Corporate tax incentives and Tax Revenue Collection Nexus. How much difference does Green Investment Make? Evidence from listed firms at NSE Kenya

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Abstract

Purpose: Revenue collection is very important for every government in the world as it enables the government to acquire assets that are not liable to debt and that the government uses to develop its economy. However, revenue collection in Kenya has not always been as effective as it should be. This study aimed to determine the moderating effect of green investment corporation tax incentives on tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya.

Methodology: The study employed an explanatory research design and focused on the sixty-seven companies listed on the Nairobi Securities Exchange utilizing secondary data collected over five years from 2019 to 2023. The descriptive statistics and inferential statistics were analyzed using correlation and regression analysis.

Main findings: The findings revealed that corporation tax incentive has a positive and significant effect on tax revenue collection ($\beta = 0.0290453$, $p < 0.05$). The study also found that green investment moderates the relationship between corporation tax incentives and tax revenue collection ($\beta = 5.77e\text{-}06$, $p = 0.012 < 0.05$).

Practical Implications: In light of the study findings, the government of Kenya should consider revising and expanding tax incentives, particularly corporation tax incentives to encourage compliance and stimulate investment. Policymakers in Kenya should consider enhancing corporation tax incentives to stimulate tax revenue collection from companies listed on the Nairobi Securities Exchange. The government should incentivize ecologically workable practices and investments. This could include offering tax breaks or subsidies for firms that adopt green technologies, implement energy-efficient processes, or engage in environmentally friendly activities.

Keywords: *Corporation tax incentive, green investment, tax revenue collection*

1.0 Introduction

Tax is the charge levied by the government of a country upon its habitants for its support or to facilitate the service delivery in a country (Aamir, Qayyum, Nasir, Hussain, Khan & Butt, 2011). It is neither a voluntary payment by the taxpayer nor a donation. Rather it is an enforced payment to the government (Garner, 1999). Though the major aim of revenue collection for

most governments is to stimulate and guide the economic and social development of the country, there are several determinants for an effective realization of the exercise. The obvious challenges facing revenue collection can be generalized for most countries (Garner, 1999).

Green investment refers to businesses or funds dedicated to minimizing harmful pollutants or promoting sustainable resource usage. These initiatives may manifest through the adoption of alternative technologies like solar or wind power, or through research aimed at enhancing resource efficiency (UN Climate Change (COP26), 2021).

Tax incentives play a significant role in corporate decision-making, thus influencing investments. The incentives are a set of policies or provisions of the law given by a government to achieve economic objectives. Tax Incentives reduce tax liabilities by offering exemptions or allowances to taxpayers (IMF, 2009).

In business, tax incentives have a substantial effect on investment decisions because they reduce the tax burden hence operational costs. The tax savings offer reallocation of the financial resources to other crucial aspects of a business such as expansion, investment, research, and development. In addition, they safeguard the cash flow hence liquidity and financial stability. Ultimately, tax incentives can boost shareholder value hence investments. Companies may use the extra funds to pay dividends, repurchase shares, or reinvest in the business, all of which can enhance shareholder returns.

The escalating challenges of environmental degradation and climate change present pressing concerns for the global economy, posing threats not only to human health but also to income and productivity levels (Mohanty and Mohanty, 2019; Wade and Jennings, 20). With economic activities expanding, energy consumption rises, leading to increased greenhouse gas emissions that exacerbate environmental harm. The Swiss Re Institute (2021) forecasts that climate change could precipitate a nearly 18 percent loss of global GDP, with developing economies like Kenya being hit the hardest. Despite concerted actions to align with the Paris Agreement, as highlighted by the UN Production Gap Report 2021, the current production plan surpasses the agreement's limits, mandating urgent measures to significantly reduce carbon emissions and achieve sustainable development goals (UNEP, 2021).

In response to these challenges, governments have devised strategies to reinforce adherence to the Paris Agreement through fiscal incentives, such as green investment tax incentives. Notably, initiatives like renewable energy credits in the United States and proposed renewable energy investment tax credits in Canada have catalyzed substantial private sector investments in clean energy and decarbonization projects (US Environmental Protection Agency, 2022). Concurrently, the European Union's subsidy efforts have attracted over 100 companies to embrace sustainability incentives, while Rwanda's proactive measures, including investments in e-waste management and the launch of a Carbon market framework post-COP28, underscore the potential for impactful climate action in Africa (Rwanda, Ministry of Environment, 2023).

Despite the implementation of factors aimed at improving revenue collection in Kenya, there is still a significant level of non-compliance among some companies. Kenya Revenue Authority has been undertaking to increase revenue collection it has of late failed to meet its revenue targets, particularly VAT targets. For instance, the response to green investment incentives in Kenya has been underwhelming compared to other nations, despite initiatives like corporate tax reductions, VAT exemptions, and customs incentives. This disparity is glaring, with only sixteen Saudi Arabian companies engaging in carbon market trade, highlighting the untapped potential for green investments that could contribute to tax revenue collection (RVCMC, 2023). Considering the pivotal role of revenue generation, the limited contribution

of green investment tax incentives is particularly concerning. Therefore, this study sought to determine the moderating effect of green investment on the relationship between corporate tax incentives and tax revenue collection from companies listed on the Nairobi Securities Exchange.

2.0 Literature Review

2.1 Tax revenue collection

Revenue collection is fundamental for state and national governments that aspire to finance investments in infrastructure, human revenue personnel, and provision of topnotch services to the people (Mlure, 2013). Governments collect revenue through a range of mechanisms, including taxes, fees, fines, and non-tax sources such as income from state-owned enterprises or natural resource extraction. The revenue collected is then utilized for providing public goods and services, funding infrastructure development, maintaining law and order, and implementing social welfare programs (Bird & Gendron 2017).

According to World Bank, (2021), taxation is the primary method employed by governments to generate revenue and involves imposing compulsory charges on individuals and businesses based on their income, wealth, consumption, or transactions. Similarly, governments also collect revenue through various fees and fines. Fees are charges imposed for specific services or licenses provided by the government, such as passport fees, driver's license fees, or court fees. Fines are penalties imposed for violating laws or regulations, serving as both a deterrent and a source of revenue (Munyao, 2018).

Efficient revenue collection systems are crucial for governments to meet their fiscal obligations and ensure sustainable economic development. To achieve this, governments often establish tax authorities or revenue agencies responsible for administering and enforcing tax laws, managing tax compliance, and collecting taxes. These agencies employ various tools and strategies, including taxpayer registration, audits, penalties for non-compliance, and promoting voluntary compliance through public awareness campaigns and simplified tax filing processes (MartinezVazguez and Rider 2017).

For instance, the special municipalities, counties, and urban and rural townships in China and Taiwan have enacted laws for the rationale of levying taxes. However, the laws are restricted or under the ambit of the Government Act that governs the allocation of government revenue and expenditure, and in 15 conformations with the Act Governing Local Tax Regulations. The laws enacted touch on land tax, building tax, vehicle license tax, amusement tax, and special tax levies of which 30% of collected revenue is remitted to the national government (Government of China, 2021). Revenue collection by the United States government involves various methods to gather funds for financing public expenditures. The primary source of revenue is taxation, which includes both federal and state taxes (IRS, 2021).

The federal government collects revenue through income taxes, corporate taxes, payroll taxes (such as Social Security and Medicare taxes), and excise taxes on specific goods and services. State governments also collect revenue through income taxes, sales taxes, property taxes, and other levies (Tax Policy Center 2020). Additionally, the US government collects revenue from sources such as tariffs on imported goods, fees for licenses and permits, fines, and income from government-owned enterprises.

According to Arizonan, et al, (2015), revenue from taxes to gross domestic product (GDP) ratios in Asia and Latin America increased from the year 2000 but is still lower compared to European regions. This has been because of major reforms especially to enhance administration

and compliance. While most of the reforms have been geared towards eradicating inefficiencies, corruption has remained a challenge in many tax jurisdictions. In Africa corruption has been one of the major catalysts of tax evasion, which in return has impacted negatively on economic growth. This is also the main cause of low revenue collections to GDP in the Middle East. Similarly, revenue collection by African states is a critical component of public finance in the continent. Governments in Africa collect revenue through various mechanisms, including taxes, fees, fines, and non-tax sources (African Tax Administration Forum, 2019). Thus, we hypothesized that:

H_{01}: corporation tax incentives do not have a significant effect on the tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya

2.2 Corporation tax incentives

The cost of capital, according to Calitz et al (2020), is one of the most important factors in enterprises' capital investment decisions. The cost of capital, also known as the cost of retaining a unit of capital for a unit of time, indicates the opportunity cost of funds utilized in a firm, or the minimal rate of return required to make a capital investment worthwhile. Capital deductions, according to Chen et al. (2018), are tax deductions that can be applied to any type of capital investment. They could also be limited to certain types of equipment, such as machinery or technologically advanced equipment, or capital expenditure in specific activities, such as research and development. They are given in addition to regular depreciation allowances, allowing the investor to write off a sum larger than the investment's cost.

According to Melville (2019), capital consumption expenses rise as the value of most capital assets utilized in businesses depreciates due to wear and tear and obsolescence. Accounting and corporate tax systems allow companies to deduct costs of capital assets from their income over time. Kenya provides for tax deductions in respect of capital expenditures incurred for industrial buildings, machinery, roads, railways, fencing, farm works, water and sewerage works (Income Tax Act, 2018). Where capital expenditure is incurred on buildings and machinery for use in a green investment, a deduction, known as an investment deduction, equal to one hundred percent of the capital expenditure may be taken at the discretion of the enterprise against gains or profit in the year in which the building or machinery is erected (Income tax act, 2018). In addition, wear and tear deductions for plants and machinery installed are at the rate of 12.5 percent. The Finance Act 2021 made changes to investment deductions to state that if capital investments are at least 2 billion shillings for the preceding five years, the investment deduction rate shall be at 100 percent for firms that operate outside Nairobi and Mombasa counties. However, a rate of 150 percent shall continue to apply if the investments were made before 26 April 2020. For counties outside Nairobi and Mombasa, the rate for investment deduction shall be at 100 percent if the capital expenditure exceeds 250 million shillings in that year of income.

Corporate income tax is a direct tax enforced on the income or chargeable gains accruing to a company. Governments use corporate income tax incentives as a tool to encourage enterprises to invest in the green (OECD, 2019). According to the World Bank (2020), corporate income tax incentives (CIT) are calculated as a percent-point difference between the ordinary CIT rate and the tax incentive CIT rate. Increased competition to attract foreign direct investment contributes to the growing popularity of corporate tax incentives (OECD, 2019). According to Chen et al. (2018), corporate income tax incentives can take the form of a total exemption from profits tax, and, in some cases, it can be a reduced rate of tax, or a mix of the two, such as a two-year exemption followed by five years at half the usual rate. The exemption or discount is

only valid for a certain amount of time. Corporate income tax incentives are a type of tax expenditure that differs from the benchmark system in that they are only given to investors or investments that meet 24 certain criteria (OECD, 2019). A firm that engages in any commercial operations oriented towards green investments such as carbon market exchange, the corporate rate of tax is 15% for the first ten years as of 2021 (Income Tax Act, 2021).

Parys (2012) conducted an assessment of the impact of tax incentives on attracting investments, particularly focusing on developing countries. The study explored three dimensions: the influence of investment climate on tax incentives, variations in tax incentives, and government-to-government considerations regarding investment policies. The first study revealed a marginal response of Foreign Direct Investment (FDI) to adjustments in corporate tax rates in countries with an unattractive investment climate. The second study found that lower fiscal incentives and longer tax holidays effectively attracted FDI in the Caribbean and Latin America but not in Africa. This result was broadly confirmed in the third study, which focused on the effectiveness of tax incentives in two monetary unions: the Eastern Caribbean Currency Union and the African CFA Franc zone. Additionally, the third study suggested that a simplified tax system and more legal guarantees facilitated investment attraction in the CFA Franc zone.

Capital deductions, such as investment deductions, industrial building deductions, farm works deductions, and mining deduction, influence investment decisions (IEA, 2012). Agundu and Ohaka (2013) explored the role of capital allowances in motivating investors in the Nigerian manufacturing industry. Analyzing financial ratios of 58 manufacturing firms, the study found that capital allowances significantly influenced Profit After Tax (PAT), Return on Assets (ROA), and Return on Equity (ROE). This emphasized the critical role of capital allowances in complying with new taxation laws and enhancing investment decisions.

Tirimba, Muturi, and Sifunjo (2015) conducted a study on stock market investment incentives, examining whether these incentives act as gifts or motivators. The research, based on 66 selected papers from a database of 93, indicated that investor viewpoints had a more significant impact on stock market performance than tax incentives. The study concluded that timely information about marketable securities was crucial for proper pricing strategies. The researchers argued that while investment incentives were effective in promoting investments, investors' perspectives played a more crucial role in the real world.

According to CMA (2006), the NSE and CMA proposed to increase the scope of capital expenditure deductions incurred by firms on legal expenses and other incidental expenses. This initiative aimed to encourage NSE investors to pay lower taxes for five years in exchange for offering 40% of shares to the public. The study highlighted the importance of industry regulators and policymakers considering the business community's views on tax policies before implementation. However, it also noted that tax incentives could lead to windfall profits for shareholders.

Despite changes, KRA (2009) pointed out that an estimated KShs 220.8 billion was lost from 2003-2009 due to tax incentive measures instituted by the government. The study recommended further research to obtain an accurate understanding of the effects of tax discounts on various sectors, particularly the manufacturing and allied sector. It cautioned firms to carefully acquire assets and evaluate expansion prospects despite government capital allowances. The Income Tax Act (2015) allows companies to claim up to 150% for expenses incurred for investing outside major cities, with additional benefits for specific building materials in educational and technical services.

Ngure (2018) found encouraging effects of capital allowance benefits on the profitability of manufacturing firms. Gumo (2013) researched the impact of tax benefits on the profitability of manufacturing companies in Kenya, revealing various tax incentives, including capital investment allowances like Industrial Building Allowance (IBA) and incentives for farm works and mining. IEA (2012) highlighted investment promotion and export promotion incentives as the main tax incentives in Kenya, influencing both physical and financial capital. These incentives include Investment Deduction Allowance (IDA), Industrial Building Allowances (IBA), and Mining Deductions Allowance (MDA).

Thomas (2007) discovered that the U.S. federal government permitted wear and tear as an incentive to attract investment. Similarly, in Canada, Thomas (2007) observed a more centralized incentive system at the provincial level compared to the United States. Research in Caribbean countries by Bain in 1995 (cited in Van Parys & James, 2010) estimated revenue loss from tax concessions ranging from 23.5 percent in Anguilla to 53.9 percent in Grenada. Goyal and Chai (2008) later conducted a study calculating revenue losses between 9½ and 16 percent of GDP.

A study conducted by non-governmental organizations Action Aid and Tax Justice Network Africa (TJN-A) reported a significant loss of Sh73.1 billion through incentives for the replacement of wear and tear on plants and machinery. The second-largest loss stemmed from investment deductions, where companies subtracted spending on new investments before calculating tax obligations.

Wear and tear allowances are granted to investors to account for machinery depreciation and are categorized into five classes with varying allowance rates. Class 1, at a rate of 37.5%, includes heavy earth-moving equipment and self-propelling vehicles. Class 2, at 30%, encompasses computers, photocopiers, and scanners. Class 3, at 25%, covers light self-propelling vehicles and other machines like aircraft, motorbikes, and lorries under 3 tonnes. Class 4, at a rate of 12.5%, includes telephone sets, switchboards, and bicycles (Income Tax Act, 2015).

Githaiga's (2013) study on the impact of tax benefits on FDI revenues focused on ID, IBD, and depreciation's influence on attracting FDI revenues. The study involved 60 businesses listed at the NSE, with a random sample of 10 firms. Secondary data from annual performance reports and unqualified financial reports from 2008-2011 were collected. Quantitative data were analyzed using Microsoft Excel, while SPSS aided in analyzing qualitative data with the assistance of a conceptual framework. The findings indicated that tax incentives influenced FDI inflows of NSE-listed companies, with a strong correlation between depreciation and FDI.

In conclusion, these studies shed light on the complex dynamics of tax incentives in attracting investments. The findings emphasize the importance of considering economic climates, the effectiveness of specific incentives, and government policies when analyzing the impact of tax incentives on various industries.

2.3 Green investments

Industrialization has produced massive pollution emissions being part of most governments' economic development initiatives. Despite rapid economic development and the improvement in the quality of life of its people, environmental pollution is an increasingly serious problem (Hao et al., 2022a). According to Yale University's 2022 Global Environmental Performance Report, Kenya ranks only 148th out of 180 countries in terms of environmental performance. As a major emitter of pollutants, the environmental management of enterprises has received attention (Utomo et al., 2020; Hao et al., 2022c). Green investment through innovation is an

essential technological tool to achieve corporate transformation and upgrading, clean production, and sustainable development to promote the development of green innovation in enterprises (Cao et al., 2022).

In China, 2019, The Ministry of Science and Technology noted that China invested around 2.2 trillion yuan in R&D, an increase of 12.5% over the previous year, accounting for 2.23% of GDP, of which enterprises invested 1.69 trillion yuan in R&D, an increase of 11.1% over 2018. To reduce the R&D burden on enterprises and encourage them to conduct their R&D, the government intervened in their operations through various industrial policies, of which tax incentives and subsidies were used as the main regulatory instruments. However, the two intervention instruments were controversial (Liu et al., 2022), and scholars have explored whether they affect the firms' investments in green through innovation and how strongly they do so. With the establishment of Keynes' neoclassical school and government failure theory, scholars began to study the impact of policies on green innovation (Cao et al., 2021; Hao et al., 2022b; Wang J et al., 2021; Zheng et al., 2022).

First, Hu et al. (2021) and others explored the impact of subsidies on firms' green innovation and found that the relationship was positive. Some scholars point out that excessive subsidies may crowd out firms' original R&D investment (Xu et al., 2021), which inhibits green innovation (Yi et al., 2020). With the controversy over direct cash subsidy instruments (Ren et al., 2021), tax incentives, an indirect fiscal instrument, entered the perspective (Marjanović, 2018). The impact of tax incentives on green innovation is equally varied, either positively (Cao and Chen, 2018) or negatively (Song et al., 2020). While there is a rich literature exploring the impact of a single policy on innovation and based on a single variable measuring green innovation, the impact of tax incentives is rarely considered.

Furthermore, external financing forces are an important and integral part of a firm's R&D investment (Adegboye and Iweriebor, 2018; Feng, 2021. Therefore, this paper determined green investments from companies listed on the Nairobi Securities Exchange, Kenya, under different levels of subsidies and the mechanism of action of tax incentives. This research used data on listed companies from 20121 to 2023 measures the intensity of tax incentives policy using the B-index and establish an evaluation system for green investment through innovation using the entropy weighting method (EWM). The impact of tax incentives on green innovation of different types of firms was explored. It is therefore hypothesized that:

H_{02}: Green investment does not moderate the relationship between corporation tax incentives and tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya.

Alhulail (2014) performed a study on the influence of tax incentives on sales of environmentally friendly vehicles in Japan. The scholar sampled 10 vehicles in Japan categorized as eco-friendly vehicles from April 2006 to March 2013. The scholar also relied on secondary data, which he analyzed using the regression analysis method. The study established that the tax incentives had a significant positive impact on sales of eco-friendly automobiles in Japan. The scholar however failed to indicate the study population to help other researchers determine the viability of the study.

Maffini, Xing and Devereux (2016) study on the effects of tax motivational measures like depreciation grants on profitability yielded more data when the scholars added data from confidential tax returns in the United Kingdom. The scholars employed a difference-in-difference methodology to assess the shift in the minimum limit for the first-year emoluments put down in 2004. The study findings indicated that companies that qualified for tax incentives performed better financially than the companies that did not qualify for the tax scheme.

Additionally, the study determined that the increase in profitability was independent of available cash but rather occurred after the exogenous modification related to the assets held the company. The researcher further determined that the business entities showed fast response to FYAs within the period of 1- 2 years. Also, the study determined that the salient features of FYAs got prominence due to the cost of capital realized due to low limit on qualifying thresholds. The major finding of the study emanated from the need to establish effects of the tax incentives on investments by firms listed in NSE and not the scenario highlighted in previous studies review. The research mainly focused on features affecting depreciation benefits in appealing to FDIs in the listed enterprises. Also, the research focused on the impact of linked taxation model on the effect of FDI and earnings of the firms quoted in the Nairobi bourse. The study outcome pointed to a positive interaction between. Investment discounts and building discounts with no important correlation to FDIs.

Tirimba, Muturi, and Sifunjo (2016) to determine the way tax incentives influenced the stock market profitability conducted a study and used a descriptive research approach to fulfill the 23 objectives of the study. The technique chosen by the scholars fitted the study objectives. The study population includes listed firms on NSE, with 61 firms being sampled for the study. The study employed questionnaires in the process of data collection. The study outcome indicated that tax incentives had a limited effect on the financial performance of firms quoted at the NSE hence the need for the government to develop fresh policies and legislation to govern taxation. The move is expected to boost economic growth rather than using tax incentives only.

3.0 Methodology

3.1 Data

The study utilized secondary data from 2019 to 2023 obtained from NSE, KRA, EPC, KNBS, and CMA.

3.2 Measurement of study variables

Table 1: Operationalization and measurement of variable

Variables	Indicators	Source/ Author	Data Collection	Measurement scale
Dependent Variable				
	Tax revenue collection	Combs, Crook, Shook (2005)	Secondary data	Ordinal
			Secondary data	
Moderating Variable	Green Investments	Xing,. (2017).		Ordinal
Independent Variable	Corporation Tax Incentives.	Parys (2012)	Secondary data	Ordinal

3.3 Model specifications

To verify the effect of corporation tax incentives on the green investments from companies' regression listed in the NSE, a multivariate linear regression model was utilized.

Equation (i),

$y_{t(i)} = \beta_0 + \beta_1 FA_1 + \beta_2 FS_2 + \mu_t.$

Equation (ii)

$y_{t(i)} = \beta_0 + \beta_1 FA_1 + \beta_2 FS_2 + \beta_3 CTI_{3t} + \mu_t.$

Equation (iii)

$y_{t(i)} = \beta_0 + \beta_1 FA_1 + \beta_2 FS_2 + \beta_3 CTI_{3t} + \beta_4 M + M*CTI_{3t} + \mu_t$

Where: $y_{t(i)} Y$ = Tax revenue collection

α = Constant Term

$\beta_{1,2,3}\ldots n$ = Beta coefficients

FA_1 = Firm Age

FS_2 = Firm Size

CTI_3 = Corporation tax incentives.

μ = Error terms

t = Time series

M is green investment (Moderator variable)

$M*CTI_{1t}$ = Green investment * Corporation tax (interaction term)

3.4 Data Analysis

Robust statistical and spreadsheet packages were utilized to analyze the secondary data using descriptive statistics to show tendency measures such as mean, standard deviation, and frequencies. Regression analysis was used to determine the relationship between variables.

4.0 Results and Discussion

4.1 Descriptive statistics

Table 2 shows descriptive statistics for Corporation tax incentives indicating a mean of 0.64, indicating that on average companies listed in the NSE remitted taxes closer to 30% with significant incentives the standard deviation of 0.480 indicates that the scores for the corporation tax incentives indicates scores closer to the mean for the sample, the skewness and Kurtosis were -0.599 suggests that there are fewer extreme low values in the data set. and -1.762, the Kurtosis indicates a platykurtic distribution.

Table 1 also shows descriptive details for tax revenue collection among listed Firms in the NSE. The mean value for the Tax Revenue Collection is KES 114800.372 million. This represents the average tax revenue collected for firms across the sample of 300 observations.

The standard deviation of 554520.963 indicates a high variability from the mean since there are different firms in the study. The skewness value of 10.408 suggests that the distribution of tax revenue collection is highly positively skewed. This insinuates that there are more

observations with lower tax revenue values, and the tail of the distribution extends significantly toward higher revenue values. The kurtosis value of 116.007 indicates that the distribution of tax revenue collection is leptokurtic. Extreme values are more likely in this dataset.

The mean value for green investment is KES 2342.35 million. The standard deviation of 1257.758, which suggests that the customs duty tax incentives vary significantly from the mean. The skewness value of -0.201 indicates that there are more observations with lower values of incentives, and the tail of the distribution extends slightly toward higher values. The kurtosis value of -1.198 suggests that the distribution has thinner tails and is flatter compared to a normal distribution implying that extreme values are less likely in this dataset.

Table 2: Descriptive Statistics Independent Variables

Variable	N	Mean	Std. Dev	Skewness	Kurtosis
Corporation tax incentives	300	0.64	0.480	-0.599	-1.652
Tax Revenue Collection	300	114800.372	554520.963	10.408	116.007
green Investment	300	2342.35	1257.758	-0.201	-1.198

4.2 Correlation Matrix

The Pearson correlation analysis was used to test the strength of the linear relationship between the variables thus providing a robust basis for prediction. Table 3 shows that tax revenue collection has a significant and positive correlation with corporation tax incentives at 52.9% and p-value =0.000<0.05. The study further implies that green investment has a positive and significant correlation to tax revenue collection at 64.6% and p-value<0.05.

Table 3: Correlation Analysis

Variables	(1)
(1) Tax Revenue	1.000
(2) Corporation Tax Incentives	0.529*
(3) Green Investment	0.646*

*** p<0.05*

4.3 Hausmann Test

The Hausman test is often used to decide whether to use fixed effects or random effects models. If the p-value is less than 0.05, we use the fixed effect model. If the p-value is greater than or equal to 0.05, we use the random effect model. The Hausmann test implied that the fixed-effect model and random effects are significantly different p-value 0.0079<0.05 which means that we reject the null hypothesis and conclude that the fixed effect is appropriate.

Table 4: Hausmann Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	17.402069	6	0.0079

Cross-section random effects test comparisons

Variable	Fixed	Random	Var(Diff.)	Prob.
Corporation Tax Incentives	0.002531	0.003993	0.000010	0.0455

4.4 Regression Analysis

The regression analysis was conducted to determine the effects of corporation tax incentives on tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya.

Table 5: Regression Results

	Model B
Constant	0.1612211 (0.000)
Corporation tax incentives	0.0290453 (0.000)

Results indicated that a corporation tax incentive had a positive and significant $\beta = 0.0290453$, $p < 0.05$ effect on tax revenue collection, meaning a unit change in corporation tax incentive causes 0.029 increase in tax revenue collection. This positive relationship implies that tax incentives designed to benefit corporations are effective in increasing overall tax revenues. This could be due to increased economic activity spurred by the incentives, which in turn generates more taxable income and consumption. Corporation tax incentives can stimulate investment by reducing the effective tax burden on businesses. This can lead to increased business activities, higher employment, and greater consumer spending, all of which contribute to higher tax revenues.

The study sought to determine the moderating effect of green investment on the relationship between corporation tax incentives, value-added tax incentives, customs tax incentives, and tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya.

Table 6: Regression Results; Moderation

	Model1 B	Model2 β
Constant	0.1612211 (0.000)	0.1944414 (0.047)
Main Effect		
Corporation tax incentives	0.0290453 (0.000)	0.0125756 (0.010)
Green Investment		0.0000361 (0.000)
Interactions		
Corporation tax incentives*Green Investment		5.77e-06 (0.012)

The test results indicated that after adding the interaction term, a positive standardized beta coefficient for the interaction between corporation tax incentives and green investment β =5.77e-06, p=0.012<0.05 was found indicating that the interaction is significant. This implies that a unit change in the interaction between green investment and corporation tax incentives causes a 5.77e-06 increase in tax revenue collection.

4.5 Testing of Hypotheses

The null hypothesis **(H0)** of the study was that corporation tax incentives do not have a significant effect on the tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya. The study found that corporation tax incentives have a significant effect on the tax revenue collection p-value =0.043 <0.05, the null hypothesis is rejected.

The null hypothesis **(H02)** that green investment does not moderate the relationship between corporation tax incentives and tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya was therefore rejected.

4.6 Discussion

The first objective of study was to determine the relationship between corporation tax incentives and tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya. The research study found that there was a positive relationship between corporation tax incentives and tax revenue collection r= 0.529 (p-value =0.000<0.05). This implies that as corporate tax incentives increase, tax revenue collection tends to rise as well. The study coefficient analysis indicated that unit change in corporation tax incentive has a positive and significant effect on tax revenue collection β= 0.0226592 (p-value =0.043 <0.05). This means that for every incremental change in tax incentives, there was a corresponding impact on tax revenues. The study concurs with a study by Parys (2012) who conducted an assessment on the impact of tax incentives on attracting investments, particularly focusing on developing countries. The first study revealed a marginal response of Foreign Direct Investment (FDI) to adjustments in corporate tax rates in countries with an unattractive investment climate. The study also concurs with Tirimba, Muturi, and Sifunjo (2015) who conducted a study on stock market investment incentives, examining whether these incentives act as gifts or motivators. The research, based on 66 selected papers from a database of 93, indicated that investor viewpoints had a more significant impact on stock market performance than tax incentives. The study highlighted the importance of industry regulators and policymakers considering the business community's views on tax policies before

implementation. However, it also noted that tax incentives could lead to windfall profits for shareholders.

The second objective of the study was to determine the moderating effect of green investment on the relationship between corporation tax incentives and tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya. The study investigated the correlation between green investment and tax revenue collection and found that there was a positive and significant relationship r= 0.646 (p-value =0.000<0.05). This implies that as green investments in NSE firms, the tax revenue collection improves as well. The study found that green investment moderates the relationship between corporation tax incentives and tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya. β= 0.0000123 (p-value =0.010 <0.05). The impact of corporation tax incentives on revenue collection is influenced by the level of green investment, as shown in Figure 1. This suggests that high levels of green investment lead to high levels of corporation tax incentives, which further improves tax revenue collection.
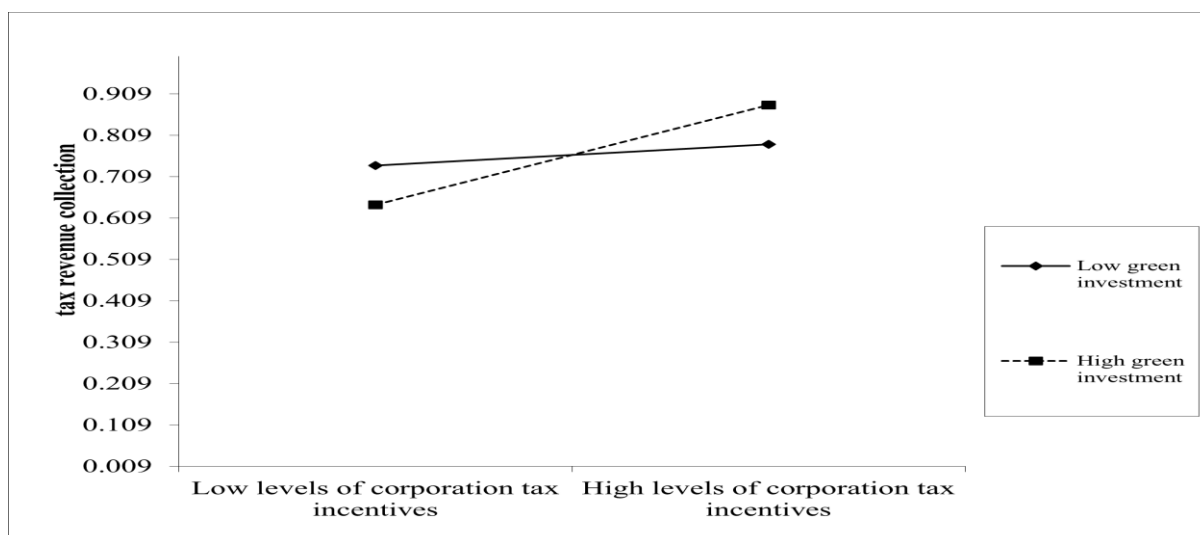

Figure 1: Corporation tax incentives * green Investment

5.0 Conclusion

The study objective was to determine the relationship between corporation tax incentives and tax revenue collection from companies listed on the Nairobi Securities Exchange, Kenya. It was determined that there exists a positive relationship between corporation tax incentives and tax revenue collection. Further, green investment was found to influence the relationship between corporation tax incentives and tax revenue collection. This suggests that the level of green investment within NSE-listed firms can alter the impact of tax incentives on tax revenue collection, highlighting the importance of environmentally conscious investments in shaping fiscal outcomes.

In light of the study findings that there are positive effects of tax incentives on tax revenue collections the government of Kenya should consider revising and expanding tax incentives, particularly corporation tax incentives to encourage compliance and stimulate investment. Policymakers in Kenya should consider enhancing corporation tax incentives to stimulate tax revenue collection from companies listed on the Nairobi Securities Exchange (NSE). Given the

positive relationships identified between these incentives and tax revenue collection, optimizing these tax policies could lead to increased tax revenues.

Given the moderating effect of green investment on the relationship between tax incentives and tax revenue collection, the government should incentivize ecologically workable practices and investments. This could include offering tax breaks or subsidies for firms that adopt green technologies, implement energy-efficient processes, or engage in environmentally friendly activities.

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