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Corporate debt bias in NSE listed Companies in Kenya: Evaluation of an ACE reform on Investments levels.

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Declaration

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the Research Project contains no material previously published or written by another person except where due reference is made in the Research Project itself.

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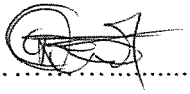
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This Research Project has been submitted for examination with my approval as the Supervisor.

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Abstract

This study looks at the corporate debt bias resulting from debt deductibility of interest. It aims at establishing whether an Allowance for Corporate Equity (ACE) tax reform within capital intensive firms listed on the NSE specifically the effect ACE would have on investments. Estimates used show that investments would grow up to five percent if the ACE was applied from the year 2004 for the selected firms. This growth supports the premise that the tax reform would eliminate investment distortions and encourage higher levels of investment.

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List of Abbreviations

ACE Allowance for Corporate Equity

CBIT Comprehensive Business Income Tax

CIT Comprehensive Income Tax

EBIT Earnings before Interest and Tax

EATR Effective Average Tax Rate

GDP Gross Domestic Product

KRA Kenya Revenue Authority

MM Modigliani and Miller

NSE Nairobi Securities Exchange

PAT Profit after Tax

PBT Profit before Tax

PPE Property Plant and Equipment

1: Introduction

1.1 Background to the study

According to Barclay, Smith and Watts (1997) the value of a company will reflect the present value of its pre-tax operating cash flows minus all associated taxes - including personal as well as corporate taxes. Since a company's dividend payments affect tax liabilities at the personal level, and corporate leverage affects tax liabilities at both the corporate and personal levels, both capital structure and dividend decisions have tax consequences that can affect the value of the firm. Barclay, Smith and Watts (1997) go further to say that the basic corporate profits tax allows the deduction of interest payments, but not dividends, in the calculation of taxable income.

Thus, the choice between debt and equity financing has potentially important consequences for the distribution of the firm's after-tax cash flows. Increasing the amount of debt in a company's capital structure lowers its expected tax liability and so increases its after-tax cash flow. In the simplest analysis, the value of a levered firm is equal to the value of an identical all-equity firm plus the present value of the interest tax shield.

In light of this De Mooij (2012) suggests that most tax systems today contain a "debt bias," offering a tax advantage to finance investments by debt. That is, governments are making borrowing costs tax deductible, cheapening the cost of borrowing and encouraging borrowers to pile up more and more debt. De Mooij (2012)states that accounting principles which view interest as a business cost and equity returns as business income are mimicked by the present tax regimes, allowing interest cost deductibility for corporate income tax, unlike equity returns which are offered no such deduction i.e. this tax favourability is never offset by the personal income tax.

Graham (2000)looks at the problem and estimates that firms capitalise tax benefits of around 9.7 per cent of firm value from the tax benefit of debt, the result is that finance managers now aim at achieving the highest level of tax benefits by issuing more and more debt until the marginal tax benefit begins to fall. This creates a debt bias which De Mooij (2012) says that there is neither a legal, administrative nor an economic considerations offering a good enough reason to discriminate between the two means of financing.

This debt bias comes in two forms in our financial markets according to The Economist (2015); (1) through interest payments on mortgage which are tax-deductible for personal tax purposes, and (2) corporate firm's interest payments on debt which are tax-deductible for corporate tax purposes.

Authors such as Lorenzoni (2008)suggest that, if debt financing has externalities, then these externalities are negative, implying corporate debt should be taxed, not subsidised. Beliefs held by Lorenzoni and others over the last two decades have been the driving force behind policy proposals to eliminate the debt subsidy, He and Matvos (2012).

De Mooij and Devereux (2011)in their study are able to observe that an Allowance for Corporate Equity (ACE) reform reduces the cost of capital for Swiss firms by 1.5 percentage points. This raises investment by 7.8%, and other observable effects like raising employment and GDP. De Mooij (2012), further asserts that the debt bias has created evidenced unfavourable economic distortions. Of interest is a low investment level in corporations. Bond, Devereux and Gammie (1996) estimate that this tax bias adds 1-2 percentage points to the overall cost of capital; the effect of this tax bias on total company investment is similar to the effects of interest rates being permanently higher by 1-2 percentage points.

Fatica, Thomas and Gaetan (2013) also observe in their study that most corporate tax systems cause distortions in the financing decisions for companies due to the tax deductibility of interest without such a deduction for equity financing. In their study they find that tax induced bias leads to at least two types of economic distortions one being that it may lead to too-high leverage in companies, increasing systemic risk which in turn affects the level of investments in a country. Previously De Mooij and Devereux (2011) investigate the effect of eliminating tax distortions and establish that a neutral tax reform will result in higher investment levels

1.2 Problem statement

According to De Mooij and Devereux (2011), the prevailing corporate income tax rates in our financial markets have a discriminatory treatment of debt and equity financing. Profits according to Abramovsky, Klemm and Phillips (2014) are defined as the full return to capital, minus any debt interest costs: tax is thus applied to the full return to equity instead of pure profits or 'rents' (returns above the normal risk-free return to capital), and debt financing is tax-favoured.

Tax systems that describe profits as above have three major problems: Firstly by taxing the normal return to capital, the CIT discourages marginal investments: in the absence of the tax, they would yield the normal return; but with the tax, they do not yield enough to make them worthwhile. Lower investment leads to lower growth, which may be of particular concern for developing countries. Secondly the differential tax treatment of investments funded by debt (where interest is generally deductible when calculating taxable profits) and equity (where a return to equity finance is generally not deductible) can distort the financing decisions of companies. In particular, they may choose to rely more on third-party debt than they otherwise would, resulting in highly-leveraged companies, which may have less of an 'equity cushion' to deal with adverse shocks. In addition, the deductibility of interest on related-party debt (for example, provided by an offshore finance affiliate) facilitates erosion of a host country's tax base. Finally such CIT systems are vulnerable to increasing capital mobility and the ability of multinational corporations to shift activities or paper profits between countries to take advantage of differences in tax regimes. For instance, firms may locate new investments in countries offering attractive tax regimes – such as low tax rates, tax holidays or generous investment allowances – giving rise to competitive pressures between countries as they attempt to attract footloose international investments. Manipulating the pricing of cross-border internal transactions ('transfer pricing') and the location of intangible assets also allows firms to shift their profits between countries in order to minimise tax bills. And firms can exploit differences in CIT rules between countries in order to avoid paying tax altogether.

Corporate tax favours the use of debt over equity since debt interest is deducted before tax calculations; hence firms' leverage is expected to vary with changes in the corporate tax rate. Dividends are not deductible from corporation income and are therefore subject to the corporation income tax.

At the same time, stockholders who receive dividends treat them as ordinary income with the personal income tax having been paid as a final withholding tax.

Debt interest on the other hand is only taxed at personal tax rate at the individual level. Nyang'oro (2013). According to Nyang'oro (2013) listing in the stock market with our current tax regime has always been encouraged as a way of accessing long term capital. Evidence on listed firms in Kenya shows that the level of equity and debt ratios increased in the period following listing, from 0.284 to 0.385 for equity (profit before tax) and 0.260 to 0.452 for debt respectively, implying that listed firms are able to diversify their financing to debt. After the initial period however, equity ratio declined while debt ratio increased. Additionally earnings per share also increased from 3.66 to 4.99 following listing. It is thus evidenced that there is an observable debt bias. A tax reform either leaning in the direction of the Comprehensive Business Income Tax (CBIT) or the Allowance for Corporate Equity (ACE) is needed to neutralise some of the distortionary effect of corporate taxes on the investments. The aim is therefore to achieve neutrality in the current tax regime ruling over NSE listed companies.

1.3 Research Objective

The objective of this research is to analyse the effects of implementing an Allowance for Corporate Equity tax reform on the level of investment in selected listed companies.

1.4 Research Question

1) What impact will an introduction of an ACE tax reform have on the level of investment in select listed companies?

1.5 Significance of the research

This research is aimed at incentivizing policy makers to make reforms on the current income tax system to eliminate the debt bias that is being promoted; this would in turn lead to increased levels of investment.

2: Literature Review

2.1 Corporate Investment

According to Bond, Devereux and Gammie (1996), an investment project is commercially viable if the discounted value of current and future revenues generated by the project exceeds the discounted value of current and future costs, i.e. if the net present value (NPV) of the project is positive. Equivalently the NPV is the present value of the net cash flows generated by the project in each year of its life, or the present value of the pure profits or economic rents generated in each period. It follows that a company tax based on either net cash flow or pure profit will be neutral with respect to investment decisions: projects with a positive NPV before tax will continue to have a positive NPV after tax. Equivalently, the cost of capital, or minimum rate of return required from investment projects, is left unchanged by either of these taxes. Most regime tax bases differ from the neutral pure profit base mainly because there is no tax relief for the cost of equity finance. Capital allowances provide approximate relief for depreciation, and interest deductibility provides approximate relief for the cost of debt finance, at least at low rates of inflation. Bond, Devereux and Gammie (1996).

It follows that the Kenyan corporation tax is approximately neutral for investment financed by borrowing, but raises the cost of capital for investment financed by retained profits encouraging taking in more debt. Nyang'oro (2013) uses a quantile regression approach to establish the determinants of capital structure at various quantiles. Quantile regression, addresses the presence of outliers in the data and is more preferable when the shape of the distribution is not certain, in which case OLS estimates will be biased and inefficient. It is estimated by minimizing an asymmetrically weighted sum of absolute errors, where the weights are functions of the quantile of interest. Conditional quantile regressions in estimations of determinants of capital structure accounts for heterogeneity of firms by considering the distributional characteristics of the firms leverage. Using this, he found in his estimation results that the effect of tax on the capital structure is only important at lower quantiles and only when total debt is considered. This means that Kenyan firms consider total debt in using debt as tax shield rather than the term of the debt. At the same time, only firms with low total debt ratio significantly use debt to shield against tax payments.

This response of firms may be due to the fact that firms with no or small debt in their capital structure face no or little cost of financial distress, and thus can afford to shield tax payments by marginally increasing their debt levels. However, at higher levels of debt, the costs of debt outweigh the benefits of using debt to shield against tax and thus firms are better off using non-debt tax shield to shield against tax payments.

Implications of the above involved as proposed by Bond, Devereux and Gammie (1996) include debt finance has a tax advantage over finance from retained profits, and companies that are able to finance a large proportion of their investment spending from debt sources are favoured over firms that use a large share of retentions finance. Perhaps more seriously, the higher cost of capital for investment financed by retentions will discourage some corporate investment: some projects that are viable before tax will not be viable after tax. To put it into perspective, Nyamita, Garbharran and Dorasamy (2014) remind us of the Trade-off theory where corporations will seek debt financing levels that balance the tax advantages of additional debt against the possible bankruptcy costs. Therefore, the tax benefit and the bankruptcy costs' perspective predict that profitable corporations should use more debt. However, the benefit is expected to be low within the state-owned corporations in Kenya, since most of them are exempted from taxation. They use an advanced panel regression model estimator (system-GMM) and their results proved that in the absence of taxes as is the case for state owned corporations in Kenya, corporate taxes do not influence debt financing as is proposed by the trade-off theory. This we can infer that within a tax regime framework, taxes do influence how we finance activities such as investment, even so giving preference to debt financing.

Shaviro (2009), looking at the aftermath of the 2008 financial crisis asserts that the tax regime fell short of classic neutrality leaning to the wrong side, the wrong side being creating a bias towards debt and against equity. In his literature he states that though the tax system didn't explicitly cause the financial crisis, it however did have a hand in causing the debt bias which eventually led to the financial crisis that rocked the world, hoping that his results would result in subsequent policy reforms that will enable neutrality.

Looking at Abbas and Klemm (2013), wide literature and countless specifications have been tried, for example De Mooij and Ederveen (2003) (2008) contain meta-analyses based on up to 31 empirical studies.

The broad conclusion from the literature is that taxes do appear to have a negative impact on investment, although the size of that effect differs across samples and methodologies. The median semi-elasticity, according to De Mooij and Ederveen (2008)) is -2.9, meaning an increase in the tax rate by 1 percentage point would reduce investment by 2.9 percent. Abbas and Klemm (2013) propose therefore a standard approach and that will regress private investment as a share of GDP on its lag, on an effective average tax rate, and control variables;

$$\left(\frac{I}{GDP}\right)_{i,t} = \beta_0 + \beta_1 \left(\frac{I}{GDP}\right)_{i,t-1} + \beta_2 \tau_{i,t} + x'_{i,t}\beta + f_i + y_i + \varepsilon_{i,t}$$

Where I is investment, τ is an effective tax rate and x is a vector of control variables. In estimating the equation, the inclusion of a lagged dependent variable in a panel has to be taken into account. This typically biases the within-groups estimator, although the bias diminishes as the panel gets longer. The system GMM estimator provides unbiased estimates of such regressions as the number of groups is increased. Given that our panel is neither very wide nor long, we systematically use both estimators. For all GMM regressions we perform the required specification tests, and they are always met. Specifically, we do not reject the assumption of no serial correlation in the levels equation (which is equivalent to no serial correlation in the AR (2) process of the differenced error), and pass the Sargan/Hansen test of over-identifying restrictions. Their general conclusion being that low tax rates do actually affect or rather increase investments

Bond, Devereux and Gammie (1996) suggest that corporation tax discourages company investment not because capital allowances are on average any lower than true depreciation rates, but because there is no tax relief for the opportunity cost of using retained earnings to finance investment. The most cost-effective way to eliminate the current tax bias against investment is therefore to introduce a tax relief for this opportunity cost.

There are several reforms that reduce or eliminate the preferential tax treatment of debt argues De Mooij (2012). One is to disallow the deduction for interest, the so-called Comprehensive Business Income Tax (CBIT) system. The other is to introduce an Allowance for Corporate Equity (ACE). De Mooij suggests the following; (1) Full neutrality can be achieved by a CBIT, which denies interest deductibility by firms.

CBIT thus treats debt as current Corporate Income Tax (CIT) regimes treat equity. (2) The Allowance for Corporate Equity (ACE) supplements interest deductibility with a deduction for the notional return on equity and has attractive neutrality properties besides the debt-equity choice. Both systems aim to neutralise the distortionary effect of corporate taxes on the financial structure of companies. De Mooij and Devereux (2011), suggest that the ACE is more favoured by economists than the CBIT because the ACE implies a tax on economic rent and so it does not distort decisions about the scale of investment. It however has a narrower tax base resulting in lower corporate tax revenue for the government requiring higher tax rates to yield the equivalent revenue. In contrast De Mooij and Devereux (2011) say the CBIT turns the corporate income tax into a broad-based tax on capital at the level of the firm. This raises the overall cost of capital so that investment declines. The broadening of the base under CBIT will raise corporate tax revenue and, if revenue is to be maintained, allows for a lower corporate tax rate. A lower rate will typically not be sufficient to prevent a rise in the effective marginal tax rate, which is why CBIT has not gained the same popularity as ACE.

2.2 The Proposed solution

2.2.1 Allowance for Equity (ACE)

According to Bond, Devereux and Gammie (1996) the basic idea is straightforward: cumulate past injections of new equity and past retentions of profits to measure the stock of 'shareholders' funds' currently invested in the company; multiply this stock by an appropriate interest rate to measure the opportunity cost of using this equity finance (i.e. the interest that could have been earned if these funds had been invested elsewhere); and allow this cost of equity finance to be deductible against corporation tax in the same way that interest payments are deductible for is attractive. Firstly it eliminates the discrimination against equity financing, secondly it brings neutrality to marginal investment decisions i.e. leaving capital income untaxed as in itself it is a tax on economic rent and finally ACE offsets investment distortions induced by differences between economic depreciation and depreciation for tax purposes.

As stated earlier, De Mooij and Devereux (2011)find that the narrower tax base reduces corporate tax revenue requiring higher corporate tax rates to balance the government budget.

The ACE would then shift the tax burden from the marginal return to capital towards economic rents implying that decisions as to the scale of investment would not be affected by the tax.

2.2.2 Comprehensive Business Income Tax (CBIT)

The CBIT according to De Mooij and Devereux (2011)aims at disallowing a deduction for interest payments. A distinction is to be made between so-called CBIT entities and non-CBIT entities. Most firms will be CBIT entities, who are disallowed interest deductibility with the exception of small firms. This also applies to financial companies, including banks. How it works is, to avoid double taxation of interest, the interest received from other CBIT entities is either exempt or credited while The interest that received from non-CBIT entities remains subject to tax, including interest from households and government bonds. Interest received from overseas will be subject to tax, although an exemption or credit could be applied if this interest comes from a CBIT entity.

As was stated earlier the CBIT transforms the corporate income tax into a broad-based tax on capital. All capital income will thus be taxed at source. A disadvantage is that it raises the cost of capital. Fewer investment projects will be profitable at the margin so that investment will decline. Yet, for a revenue-neutral reform, the broadening of the base allows for a lower corporate tax rate. This may attract mobile economic rents or paper profits of multi-nationals. The trade-off is therefore opposite from the ACE, CBIT shifts the tax burden away from rents towards marginal investment returns. On balance, the effect is ambiguous: the cost of capital on low-yielding investments financed by debt will rise, leading to lower investments. Highly profitable investments financed by equity will be taxed more lightly so that these investments will expand.

From the view that De Mooij and Devereux (2011)bring forth that economists prefer ACE to CBIT, an additional matter is that international distortions induced by high statutory corporate tax rates in light of the internationalisation of businesses render low effective marginal tax rates less important and low statutory tax rates more important for individual countries, this implies that with the recent international distortions CBIT-type reforms may enhance welfare more while ACE-type reforms may have lost potential for welfare gains.

De Mooij and Devereux (2011) use an applied general equilibrium model for the European Union calibrated with plausible estimates of elasticities to assess the quantitative effect of the two tax reforms which would eliminate the differential treatment of debt and equity i.e. the ACE and CBIT.

3: Methodology

3.1 The ACE Methodology

According to De Mooij and Devereux (2011), economists typically favour ACE in which the system grants equity holders a certain allowance equal to a notional risk-free return. This is attractive as it reduces the effective marginal tax rate to zero, implying that ACE is a tax on economic rent. As such, it does not distort decisions about the scale of investment, though even a tax on economic rent can affect discrete investment choices that depend on an effective average tax rate. A potential disadvantage of ACE though is that its narrower tax base reduces corporate tax revenue, and thus requires higher tax rates to yield the same revenue. Or alternatively a consumption tax that will recoup the ACE costs as proposed by De Mooij and Devereux (2011). By contrast, CBIT disallows the exemption of interest. It turns the corporate income tax into a broad-based tax on capital at the level of the firm. This raises the overall cost of capital such that investment now declines. The broadening of the base under CBIT will raise corporate tax revenue and, if revenue is to be maintained, allows for a lower corporate tax rate. A lower rate will typically not be sufficient to prevent a rise in the effective marginal tax rate, which is why CBIT has not gained the same popularity as ACE. Therefore this study shall aim at looking at the Viability of the ACE within the select NSE listed firms concentrating on capital intensive firms.

The study aims at achieving the following objectives:

1.) Estimating the pure profits and profit after tax under the tax reform.
2.) Estimating the current EATR and the EATR under ACE
3.) Simulating the investment levels using estimates from literature

To estimate pure profits the study adopts Hillenius (2014) calculation of the notional return

$$Notional\ Return_t = Rf_t * K_{t-1}$$

Where Rf_t is the Risk free rate at time t

K_{t-1} is the Capital Stock of the previous period

Once the notional return is calculated, Hillenius (2014) suggest we deduct the cost of equity financing from profits in the same way that cost of debt financing are deducted. The resulting is pure profits which are charged taxes in the normal way accounting standards require for taxation to arrive at the profit after tax.

To determine the EATRs, this study uses Devereux and Griffith (2003) measure of effective average tax rates which they defined as the ratio of the present discounted value of taxes over the present discounted value of the profit of a project in the absence of taxation. Devereux and Griffith (2003) defined EATR as the following

$$EATR = \frac{R^* - R}{P/(r+\delta)}$$

Where R^* is the present discounted value of the economic rent earned in the absence of taxation

R is the same in the presence of taxation

P is the pre-tax profit (net of depreciation)

r is the real interest rate

δ is the economic depreciation rate

3.2 Impact of Corporate taxes on investments

Literature suggests that investment levels would change if an equity tax shield of the ACE form is implemented. Abbas and Klemm (2013) say that wide literature and countless specifications have been tried, for example De Mooij and Ederveen (2003) (2008) contain meta-analyses based on up to 31 empirical studies. The broad conclusion from the literature is that taxes do appear to have a negative impact on investment, although the size of that effect differs across samples and methodologies. The median semi-elasticity, according to De Mooij and Ederveen (2008)) is -2.9, meaning an increase in the tax rate by 1 percentage point would reduce investment by 2.9 percent.

Other writers such as De Mooij and Devereux (2011) say that investment is determined by the cost of capital. To them, the responsiveness of investment depends on the substitution elasticity between labour and capital. Most general equilibrium models adopt values between 0.5 and 1.0.

De Mooij and Devereux (2011) adopt the use a value of 0.7, which corresponds to an elasticity of investment to the user cost of capital of −0.9, which is consistent with empirical estimates. Hence, a 10% rise in the cost of capital, e.g. from 6 to 6.6%, will reduce investment by 9%. Bond, Devereux and Gammie (1996) estimate that the tax bias results in a 1-2 percentage point increase in the overall cost of capital (WACC), the effect of this tax bias on total company investment is similar to the effects of interest rates being permanently higher by 1-2 percentage points. Bond, Devereux and Gammie (1996) admit that quantifying the effects of a higher cost of capital on the level of investment is notoriously difficult, as discussed at greater length by Bond and Jenkinson in the Assessment of this issue.

They thus estimate that a tax system which leaves the cost of capital permanently higher by 1-2 percentage points is likely to depress the level of company investment by up to 5 per cent. For this study the estimates given by Bond, Devereux and Gammie (1996) to estimate the change in level of investment shall be adopted. These estimates will allow a Monte Carlo simulation of the levels within the 5% bound suggested above, to estimate the level of investment that would have been occasioned had ACE tax reform been implemented in Kenya dating back to 2004.

4: Data and Results

4.1 Introduction

This chapter presents the data as well as the empirical analysis of the data using the ACE Methodology highlighted in chapter three.

4.2 Data

The variable used in this study include the following; investment in property, plant and equipment (PPE), company profits (Profit before Tax and Profit After Tax), capital stock, retained earnings from the individual annual audited financial reports. Corporate Tax rate, personal tax on dividend, capital gains tax, personal tax on interest, official depreciation allowance from the annual Ernst and Young World Corporate Tax Guides for the years 2004 to 2014, the 91-day T-Bill rate (proxy for the risk free rate) from the Central Bank, the real interest rate and inflation rate from the International Monetary Fund data base and a proxy for economic depreciation of (35%). The sample period is between the years 2005 and 2014, a ten year period. For this study, the assumption is that investment is investment in property plant and equipment by Capital intensive firms, these are within the Manufacturing and Allied and Construction and Allied sectors of the NSE, this is seen as a relevant proxy for capital investment in line with literature by Abbas and Klemm (2013).

4.3 Empirical Results

The main objective was to see the effect of introducing the ACE equity tax shield and especially on investments.

4.3.1 Impact on EATR

To see the effect of the ACE reform, this study estimates the levels of the Effective average tax rates according to Devereux and Griffith (2003) with and without the reform.

Table 1: EATR under current regime

	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
ARM	0.77	0.3	0.54	1.75	0.68	2.03	3.32	1.58	8.69	1.00
BAMB	0.86	0.46	0.73	1.87	0.94	2.15	3.26	1.76	7.36	1.31
BERG	-3.92	-1.13	-1.71	0.79	-1.32	1.37	4.83	0.88	16.51	-0.50
CABL	0.31	0.19	0.65	1.41	-0.67	2.03	3.28	1.62	7.65	1.40
PORT	5.17	0.40	N/A	N/A	5.90	2.09	3.54	1.62	8.67	1.30
BOC	1.08	0.82	0.85	1.78	-0.06	2.02	3.18	1.78	6.83	1.47
BAT	1.25	0.89	0.92	1.86	0.74	2.04	3.17	1.72	7.40	1.48
CARB	1.54	1.25	1.32	2.07	1.30	2.23	3.01	1.96	5.99	1.66
EABL	0.90	0.60	1.00	1.92	1.05	2.16	3.07	1.89	6.35	1.59
EVRD	2.43	-2.54	-1.74	2.75	-15.92	0.28	6.89	1.08	9.76	0.91
MSC	1.19	2.41	0.13	1.75	0.40	1.80	3.38	1.65	7.89	1.23
UNGA	-2.51	-2.55	-3.63	0.66	-3.88	0.01	3.99	-1.90	33.05	-3.70

Table 2: EATR after the ACE reform

	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
ARM	0.25	-0.5	0.12	1.02	0.60	1.98	3.43	1.49	1.93	0.67
BAMB	0.09	-0.7	0.39	1.60	0.90	2.13	3.39	1.69	1.39	1.11
BERG	-23	-2.5	-3.83	-5.7	-1.7	0.75	21.90	0.14	7.40	-6.23
CABL	-1.22	-1	0.33	-4.6	-1	1.97	3.34	1.57	1.41	1.36
PORT	2.94	0.40	N/A	N/A	4.37	2.05	3.94	1.52	1.90	1.21
BOC	-0.10	0.26	0.38	3.56	-0.8	1.81	3.34	1.70	1.23	1.29
BAT	1.25	0.81	0.84	1.77	0.71	1.99	3.23	1.66	1.37	1.42
CARB	1.45	1.20	1.18	2.02	1.30	2.21	3.05	1.91	0.91	1.52
EABL	0.83	0.55	0.86	1.86	1.02	2.14	3.10	1.87	0.98	1.55
EVRD	2.35	-7.6	-3.44	2.59	-43	-2.79	-7.97	0.87	2.13	0.91
MSC	0.85	2.14	-6.70	1.49	0.22	1.17	3.70	1.49	1.62	1.03
UNGA	-17.4	-4.97	-18.32	-0.73	-5.99	-11.54	4.52	-45.14	621.02	-18.76

4.3.2 Impact on Profitability

Application of the ACE reform changes the value of profit for companies. This study approximated the new profit before tax figures with the ACE reform to determine the pure profits which remove investment distortions.

Table 3: PBT in Millions of shillings under current tax regime

	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
ARM	2018	2,000	1,790	1,362	1,112	948	705	620	387	295
BAMB	5801	5,516	7,176	8,466	7,546	9,596	4,889	5,443	3838	3147
BERG	151	333,	224	200	169	139	77	140	80	69
CABL	507	585	753	464	258	526	669	597	422	294
PORT	(373)	1,419	N/A	N/A	(338)	1,881	715	1,112	924	1086
BOC	277	308	286	214	114	231	295	399	333	291
BAT	6095	5,469	4,754	4,484	2,722	2,108	2,416	2,049	1746	2008
CARB	597	634	534	374	438	367	241	226	179	158
EABL	10406	11,114	15253	12249	12568	11989	12316	10635	8577	8223
EVRD	(248)	60	68	(173)	14	41	27	179	234	269
MSC	3405	(2235)	1,764	2,646	2,179	1,193	1,589	1,909	2219	1843
UNGA	567	662	512	631	335	260	546	156	142	155

Table 4: PAT in Millions of shillings under current tax regime

	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
ARM	1,493	1,348	1,245	1,150	792	645	503	421	264	199
BAMB	3,903	3,673	4,882	5,859	5,299	6,970	3,412	3,810	2,799	2,155
BERG	19	213	133	129	91	86	28	74	63	34
CABL	341	398	522	314	183	296	462	417	284	212
PORT	(386)	1,775	N/A	N/A	(292)	1,834	536	764	411	607
BOC	229	202	197	150	79	153	200	267	225	207
BAT	4,255	3,723	3,270	3,097	1,767	1,478	1,700	1,385	1,201	1,382
CARB	490	475	389	302	307	256	166	155	126	113
EABL	6,858	6,944	11	9,014	8,837	8,609	9,184	7,528	6,410	5,776
EVRD	(177)	45	70	(123)	8	28	17	126	165	186
MSC	2,706	1,669	2,012	1,933	1,572	1,609	1,213	1,393	1,526	1,289
UNGA	474	508	348	441	236	185	373	133	64	124

When the ACE equity tax shield is implemented, the value of the Profit before tax shown in table three changes and is replaced by pure profits as shown in the table five. The value of Profit after tax reported on the audited financials shown in table four also changes after taxation is charged at 30% as shown in table six.

Table 5: Pure profit in Millions of shillings with ACE Reform

	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
ARM	1,312	1,217	1,283	513	1,018	803	553	526	318	212
BAMB	3,097	2,578	5,169	4,508	7,068	8,463	3,594	4,499	3,191	2,300
BERG	34	221	136	35	150	83	7	87	43	20
CABL	244	306	564	53	220	433	575	542	389	268
PORT	(1,069)	1,419	N/A	(510)	(520)	1,586	437	911	775	933
BOC	99	169	176	(63)	79	132	174	312	261	198
BAT	6,094	4,794	4,222	3,548	2,616	1,775	2,013	1,761	1,523	1,705
CARB	409	536	359	257	438	292	167	170	131	93
EABL	9,579	10573	12540	10105	11871	10368	10704	9,422	7,462	7,072
EVRD	(281)	26	45	(247)	5	16	(10)	149	218	269
MSC	2,101	(3,212)	303	1,662	1,880	530	944	1,406	1,818	1,384
UNGA	125	414	134	329	241	43	366	13	2	41

Table 6: Pure profit after tax in Millions of shillings with ACE Reform

	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
ARM	918	852	898	359	713	562	387	368	222	148
BAMB	2,168	1,804	3,618	3,155	4,947	5,924	2,515,	3,149	2,234	1,610
BERG	24	155	95	24	105	58	5	61	30	14
CABL	171	214	395	37	154	303	402	379	272	187
PORT	(748)	993	N/A	(357)	(364)	1,110	305	638	542	653
BOC	69	118	123	(44)	55	92	122	218	182	138
BAT	4,266	3,355	2,955	2,483	1,831	1,242	1,409	1,233	1,066	1,193
CARB	286	375	251	180	306	204	117	119	91	65
EABL	6,705	7,401	8,778	7,074	8,310	7,257	7,493	6,595	5,223	4,950
EVRD	(197)	18	32	(172)	4	11	(7)	104	152	188
MSC	1,470	-2248	212	1,163	1,316	371	661	984,	1,273	968
UNGA	88	290	94	230	168	30	256	9	1	29

4.3.3 Impact on Investments

In chapter three, the study brought to light estimates of the impact of the cost of capital (as a result of the debt bias) and tax rates on investments. This section highlights the changes with reference to these estimates and especially those of Bond, Devereux and Gammie (1996) who estimate that a tax system which leaves the cost of capital permanently higher by 1-2 percentage points is likely to depress the level of company

investment by up to 5 per cent. We therefore simulate the investment levels at random values between 0 to 5 percentage point increases in current investment levels.

Table 7: Level of Investment in Millions of shillings with under current regime

	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
ARM	28257	22442	22442	16442	12189	8,688	4,372	3,303	3,185	2,168
BAMB	24263	25651	25572	16939	17833	11847	10267	9,030	9,395	9,080
BERG	937	736	639	625	464	496	513	499	458	353
CABL	3,549	2,793	2,778	2,244	2,376	1,609	888	797	476	239
PORT	7,591	8,015	N/A	N/A	7,560	7,359	6,305	5,678	5,523	4,718
BOC	723	595	601	645	711	809	820	727	681	648
BAT	9,273	8,454	8,046	6,756	6,309	6,243	5,568	5,099	3,972	3,698
CARB	955	819	905	867	735	537	518	445	471	496
EABL	37254	33715	31246	28496	17137	12689	12494	10317	9,134	8,204
EVRD	32	185	182	201	225	198	180	162	139	94
MSC	18819	19615	19810	16415	11585	12090	9,279	8,003	7,324	5,756
UNGA	2,442	2,209	1,633	1,496	1,505	1,579	1,657	1,367	1,489	1,631

Table 8: Estimated level of Investment in Millions of shillings with ACE reform

	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
ARM	28740	23381	22983	17011	12724	8856	4573	3453	3231	2258
BAMB	24610	26867	26493	17175	18523	12407	10407	9265	9567	9451
BERG	959	747	670	625	476	499	513	505	480	356
CABL	3623	2824	2882	2250	2451	1635	925	829	489	247
PORT	7611	8214	N/A	N/A	7634	7396	6456	5826	5631	4724
BOC	740	624	614	654	723	844	842	740	711	677
BAT	9661	8622	8156	6826	6318	6334	5780	5227	3990	3787
CARB	993	825	928	893	735	545	542	448	488	501
EABL	38585	34319	32692	29840	17658	12700	12876	10769	9252	8223
EVRD	33	185	187	210	234	207	182	165	143	99
MSC	19158	20020	20238	16726	12090	12288	9408	8084	7451	5773
UNGA	2450	2232	1660	1570	1512	1647	1712	1432	1439	1671

4.4 Summary

There are several effects of applying the ACE equity tax relief, as documented above in chapter one and two, the equity tax shield results in taxing only economic rent removing distortion in investment decisions and eliminating the tax bias brought about by the interest deductibility.

Implementation of the ACE relief results in lower values of profitability, this is because only economic rent is being taxed as opposed to the current regime where the capital returns to investors is taxed. The EATRs also change when the ACE reform is implemented earning that the effective tax burden for each company in each period is altered too.

5: Discussions, Conclusions and Recommendations

5.1 Introduction

This chapter brings everything together through a discussion and conclusion of the study undertaken.

5.2 Discussion

This study finds that the debt deductibility results in bias to the method of financing of investments not to mention bias in firm gearing. By applying the equity tax relief and with growth in investment levels by almost 5% (taking estimate by Bond, Devereux and Gammie (1996)). This study uses these estimates to simulate the growth in investment levels based on the fact that the debt bias causes the cost of capital of companies to be higher than they would be if the ACE was not implemented (two percent higher). De Mooij and Devereux (2011) in a later study investigate the effect of eliminating tax distortions and establish that a neutral tax reform will result in higher investment levels. In their study they were able to observe similar effects that an Allowance for Corporate Equity reform reduces the cost of capital for Swiss firms by 1.5 percentage points this raises investment by 7.8%.

The current study also aimed at showing the difference in investment levels as a result of implementing the ACE through the EATR. To begin with, there exists a negative relationship between investments and taxes which was concluded by Abbas and Klemm (2013), that low tax rates do actually affect or rather increase investments. In this study it was observed that the level of EATR would change after the implementation of ACE. Going with what is provided in literature, the results obtained prove that a negative relationship for most of the sample companies chosen exists. This is in line with De Mooij and Ederveen (2003) (2008) whose broad conclusion from the literature is that taxes do appear to have a negative impact on investment, although the size of that effect differs across samples and methodologies. The size of the effect differed across each test subject within this study.

Implications of the above stated involved include debt finance has a tax advantage over finance from retained profits, and companies that are able to finance a large proportion of their investment spending from debt sources are favoured over firms that use a large share of retentions finance.

Perhaps more seriously, the higher cost of capital for investment financed by retentions will discourage some corporate investment: some projects that are viable before tax will not be viable after tax.

In this study also, the value of pure profits changes from the already reported Profit before Tax (without ACE), the value of pure profits decreased by the amount of the notional equity return deducted, leaving a smaller pure profit to be taxed and lower retained earnings holding dividend pay outs constant. However due to the nature of tax reporting for accounting purposes, It was not possible to determine the true effect of the equity tax shield on the Profits after tax, because of matters such as Deferred taxes and other provisions which actually affect the amount of tax that is due form the profits to those tax amounts that are actually paid out by the companies and reported as the tax figure. To approximate the PAT under ACE the study just applied the 30% tax rate.

5.3 Conclusion

Tax systems that describe profits according to Abramovsky, Klemm and Phillips (2014) have three major problems: Firstly they discourages marginal investments: in the absence of the tax, they would yield the normal return; but with the tax, they do not yield enough to make them worthwhile. Lower investment leads to lower growth, which may be of particular concern for developing countries. Secondly distortion of the financing decisions of companies. In particular, they may choose to rely more on third-party debt than they otherwise would, resulting in highly-leveraged companies, which may have less of an 'equity cushion' to deal with adverse shocks. Corporation tax discourages company investment not because capital allowances are on average any lower than true depreciation rates, but because there is no tax relief for the opportunity cost of using retained earnings to finance investment. Thus the most cost-effective ways to eliminate the current tax bias against investment in Kenya is to introduce a tax relief for this opportunity cost. One such reform is the ACE equity relief reform.

5.4 Recommendations

Policy makers should work at eliminating the debt bias that exists within the current tax system to encourage investment as well as other desirable effects. The ACE implementation however will result in a narrower tax base which reduces corporate tax revenue, and thus requires higher tax rates to yield the same revenue or alternatively a consumption tax that will recoup the ACE costs as proposed by De Mooij and Devereux (2011).

Appendices

Appendix I: Derivation of Effective Average Tax Rates

Devereux and Griffith (2003) developed a measure of the effective average tax (EATR), which is defined as the ratio of the present discounted value of taxes over the present discounted value of the profit of a project in the absence of taxation. The original derivation in the paper by Devereux and Griffith is calculated for a one period perturbation in the capital stock; i.e., they look at an investment of one unit of capital that is held for one year and then sold at its remaining value of $(1-\delta)(1+\pi)$, where δ is true economic depreciation and π is inflation. To be able to study tax holidays and other special regimes, which typically last longer than one period, we have adapted the framework to look at a permanent increase in the capital stock by one unit, which is slowly disinvested over time through depreciation. Returns to capital are tax free during the tax holiday and taxed thereafter. We use exactly the same notation as Devereux and Griffith. The Devereux-Griffith EATR is defined as

$$EATR = \frac{R^* - R}{P/(1+r)}$$

where R* is the present discounted value of the economic rent earned in the absence of taxation, R is the same in the presence of taxation, p is the pre-tax profit (net of depreciation) and r is the real interest rate. Because we adapt this to an infinite investment horizon, the denominator needs to be changed to take account of profits in all future periods. We assume that the net return on capital remains constant at p, but that the capital stock declines yearly by the true economic depreciation rate.

$$EATR = \frac{R^* - R}{P/(r+\delta)}$$

To calculate the parameters in the formula, the following are used to derive the EATR:

$$R = \gamma\left(\frac{(P+\delta)(1+\pi)}{\rho-\pi+\delta(1+\pi)}\left(1-\tau'-(\tau-\tau')\left(\frac{(1-\delta)(1+\pi)}{(1+\rho)}\right)^{Y}\right)-1+A\right)$$

$$R^* = \frac{P-r}{r+\delta}$$

$$\gamma = \left(\frac{1-m^d}{1-z}\right)$$

$$\rho = \frac{(1 - m^i)i}{1 - z}$$

$$A = \emptyset \frac{1 + \rho}{\rho + \emptyset} \left[\tau' + (\tau - \tau') \left[\frac{1 - \emptyset}{1 + \rho} \right]^Y \right]$$

Where P is the pre-tax profit (net of depreciation)

δ is the economic depreciation

π is the inflation rate

τ' is the tax rate in a special regime

τ is the corporate tax rate

m^d is the personal tax on dividends

m^i is the personal tax on interest

i is the nominal interest

z is the capital gains tax rate

A is the reducing balance depreciation

$\emptyset$ is the depreciation allowance

Resulting from the fact that for PPE the world corporate tax guides Kenya provides depreciation allowance on a reducing balance basis for PPE, that is why we choose reducing balance over straight line method of depreciation.

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