appendix XI*). For the industrial and allied sector, whose mean debt ratio was 0.31 the standard deviation was 0.185 (*see appendix XII*). For the alternative investment sector, whose mean debt ratio was sector 0.29, the standard deviation was 0.24 (*see appendix XIII*). The overall mean debt ratio was 0.37.

From the F table (0.05), F at  $df_1=1$  and  $df_2=35$  is equal to 4.12. The computed F is 1.737 (*see appendix AXX*). The study concluded that the overall mean debt ratio was statistically significant because the computed F value of 1.737 was less than the critical F value of 4.12.

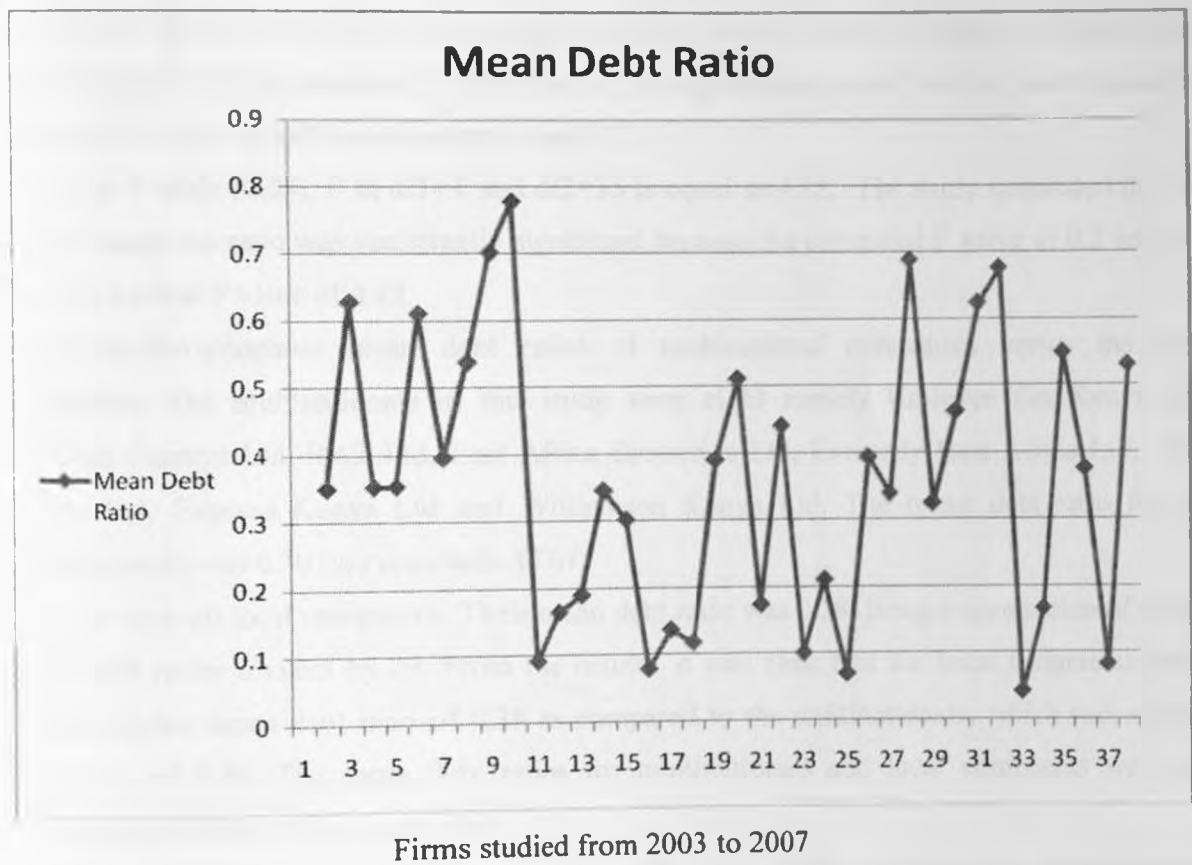
From the standard deviation analysis, the agricultural sector had the least standard deviation at 0.12, while the commercial and services and industrial and allied sectors had the joint highest standard deviation at 0.24. As per the standard deviation results, the mean debt ratios for the firms in the agricultural sector were least spread.

However, as compared to results indicated in Table II.I (see page 10) of the introduction, the debt ratio is lower in our research results. This is because the study's debt ratio computations were based on each firm's results while in Table II.I, the results given were an average of all firms across the sectors in the years studied. For instance, in year 2007 for Table II.I, the debt ratio figure obtained was 0.608, which was the mean of all firms during year 2007. In addition,

Table II.I used book values only compared to this study which used book values for debt and market values for equity. Book values are relatively more static and do not reflect the real situation or performance in an ever changing and dynamic environment. This study gave more realistic results as it considered the market values for equity and book values for debt which approximated the market value as much of the debt was untraded.

This can further be described in graph 4.1 below;

**Graph 4.1: Trend of Debt as a fraction of Capital Employed.**



In regard to the tax ratio, the study computed the tax ratio of each of the firms over the 5 year study period from year 2003 to 2007. The study obtained the average of the tax ratios over the period which is equal to the mean tax ratio for each of the firms studied in the research.

As indicated in chapter 3,  $\text{Tax Ratio} = \text{Tax Paid} / \text{Accounting Profit Before Tax}$ .

From the results obtained in Table 4.1 above, the agriculture sector recorded low tax ratios with a mean tax ratio of 0.11 (*see appendix XIV*). There was a peculiar occurrence where two companies had negative mean tax ratios. This was as a result of the firms recording losses instead of profits before tax in various periods of the study.

In the commercial and services sector, the mean tax ratio was 0.25 (*see appendix XV*). Kenya Airways had a mean tax ratio of 0.36 and TPS Serena had a mean tax ratio of 0.45. Marshall East Africa had a high debt ratio of 0.78. The mean tax ratio for the industrial and allied segment was 0.29 (*see appendix XVI*).

In the alternative investment segment, apart from City Trust Limited that had a low tax ratio of 7 per cent, the other firms in this sector recorded a tax ratio with the mean tax ratio for the sector being 0.23 (*see appendix XVII*). Overall, the agricultural sector had the lowest mean tax ratio of 0.11. The overall mean tax ratio was 0.22.

From the F table (0.05), F at  $df_1=1$  and  $df_2=35$  is equal to 4.12. The study concluded that the overall mean tax ratio was statistically significant because the computed F value of 0.2 was less than the critical F value of 4.12.

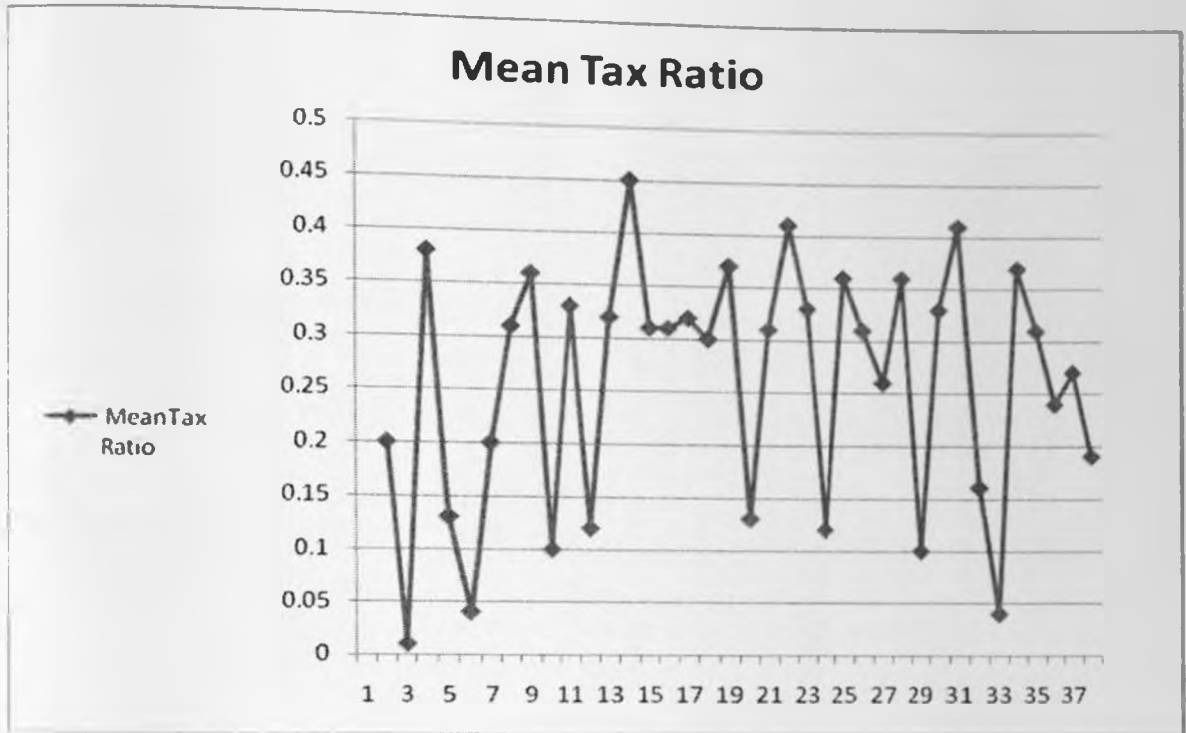
The study also compared mean debt ratios of multinational companies versus the local companies. The multinationals in this study were eight namely Unilever Tea Kenya Ltd, Bamburi Cement Ltd, BAT Ltd, East Africa Breweries Ltd, Eveready East Africa Ltd, Total Kenya Ltd, Express Kenya Ltd and Williamson Kenya Ltd. The mean debt ratio for the multinationals was 0.30 (*see appendix XVIII*)

The rest were all local companies. Their mean debt ratio was 0.38, being a summation of all the mean debt ratios divided by 29. From the results, it was clear that the local companies had a slightly higher mean debt ratio of 0.38 as compared to the multinationals, which had a mean debt ratio of 0.30. The mean debt ratios for multinationals and local companies were not significantly different from each other.

The study further went ahead to compare mean tax ratios of the multinational companies and the local companies. The mean tax ratio for the multinationals was 0.26 (*see appendix XIX*).

The mean tax ratio for the local companies was 0.25. From the results, the mean tax ratios for multinationals and local companies were almost equal, though multinationals had a slightly higher mean tax rate at 0.26 as compared to 0.25 for local companies. Multinationals had a lower mean debt ratio and a higher mean tax ratio compared to local companies.

**Graph 4.2: Trend of Effective Corporate Tax Rate as a fraction of Capital Employed.**



Firms studied from 2003 to 2007

### 4.3 Relationship between Effective Corporate Tax and Firm Financing

To determine the relationship between effective corporate tax and financing of firms under review, we looked at the relationship between effective corporate tax rate and debt ratio. Two techniques were used to analyze data, correlation matrix and regression analysis. The following section outlines the results of the data analysis.

#### 4.3.1 Correlation matrix of variables

The correlation matrix is an important indicator that tests the linear relationship, between the variables. The matrix also helps to determine the strength of the variables that is, strength of the relationship between the dependent variable i.e., debt ratio and the independent variable, i.e., effective corporate tax rate. Correlation coefficient between two variables range from 1 (perfect positively correlated) and -1 (perfect negatively correlated).

**Table 4.2: Correlation Matrix**

		Debt Ratio	Equity Ratio	Tax Ratio
Debt Ratio	Correlation	1		
Equity Ratio	Correlation	-1	1	
Tax ratio	Correlation	-0.217	0.217	1

Table 4.2 above shows that there is a negative correlation between effective corporate tax rate and debt ratio of - 0.217. The results indicated that debt finance decreased with an increase in effective corporate tax paid by firms.

### 4.3.2 Regression Analysis Results

Table 4.3 below summarizes regression results.

**Table 4.3: Summary of Regression Analysis Results**

#### *Output of Regression*

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Statistics</i>	<i>Significance</i>
Intercept	0.48	0.092	5.217	0.664
Effective corporate tax rate	-0.43	0.323	-1.318	0.230

The estimated regression equation was estimated as follows;

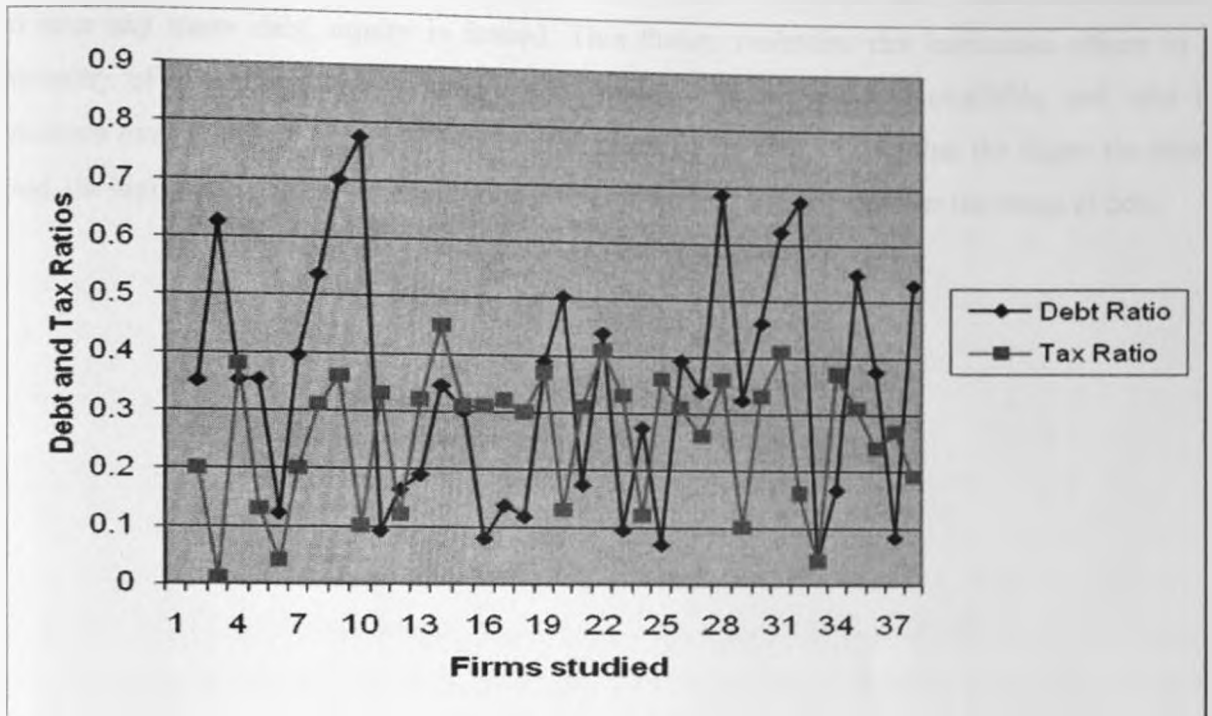
$$y = a + bx$$

$$\text{Debt ratio} = 0.48 - 0.43 \text{ effective corporate tax rate}$$

$R^2$ , the coefficient of determination is a statistical measure of how well the regression line approximates the real data points. The coefficient of determination,  $R^2$  is equal to 0.047. This is reflected by the regression results in *appendix AXXI*.

The graphical presentation representing the regression analysis results were as follows:

**Graph 4.3: Trend of Effective Corporate Tax Ratios and Debt Ratios from 2003 to 2007.**



The estimated equation shows that there was a negative relationship between effective corporate tax rate and debt ratio. The results seemed to support the Pecking Order theory where firms prefer internal financing to external financing e.g. debt finance. The coefficient between the two variables is  $-0.43$ . The coefficient was negative and statistically significant at 5% level of significance implying that the probability that the effective corporate tax rate influences debt financing is 95%. Thus, there existed a negative relationship between effective corporate tax rate and debt ratio. It was concluded that effective corporate tax had a negative effect on debt financing. This result confirmed correlation matrix findings that debt financing decreased with increase in effective corporate tax rate paid by firms. The negative relationship between effective corporate tax rate and the debt ratio indicated that taxes did not have a major effect on the amount of debt finance utilised by firms under the study. This indicated that firms preferred other means of financing their operations, for instance, internal financing as opposed to just debt and equity. This is explained by the Pecking Order Theory as developed by Stewart C. Myers



and Nicolas Majluf in 1984. The Pecking Order Theory states that companies prioritize their sources of financing (from internal financing to equity) according to the law of least effort, or of least resistance, preferring to raise external equity as a financing means of last resort. Hence, internal funds are used first, and when that is depleted, debt is issued, and when it is not sensible to issue any more debt, equity is issued. This theory maintains that businesses adhere to a hierarchy of financing sources and prefer internal financing when available, and debt is preferred over equity if external financing is required. It thus follows that the higher the taxes paid, the higher the profits (internal source of capital) and hence the lower the usage of debt.

## **CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Introduction**

This chapter presents a summary of the findings of the study, conclusion and suggests some recommendations. At the end of the chapter, areas for further research are provided.

### **5.2 Summary of the findings**

This study examined the relationship between effective corporate tax rate and corporations capital structure. Specifically, the study established that there was a negative relationship between effective corporate tax rate and debt ratio. To achieve this objective, two data analyses techniques were used namely correlation matrix and regression analysis.

#### **5.2.1 Relationship between effective corporate tax rate and debt ratio**

The correlation matrix coefficient was -0.217. This linear correlation was negative at 5% level of significance, indicating that there was a negative relationship between effective corporate tax and debt ratio. The regression result similarly revealed that the coefficient between the effective corporate tax and debt ratio was -0.43, at 5% level of significance. This indicated there was a negative relationship between effective corporate tax rate and debt ratio. Thus, it can be concluded that effective corporate tax rate had a negative effect on debt ratio.

### **5.3 Conclusion**

The results indicated that effective corporate tax had a negative effect on debt financing, such that an increase in effective corporate tax rate lead to an decrease in debt financing. The results support the Pecking Order theory where firms prefer internal financing to external financing e.g. debt finance. However, if the firms were operating in a perfect market or environment, the result could have been different, for instance the effective corporate tax could have a positive effect on the debt ratio. A perfect market would have no external factors influencing the performance of firms under the study.

Studying capital structure is an important component of any finance course. The topic provides closure to a representative unit about capital budgeting and cost of capital as researchers

discover the parameters faced by financial managers as they determine how best to finance capital projects that will hopefully enhance the value of their firms. The traditional approach is to present Modigliani and Miller's capital structure irrelevance hypothesis (Modigliani & Miller, 1958) and then build in the effects of taxes, financial distress, and agency costs until the "mainstream" model of optimal capital structure emerges. The Trade-Off Model is easily understood under the basic underlying tenet of optimizing value, and thus shareholder wealth, by choosing a capital structure combination which elicits the lowest possible cost of capital for the firm. Once the firm finds this optimal combination of financing sources (that is, mix of debt and equity) the assumption is that every new shilling of financing is raised in the same proportions of debt and equity financing.

#### **5.4 Recommendations**

The study would recommend more use of internal financing as opposed to external financing. This was clearly reflected by the negative relationship between the tax ratio and the debt ratio. This meant that an increase in the tax ratio indicated an increase in profitability of firms, leading to low use of debt a source of finance. The results support the pecking Order theory where firms prioritize their sources of financing (from internal financing to equity) according to the law of least effort, or of least resistance, preferring to raise debt as a financing means of last resort.

#### **5.5 Suggestions of Areas for further research**

This study determined the relationship between effective corporate tax rate and debt ratio for firms listed at NSE. There is need to undertake a comprehensive study aimed at understanding the relationship between effective corporate tax rate and debt ratio for firms not listed at NSE. There is also need for a research on the relationship between corporate tax rate and debt ratio for the period before and after listing of the companies at the stock exchange. How does listing affect the operations of firms once they are listed?

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## APPENDICES

### AI: COMPANY R

#### 2004 Tax computation

		Kshs
Accounting Profit Before Tax		59,232,000
Add back: Disallowables		
Depreciation	16,911,163	
Fines and penalties	836,254	
Excess pension contribution	127,500	
Leasehold Amortisation	265,306	
Pension audit fees	44,000	
Unrealised exchange loss	5,002,115	
Increase in general provision	3,086,354	
Capital items expensed	2,295,742	
Donations and subscriptions	<u>1,259,190</u>	<u>29,827,624</u>
		89,059,624
Deduct: Allowables		
Wear and tear allowance	7,877,212	
Industrial building allowance	735,549	
Investment deduction	8,288,870	
Realised exchange loss	3,680,943	
Interest on Loan	<u>2,210,000</u>	<u>22,792,574</u>
Adjusted Taxable Profit		<u>66,267,050</u>
Tax thereon@30%		<u>19,880,115</u>

## All: Summary of Debt Ratios

	Company Name	2007	2006	2005	2004	2003	Mean Debt Ratio
	<b>AGRICULTURAL SECTOR</b>						
1	Unilever Tea Kenya Ltd	0.42	0.37	0.31	0.32	0.34	0.35
2	Kakuzi Limited	0.61	0.60	0.55	0.57	0.80	0.63
3	Rea Vipingo Plantations Ltd	0.28	0.21	0.26	0.44	0.57	0.35
4	Sasini Tea and Coffee Limited	0.21	0.28	0.35	0.51	0.42	0.35
	<b>COMMERCIAL AND SERVICES</b>						
5	Access Kenya Group	0.04	0.17	0.17	0.14	0.09	0.61
6	Car and General (Kenya) Limited	0.48	0.41	0.46	0.51	0.12	0.40
7	CMC Holdings Limited	0.41	0.43	0.64	0.57	0.64	0.54
8	Kenya Airways Limited	0.56	0.52	0.75	0.83	0.86	0.70
9	Marshalls (East Africa) Limited	0.70	0.78	0.76	0.74	0.90	0.78
10	Nation Media Group Limited	0.09	0.07	0.08	0.12	0.10	0.09
11	Scangroup Limited	0.20	0.16	0.15	0.16	0.15	0.16
12	Standard Group Limited	0.25	0.14	0.19	0.19	0.17	0.19
13	TPS Serena	0.34	0.26	0.30	0.35	0.49	0.35
	<b>INDUSTRIAL AND ALLIED</b>						
14	Athi-River Mining Limited	0.23	0.27	0.36	0.41	0.24	0.30
15	Bamburi Cement Company Limited	0.07	0.06	0.07	0.11	0.08	0.08
16	BAT Limited	0.25	0.15	0.10	0.11	0.07	0.14
17	BOC Kenya Limited	0.13	0.12	0.11	0.10	0.12	0.12
18	Crown-Berger Kenya Ltd	0.37	0.42	0.42	0.42	0.30	0.39
19	Olympia Capital Holdings	0.64	0.66	0.38	0.42	0.43	0.51
20	East Africa Cables Ltd	0.20	0.10	0.14	0.15	0.28	0.17
21	East Africa Portland Cement	0.35	0.33	0.38	0.57	0.56	0.44
22	East Africa Breweries Ltd	0.09	0.06	0.06	0.10	0.16	0.10
23	Eveready East Africa Ltd	0.31	0.11	0.20	0.22	0.21	0.21
24	Sameer Africa Ltd	(0.36)	0.18	0.16	0.22	0.15	0.07
25	Kenya Oil Company Ltd	0.46	0.45	0.26	0.36	0.44	0.39
26	Mumias Sugar Co. Ltd	0.21	0.12	0.21	0.45	0.71	0.34



27	Kenya Power and Lighting Co. Ltd	0.60	0.58	0.66	0.68	0.92	0.69
28	KenGen	0.40	0.25	0.32	0.31	0.33	0.32
29	Total Kenya Ltd	0.57	0.64	0.46	0.27	0.36	0.46
30	Ilupa Group Ltd	0.60	0.55	0.59	0.71	0.66	0.62
<b>ALTERNATIVE INVESTMENT</b>							
31	Baumann & Company Ltd	0.68	0.50	0.57	0.79	0.84	0.68
32	City Trust Ltd	0.04	0.02	0.03	0.05	0.07	0.04
33	Langolds Ltd	0.13	0.11	0.23	0.20	0.17	0.17
34	Express Kenya Ltd	0.33	0.40	0.45	0.62	0.95	0.55
35	Kapchoron Tea Co. Ltd	0.38	0.37	0.40	0.37	0.37	0.38
36	Limuru Tea Company Ltd	0.08	0.07	0.08	0.09	0.09	0.08
37	Williamson Kenya Ltd	0.53	0.50	0.47	0.56	0.59	0.53

### Annex III: Summary of Tax Ratios

	AGRICULTURE SECTOR	2007	2006	2005	2004	2003	Mean Tax Ratio
1	Unilever Tea Kenya Ltd	(0.22)	0.33	0.36	0.34	0.21	0.20
2	Kakuzi Limited	0.29	0.30	(0.34)	0.10	(0.40)	(0.01)
3	Rea Vipingo Plantations Ltd	0.31	0.28	0.33	0.28	0.70	0.38
4	Sasini Tea and Coffee Limited	(0.42)	0.31	(0.30)	0.01	(0.24)	(0.13)
<b>COMMERCIAL AND SERVICES</b>							
5	Access Kenya Group	0.22	0.22	0.23	0.21	0.22	0.22
6	Car and General (Kenya) Limited	0.32	0.22	0.31	0.15	0.02	0.20
7	CMC Holdings Limited	0.30	0.32	0.26	0.31	0.37	0.31
8	Kenya Airways Limited	0.31	0.31	0.35	0.37	0.45	0.36
9	Marshalls (East Africa) Limited	0.24	0.16	0.31	0.26	0.22	0.24
10	Nation Media Group Limited	0.33	0.35	0.32	0.34	0.32	0.33
11	Scangroup Limited	0.31	0.30	0.31	0.32	0.30	0.31
12	Standard Group Limited	0.30	0.33	0.38	0.24	0.37	0.32
13	TPS Serena	0.33	0.33	0.84	0.34	0.42	0.45
<b>INDUSTRIAL AND ALLIED</b>							
14	Athi-River Mining Limited	0.32	0.32	0.33	0.32	0.26	0.31

15	Bamburi Cement Company Limited	0.30	0.27	0.32	0.32	0.34	0.31
16	BAT Limited	0.32	0.31	0.31	0.31	0.32	0.31
17	BOC Kenya Limited	0.33	0.32	0.29	0.28	0.28	0.30
18	Crown-Berger Kenya Ltd	0.45	0.21	0.51	0.31	0.38	0.37
19	Olympia Capital Holdings	0.12	0.01	0.19	0.23	0.08	0.13
20	East Africa Cables Ltd	0.30	0.33	0.28	0.31	0.33	0.31
21	East Africa Portland Cement	0.31	0.55	0.44	0.31	0.41	0.40
22	East Africa Breweries Ltd	0.29	0.25	0.33	0.33	0.46	0.33
23	Eveready East Africa Ltd	0.30	0.29	0.31	0.32	0.30	0.30
24	Samecr Africa Ltd	0.29	0.50	0.30	0.31	0.39	0.36
25	Kenya Oil Company Ltd	0.32	0.31	0.33	0.30	0.26	0.30
26	Mumias Sugar Co. Ltd	0.27	0.31	0.30	0.30	0.12	0.26
27	Kenya Power and Lighting Co. Ltd	0.35	0.34	0.36	0.48	0.26	0.36
28	KenGen	0.48	0.01	0.25	0.26	0.24	0.25
29	Total Kenya Ltd	0.33	0.28	0.33	0.38	0.32	0.33
30	Unza Group Ltd	0.15	0.55	0.20	0.32	0.85	0.41
<b>ALTERNATIVE INVESTMENT</b>							
31	Baumann & Company Ltd	0.23	0.06	0.06	0.71	0.07	0.23
32	City Trust Ltd	0.07	0.07	0.07	0.07	0.07	0.07
33	Eaagads Ltd	0.48	0.44	0.47	0.48	0.35	0.44
34	Express Kenya Ltd	0.34	0.35	0.30	0.55	0.37	0.38
35	Kapchorua Tea Co. Ltd	0.27	0.30	0.31	0.31	0.23	0.28
36	Limuru Tea Company Ltd	0.43	0.31	0.30	0.31	0.31	0.33
37	Williamson Tea Kenya Ltd	0.32	0.33	0.31	0.33	0.31	0.32

#### AIV: Summary of debt, Equity and Tax Ratios

No	Company Name	Debt Ratio	Equity Ratio	Tax Ratio
<b>Agricultural Sector</b>				
1	Unilever Tea Kenya Ltd	0.35	0.65	0.20
2	Kakuzi Limited	0.63	0.37	(0.01)
3	Rea Vipingo Plantations Ltd	0.35	0.65	0.38
4	Sasini Tea and Coffee Limited	0.35	0.65	(0.13)

	<b>Commercial and Services</b>			
5	Access Kenya Group	0.98	0.02	0.04
6	Car and General (Kenya) Limited	0.40	0.60	0.20
7	CMC Holdings Limited	0.54	0.46	0.31
8	Kenya Airways Limited	0.70	0.30	0.36
9	Marshalls (East Africa) Limited	0.78	0.22	0.10
10	Nation Media Group Limited	0.09	0.91	0.33
11	Scangroup Limited	0.18	0.82	0.12
12	Standard Group Limited	0.19	0.81	0.32
13	TPS Serena	0.35	0.65	0.45
	<b>Industrial and Allied</b>			
14	Athi-River Mining Limited	0.30	0.70	0.31
15	Bamburi Cement Company Limited	0.08	0.92	0.31
16	BAT Limited	0.14	0.86	0.32
17	BOC Kenya Limited	0.12	0.88	0.30
18	Crown-Berger Kenya Ltd	0.39	0.61	0.37
19	Olympia Capital Holdings	0.47	0.53	0.13
20	East Africa Cables Ltd	0.17	0.83	0.31
21	East Africa Portland Cement	0.44	0.56	0.41
22	East Africa Breweries Ltd	0.09	0.91	0.33
23	Eveready East Africa Ltd	0.21	0.79	0.12
24	Sameer Africa Ltd	0.07	0.93	0.36
25	Kenya Oil Company Ltd	0.39	0.61	0.31
26	Mumias Sugar Co. Ltd	0.34	0.66	0.26
27	Kenya Power and Lighting Co. Ltd	0.69	0.31	0.36
28	KenGen	0.32	0.68	0.10
29	Total Kenya Ltd	0.46	0.54	0.33
30	Unga Group Ltd	0.62	0.38	0.41
	<b>Alternative Investment</b>			
31	Baumann & Company Ltd			

		0.68	0.32	0.16
32	City Trust Ltd	0.04	0.96	0.04
33	Eaagads Ltd	0.17	0.83	0.37
34	Express Kenya Ltd	0.55	0.45	0.31
35	Kapchorua Tea Co. Ltd	0.38	0.62	0.24
36	Limuru Tea Company Ltd	0.08	0.92	0.27
37	Williamson Kenya Ltd	0.53	0.47	0.19

**AV: Mean debt ratio for the agricultural sector**

$$(0.35 + 0.63 + 0.35 + 0.35)/4 = 0.42.$$

**AVI: Mean debt ratio for the commercial and services sector**

$$\frac{0.98 + 0.40 + 0.54 + 0.70 + 0.78 + 0.09 + 0.18 + 0.19 + 0.35}{9} = 0.47.$$

9

**AVII: Mean equity ratio for the commercial and services sector**

$$\frac{0.02 + 0.60 + 0.46 + 0.30 + 0.22 + 0.91 + 0.82 + 0.81 + 0.65}{9} = 0.53.$$

9

**AVIII: Mean debt ratio for the industrial and allied sector**

$$\frac{0.30 + 0.08 + 0.14 + 0.12 + 0.39 + 0.47 + 0.17 + 0.44 + 0.09 + 0.21 + 0.07 + 0.39 + 0.34 + 0.69 + 0.32 + 0.46 + 0.62}{17} = 0.31$$

17

**AIX: Mean debt ratio for the alternative investment sector**

$$\frac{68+0.04+0.17+0.55+0.38+0.08+0.53}{7} = 0.29$$

7

**AX: Standard deviation for the agricultural sector**

n	1	2	3	4	Σ
X	0.35	0.63	0.35	0.35	
$(x - \bar{x})^2$	0.0049	0.0441	0.0049	0.0049	0.0588

$$\sigma = 0.12$$

**AXI: Standard deviation for the commercial and services sector**

n	1	2	3	4	5	6	7	8	9	$\Sigma$
X	0.61	0.40	0.54	0.70	0.78	0.09	0.16	0.19	0.35	
$(x - \bar{x})^2$	0.0196	0.0049	0.0049	0.0529	0.0961	0.1444	0.0961	0.0784	0.0144	0.5117

$\sigma = 0.24$

**AXII: Standard deviation for the industrial and allied sector**

n	1	2	3	4	5	6	7	8	9	10
X	0.30	0.08	0.14	0.12	0.39	0.51	0.17	0.44	0.10	0.21
$(x - \bar{x})^2$	0.0001	0.0529	0.0289	0.0361	0.0064	0.04	0.0196	0.0169	0.0441	0.01

n	11	12	13	14	15	16	17	$\Sigma$
X	0.07	0.39	0.34	0.69	0.32	0.46	0.62	
$(x - \bar{x})^2$	0.0576	0.0064	0.0009	0.1444	0.0004	0.0225	0.0961	0.5833

$\sigma = 0.185$

**AXIII: Standard deviation for the alternative investment sector**

n	1	2	3	4	5	6	7	$\Sigma$
X	0.68	0.04	0.17	0.55	0.38	0.08	0.53	
$(x - \bar{x})^2$	0.1521	0.0625	0.0144	0.0676	0.0081	0.0441	0.0576	0.4064

$\sigma = 0.24$

**AXIV: Mean tax ratio for the agricultural sector**

$$\frac{0.20 - 0.01 + 0.38 - 0.13}{4} = 0.11$$

**AXV: Mean tax ratio for the commercial and services sector**

$$\frac{0.04 + 0.20 + 0.31 + 0.36 + 0.10 + 0.33 + 0.12 + 0.32 + 0.45}{9} = 0.25$$

**AXVI: Mean tax ratio for the industrial and allied sector**

$$\frac{0.31 + 0.31 + 0.32 + 0.30 + 0.37 + 0.13 + 0.31 + 0.41 + 0.33 + 0.12 + 0.36 + 0.31 + 0.26 + 0.36 + 0.10 + 0.33 + 0.41}{17} = 0.29$$

**AXVII: Mean tax ratio for the alternative investment sector**

$$\frac{0.16 + 0.04 + 0.37 + 0.31 + 0.24 + 0.27 + 0.19}{7} = 0.23$$

**AXVIII: Mean debt ratio for multinationals**

$$\frac{0.35 + 0.08 + 0.14 + 0.09 + 0.21 + 0.46 + 0.55 + 0.53}{8} = 0.30$$

**AXIX: Mean tax ratio for multinationals**

$$\frac{0.20 + 0.31 + 0.32 + 0.33 + 0.12 + 0.33 + 0.31 + 0.19}{8} = 0.26$$