

**AN INVESTIGATION OF THE DETERMINANTS OF THE
VARIABILITY IN CORPORATE EFFECTIVE TAX RATES FOR
COMPANIES LISTED AT THE NAIROBI STOCK EXCHANGE**

BY

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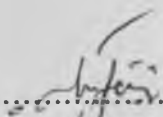
**A MANAGEMENT RESEARCH PROJECT SUBMITTED IN
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DECLARATION

STUDENT'S DECLARATION

I declare that this project is my original work and has never been submitted for a degree in any other university or college for examination/academic purposes.

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DEDICATION

I dedicate this work to my late parents, my wife Chantal, our children Leontine, Sara and Samuel and those who supported me in the completion of this project. Above all, I give glory to God!

ACKNOWLEDGEMENTS

I take this opportunity to give thanks to the Almighty God for seeing me through the completion of this project.

The work of carrying out this investigation needed adequate preparation and therefore called for collective responsibility of many personalities. The production of this research document has been made possible by invaluable support of many people. While it is not possible to name all of them, recognition has been given to a few. I am greatly indebted to my supervisor, Dr. Josiah O. Aduda, for his professional guidance, advice and unlimited patience in reading through my drafts and suggesting workable alternatives, my profound appreciation to you.

The entire staff of the NSE cannot pass without my special acknowledgement for taking time off their busy schedule to provide me with all the information I needed in the course of the research. Without their immense cooperation I would not have reached this far.

I would also wish to extend my sincere gratitude to all the MBA students, staff, lecturers and the entire University of Nairobi fraternity for changing me from what I was to what I am.

Thank you all. May the Almighty God bless you abundantly!

ABSTRACT

In the developed economies, one of the driving forces behind tax reforms was the concern that many large corporations, indeed many industries were not paying their “fair” share of taxes. These were fired by the many studies showing that many large corporations paid little or no tax; studies pounced on by the media and politicians to agitate for tax reforms. Concern with equity in taxations as well as tax planning is important since they affect location decisions of firms and the flow of Foreign Direct Investment (FDI). Regulators also find this important in making taxation policies that ensure that balanced economic goals of the country are met.

The purpose of the study was to establish the relationship between Effective Tax Rates and selected corporate characteristics (namely, size, capital structure, asset mix and firm performance). This was an analytical study which used panel data to measure. Thus the study adopted a time series or longitudinal approach, supplemented by cross-sectional comparisons. In this paper, we used data for the 38 companies listed on the Nairobi Stock Exchange (NSE) for the period (2005-2009). Effective tax rates were then correlated to firm size in order to test the size effect. Sensitivity analysis using OLS regression was also performed.

The study concludes that firm size, leverage of the company, capital intensity and return on total assets influences the effective tax rates. However the study deduced that leverage negatively influenced the effective tax rates. The managers of the companies should concentrate their efforts towards allocating more funds to the expansion of the firm size as larger firms do possess superior economic and political power relative to smaller firms and are able to reduce their tax burdens. The companies should rely more on equity based financing to support its business operations other than relying more heavily on debt financing. The study also recommends that since it was established that firms that are more capital-intensive are expected to have lower ETRs, the companies should strive to ensure that they are more capital-intensive and less inventory- intensive.

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ABBREVIATIONS

CTJ	-	Citizen for Tax Justice
ETRs	-	Effective Tax Rates
FDI	-	Foreign Direct Investment
FEGLM	-	Fixed Effect Generalized Linear Model
MM	-	Modigliani and Miller
NOLs	-	net operating losses
NSE	-	Nairobi Stock Exchange
NTE	-	Negative Tax Expense
REGLM	-	Random Effects Generalized Linear Model
ROA	-	Return on Assets
TRA	-	Tax Reform Act

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

During the past several years, corporations in Kenya have been taxed at a statutory tax rate of 32.5%. Few corporations however, actually pay taxes at this rate. Parliament and the government have instituted numerous tax incentives and special provisions that effectively reduce companies' tax burdens below the statutory rate. But not all companies can avail themselves to these incentives to the same degree. Indeed, while some companies have been able to take greater advantage of investment credits, capital gains, and other provisions, for others, the effective tax rate has been more than the statutory tax rate.

The financial press is replete with statements like, "Banks pay an effective tax rate of 6.4 percent", "Wholesalers pay an effective tax rate of 34.8 percent" (Spooner 2001). These differential effective tax rates among companies' raises an important policy question as to how and whether the income tax system is, and should strive towards, neutrality. Why should corporates reporting similar levels of taxable accounting income and under the same tax regime remit to the public Treasury different amounts of taxes? Why do effective corporate tax rates differ? What are these often quoted effective tax rates, and, more importantly, what are the determinants of these differential corporate effective tax rates for firms?

Corporate effective tax rates (ETRs) are often used by policy-makers and interest groups as a tool to make inferences about corporate tax systems because they provide a convenient summary statistic of the cumulative effect of various tax incentive and corporate tax rate changes. There are many factors that influence the ETR including the firm size (total sales of a firm as expressed in monetary units), capital structure in terms of leverage, asset mix for capital intensity, foreign operations, Growth Opportunities and R&D intensity. The capital structure of a firm is actually a mix of different securities i.e. the way a corporation finances its assets through some combination of equity, debt or

hybrid securities (Bhaduri, 2002) while asset mix is the percentage of an investment portfolio that is invested in each of the three major classes of assets: (1) cash and equivalents, (2) fixed income instruments (bonds, debenture, notes) and, (3) equity instruments (common stock or ordinary shares) (Kieleko 2006).

In developing countries, the quest to attract foreign direct investment (FDI) by offering tax concessions has led to claims of uneven playing ground by local firms. There is concern that many of the multinational firms repatriate most of their profits and avoid paying taxes. In Kenya the emotive issue taxation equity is ablaze following the Finance Minister's proposal to tax Members of Parliaments' generous allowances that have hitherto escaped the tax man's net, despite the crushing tax burdens visited on the lesser mortals (Finance Bill 2008).

The question to whether equity obtains in our tax system has to be addressed. This proposal intends to profile the tax burdens borne by companies at the NSE, adduce evidence on whether systematic relationships exist between firm characteristics and effective tax rates. Effective tax rates are of great interest and use to the public and policy makers alike, as a tool to help identify the level of neutrality of the Tax system and to identify the characteristics of firms with higher and lower (Relative) tax burdens.

A stock exchange is an entity which provides "trading" facilities for stock brokers and traders, to trade stocks and other securities. Stock exchanges also provide facilities for the issue and redemption of securities as well as other financial instruments and capital events including the payment of income and dividends. The securities traded on a stock exchange include shares issued by companies, unit trusts, derivatives, pooled investment products and bonds. There is usually no compulsion to issue stock via the stock exchange itself, nor must stock be subsequently traded on the exchange. Such trading is said to be off exchange or over-the-counter.

The Nairobi Stock Exchange was formed in 1954 as a voluntary organization of stock brokers and is now one of the most active capital markets in Africa. As a capital market institution, the Stock Exchange plays an important role in the process of economic development. It helps mobilize domestic savings thereby bringing about the reallocation

of financial resources from dormant to active agents. Long-term investments are made liquid, as the transfer of securities between shareholders is facilitated. The Exchange has also enabled companies to engage local participation in their equity, thereby giving Kenyans a chance to own shares. There are as of December 2009, 55 companies listed at the stock exchange (www.nse.co.ke, 2009).

Stock markets promote higher standards of accounting, resource management and transparency in the management of business. This is because financial markets encourage the separation of owners of capital, on the one hand, from managers of capital, on the other. The stock exchange also improves the access to finance of different types of users by providing the flexibility for customization. Lastly the stock exchange provides investors with an efficient mechanism to liquidate their investments in securities. The very fact that investors are certain of the possibility of selling out what they hold, as and when they want, is a major incentive for investment as it guarantees mobility of capital in the purchase of assets (www.nse.co.ke,2009). Currently the Nairobi Stock Exchange market has got forty seven companies listed at the market. The companies are categorized into four different sections; Agriculture, Commercial and Services, Finance and Investment, Industrial and Allied.

The Nairobi Stock Exchange can be categorized as an emerging market within the frame work provided by the International Finance Corporation. Many emerging market economies at various times have undergone rapid growth and because their stock markets are not highly developed and therefore are less efficient, there is considerable opportunity for relatively high returns from emerging market investments. However, there is also a relatively high level of risk involved as witnessed by the melt down of several Asian emerging stock markets in 1997 and 1998 (www.nse.co.ke, 2009).

Capital market studies are as old as the finance discipline itself. This is because of the role that capital markets play in pricing or valuing the securities traded in the market. Efficient valuation of securities enables optimal investment decisions to be made and efficient allocation of scarce investment resources. In order to make rational investment decisions investors require knowledge about the securities' prices and the factors that

affect them. Such knowledge can be obtained from the understanding how capital markets enact to new as well as past information. However a look at the role of capital markets in economic development would be necessary as a first step (www.nse.co.ke, 2009).

1.2 Statement of the Problem

In the developed economies, one of the driving forces behind tax reforms was the concern that many large corporations, indeed many industries were not paying their “fair” share of taxes. These were fired by the many studies showing that many large corporations paid little or no tax; studies pounced on by the media and politicians to agitate for tax reforms. Concern with equity in taxations as well as tax planning is important since they affect location decisions of firms and the flow of Foreign Direct Investment (FDI). Regulators also find this important in making taxation policies that ensure that balanced economic goals of the country are met.

Locally, Mutsotso (2007) conducted a study of the influence of the corporate tax rate as the capital structure of quoted companies at the NSE while Njoroge (2009) did a study on effective corporate tax rate and firm finance. In Kenya the researcher is not, to the best of her knowledge, aware of any studies on effective tax rates, though tax issues are as an important in Africa and in Kenya as they are in other parts of the world. The debate on taxation equity in Kenya can only be answered if several questions are addressed: what differences are observable in tax burdens between firms; whether there are systematic explanations for these differences attributable to nature of the firm’s activities; and, their asset structure, their equity structures and other factors.

This study sought to provide evidence on the existence or otherwise, of tax neutrality of the corporate income tax system by empirically examining the effect of capital intensity, size of the firm, use of financial leverage, and profitability on corporate tax burdens of companies listed at the Nairobi Stock Exchange (NSE).

In carrying out a study on the Effective Tax Rates of firms listed at the Nairobi Stock Exchange (NSE), this study contribute in filling the lacuna on fiscal literature in

developing countries by adding to the body of knowledge in the field. Further, by coming up with the effective tax rates of firms in the NSE, this study may, to an extent, indicate the level of efficiency of the Kenyan tax system.

1.3 Objectives of the Study

The objective of this study is to establish the relationship between Effective Tax Rates and selected corporate characteristics, namely, firm size, leverage of the company, capital intensity, return on total assets and firm performance.

1.4 Significance of Study

The study results should benefit the following parties:

The study contributes to the ever ranging debate on the determinants of the variability in corporate effective tax rates. Scholars do not seem to have developed hard and reliable position on either possibility.

By seeking to provide scientific evidence as to the determinants of the variability in corporate effective tax rates, the study support policymakers in devising strategies on promoting investment from both local and foreign sources. Public policy makers would also be in a position to streamline fiscal strategies to encourage existing investors to plough back their profits and expand their operations.

Since tax rate has both direct and indirect costs, the findings of the study would help public officials in justifying this cost on the account of effectiveness of the rates or to rationalize such costs if found unjustifiable. For Kenya and other developing countries, effective attraction of investors is central for industrial development. The study would therefore provide a basis on which the sector can be developed through assessing whether current interventions are working. The study would also benefit academicians and researchers by providing them with basis for further research on the determinants of the variability in corporate effective tax rates.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction to Effective Tax Rates

Effective Tax Rate is a measure of a company's tax burden generally calculated as (current or total) income tax expense over before-tax financial accounting income. Effective tax rates can be divided into two classifications (Fullerton, 1984); "average" effective tax rates and "marginal" effective tax rates. Average effective tax rates are generally defined as the amount of tax paid (accrued) as a percentage of taxable income. Average effective tax rates are better suited to express the overall tax burden on the company (Callihan, 1994). They express the rate of tax paid on the entire income.

The marginal effective tax rate is the percentage of the expected return on an additional investment that is expected to be paid in tax. The marginal effective tax rate for a specific investment is the rate of tax paid on an additional unit of income from specific investment project. Marginal effective tax rates should be used to investigate the effect of taxation on investment decisions. Marginal effective tax rates can also be used at the level of a firm, but a firm is a collection of investment projects, which makes the uses of marginal effective tax rates at that level problematic. One major criticism is that size of a company is almost certainly not the only determinant of differences in corporate effective tax rates. Academic research investigating various company characteristics as determinants of effective tax rates, not just company size, using company level data have been undertaken by Stickney and McGee (1982) and subsequent papers. The most recent contributions are Gupta and Newberry (1997) and Plesko (1999).

Marginal tax rates are designed to measure incentives to invest in new assets, whereas average tax rates are more useful for measuring the distribution in tax burden and cash flows from prior investments. Further marginal rates are not as sensitive to detailed tax law as are average rates. Our focus will be with the average rates as they are measure best how equitable a tax system is.

$$\text{Average effective tax rate} = \frac{\text{Taxes paid (incurred)}}{\text{Accounting Income before tax}}$$

As explained in Callihan there are two varieties of empirical effective tax rates research: research into marginal effective tax rates and research into average effective tax rates. For a discussion, see Callihan (1994, section 3.1.3)

Depending on the measure of the numerator (taxes paid) chosen, Average effective tax rates based on financial statements can be calculated in three different ways' (1) Current tax expense, which represents taxes currently payable, (2) the total provision for taxes for the year (current plus deferred), and (3) current taxes plus some portion of deferred tax.

The difference between tax and financial accounting rules, and tax credits account for the differences between effective tax rates and statutory rates. Some of these differences are referred to as timing differences, which will reverse in future, while others are referred to as permanent differences which will not reverse. The difference between effective and statutory rates is caused by permanent difference and tax credits. Differences between effective tax rate that use only the current tax expense as the measure of taxes paid arise from both timing and permanent differences.

Some authors have used an effective tax rates variable based on pre-tax operating cash flow as denominator, notably Zimmerman (1983). The idea behind this is to correct for the effect of financial accounting method choices that may be interrelated to the explanatory variables of the effective tax rates. We will also use a cash flow based effective tax rates in this paper.

2.2 Theoretical Review

2.2.1 Traditional Theory

Traditional theory encompasses the generally accepted wisdom of investors, analysts and company management alike. The theory has nothing to do with the pre-MMs' views on capital structure. Traditional theory holds that there are both advantages and disadvantages of corporate gearing. It holds that at low levels of gearing, the advantages of debt outweigh disadvantages and so the market value of a company gradually rises, but

after a while, the situation reverses and disadvantages start to outweigh advantages. Further gearing cause the company market value to decline.

The argument advanced by this view is that the advantage of debt is tax deductibility of interest while the disadvantage of gearing is the increase in financial risk borne by equity holders. This lead to equity holders to demand a higher expected return on their capital. Furthermore, very high gearing ratios make debt holders to suffer their own version of financial risk, making them to demand high interests from debt; raising the cost of debt Brealy and Myers (2003). Traditional view has never rested on vigorous theoretical model as does MM hypothesis.

Modigliani and Miller (1958) (MM) in their famous proposition I argued that a firm cannot change the total value of its securities just by splitting its cash flows into different streams. Their contention was that a firm's value is determined by its real assets not by the securities it issues Brealy and Myers (2003).

However, their conclusion was arrived at after making some assumptions which have been a basis for criticism of their assertions. The assumptions they made were business risk can be measured by standard deviation of earnings before interest and tax and firms with the same degree of risk are said to be in a homogenous risk class, all present and prospective investors have identical estimates of the firms future earnings, stocks and bonds are traded in perfect capital markets and debt of firms and individuals is riskless so that interest rate on debt is the risk free rate.

MM (1958) used arbitrage proof to support their argument. Arbitrage is a process where investors increase their income without increasing their exposure to risk. They argued that if two companies were only different in the way they were financed and in their total market value, investors would sell shares of the higher valued firms, buy those of the lower valued firms and continue this process until the companies had exactly the same market value MM (1958).

Durand, (1959) reacted to MMs' irrelevance theory and questioned the applicability of arbitrage process and the assumptions of a riskless world. Following Durand's criticism

MM (1963) corrected their 1958 position by recognizing the presence of taxes. They recognized that the value of the firm was dependent on the after tax net cash flows. Their proposition I was that value of a levered firm is equal to value of the unlevered firm in the same risk class plus the gain from leverage which is the value of the tax savings due to debt financing and which equal to corporate tax rate times amount of debt a firm uses (Brigham and Daves, 2004).

2.2.2 Agency Theory

Jensen and Meckling (1976) introduced the aspect of agency costs. These costs arise because in the absence of any restrictions, a firm's management would be tempted to take actions that would benefit stockholders at the expense of bondholders (Jensen and Meckling (1976).

Due to this, bondholders impose restrictions in the operations of a firm by way of covenants which hamper the corporation's legitimate operation. Furthermore, the bondholders are forced to monitor the firm to ensure that the covenants are upheld. The monitoring costs are passed to stockholders in terms of higher cost of debt. Covenants lead to loss in efficiency of operation of the firm. The cost efficiency and the monitoring costs are important type of agency costs which increases the cost of debt and reduces the value of equity thus reducing the advantages of debt.

Jensen and Meckling (1976) posit that a firm should consider the agency costs of debt vis-a-vis the benefits of debt to determine the optimum debt. Optimum debt according to them will be the one where marginal agency costs of debt equal to marginal benefits of debt. They identified the agency costs of debt as consisting of the agency theory of capital structure.

2.2.3 Signaling Theory

Ross (1977) argues that trade off models adopted by traditional theorists do not offer a satisfactory solution to financial structure choice. He posits that it's difficult to specify exactly what the costs of bankruptcy are, particularly when it's in the interest of all parties to simply reorganize the firm.

Ross (1977) also contend that MM'S theory implied that the market know the random return stream of the firm and value this stream to set the value of the firm. He posits that what is valued in the market place is the perceived stream of the firm. Borrowing from MM's argument he stated that changes in financial structure can alter the market perception....by changing the financial structure, the firm changes its perceived risk class even though the actual risk class remains unchanged.

Ross concluded that choice of capital structure signals information to the market and that the signals will be validated in a competitive market. The implication of this theory is that managers decide on the capital structure of their company in a way that a positive signal will be sent to the market so as to increase the firms value. This is only achieved if management issue debt securities but in a way that the market will not perceive the issue as too large to invite possibilities of financial distress as this may pose a negative signal.

2.2.4 Asymmetric Information Theory

Myers and Majluf (1984) work resulted in asymmetric information theory of capital structure. They noted that in a world of asymmetric information corporations should issue new shares only when they have extra-ordinary profitable investments that cannot be postponed, signaled to investors or financed by debt and if management think that the shares are overvalued

They argue that separation of ownership from professional management naturally creates asymmetric information. The net effect of asymmetric information is to motivate firms to maintain some reserve borrowing capacity which permits future investment opportunities to be financed by debt when internal funds are insufficient.

They also argue that slack has value because without it the firm is sometimes unwilling to issue stock and therefore passes up a good investment project. Slack does not allow the firm to take advantage of investors by issuing only when the stock is overvalued. "If the investors know that the firm doesn't have to issue to invest, then an attempt to issue sends a strong pessimistic signal. This theory implies that optimal capital structure may not converge with that postulated by trade-off models because all the borrowing capacity

may not be utilized by corporations despite existence of debt advantage. Corporations are likely to forego some borrowing so as to retain some slack.

2.2.5 Financial Architecture

Myers (1999, p. 133) argued that in so far as optimal capital structure is to be determined, one has first to consider financial architecture. In his own words, he notes that financial architecture comes first. Once financial architecture is determined capital structure is usually second order. Myers (1999 p. 139) defines financial architecture as the entire financial design of the business, including ownership (e.g. concentrated versus dispersed), the legal form of the organization (e.g. corporation versus limited life partnership) incentives, financing and allocation of risk.

His argument suggest that there are other distinct architectures apart from the standard one assumed in corporate finance literature, that of public corporation with widely held shares and that the architecture adopted by a firm could influence a firms operations like in the choice of capital structure. A major component of financial architecture is ownership structure. The inclusion of financial distress and agency costs to MMs' models resulted to formulation of the trade-off theory.

2.3 Importance of Effective Tax Rates to Policy Makers

Effective Tax Rates are used as a proxy for tax planning success, which are essentially efforts to avoid tax. Policy makers also use effective tax rates to set taxation levels in order to ensure equity in paying taxes. Equity in taxation is important since it affects decisions to do with location of firms, foreign direct investment and industry level taxation policies to ensure economic goals of the country are met. Tax chiefs in companies assess whether their tax department are performing relative to the market by looking at the effective tax rates of their firms' relative of their competitors.

Foreign Direct Investment (FDI) is critical for a country to experience economic development. To attract FDI, taxation levels are one of the competitive aspects that are considered. Low tax rates are ideal to attract investment. This is important because tax burdens which effective tax rates try to measure are generally thought to be an important

element in the competitive position of a country in terms of location decisions of companies or of founding rates of new companies.

Also, corporate tax burdens are a constant item in discussions about tax competition between countries in general. Nevertheless, a government has to weigh between the benefits of the revenue it generates from relatively high taxes to those that accrue out of the economy due to more players coming into the market.

With the advent of globalization, there is need to assure the public as well as civil society advocacy groups that MNCs are not unduly influencing the economic direction of their countries. This is by paying next to nothing for operating in a country and conversely taking out everything they earn, in the process leaving the country poorer.

2.4 Corporate Income Tax in Kenya

In Kenya taxable income consists of income arising or deemed to arise in Kenya. The current (2007) corporate tax rate is 30% for resident companies and 37.5% for nonresident companies. The corporate tax rate for companies that are newly listed on a securities exchange, approved under the capital markets act, and that have listed capital of at least 30% of their paid up share capital has a reduced tax rate of 25% for a five year period beginning with the year following the year of listing.

A companies' year of assessment (tax year) coincides with its financial accounting year. The commissioner of income tax must approve a change in a company's financial accounting year.

A company must file a self assessment return within 6 months after the end of its financial year. It must also file financial statements within 6 months after the end of its financial year. Late filling of a return is subject to a penalty of 5% of the tax balance. The tax on the self assessment, reduced by installments of tax paid is due within 4 months after a company's financial year end. Late payments are subject to a penalty of 20% plus 2% per month or partial month of the tax balance (Earnest and Young (2003))

2.5 Determinants

Average effective tax rates have long been used by policy makers and interest groups in tax reform debates in U.S and other developed economies (Gupta and Kaye (1997)). Evidence that corporate effective tax rates vary across firms and over time have been used to suggest that the tax systems are inequitable and as a justification for initiating tax reforms. A series of reports published by the Citizen for Tax Justice (CTJ), purporting that the largest U.S. corporations were not paying their fare share of taxes, are believed to have influenced many of the sweeping changes in the Tax Reform Act of 1986 which led to the largest corporate tax increase in US history - \$120 billion over five years (Spooner 1986, Binbaum and Murray 1987).

Given the focus on the purported inequitable treatment of persons under tax jurisdictions, many studies have traditionally examined the existence of a systematic relationship between level of taxes paid and firm size. Most of the research focused on effective tax rates as a proxy for taxes paid .The results have been mixed with some observing a negative relation (Siegfried 1972. Porcano 1986), others a positive association (Zimmerman 1983), and still others no association (Stickney and McGee 1982, and Shevlin and Porter 1992).

Siegfried (1972) studied the effect of firm size on effective tax rates. He hypothesized that larger firms would have lower effective tax rates than smaller firms for the following reasons: larger firms have greater resources with which to influence the political process in their favor; larger firms have more resources with which to develop expertise in tax planning, and; larger firms have greater resources with which to organize their activities in optimal tax saving ways. Siegfried (1972, p.272) concluded, "Other things equal, larger firms appear to pay lower effective average corporation income tax rates"

Wilkie and Limberg (1990) attribute the conflicting size-effective tax rates results to differences in the empirical procedures especially effective tax rates definition, firm size proxies, data aggregation methods and sample selection procedures. Despite the populist fascination with size, other determinants of effective tax rates have been posited. Boudewjin and Buijink (2000) among others find that variables like Leverage, extent of

foreign operations, capital intensity, profitability, industry membership among others are important considerations.

Stickney and McGee (1982), in a most comprehensive study, show that firms with the lowest effective tax rates tend to be highly leveraged, heavily capital intensive, and involved in natural resource industries. They did not find foreign involvement and size to play dominating roles in explaining differences in effective tax. Gupta and Newberry (1997), adopting a multivariate framework and using micro-level longitudinal data, provide evidence on the causes of differences in corporate effective tax rates. They conclude that effective tax rates are not associated with size; but that effective tax rates are systematically related to the firm's capital structure and firm's asset mix

Harberger (1959) found that firms in farming, textiles, petroleum, coal products, and real estate industries paid significantly lower income tax than firms in other industries... Rosenberg (1969) replicated this study and reached the same conclusion .Stickney and McGee explain that the lower effective tax rates in this industries were due to capital gains and percentage depletion allowances granted to firms engaged in developing, extracting, or mining natural resources.

Siegfried (1974) also examined effective tax rates for 110 industries and reported an industry effect in effective tax rates. He attributed the observed differences in effective tax rates to investment credits, foreign tax credits, capital gains, and percentage depletion. Similarly Klassen (1996), and Gupta and Newberry (1997) adduce evidence that the firm's ownership structures, compensation policies, and the corporate culture could impact on effective tax rates.

Tambini (1969) examined the bias in income tax system towards debt as opposed to equity financing. Interest on corporate debt is tax deductible while dividend for equity is not. Tambini did not however report any systematic effect of the financial structure on the effective tax rates. Wang (1991) demonstrated using path analysis that net operating losses (NOLs) affect effective tax rates, perhaps because they are correlated with size.

Studies in other parts of the world on determinants of effective tax rates include Harris and Feeny (2003) in Australia, Gramblich and Limpaphayom (2004) in Japan, Boudewijn and Buijink (2000) in Holland and Holland (1998) in England. Studies in Asia Pacific tiger economies by Kim and Limpaphaom (1998) and Derashid and Zhang (2003) in 1990 to 1999, examined the association between effective tax rates and a set of possible factors using a regression analysis. There was evidence from the study to suggest that manufacturing firms and hotels pay significant lower Effective tax in Malaysia. In addition, the study also found that large Malaysia firms do not suffer a political cost as indicated by a negative and significant relation between firm size and effective tax rates. They posited an industrial policy hypothesis stating that more efficient Malaysian firms pay lower effective tax.

Kim and Limpaphayom (1998) observe that, overall in the Pacific-Basin countries there is put forth the political cost hypothesis of a negative relation between firm size and effective tax rates, which are consistent with Porcano (1986), but is in stark contrast to the majority of other U.S findings such as Zimmerman (1983). However, the results are sensitive to the choice of effective tax rate measure. They also find empirical evidence that profitability is a significant determinant of effective tax rates. However, neither leverage nor growth potential receives strong empirical support. In sum, they conclude that the large firms in the sample have lower effective tax rates than small firms.

Contrary evidence on the relationship of the cross-section of effective tax rates with company level data comes from Stickney and McGee (1982) and Zimmerman (1983) who found that large American companies have high effective tax rates compared to small firms. This they attributed to the greater scrutiny large firms are exposed to by government and the civil society. This came to be known as the political cost hypothesis, which holds that larger companies would, because of their larger political visibility, have fewer tax preferences available to them than smaller firms. But consequent work done by Porcano (1986) found the opposite implying that large firms have the muscle and resources to engage in income reducing activities.

2.5.1 Effective Tax Rates and Firm Size

This is the most researched variable and provides conflicting opinions. The focus on the relation between effective tax rates and firm size in the literature has arisen primarily because of two opposing viewpoints. Under the political cost theory, the higher visibility of larger and more successful firms causes them to be victims of greater regulatory actions and wealth transfers (Watts and Zimmerman 1986).

Because taxes are one element of the total political costs borne by firms, this theory suggests that larger firms face higher effective tax rates. Jensen and Mecklin (1976) in their study on agency relations posited that large firms experience heightened levels of political scrutiny. This they attribute to the control of significant levels of a country's wealth and thus a need to control the equitable distribution of wealth and power. Therefore, they contend that larger firms encounter more government scrutiny than smaller firms.

Alternatively, it can be argued that larger firms have greater resources to influence the political process in their favor, engage in tax planning, and organize their activities to achieve optimal tax savings (Siegfried 1972,). Under this political power or clout theory, larger firms are expected to face lower effective tax rates.

Other studies which have examined the effective tax rates firm size relation more systematically have not produced consistent results. Using time-series data from 1947 to 1981 for all firms on Compustat, Zimmerman (1983,) found evidence of a positive though non-monotonic relation between effective tax rates and firm size. However, this relation varied by industry (the oil and gas industry exhibited the strongest relation, whereas the trade industry had a negative relation (Zimmerman 1983). In contrast, Siegfried (1972,) and Porcano (1986) observed an inverse relation between effective tax rates and firm size, and Stickney and McGee (1982,) found that size was not a significant factor in explaining variation in effective tax rates.

All of these studies used different empirical procedures, including sample selection, time periods, data aggregation methods, effective tax rates definitions, and firm-size proxies.

Wilkie and Limberg (1990) attempted a reconciliation of Zimmerman's (1983) and Porcano's (1986) results, and found (1990) that the different results were largely due to differences in the empirical procedures used. Kern and Morris (1992) extended Wilkie and Limberg's (1990) reconciliation by three years and concluded that Zimmerman's results are more robust to different empirical procedures than Porcano's results, and that significant differences in effective tax rates between large and small firms may not hold.

Finally, Manzon and Smith (1994) recently examined whether changes in effective tax rates over three tax regimes were associated with firm size for a large sample of firms in Compustat. In regression models, which also controlled for capital intensity, they (1994, p. 358) found that changes in worldwide effective tax rates over the three tax regimes were not related to firm size, which is similar to Shevlin and Porter (1992.) findings and Stickney and McGee (1982, pp. 142-143) early results.

2.5.2 Effective tax rates and Capital Structure

Capital structure (i.e. leverage) can inversely affect effective tax rates (i.e. lower effective tax rates) because interest expenses are tax deductible, whereas dividends are not. Thus, leverage is considered one form of tax shield. When a firm has more debt, it follows that they should have less tax responsibilities Porcano (1986).

2.5.3 Effective Tax Rates and Asset Mix

Boudewijn and Buijink (2000) report that asset mix may impact effective tax rates inversely because of tax benefits often allowed for capital investment, investment credit or favorable tax depreciation schedules. For example, the tax code typically allows taxpayers to write-off the cost of tangible depreciable assets over periods much shorter than economic lives. Thus, firms which are more capital-intensive would be expected to have lower effective tax rates.

Elements of asset mix researched include capital intensity, inventory intensity and research and development intensity.

2.5.4 Effective tax rates and extent of foreign operations

Stickney and McGee (1982) included the extent of foreign operations of a firm as an explanatory variable of effective tax rates. In the USA, given that taxes are imposed on worldwide income and limits taxpayers' ability to offset foreign income taxes (via limitations on foreign tax credits), the worldwide effective tax rates of companies with foreign operations will likely be higher if they operate in relatively high tax rate countries.

This problem may have been exacerbated after 1986 as more companies experienced binding foreign tax credit limitations (Collins and Shackelford 1992). Further, because larger firms tend to have a greater proportion of their income from foreign operations (Zimmerman 1983, Daranco 1990), the extent of a firm's foreign involvement is potentially correlated with its size.

2.5.5 Effective Tax Rates and the Industry Effect

Stickney and McGee (1982) model an impact of industry on effective tax rates. They point out that certain US industries (natural resources) are treated more favorably tax-wise. They find the effect expected on effective tax rates. Zimmerman (1983) had already found that trade industries appear to have lower effective tax rates than manufacturing firms and hotels pay significant lower Effective Tax in Malaysia in 1990-1999. They also find that more efficient Malaysian firms pay lower effective tax.

2.5.6 Effective Tax Rates and Profitability

Because the focus in effective tax rates research is on the cross-sectional distribution of tax preferences granted to companies, literature suggests use of company profitability as a control variable. Gupta and Newberry include return on total assets (ROA) in their model and document the expected positive (higher ROA, higher effective tax rates) effect. Profitability should translate into higher effective tax rates simply because a firm will have more taxable income.

Kim and Limphaphayom (1998) also find empirical evidence that profitability is a significant determinant of effective tax rates (Korea and Taiwan). Wang (1991) argues that because net operating losses systematically influence the political cost relationship, failing to control for profitability may bias research results. This notion is also put forth by Spooner (1986).

2.5.7 Effective Tax Rates and Growth Opportunities

A firm that is experiencing growth is probably increasing its investment, which, in turn, leads to higher operating costs. This implies that less taxable income is available which further implies an inverse relationship growth opportunities and effective tax rates. However, the argument can also be made in the other direction.

2.5.8 Effective Tax Rates and Ownership Structure and Compensation Policies

A firm's ownership structure, compensation policies, and corporate culture likely impact effective tax rates. With regard to ownership structure, it could be argued that the greater the managers' share of ownership in a firm, the more aggressive they might be in reducing taxes relative to increasing financial reporting income. Klassen (1996) has presented evidence consistent with expectation in the context of managers' decision to sell all assets with unrealized gains or losses; however, Guenther (1994,) did not find support for this hypothesis in his study of earnings management responses to the tax rate reductions.

With regard to compensation policies, Gupta and Newberry (1997), report that bonuses are an important component of corporate managers' compensation, and are determined based on either before-tax or after-tax accounting earnings. Thus, managers' incentives to trade-off between financial and tax reporting is likely a function of the particular terms of bonus plans.

Other control variables suggested in the literature are a financial accounting loss (NOL) and a negative tax expense (NTE). NOLs proxy for negative taxable income. Negative taxable incomes create a tax lowering effective tax rates in different years. NOLs will directly confound the firm size effect on effective tax rates, when larger companies (i.e.

more diversified companies) profit less from this type of tax shield. Furthermore, NOLs will also indirectly confound the firm size effect, as suggested by Wang (1991). Further, NOL and NTE can lead to negative effective tax rates, which are difficult to interpret. The occurrence of both NOL and NTE lead to positive effective tax rates. To control for this a NOL* NTE control variable are used. To control for the indirect firm size effect, an interaction variable NOL*FSIZE are used. Since NTEs are a result from NOLs, the same procedure for NTEs is followed and an interaction variable NTE*FSIZE is applied. NOL, NTE, and the other control variables are treated as covariates in this model.

Alternatives found in the literature, regarding the treatment of NOLs and NTEs are set ETRs for companies with either negative NOL/ or negative NTE to specific minimum or maximum values or to the companies involved from the sample. This however eliminates meaningful observations from the sample, possibly biasing the research design. Literature also suggests that tax rate changes will affect effective tax rates.

Gupta and Newberry (1997) look at the effect of tax reform in the US in 1986 (the Tax reform Act of 1986, TRA86) in the area of company income tax, by estimating their effective tax rates model for a panel of firms pre-TRA86 and post-TRA 86. Shevlin and Porter (1982) also investigate the effect of TRA86 on effective tax rates, and furthermore complement the measurement of effective tax rates by decomposing the observed changes into an income effect, a tax effect, and a tax rule effect.

2.6 Empirical Research Review on Effective Tax Rates

Research on the determinants of the cross-section of effective tax rates with company level data begins with Stickney and McGee (1982). Before that, several papers had looked at effective tax rates variability across industries with aggregated data. Callihan (1994) is a useful survey of effective tax rates research up to 1994

Zimmerman (1983) formulates the political cost hypothesis and suggests that large firms endure higher political costs. These political costs, as he contends, are reflected in higher effective tax rates. By using income tax divided by operating income flow as his measure of effective tax rates, Zimmerman (1983) finds that the fifty largest U.S firm in his

sample experienced the highest effective tax rates, thus confirming the political cost hypothesis. Zimmerman (1983) suggested that larger companies would, because of their larger political visibility, have fewer tax preferences. Zimmerman (1983) did indeed find, as he expected, a positive effect of company size on effective tax rates.

However, his findings were disputed by Porcano (1986) who found a negative effect on effective tax rates of company size. In a later paper, Shevlin and Porter (1992), after taking into account Wilkie and Finberg's (1990) remarks, still document finding of progressive company income taxes, albeit in a univariate framework. Holland (1998) finds a positive size effect for the UK.

On the other hand, Salamon and Siegfried (1977) argue that firms possess superior economic and political power relative to smaller firms and are therefore able to avoid tax burdens. Porcano (1986) supports this notion by finding an inverse relationship between firm size and effective tax rates using the ratio of current income tax to the pretax book income and extraordinary item as his effective tax rate measure.

While the empirical evidence of Zimmerman (1983) and Porcano (1986) seems conflicting, Wilkie and Limberg (1990) and Kern and Morris (1992) show that these differences can be attributed to the different time periods used in each study (Zimmerman uses the time period from 1947 to 1981; Porcano uses only 1982-1983), by the database employed (Zimmerman uses COMPUTSTAT; Porcano uses Value line), and by the different effective tax rate measures (Zimmerman uses operating income flow; Porcano uses earnings before taxes). Particularly, Wilkie and Limberg (1990) attribute the conflicting results to differences in the empirical procedures especially effective tax rates definition, firm size proxies, data aggregation methods and sample selection procedures.

Omer, Molloy, and Ziebart (1993) examined the relation between effective tax rates and firm size during 1980-1986. They obtained empirical evidence in support of Zimmerman's political cost hypothesis by using five different tax measures. In addition to the Zimmerman (1983) measure and the Porcano (1986) measure, they also used a measure similar to Porcano but include foreign taxes.

The other two measures reflected taxable income defined as pre-tax book income minus the book income associated with deferred taxes for the period, where one measure used the change in deferred tax liability that is reported on the balance sheet and the other measure used deferred tax expense reported on the income statement. Holland (1998) finds a positive size effect for the UK for a number of years in his twenty six year period. However, he also finds a few years with negative size effects.

Ballas and Hevas (1999) examine the importance of accounting variables in explaining cross section variability in firm's effective tax rates in Greece. They tested two different measures of the effective tax rate, one that was based upon book income and one that was based upon cash flows. For the tests they used a sample of 170 firms listed on the Athens Stock Exchange for the period 1992-1996 (i.e. 850 firm years). In order to carry out the empirical tests they employed a Fixed Effects regression Model. Overall, the results obtained from the empirical tests:

Give support to the political cost hypothesis suggested by Zimmerman (1983); Provide evidence that the capital structure and the profitability of firms influence the effective tax rates; Do not support the hypothesis that asset structure influences the effective tax rate; Suggest that the performance of the model is influenced by measurement issues; cash flow based measures of the effective tax rate seems to perform better than book income based measures.

Kim and Limpaphayom (1998) assert that despite the popularity of this on-going debate, previous literature has only focused on industrialized countries such as the U.S. and, as a consequence, very little is known regarding the emerging economy experience. Does the relation put forth by the political cost hypothesis persist in these developing countries? Derashid and Zhang (2003) state that Studies on effective tax rates and firm size in the non-U.S context are next to non-existent, with theirs being the sole exception. As previously discussed, an investigation into this question has significant implications for emerging countries. Kim and Limpaphayom (1998) seek to answer this question by a study that examines Hong Kong, Korea, Malaysia, Taiwan, and Thailand. On the other hand, Derashid and Zhang (2003) do their study in Malaysia.

To improve on past research, Kim and Limpaphayom (1998) also consider other posited determinants of effective tax rates. Specifically, the effect that a firm's leverage level, profitability and growth have on the size of the tax rate. Leverage is considered one form of tax shield. When a firm has more debt, it follows that they should have less tax responsibilities, Porcano (1986). Profitability, on the other hand, should translate into higher effective tax rates simply because a firm will have more taxable income. The effect is even more pronounced in countries with progressive tax rates (Korea and Taiwan).

Kim and Limpaphayom (1998) provide empirical tests on the relationship suggested by the political cost hypothesis in five emerging Pacific-Basin emerging economies. First, for each year, firms are categorized into quintiles based on size and mean effective tax rates are calculated to see if any pattern persists. Next, this potential relationship is tested using a regression analysis framework.

Through regression analysis the isolation of the relation between firm size and tax rates by controlling for other explanatory variables, and secondly, tested the significance of other hypothesized determinants of effective tax rates i.e a firm's growth and investment opportunities, profitability, and leverage level.

Overall, in the Pacific-Basin countries, the results suggest that there is evidence against the positive relation put forth by the political cost hypothesis. They find a negative relation between firm size and effective tax rates, which is consistent with Porcano (1986), but is in stark contrast to the majority of other U.S findings such as Zimmerman (1983). However, the results are sensitive to the choice of effective tax rate measure.

Kim and Limpaphayom (1998) also find empirical evidence that profitability is a significant determinant of effective tax rates. However, neither that leverage nor growth potential receives strong empirical support. In sum, they conclude that the large firms in the sample have lower effective tax rates than small firms. Past research suggests future research should focus on the reasons underlying the observed relationship.

For example, the results may indicate that large firms in developing countries are able to use their economic power to influence legislation and obtain favorable tax treatments. On the other hand, the findings may be a result of the fact that national governments use tax policies to promote specific economic objectives. Based on policy objectives, the government may target firms in strategic industries and give these companies additional tax benefits, which, in turn, result in low effective tax rates.

Another interesting issue is the choice of accounting methods among firms in these countries. Local accounting standards may provide more opportunities for large firms to exploit tax loopholes, which in turn, result in lower effective tax rates. In other words, the results may reflect the ability of large firms to employ tax reducing strategies. This notion is also put forth by Spooner (1986). A firm that is experiencing growth is probably increasing its investment, which, in turn, leads to higher operating costs. This implies that less taxable income is available which further implies an inverse relationship between growth opportunities and effective tax rates. However, the argument can also be made in the other direction.

Derashid and Zhang (2003) argue that though these conjectures appear intuitively appealing, they have never been tested empirically. As a result, their study uses an additional research design, which allows them to test these hypothesized relationships. Moreover, Derashid and Zhang (2003) observe that no detailed analysis has been performed to study the link between industrial sectors and effective tax rates.

Based on a hand-gathered sample of Malaysia firms trading in the Kuala Lumpur Stock Exchange in 1990 to 1999, they examine the association between effective tax rates and a set of possible factors using a regression analysis. There is evidence from their study to suggest that manufacturing firms and hotels pay significant lower effective tax in Malaysia in 1990-1999. In addition, it also appears that large Malaysian firms do not suffer a political cost as indicated by a negative and significant relation between firm size and effective tax rates. They also find that more efficient Malaysian firms pay lower effective tax.

A sizeable portion of local research has tried to assess the 'fairness' of the corporate income tax system, that is: are companies treated in a non-discriminatory way under the corporate income tax system. Ochumbo (1982) paper examines whether an association can be found between the variation in average effective tax rates (ETRs) among Kenyan companies and company characteristics such as size, asset mix, extent of foreign operations, performance, leverage, being a public company and being a listed company. Controls are used for net operating loss status, negative tax expense status, and interaction between firm size and net operating loss status and negative tax expense status. The results in the paper are based on an analysis of a pooled panel of company-level data from financial statements for five years, 1976 to 1981. Results from a fixed effects generalized linear model provide support for the conclusion that, after controlling for indirect effects, the taxation of corporate profits in Kenya is fairly neutral.

Wang'ombe (1999) conducted an analysis of the productivity of the Kenyan tax system and some administrative factors. The study established that large companies in particular have been the target of allegations that they do not pay their fair share of the tax burden. Some of these claims are based on research measuring corporate level average Effective Tax Rates (ETRs). The research showed that ETRs for the largest companies were below those for smaller companies, where the tax rate schedules facing these companies were the same.

Kieleko (2006) on the other hand did a study on the effects to tax reforms on tax productivity in Kenya. The study examined the effects of the Tax Reform Act (TRA) of 1986 on capital location, including income shifting between Kenya and foreign tax jurisdictions. Although he provides little evidence of income shifting for the full sample, he does find some evidence of increased earnings of Kenya operations for "high flexibility" firms.

Mutsotso (2007) further conducted a study of the influence of the corporate tax rate as the capital structure of quoted companies at the NSE. The study provided evidence of substantial tax effect on the choice between debt and equity. The study concluded that changes in the marginal tax rate for any firm should affect financing decisions. A firm

with a high tax shield is less likely to finance with debt. The reason is that tax shields lower the effective marginal tax rate on interest deduction. The study further confirms that any tax advantage to debt is likely to be small and thus have a weak relationship between debt usage and tax burden of firms. Njoroge (2009) did a study on effective corporate tax rate and firm finance and established that large firms endure higher political costs which are reflected in higher effective tax rates.

2.7 Conclusion

Effective tax rate is a measure of a company's tax burden generally calculated as (current or total) income tax expense over before-tax financial accounting income. Depending on the measure of the numerator (taxes paid) chosen. Average effective tax rates based on financial statements can be calculated in three different ways'. Effective Tax Rates are used as a proxy for tax planning success, which are essentially efforts to avoid tax. Policy makers also use effective tax rates to set taxation levels in order to ensure equity in paying taxes. Also, corporate tax burdens are a constant item in discussions about tax competition between countries in general.

In Kenya taxable income consists of income arising or deemed to arise in Kenya. The current (2007) corporate tax rate is 30% for resident companies and 37.5% for nonresident companies. This is the most researched variable and provides conflicting opinions. The focus on the relation between effective tax rates and firm size in the literature has arisen primarily because of two opposing viewpoints. Alternatively, it can be argued that larger firms have greater resources to influence the political process in their favor, engage in tax planning, and organize their activities to achieve optimal tax savings.

Asset mix may impact effective tax rates inversely because of tax benefits often allowed for capital investment, investment credit or favorable tax depreciation schedules. A firm that is experiencing growth is probably increasing its investment, which, in turn, leads to higher operating costs. Bonuses are an important component of corporate managers' compensation, and are determined based on either before-tax or after-tax accounting earnings. Large firms possess superior economic and political power relative to smaller

firms and are therefore able to avoid tax burdens. The capital structure and the profitability of firms influence the effective tax rates. Based on policy objectives, the government may target firms in strategic industries and give these companies additional tax benefits, which, in turn, result in low effective tax rates. Large companies in particular have been the target of allegations that they do not pay their fair share of the tax burden. Some of these claims are based on research measuring corporate level average Effective Tax Rates (ETRs).

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This section outlines the methodology that was used in carrying out the study. It involves a blueprint for the collection, measurement and analysis of data. This section is an overall scheme, plan or structure conceived to aid the researcher in answering the raised research question. In this stage, most decisions about how research was executed and how respondents were approached, as well as when, where and how the research was completed. Therefore in this section the research identified the procedures and techniques that were used in the collection, processing and analysis of data.

3.2 Research Design

This was an analytical study which used panel data to measure, first, the effective tax rates of companies and, secondly, the association of these rate to company characteristics. Thus the study adopted a time series or longitudinal approach, supplemented by cross-sectional comparisons.

3.3 Population

The study population comprised of 55 companies listed in the Nairobi Stock Exchange (NSE) by 2009.

3.4 Sample Selection

In this paper, the study used data for the 38 companies listed on the Nairobi Stock Exchange (NSE) for the period (2005-2009). Data came primarily from the companies' financial statements' and the study excluded the following companies:

- Companies which have financial accounting loss and negative tax payments.

- Companies in the finance industry since they have peculiar regulations and thus bias results
- Outliers-companies with extreme values of effective tax rates and other ratios.

3.5 Model Specification

The following general multivariate model was employed to investigate the relationship between effective tax rates and the firm characteristics. The model was estimated for ETR1 and ETR2

$$ETR_{it} = \beta + \beta_1 SIZE_{it} + \beta_2 LEV_{it} + \beta_3 CAPINT_{it} + \beta_4 ROA_{it}$$

Where the dependent variable ETR_{it} , is the effective tax rate for firm i in year t and the independent variables (with subscripts omitted) include proxies for firm size (SIZE), capital structure (LEV), asset mix (CAPINT), and firm performance (ROA)

3.6 Specification and Determination of Variables

Dependent variable

We only used deferred tax liabilities in the effective tax definitions. As the tax expense accrues to the entire income. We used the current tax expense as well as full financial accounting income before interest and taxes in our effective tax rates measures. To control for possible differences in financial reporting between companies, we used an alternative effective tax rates definition, based on cash flow. The effective tax rates definitions are defined as:

ETR 1 is: (tax expense- (defined tax provision t - deferred tax provision $t-1$))/ earnings before interest and taxes.

ETR 2 is: (tax expense- (deferred tax provision t -deferred tax provision $- 1$))/ (cash flow + interest charges and revenues).

Independent variables

FSIZE: firm size, defined as total assets.

CAPINT: capital intensity, which is tangible fixed assets divided by total assets.

ROA: return on total assets

LEVERAGE: leverage of the company defined as long term liabilities over total assets.

3.7 Data Analysis

First we worked out effective tax rates of companies listed at the NSE from 2005 to 2009. Effective tax rates were then correlated to firm size in order to test the size effect. To investigate possible nonlinear relationships between determinants and effective tax rates as well as to control for the possible non-normal distribution of financial accounting data, a fixed effect generalized linear model (FGLM) as well as a random effects generalized linear model (REGLM) were used to estimate our multivariate model of the relation between determinants and effective tax rates. Data analysis used SPSS and Microsoft Excel softwares.

Sensitivity analysis using OLS regression was also performed. To test for non-linear relationships the parametric variables are classified in deciles. As effective tax rates ratios are easily distorted by extreme observations; effective tax rates below 0 are recorded to zero and effective tax rates above 1 recorded to 1. This follows the approach used by Gupta and Newberry (1997) and Boudewijn and Buijink (2000).

CHAPTER FOUR

4.0 DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the information processed from the data collected during the study on determinants of the variability in corporate effective tax rates for companies listed at the Nairobi Stock Exchange. The sample composed of 38 companies listed on the Nairobi Stock Exchange (NSE) for the period (2005-2009).

4.2 Descriptive Statistics

Table 1: Effective tax rate for firm

	Mean	Std. Deviation
ETR	0.356	0.4326

For the dependent variable, ETR1 has a mean of 0.356 and a standard deviation of 0.4326.

Table 2: Independent variables descriptive statistics

	Size	LEV	CAPINT	ROA
Mean	6.832	0.176	0.650	0.928
Std. Deviation	0.753	0.295	0.321	5.381

For the independent variables, SIZE has a mean of 6.832 and a standard deviation of 0.753, LEV has a mean of 0.176 and a standard deviation of 0.295, CAPINT has a mean of 0.650 and a standard deviation of 0.321 and ROA has a mean of 0.928 and a standard deviation of 5.381. A reasonable level of consistency is observed between the mean and

standard deviation for all variables.

4.3 Regression Results

In addition to descriptive analysis, the study conducted a cross-sectional OLS multiple regression on several firm characteristics over the period 2005–2009 and results of ETR.

4.3.1 Year 2005 Analysis and Interpretations

Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (ETR) that is explained by all the four independent variables (Size, LEV, CAPINT and ROA).

Table 3: Model Summary for 2005 Data

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.159 ^a	.025	-.131	6.21599E5

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.515E11	4	6.287E10	.163	.955 ^a
	Residual	9.660E12	25	3.864E11		
	Total	9.911E12	29			

Table 4: Coefficients of 2005 Model

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	762701.133	1409661.817		.541	.593
	Size	-53160.892	194699.903	-.055	-.273	.787
	LEV	71717.170	836237.935	.018	.086	.932
	CAPINT	-317282.498	435240.663	-.157	-.729	.473
	ROA	171431.778	368601.624	.096	.465	.646

The data findings from 2005 market statistics were analyzed and the SPSS output presented in table 3 and 4 above. From the ANOVA statistics in table 3, the processed data, which are the population parameters, had a significance level of 95.5% which shows that the data is not ideal for making a conclusion on the population's parameter. The F critical at 5% level of significance was 2.76. Since F calculated is less than the F critical (value = 1.63), this shows that the overall model was insignificant. The coefficient table in table 4 above was used in coming up with the model below:

$$\text{ETR} = 762701.133 - 53160.892 \text{ SIZE} + 71717.170 \text{ LEV} - 317282.498 \text{ CAPINT} + 171431.778 \text{ ROA}$$

According to the model, all the variables were insignificant as their significance value was more than 0.05. However, only LEV and ROA were positively correlated with ETR while SIZE and CAPINT were negatively correlated with ETR. From the model, taking

all factors (Size, LEV, CAPINT and ROA) constant at zero, ETR will be 762701.133. The data findings analyzed also shows that taking all other independent variables at zero, a unit increase in size will lead to a -53160.892 decrease in ETR. A unit increase in LEV will lead to a 71717.170 increase in ETR; a unit increase in CAPINT will lead to a 317282.498 decrease in ETR while a unit increase in ROA will lead to a 171431.778 increase in ETR. This infers that ROA contributed more to the economic development followed by LEV while the Size and CAPINT had a negative insignificant effect.

4.3.2 Year 2006 Analysis and Interpretations

Table 5: Model Summary for 2005 Data

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.274 ^a	.075	-.073	1.08844E6

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.408E12	4	6.019E11	.508	.730 ^a
	Residual	2.962E13	25	1.185E12		
	Total	3.203E13	29			

Table 6: Coefficients for 2006 Regression Model

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-719680.074	1728962.336		-.416	.681
	size	118021.043	244966.113	.097	.482	.634
	LEV	-546926.873	1030133.922	-.107	-.531	.600
	CAPINT	505281.921	631536.506	.170	.800	.431
	ROA	67303.194	111623.018	.128	.603	.552

The data findings for 2006 statistics were processed using SPSS and the output presented in table 5 and 6 above. According to the ANOVA table 5 above, the parameters predicted in the table above had a significance level of 73% which is inadequate to be used as a population parameter in predicting the determinants of the variability in corporate effective tax rates for the companies that shows that the model was insignificant. The regression model drawn from table 4 above is presented below:

$$ETR = -719680.074 + 118021.043 \text{ SIZE} - 546926.873 \text{ LEV} + 505281.921 \text{ CAPINT} + 67303.194 \text{ ROA}$$

According to the table, the ETR had an autonomous value of -719680.074 that is when the value of all the independent variables is zero. Though all the variables were insignificant, a unit increase in size increases the ETR by 118021.043 when the



companies' LEV, CAPINT and ROA variables are held constant. A unit increase in LEV, holding other variables constant, decreased the ETR by -546926.873. A unit increase in CAPINT, holding other variables constant, increased the ETR by 505281.921, while an increase of 67303.194 in ETR occurred when there was a unitary increase in ROA holding other independent variables constant. This shows that company size, CAPINT and ROA had a positive relationship with the ETR while LEV negatively influenced the ETR.

4.3.3 Year 2007 Analysis and Interpretations

Table 7: Model Summary for 2007 Data

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.400 ^a	.160	.025	1.25080E6

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.444E12	4	1.861E12	5.189	.0340 ^a
	Residual	3.911E13	25	1.565E12		
	Total	4.656E13	29			

Table 8: 2007 Model Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t		Sig.
		B	Std. Error	Beta			
1	(Constant)	52739.429	1949611.403		.027	.979	
	size	133116.787	280730.101	.088	.474	.639	
	LEV	-2447474.904	1478480.338	-.311	-1.655	.110	
	ROA	61976.987	688504.584	.169	-.900	.377	
	CAPINT	9714.029	792535.680	.023	.123	.903	

From the finding of the study on the 2007 market statistics as analyzed and presented in the above table, the following regression equation was established by the study for the year 2007:

$$\text{ETR} = 52739.429 + 133116.787 \text{ SIZE} - 2447474.904 \text{ LEV} + 9714.029 \text{ CAPINT} + 61976.987 \text{ ROA}$$

From the findings of the data it can be concluded that when the value of SIZE, LEV, CAPINT and ROA were zero, ETR was 52739.429. The table also shows that though the variables had an insignificant relationship, holding LEV, CAPINT and ROA constant, an increase by one unit of size increases ETR by 133116.787, when other factors are held constant an increase in LEV by one unit decreases ETR by 2447474.904. If one unit of ROA was increased while holding other factors constant, the ETR would increase by 61976.987 and when other factors are held constant an increase in CAPINT by one unit increases ETR by 9714.029. This shows that the company size, ROA and CAPINT have a positive relationship with ETR while LEV inversely affects ETR, although the company's size influences ETR positively most. However, the model was arrived at a significance level of 3.4% which means that the model is adequate in drawing a conclusion on the population parameters.

4. 3.4 Year 2008 Analysis and Interpretations

Table 9: Model Summary for 2008 Data

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.312 ^a	.097	-.047	1.34096E6		
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.834E12	4	1.209E12	4.672	.017 ^a
	Residual	4.495E13	25	1.798E12		
	Total	4.979E13	29			

Table 10: Coefficients of 2008 model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2539637.724	2060740.608		1.232	.229
	size	407250.078	327595.260	.264	1.243	.225
	LEV	-481265.132	462030.388	-.202	-1.042	.308
	CAPINT	1003036.538	931699.591	.237	1.077	.292
	ROA	2341.005	8455.903	.056	.277	.784

The market data for 2008 was regressed on SPSS and the output presented in table 9 and

10 above. From the data analyzed and presented in the table above, the model for the year 2008 is presented below:

$$\text{ETR} = 52739.429 + 133116.787 \text{ SIZE} - 2447474.904 \text{ LEV} + 9714.029 \text{ CAPINT} + 61976.987 \text{ ROA}$$

According to the model above, though the variables were insignificant, holding SIZE, LEV, CAPINT and ROA constant at zero, ETR will be 2539637.724. Though the variables had an insignificant relationship, when the LEV, CAPINT and ROA are held constant, a unit increase in size will increase the ETR by 407250.078. When other factors are held constant, a unit increase in LEV will decrease the ETR by 481265.132. The model also shows that CAPINT and ROA have a positive relationship with ETR such that a unit increases in either CAPINT or ROA holding other factors constant will lead to an increase in ETR of 1003036.538 and 2341.005 respectively. From the above model it can be concluded that company size, CAPINT and ROA positively influenced ETR. CAPINT variable gave the highest influence while LEV had a negative influence on the same. From the ANOVA statistics table 9 above, it shows that the parameters in the model have a 1.7% level of significance which shows that it is significant in predicting the determinants of the variability in corporate effective tax rates.

4.3.5 Year 2009 Analysis and Interpretations

Table 11: Model Summary for 2009 Data

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.238 ^a	.057	-.094	5.91159E5		
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.261E11	4	1.315E11	.376	.023 ^a
	Residual	8.737E12	25	3.495E11		
	Total	9.263E12	29			

Table 12: Coefficients of 2009 model

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1264652.491	1718566.337		.736	.469
	size	-213558.153	203416.011	-.264	-1.050	.304
	LEV	-232342.822	322841.677	-.177	-.720	.478
	CAPINVT	235830.157	658942.609	.072	.358	.723
	ROA	86600.094	128306.735	.142	.675	.506

The data findings for 2009 were computed, analyzed and presented in table 11 and 12 above. According to the ANOVA statistics in table 11 above, the model had a significance level of 2.3% which means that the model is appropriate to be used as a population parameter. From table 11, the regression model is presented below:

$$\text{ETR} = 1264652.491 - 213558.153 \text{ SIZE} - 232342.822 \text{ LEV} + 235830.157 \text{ CAPINT} + 86600.094 \text{ ROA}$$

According to the regression model, when the values of size, LEV, CAPINVT and ROA are zero, ETR will be 1264652.491. Though the variables had an insignificant relationship, when size is increased by one unit, the ETR will decrease by -213558.153 while when LEV is increased by one unit, the ETR will decrease by -232342.822. The ETR will also increase by 235830.157 and 86600.094 when the CAPINVT and ROA are increased by one unit respectively holding other factors constant. This shows that CAPINVT and ROA have a positive correlation with ETR while size and LEV have an inverse relationship with ETR.

4.4 Summary and Interpretation of Findings

The study found that the regression equations for the period 2005 to 2009 related ETR of the companies to their size, LEV, CAPINT and ROA. From the 2005 model, taking all factors (Size, LEV, CAPINT and ROA) constant at zero, ETR will be 762701.133. The data findings analyzed also shows that taking all other independent variables at zero, a unit increase in size will lead to a -53160.892 decrease in ETR. A unit increase in LEV will lead to a 71717.170 increase in ETR; a unit increase in CAPINT will lead to a 317282.498 decrease in ETR while a unit increase in ROA will lead to a 171431.778 increase in ETR.

The 2006 model show that units increase in size increases the ETR by 118021.043 when the companies' LEV, CAPINT and ROA variables are held constant. A unit increase in LEV, holding other variables constant, decreased the ETR by -546926.873. A unit increase in CAPINT, holding other variables constant, increased the ETR by 505281.921, while an increase of 67303.194 in ETR occurred when there was a unitary increase in ROA holding other independent variables constant.

The table for 2007 also shows that holding LEV, CAPINT and ROA constant, an increase by one unit of size increases ETR by 133116.787, when other factors are held constant an increase in LEV by one unit decreases ETR by 2447474.904. If one unit of ROA was increased while holding other factors constant, the ETR would increase by 61976.987 and when other factors are held constant an increase in CAPINT by one unit increases ETR by 9714.029.

From the 2008 model, when the LEV, CAPINT and ROA are held constant, a unit increase in size will increase the ETR by 407250.078. When other factors are held constant, a unit increase in LEV will decrease the ETR by 481265.132. The model also shows that CAPINT and ROA have a positive relationship with ETR such that a unit increases in either CAPINT or ROA holding other factors constant will lead to an increase in ETR of 1003036.538 and 2341.005 respectively.

From the 2009 model, when size is increased by one unit, the ETR will decrease by - 213558.153 while when LEV is increased by one unit, the ETR will decrease by - 232342.822. The ETR will also increase by 235830.157 and 86600.094 when the CAPINVT and ROA are increased by one unit respectively holding other factors constant.

The equation was:

$$\text{ETR} = 780010.1 + 78333.7726 \text{ SIZE} - 727258.5122 \text{ LEV} + 287316.0294 \text{ CAPINT} + 77930.6116 \text{ ROA}$$

From the above regression models for the five years, the study found out that, there were several factors influencing the ETR of companies listed in the NSE, which are size, LEV, CAPINVT and ROA. They either influenced it positively or negatively. The study found out that the intercept varied. The highest value was 1264,652.491 and the lowest was - 719680.074 with an average of 780010.1 for all years. The study also found out that the coefficient of company size varied from positive to negative. The highest regression value was positive. This means that company size positively influenced the ETR. This means that the company size have a significant influence on the ETR.

The study found out that the companies LEV varied in value although it was negative in most cases except for 2005. This means that leverage negatively influenced the ETR. The study further found out that the coefficients of the CAPINVT to be positive in four out of the five regression models. This depicts that, according to findings, CAPINVT positively influences the ETR. The study finally found out that, the coefficient of ROA positively related to the ETR. This is because the tax rate is mainly based on the profitability of the company.

The four independent variables that were studied (size, LEV, CAPINVT and ROA) explain only 65.2% of effective tax rate as represented by the average R^2 (0.652). This therefore means the four independent variables only contribute about 65.2% of effective tax rate while other factors not studied in this research contributes 34.8% of the effective tax rate. Therefore, further research should be conducted to investigate the other factors

(65.2%) that contribute to the effective tax rate. Further, all the model except for 2005 were significant. According to the findings above, the parameters predicted in the model had a significance level of less than 0.05 which shows that the model is significant and adequate to be used as a population parameter in predicting the determinants of the variability in corporate effective tax rates for the companies.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

Corporate effective tax rates (ETRs) are often used by policy-makers and interest groups as a tool to make inferences about corporate tax systems because they provide a convenient summary statistic of the cumulative effect of various tax incentive and corporate tax rate changes. In the developed economies, one of the driving forces behind tax reforms was the concern that many large corporations, indeed many industries were not paying their “fair” share of taxes. The purpose of the study is to establish the relationship between Effective Tax Rates and selected corporate characteristics (namely, size, capital structure, asset mix and firm performance).

This was an analytical study that adopted a time series or longitudinal approach, supplemented by cross-sectional comparisons. The study used data for the 38 companies listed on the NSE for the period (2005-2009) which was exposed to sensitivity analysis using OLS regression.

The study found that the regression equations for the period 2005 to 2009 related ETR of the companies to their size, LEV, CAPINVT and ROA. The equation was:

$$\text{ETR} = 780010.1 + 78333.7726 \text{ SIZE} - 727258.5122 \text{ LEV} + 287316.0294 \text{ CAPINT} + 77930.6116 \text{ ROA}$$

From the above regression models for the five years, the study found out that, there were several factors influencing the ETR of companies listed in the NSE, which are size, LEV, CAPINVT and ROA. They either influenced it positively or negatively. The four independent variables that were studied (size, LEV, CAPINVT and ROA) explain only 65.2% of effective tax rate as represented by the average R^2 .

The study concludes that firm size, leverage of the company, capital intensity and return on total assets influences the effective tax rates. However the study deduced that leverage negatively influenced the effective tax rates. The study recommends that the companies should rely more on equity based financing to support its business operations other than relying more heavily on debt financing. The study also recommends that since it was established that firms that are more capital-intensive are expected to have lower ETRs,

the companies should strive to ensure that they are more capital-intensive and less inventory-intensive.

5.2 Conclusions

This paper examines the determinants of the variability in corporate ETRs in companies listed in the NSE. The study concludes that firm size, leverage of the company, capital intensity and return on total assets influences the effective tax rates. The study concludes that company size have a significant influence on the effective tax rates. Our results are consistent with prior Australian research by Tran (1997). It appears that larger firms do possess superior economic and political power relative to smaller firms and are able to reduce their tax burdens. As taxes are one part of the total political costs borne by firms, larger firms have higher ETRs (Zimmerman, 1983, p. 119). The findings however contradict research on ETRs in several less-developed Asia-Pacific countries: Korea, Malaysia, Taiwan and Thailand (Kim and Limp-aphayom, 1998; Derashid and Zhang, 2003) that shows a consistent negative association between ETRs and firm-size. In another study undertaken to identify the causes of this negative association, Tran (1998, p. 282) finds that larger firms benefited more from tax-planning (tax incentives) than smaller firms.

The study deduced that leverage negatively influenced the effective tax rates. The results are similar to those by Grant and Roman (2007) who indicate that it has a significant negative association with ETR. Because interest expenditure is tax-deductible, firms with higher leverage have lower ETRs. Research by Stickney and McGee (1982) and Gupta and Newberry (1997) also found a negative association between ETRs and leverage.

The study also concluded that capital intensity positively influences the effective tax rates. These findings are contrary to those by Grant and Roman (2007) that capital intensity has a significant negative association with ETR such that firms that are more capital-intensive have lower ETRs. As tax statutes usually permit taxpayers to write-off the cost of depreciable assets over periods shorter than their economic lives; firms that are more capital-intensive are expected to have lower ETRs (Stickney and McGee, 1982, p. 142). To the extent that inventory intensity is a substitute for capital intensity, inventory-intensive firms should possess higher ETRs (Zimmerman, 1983, p. 130).

The study also revealed that return on total assets is positively related to the effective tax rates. This is mainly because an increase in return on assets leads to an increase in ETRs. These results are consistent with Gupta and Newberry, (1997, p. 15) and Grant and Roman (2007) findings that ROA has a significant positive association with ETR.

5.3 Recommendations for Policy and Practice

Since the study established that company size have a significant influence on the effective tax rates, the managers of the companies should concentrate their efforts towards allocating more funds to the expansion of the firm size as larger firms do possess superior economic and political power relative to smaller firms and are able to reduce their tax burdens. In addition larger firms benefited more from tax-planning (tax incentives) than smaller firms.

The study established that firms' financing decisions could impact on ETRs because tax statutes normally allow differential tax treatment to the capital structure decisions of firms. The study therefore recommends that the companies should rely more on equity based financing to support its business operations other than relying more heavily on debt financing. Since interest expenditure is tax deductible while dividends are not, firms should avoid having high leverage which can lead to lower ETRs. The study further recommends that the companies should minimize the short term debts they incur if they want to have a dividend policy that favor shareholders.

The study also recommends that since it was established that firms that are more capital-intensive are expected to have lower ETRs, the companies should strive to ensure that they are more capital-intensive and less inventory- intensive.

The study finally recommends that since the study established that an increase in return on assets leads to an increase in ETRs, the companies should engage in activities that boost their profitability. The companies should also defer dividends so as to increase profitability for the companies in order to have a good dividend policy in future. The companies should also invest in growth opportunity.

5.4 Limitations of the Study

There were challenges which were encountered during the study. Some Officers from listed companies that participated in the study were initially reluctant to release information related to Audited accounts and Annual reports making arguments that it was confidential. That reluctance delayed the completion of data collection. Further because of data unavailability, it was not possible to include unlisted firms in our sample.

In addition, the study constructed our ETR measures using financial statement data since tax return data are private and unavailable. The literature (Plesko, 2003) questions the accuracy of financial-statement-based ETR measures, so the results should be interpreted with some caution.

Further, the ETR model may be incomplete. For example, the extent of firms' foreign operations and ownership structure might impact on ETRs. We excluded these variables due to data and cost constraints.

5.5 Suggestions for Further Research

This paper examines the determinants of the variability in corporate ETRs in companies listed in the NSE. Because of data unavailability, it was not possible to include unlisted firms in our sample. Therefore I suggest further research on the determinants of the variability in corporate ETRs in companies that are not listed in the NSE.

The study showed that the firm size, leverage of the company, capital intensity and return on total assets influences the effective tax rates. The ETR model may be incomplete. For example, the extent of firms' foreign operations and ownership structure might impact on ETRs. The study excluded these variables due to data and cost constraints. Future research could consider these issues.

Since the study findings on capital intensity contradicts those by earlier researchers who had established that capital intensity has a significant negative association with ETR such that firms that are more capital-intensive have lower ETRs, further studies should be done to establish the cause of such discrepancy.

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Appendix I: List of Companies Listed in the Nairobi Stock Exchange

Agricultural

1. Kakuzi Limited
2. Rea Vipingo Limited
3. Sasini Tea & Coffee Limited

Commercial & Services

4. Access Kenya
5. Car & General Kenya Limited
6. CMC Holdings
7. Hutchings Biemer Limited
8. Kenya Airways
9. Marshalls EA
10. Nation Media Group
11. Safaricom limited
12. Scangroup (K)
13. Standard Group
14. TPS Serena
15. Uchumi Supermarkets Ltd (suspended)

Industrial & Allied

16. Athi River Mining
17. Bamburi Cement
18. BOC Kenya Limited

19. British American Tobacco Kenya

20. Carbacid Investments

21. Crown-Berger (K)

22. E.A Cables

23. E.A. Portland Cement

24. East African Breweries

25. Eveready East Africa Ltd

26. Kengen

27. Kenya Oil

28. Kenya Power & Lighting

29. Mumias Sugar Company

30. Sameer Group

31. Total Kenya

32. Unga Group

Finance & Investment

33. Barclays Bank of Kenya

34. Centum Investment

35. CFC Stanbic Bank

36. Cooperative Bank of Kenya

37. Diamond Trust Bank of Kenya

38. Equity Bank

39. Housing Finance

40. Jubilee Insurance

41. Kenya Commercial Bank

42. Kenya Re

43. National Bank of Kenya

44. National Industrial Credit Bank

45. Olympia Capital Holdings

46. Pan Africa Insurance Holdings

47. Standard Chartered Bank

Alternative Investment Market

48. A Baumann and Company

49. City Trust

50. Eaagads

51. Express (K)

52. Kenya Orchards

53. Limuru Tea

54. Kapchorua Tea Company

55. Williamson Tea Kenya