OWNERSHIP STRUCTURE, AUDIT QUALITY AND TAX AVOIDANCE AMONG LISTED FIRMS IN KENYA

BY

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DECLARATION

Declaration by Candidate

I declare that this proposal is my original work and has not been presented to any other institution. No part of this proposal may be reproduced without prior or express permission of the author and/or Moi University.

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DEDICATION

I dedicate this work to my mum Leonita, wife Iscah, children Providence, Nicole and Evette for their immense support during the conceptualizing and writing of the proposal. God bless you all.

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ABSTRACT

Taxes contribute significantly to the growth of an economy. However, the burden of paying taxes is costly to the taxpayers. In this regard, taxpayers tend to exploit any existing opportunity to reduce their tax liability. Tax avoidance is one of the tool that taxpayers use to reduce taxable income without contravening the existing tax laws. Essentially, tax avoidance means less tax liability and more dividends to the shareholders. Though prior studies suggest a significant relationship between ownership structure and tax avoidance among firms, their findings are inconclusive. Corporate governance literature show that the audit quality helps in detection and prevention of unethical practices such as earnings manipulation and aggressive tax planning. However, there is a gap in literature on how audit quality influences the relationship between ownership structure and tax avoidance. Therefore, the general objective of this study was to determine whether audit quality moderates the link between ownership structure and tax avoidance. The specific objectives of study were to establish the effect of; managerial, institutional, foreign and government ownership on tax avoidance. Additionally, the study examined the moderating effect of audit quality on the relationship between; managerial, institutional, foreign, government and tax avoidance. The study was grounded on the agency theory. The study was premised on descriptive, longitudinal and explanatory research design. The study's population comprised of the 67 listed firms at the NSE and after applying the inclusion/exclusion criteria only 49 firms were considered for further analysis. Data was extracted from the selected firms' annual reports over the period 2011 to 2020 and was analyzed through descriptive and inferential statistics. The hypotheses were tested through hierarchical multiple regression models and the choice between the fixed and random effect was based on the results of the Hausman test. The findings of the study show a negative and significantly association between managerial ownership (β = -0.123 ρ<0.05), government ownership (β = -0.210, ρ< 0.05), institutional ownership (β= -0.117, ρ <0.05) and tax avoidance. The results further show a positive and significant association between foreign ownership (β= 0.261; ρ <0.05) and tax avoidance. The moderation results indicate that a negative and significant moderating effect of audit quality on the relationship between managerial ownership (β = -0.199, ρ< 0.05), government ownership (β = -0.189, ρ< 0.05), institutional ownership (β = -0.070, ρ< 0.05) and tax avoidance. However, audit quality has positive and significant moderating effect on the relationship between foreign ownership and tax avoidance (β = 0.197, ρ< 0.05). From the findings, the study concluded that listed firms with high managerial ownership, government ownership and institutional ownership are less likely to engage in tax avoidance. Inversely, firms with a large proportion of foreign ownership have a high propensity of engaging in tax planning. The study further concluded that the negative effect of managerial ownership, and institutional ownership on tax avoidance is more pronounced in an environment of high quality of audit Based on the findings, the study recommend policy measure on ownership threshold among listed firms, fundamental foreign ownership that positively associated with tax avoidance. Future studies may consider private firms and other jurisdictions since this may shed more light on the relationship between ownership structure, audit quality and tax avoidance.

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ABBREVIATIONS

ATS	**:**	Automated Trading System
CFC	**:**	Controlled Foreign Company
CFO	**:**	Chief Finance Officer
ETR	**:**	Effective Tax Rate
FLEV	**:**	Firm Leverage
GAAP	**:**	Generally Accepted Accounting Principles
GAARs	**:**	General Anti-Avoidance Rules
GEMS	**:**	Growth and Enterprise Market Segment
IDX	**:**	Indonesia Stock Exchange
NSE	**:**	Nairobi Securities Exchange
REITS	**:**	Real Estate Investment Trusts
ROA	**:**	Return on Assets
SAARs	**:**	Specific Anti-Tax Avoidance Rules
VIF	**:**	Variance Inflation Factor

DEFINITION OF TERMS

Audit quality: as the joint probability that an existing material misstatement is detected and reported by an auditor (Xiao, Geng & Yuan, 2020)

Domestic ownership: is the proportion of share ownership owned by an individual, legal entity or government in a country (Setiany *et al*., 2020)

Firm age: as the number of years since incorporation (Amran, 2011)

Firm performance: is the return on assets (Xu *et al*., 2020).

Firm size: as the natural logarithm of the end of period total asset (Matsuura, 2008)

Foreign ownership: the percentage of common shares owned by foreign investors (Okuda & Rungsomboon, 2007)

Government ownership: is the number of shares owned by the government divided by the total shares outstanding at year-end (Munisi, Hermes & Randøy, 2014)

Institutional ownership: the number of shares held by institutions at the end of the year divided by the total number of outstanding shares held at the end of the year (Dennis & Strickland, 2003)

Listed firm: a firm whose shares are trading in the Nairobi Securities Exchange

Leverage: as the total debt divided by the total asset size (White, 2018)

Ownership structure: the distribution of shares with regard to votes and capital and by the identity of the shareholders (Saleh, Zahirdin & Octaviani, 2017)

Tax avoidance: reduction in the effective corporate income tax rate through tax planning activities, whether these are legal, questionable, or even illegal (Braga,2017)

CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter presents the background of the study, the statement of the problem, the general and specific objectives, the hypotheses, the significance and the scope of the study.

1.1 Background of the Study

Taxes accounts for the largest share of government fiscal revenues across the globe. Therefore, tax avoidance by corporate bodies threatens government revenues. Hanlon and Heitzman (2010) define tax avoidance as "a closed set of all tax planning strategies". This implies that on one end is legitimate tax avoidance while the other end is noncompliance- tax evasion. Dyreng, Hanlon and Maydew (2008) suggest that tax avoidance refers to "all transactions that reduce companies' tax obligations'. Based on this definition, tax avoidance by a firm denotes legal tax planning and it involves a firm retaining cash resources, which would else go the tax authorities.

Though there are no official statistics on corporate tax avoidance, some estimate has been made. Cobham *et al*., (2020) reports that countries are losing over $427 billion worldwide to tax. In the U.S, tax avoidance by U.S.-based firms and individuals at around 100 billion dollars annually (U.S. Department of the Treasury, 1999), while in the UK tax avoidance is estimated at 2.5% of that year's corporate tax revenue or £25 billion is lost every year (Congress, 2009; Treasury, 2014). In many other countries, particularly those with weak tax systems and underdeveloped capital market, the amount lost amounts into billions of dollars (Kanagaretnam *et al.*, 2018).

A study by Crivelli, De Mooijand Keen (2015) shows, developing countries lose approximately US$ 212 billion yearly in direct revenue from various cross-border tax avoidance techniques. Additionally, United Nations Economic Commission for Africa(2015) reports that Africa loses over US$ 50 billion in transfer pricing with Kenya accounting for US$ 151 million. Recently, Cobham *et al.*, (2020) found that Kenya loses approximately $502 million to tax avoidance.

Consequently, this means fewer resources for infrastructure and services such as education and health, lowering standards of living in both developed and developing economies. The massive tax avoidance by corporate bodies and individual has prompted national and international tax systems to enact rules on five key dimensions of anti-avoidance namely; transfer price rules and documentation requirements, interest deductibility, controlled foreign company (CFC), general anti-avoidance rules (GAARs); and withholding taxes on interest payments, royalties and dividends. Kenya has adopted the GAARs under the Income Tax Act (Cap 470), which authorizes the Commissioner to collect taxes avoided if he is of the opinion that a certain transaction has been initiated with the very intention of reducing taxpayer's tax liability. Under the Income Tax Act, a person culpable of engaging in tax avoidance is liable for a fine that is double the tax avoided

Additionally, Kenya has gone further to enact Specific Anti-Tax Avoidance Rules (SAARs) under the provisions of the Tax Procedure Act (2015) which are more predicable in application compared to GAARs. Specifically, SAARs mitigates the likelihood of tax avoidance arising from non-distribution of dividends, thin capitalization, disallowing offsetting of losses against other incomes, prohibiting foreign companies from advancing interest free loans to resident companies and transfer pricing.

Though tax revenue improves the general welfare of the population, from a firm perspective tax is an expense that directly affects the company's net income. Previous studies on tax avoidance suggest that reduced taxes is beneficial to shareholders, and firm managers would therefore engage in tax avoidance in an attempt to maximize shareholder's wealth and firm value (Akbari, Salehi & Vlashani, 2019). In addition, money saved through tax avoidance enable shareholders to generate additional cash flows for investment purposes; which improves a firm value. Moreover, managers earn more through bonuses due to the improved financial performance. However, owing to separation of ownership from control some authors argue that managers' tax decisions reflect their own interests rather than the interests of the shareholders (Jia & Gao, 2021).

Since tax avoidance is premised on managerial and shareholders' interests, a growing line of research has investigated the impact of corporate ownership structures on tax avoidance (Wahab & Holland, 2012; Armstrong *et al.,* 2015; Badertscher *et al.,* 2013; Chen *et al.,* 2010; Minnick & Noga, 2010).Ownership structure is an important governance tool, particularly in an environment characterized by week investors' protection. Corporate ownership structure denotes distribution of equity with relation to voting rights, capital, and the identity of equity owners (Jensen & Meckling, 1976; Alsamhi & Barakat, 2020). Thus, ownership structure represents the percentage of the shares held by institutions, management, government and foreign investors (Din *et al.,* 2021). There is inconclusive research on how ownership structure affects tax avoidance as demonstrated by empirical literature. This prompts for further empirical examination on moderating factors.

Audit quality plays a critical role in reducing the conflicts of interests between managers and external stakeholders. Audit quality serves as a safeguard against managers' actions, particularly manipulation of earnings aimed at masking poor

financial performance (Habbash & Alghamdi, 2017). Besides, offering an independent judgment on a firm's financial reports, an external auditor is likely to offer professional advice to client on whether engaging in tax planning can be detected by tax authorities.

Prior studies show that high-quality auditors have fewer incentives to engage in tax avoidance due to the negative consequences, for instance damage of reputation, if tax authorities detect aggressive positions (Gaaya, Lakhal & Lakhal, 2017). Furthermore, Donohoe and Knechel (2014) argue that firms engaging in aggressive tax planning may expose their external auditors to higher risk and litigation costs. The authors also suggest that firms engaging in tax aggressiveness pay high audit fees owing to complex tax provisions and high levels of contingent reserves. Accordingly, this predict that audit quality moderates the relationship between ownership structure and tax avoidance among listed firms in Kenya

1.1.1 Nairobi Securities Exchange

The Nairobi Securities Exchange (NSE) was established in 1954 and it is among the oldest and largest securities exchanges in Africa. At the inception stage, NSE operated as a voluntary association, which derived its credibility as overseas stock exchange courtesy, the London Stock Exchange (LSE) as an overseas stock exchange. However, the political and economic uncertainty of post-independence Kenya and the oil crisis of the 1973 severely hampered the performance and the growth of NSE (Nyasha & Odhiambo, 2014). Nevertheless, the NSE gained some boost from International Monetary Fund initiated structural reforms in the 1980s and 1990s in addition to from internal government supported capacity building. Specifically, the move towards privatization of state-owned enterprises not only improved the market capitalization, but also increased Kenyans awareness on stock market investment instruments.

Similarly, the removal of restrictions on foreign direct investments and the licensing of venture capital funds was a major boost in the development of the Kenyan capital market. Upon the realization of the need to have an efficient, stable and robust capital market NSE was registered in 1991 as a limited liability company with a full secretariat and phased out the "call-over" trading system in favor of the current "open outcry" system, (NSE Annual Hand Books, 1992-2003). Additionally, the enactment of the Capital Markets Act in 2000 saw the establishment of the Capital Markets Authority as the regulating agency. The authority's key mandate is regulating and developing an orderly, fair and efficient capital markets in Kenya aimed at promoting market integrity and investor confidence. In 2011 NSE changed its name from Nairobi Stock Exchange to Nairobi Securities exchange to allow for the trading, clearing and settlement of equities, debt, derivatives and other associated instruments. NSE self-listed its share in 2014 upon approval by CMA.

The exchange has five market tiers: Main investments market segment, alternative investment market segment, Growth and Enterprise Market Segment (GEMS), and Real Estate Investment Trusts (REITS) fixed income securities market segment. Presently, NSE has sixty-two (62) listed companies that are classified into sectors comprising of automobile and accessories; banking; construction and allied; energy and petroleum; insurance; manufacturing and allied; telecommunication and technology; agricultural; commercial and services and investment. As of December 2020 NSE had a market capitalization of Ksh 2,776.9 billion.

1.2 Statement of the Problem

The massive corporate tax avoidance is a matter of concern for tax authorities and the public. A study by Cobham *et al.,* (2020) shows that countries are losing over $427 billion globally to tax avoidance and developing countries lose around $100bn annually

because of corporate tax avoidance schemes. The report further indicates that tax avoidance in developing countries is equivalent to5.5 per cent of their collected tax revenue and higher income countries lose 1.3 per cent. While Africa loses over $23.242 billion, Kenya loses$502million to tax avoidance (Cobham *et al.,* 2020). Prior studies have also adopted tax avoidance practices among Kenyan companies; for instance, Kenya Airways (Wachira, 2011),

Researchers have also explored whether tax avoidance improves or destroys firm value. For instance, Chen *et al*., (2014) argue that tax avoidance behavior increases agency costs and reduces firm value. While, Akbari, Salehi and Vlashani (2019) argue that tax avoidance is not significantly associated with firm value. Conversely, Desai and Dharmapala (2009) suggest that tax avoidance may increase firm value in an environment of strong corporate governance practices and investors protection.

Tax avoidance or tax planning is the outcome of the agency friction between managers and the various forms of ownership (Chyz& White, 2014). Shareholders consider the benefits of tax avoidance against the costs of potential litigation, loss of reputation and fines if detected by tax authorities (Hanlon &Heitzman, 2010). Managers also have significant individual incentives in tax avoidance (Dyreng *et al.,* 2010). Managers weigh the balance between equity based compensation incentives arising from higher firm returns against potential job loss, reputation loss and prosecution.

Although, empirical studies associate ownership structure with a firm's likelihood of engaging in tax avoidance (Alkurdi& Mardini, 2020; Minnick & Noga, 2010; Jiang, Zheng & Wang, 2020; Jamei,2017; Bird & Karolyi, 2017), the findings are incongruent; hence there is need to explore factor that moderate the ownership structure and tax avoidance relationship.

Consistent with the agency theory, audit quality is essential in reducing conflicts of interests between managers (agents) and external shareholders (principal). Audit quality is a corporate governance mechanism that mitigates managerial incentives for engaging in earnings manipulation and any fraudulent activities (Habbash & Alghamdi, 2017). External auditors is expected to be more rigorous, independent and objective when examining a company's financial statements, and to advice their clients on whether the firms aggressive tax planning fall into the grey area and could be detected by tax authority. From this background, this study seeks to examine whether audit quality moderates the relationship between ownership structure and tax avoidance among listed firms in Kenya.

1.3 Research Objectives

The main objective of this study was to examine the moderating role of audit quality on the relationship between ownership structure on tax avoidance and among the listed firms in Kenya.

1.3.1 Specific Objectives

1. To establish the effect of managerial ownership on tax avoidance among listed firms in Kenya.
2. To determine the effect of institutional ownership on tax avoidance among listed firms in Kenya.
3. To analyze the effect of foreign ownership on tax avoidance among listed firms in Kenya.
4. To examine the effect of government ownership on tax avoidance among listed firms in Kenya.
5. To determine the moderating role of audit quality on the relationship between:
    a) Managerial ownership on tax avoidance among listed firms in Kenya.

b) Government ownership on tax avoidance among listed firms in Kenya.

c) Institutional ownership and tax avoidance among listed firms in Kenya

d) Foreign ownership on tax avoidance among listed firms in Kenya.

1.3.2 Research Hypotheses

This study addressed the following pertinent research hypotheses;

i. **H_{01}**: There is no significant relationship between managerial ownership and tax avoidance among listed firms in Kenya.

ii. **H_{02}:** There is no significant relationship government ownership and tax avoidance among listed firms in Kenya

iii. **H_{03}** There is no significant relationship institutional ownership and tax avoidance among listed firms in Kenya.

iv. **H_{04}**: There is no significant relationship foreign ownership and tax avoidance among listed firms in Kenya.

v. **H_{05}**: Audit quality does not significantly moderate the relationship between;

   a) Managerial ownership and tax avoidance among listed firms in Kenya.

   b) Government ownership and tax avoidance among listed firms in Kenya

   c) Institutional ownership and tax avoidance among listed firms in Kenya.

   d) Foreign ownership and tax avoidance among listed firms in Kenya.

1.4 Significance of the Study

Owing to the importance of tax avoidance to various stakeholders the results of this study, inform policy decisions by various players including the government, institutions management, investors and researchers.

The results of this study are beneficial to tax authorities as they seek to create a conducive environment and design tax policies that are in line with ownership structure.

This study is also valuable to the existing and potential investors of listed firms by enlightening them on how ownership structure affects performance through tax planning.

The research can be of benefit to institutions managers of these firms in establishing the right capital mix (ownership structure) and adjusting it accordingly to maximize shareholders wealth. The findings of this study also contribute to new information to the existing body of literature on ownership structure, audit quality and tax avoidance that can be referenced to in future, therefore benefitting future researchers

1.5 Scope of the Study

This study sought to examine whether audit quality moderate the relationship between ownership structure and tax avoidance among listed firms in Kenya. Specifically, the study examined whether audit quality moderates the association between managerial ownership, institutional ownership, foreign ownership, government shareholding and tax avoidance among firms listed at Nairobi Securities Exchange. The study was grounded on agency theory. The study was conducted among all listed firms at NSE. Data was for the year 2011-2020. The choice of the study period was informed by three reasons. First, the NSE underwent major restructuring in 2011 that saw it change its name from Nairobi Stock Exchange to Nairobi Securities Exchange to allow the listing of fixed income securities. Second, NSE marked the first day of automated trading in government bonds by launching the Automated Trading System (ATS) in 2009. The automated trading in government bonds expanded the securities exchange depth by providing the necessary liquidity. Third, following the global financial crisis of 2007-08 that destabilized most financial markets, there was need to consider a cooling off period.

CHAPTER TWO

LITERATURE REVIEW

2.0 Overview

This chapter discusses the research variables namely tax avoidance, ownership structure and audit quality. The chapter further discusses theory suggesting the relationship between the research variables. Finally, the chapter reviews prior studies related to this study and presents a conceptual framework.

2.1 Concept of Tax Avoidance

Empirical literature has used tax avoidance, tax aggressiveness, tax sheltering and tax planning interchangeably (Kubick & Lockhart, 2017; Chan, Mo & Zhou, 2013). According to Wang *et al.,* (2020) tax avoidance is a broad term that encompasses legal tax planning and illegal tax evasion. Wang *et al.,* (2020) argues that tax planning means "reducing a firm's tax burden through investments and structuring business activities within the scope of the tax law" while tax evasion "goes beyond avoidance to the point whether a firm evades their tax obligations through violations of tax laws and related regulations." Hanlon and Heitzman (2010) define tax avoidance as a "closed set of all tax planning strategies. One end of the closed set is legitimate tax avoidance while the other end is noncompliance, evasion, etc."

In general, corporate tax avoidance represents value transfer from government to corporations and should therefore enhance firm value. Nevertheless, empirical studies report tax avoidance is not costless. For instance, a study Hanlon and Slemrod (2009) indicate that on average a company's stock price declines when there is news about its involvement in tax shelters. Chen *et al.,* (2014) find that tax avoidance behavior increases agency costs and reduces firm value. Prior studies use GAAP effective tax rates (ETRs) as a measure for tax avoidance on the assumption that low ETRs signifies

the highest levels of tax avoidance and high ETRs represent a lack of successful tax avoidance strategy (Drake, Hamilton & Lusch, 2020; Ha & Quyen, 2017). ETR is computed as the ratio of the current tax expense on corporate earnings before income tax. This current tax expense is normally presented in the audited financial statement or notes to financial statement as required by the IFRSs.

2.2 Concept of Ownership Structure

Sindhu, Hashmi and UlHaq (2016) views ownership structure as the distribution of equity with regard to votes and capital, but also by the identity of the equity owners. The two broadly used the term in respect to ownership structure are; ownership concentration and owner identity. Zhuang (1999) asserts that ownership structure is a key factor to shape the corporate governance systems of a country. The two significant features of corporate ownership as recognized by Zhuang (1999) are concentration and composition. According to the author, the extent of ownership concentration in a company establishes the way in which power is allocated amongst the managers and the shareholders. Additionally, there tends to be weakening in the shareholding controls due to a drop in the monitoring of shareholders' interests once ownership becomes dispersed.

According to Zhuang (1999), the question that is raised then is, if all small shareholders act in such a way, then there would be no monitoring in the managerial efforts. He furthermore argued that when a company's ownership is concentrated, huge shareholders have a high role in monitoring the managers. Conversely, Zhuang said that the major crisis with ownership concentration is on how to protect minority shareholders from exploitation by major shareholders who may act unilaterally with no consideration towards them whatsoever. He also pointed out that ownership

composition tried to differentiate between who the shareholders are and who among them belongs to the decision-making group.

The importance of ownership structure is evident in the fact that corporate governance and the ownership structure of companies is currently characterized by change processes as the economies of the world become more and more globally integrated. Ownership structures are also of major importance in corporate governance because they affect the incentives of managers, and thereby the efficiency of firms. As the world continues to grow and experience economic changes, the importance of ownership is evidenced by the developing need for corporate governance practices. Rubin and Smith (2009) noted that institutional ownership structure has an impact on dividend volatility. This could be used to explain the difference between ownership structure and firm value. In developed countries, ownership has been isolated while on the other hand developing nations ownership structure features a weak legal system that safeguarding the investors' interests and ownership structure is concentrated (Ehikioya, 2009).

Going by the by Fazlzadeh, Hendi and Mahboubi (2011), ownership structure is one way of providing policy makers with the intuitions that enable a system of corporate governance to function. Holderness (2009) notes that higher firm value is as a results of a reduction in the conflict of interests due to ownership and control balancing. The author further stated that it could get confusing as one examines the interrelationship of ownership, firm value and control. For instance, managers who own shares in a company work more efficiently by putting the interests of line managers and shareholders first. In contrast, to when manager's interests and those of shareholders are not wholly inclined, high stake in the firm can provide managers with great opportunities to chase their individual objectives without the fear of punishment. Thus, the consequences of managerial ownership on the firm's value depend on the trade-off

between entrenchment and alignment effect (Denis & McConnell, 2002). In addition, the deviation in voting rights and capital rights permit investors to gaining control with slight equity participation through such methods as dual-class equity, pyramids, etc. Thus, discrepancy must be taken into considerations when scrutinizing the implications of ownership structure on firm performance. Ownership simply measures the extent of concentration of the rights to voting. The rights to vote for the majority shareholders and the total of voting rights of the second to third largest shareholders measure it. Moreover, the variance ratio of the main shareholder demonstrates ownership concentration.

2.3 Concept of Audit Quality

The term audit quality is usually defined as the outcome, which depends on the presence or absence of certain attributes of auditors. The widely cited definition of audit quality is by DeAngelo (1981) who claims that audit quality is the "market assessed joint probability that a given auditor will both discover a breach in a client's accounting system, and report the breach." Going by this definition, the constituent and inseparable elements of audit quality are (1) the likelihood that an auditor discovers existing misstatements and (2) appropriately acts on the discovery. The first component of audit quality is premised on the auditor's professional competence and effort while the latter is anchored on an auditor's objectivity, professional skepticism and independence.

Menezes Brás (2018) defines audit quality as "adherence to professional auditing standards, professional codes and ethics, audit guidelines, as well as rules and procedures issued by professional bodies to regulate the auditing profession, and to maintain the independence and integrity of the auditor." Therefore, audit quality focuses on policies and procedures that auditors implement, whether in relation to

private audit practice or audit firms in general, to ensure that the audit services are rendered in line with the auditing standards.

Audit quality is key in ensuring the integrity and confidence of financial reports, particularly in the wake of massive corporate scandals. For instance, corporate accounting scandals occurred in Enron Corporation and Word Com in USA around 2001 and 2002; Kimia Farma, Indo Farma, Agis and Bank of Century in Indonesia between 2001 and 2008 (Suyono, 2012).

Some of the key determinants of audit quality cited in empirical literature include audit firm size and auditor specialization (Salehi, Mahmoudi & Gah, 2019); audit independence, audit tenure and audit firm size (Amahalu, Okeke & Chinyere, 2018); auditor's professional competence, independence and motivation (Akbar, Aswar & Lastiningsih, 2020)

2.4 Theoretical Review

A number of theories are reviewed here and their relevance to the present study explained. These theories are agency theory and resource based view. These theories explain both the tax avoidance behaviour of firms and the role of ownership structure

2.4.1 Agency Theory

This study is grounded on the agency theory propounded by Jensen and Meckling (1976). Agency theory argues that managerial actions depart from those required to maximize shareholder returns. Thus, agency theory is an elemental part of the modern theory of corporate finance. The theory explains the business relationship between principals (shareholders) and agents (managers). Accordingly, the agent is responsible for fulfilling the tasks that are assigned by the principal; this is the so-called principal–agent model.

Proponent of the theory argue that the separation of ownership and control among a firm's managers and owners causes conflicts of interest and costs for the principal, referred to as agency costs, thus requiring costly mechanisms for controlling these costs (Jensen &Meckling 1976). Agency costs arise because agents are argued to pursue interests that will not always act in the best interest of the shareholders because either the decision is unfavorable or there exists moral hazard (Cuevas-Rodríguez, Gomez-Mejia, & Wiseman, 2012)

Previous studies have grounded tax avoidance on agency theory (Desai & Dharmapala, 2009; Wang *et al.,* 2020). Though some scholar argues that managers would reduce a firm's tax liability to maximize shareholders' wealth (Desai & Dharmapala, 2009), others claim that tax avoidance decisions may be an instrument for managers to engage in rent seeking activities, which destroys shareholders' value (Jia & Gao, 2021).

Chyz and White (2014) propose that in situations where agency conflict is high, managers are more likely to engage in tax avoidance strategies in order to report comparatively higher after-tax income that translate into better financial performance. On the other hand, the authors opine that in settings where agency conflicts are higher, CEOs are more likely to use tax avoidance to manage GAAP earnings which results in higher accounting realized performance. In the same vein, Desai and Dharmapala (2009) opine that tax avoidance presents an opportunity for diverting resources away from shareholders to managers, or from minority shareholders to controlling shareholders. Crocker and Slefmrod (2005) observe that agents and principals' interests arising from tax avoidance can vary if the penalties for engaging in illegal tax planning are borne by managers making tax decisions rather than by the shareholders. Additionally, the authors suggest that executive compensation contracts should be designed in a way that they align the interests of agents and principals regards taxes.

There agency theory gives an appropriate theoretical foundation of understanding how managers and shareholders cooperate in tax avoidance; the owner may ask or pressurize the manager to minimize the amount of tax payable to the state.

Agency theory is widely utilized to explain the principal-agent conflict in corporate entities. Specifically, agency theory explains how firm can mitigate unethical behaviours through executive incentive alignment, audit function and ownership structure. Based on the agency theory, tax avoidance demonstrate the conflict between managers and shareholders. For instance, managers' strategy to reduce tax liabilities could create an opaque internal control system where managers could enjoy reduced costs for managing earnings.

Moreover, Tang *et al.,* (2017) stated that the ownership structure should identify the agency problems' characteristics to highlight the division between management and shareholders in firms. In summary, the ownership structure tends to enact policies to reduce the relatively large impact of tax avoidance activities on the firm's position in the market (Hanlon &Heitzman, 2010).It has been argued in extant literature that through managerial ownership, a firm is able to align managerial interest with those of the firm. For instance, a study by Yang, Lai and Tan (2008) found that increasing managerial ownership reduces earnings management. Therefore, managers are unlikely to engage in tax avoidance to protect the reputation of the firm. Similarly, Alkurdi and Mardini (2020) found that increasing managerial ownership, aligns managers interests with the interests of owners; thus an important tool in mitigating agency problems and reducing the possibility of a firm engaging in tax avoidance. Studies further report that foreign ownership is effective in monitoring managerial behaviours owing to their voting rights on a company's accounting and taxation policies negatively affects tax avoidance (Alkurdi & Mardini, 2020). Aggarwal *et al*., (2011) suggest that foreign

ownership deter tax avoidance through effective supervisory role. According to the authors foreign investors improves the application of corporate governance in firm. In addition, Hasan *et al.,* (2016) confirmed that foreign institutional investors extend their investment globally, thereby increasing their role in corporate decision making. Institutional ownership is a key monitoring tool because the influence of institutional investors spread across the firm's processes, which includes the adoption of financial reporting standards and preparation of financial reports. Therefore, an increase in institutional ownership may significantly reduce unethical managerial behaviours. Furthermore, Ying, Wright and Huang (2017), report that an increase in institutional ownership reduces the propensity of a firm engaging in aggressive tax avoidance. Government ownership poses a complicated principal-agent conflict. The government is concurrently the principal and the 'patron' of an affiliate agent or manager and is charged with determining the regulatory setting in which the firms operate and with monitoring tax compliance. These roles create a conflict situation particularly where the firm operates in a competitive environment and should must remain profitable. However, since government owned firms must pursue both political and social goal, government ownership will reduce tax avoidance (Mafrolla, 2019). According to the agency theory, audit quality mitigate the conflict between managers and external shareholders. DeAngelo and Masulis (1980) asserts that audit quality deters manipulation of earnings. External auditor offer an independent judgment on the preparation of financial statements and the effectiveness of a firm's internal controls. External auditors also evaluate the extent a firm is engaging in aggressive tax planning (Guenther, Matsunaga & Williams, 2017). Therefore, this study to hypothesis that ownership structure affects tax avoidance and audit quality moderates the relationship.

2.5 Review of Empirical Literature

This section discusses previous studies on the relationship between the ownership structure, audit quality and tax avoidance.

2.5.1 Relationship between Managerial Ownership and Tax Avoidance

Equity shareholding by the management aligns their interests with those of the shareholders. Tax aggressiveness, which serves as a way to increase after-tax firm value, can help board members enjoy the benefits of improved shareholder wealth. Managerial ownership is an indicator that managers are concerned about the company's sustainability and therefore would not wish the company to be audited or be fined for involvement in tax avoidance. Prior studies show that the presence of managerial ownership has a significant effect on tax avoidance (Annuar, 2014; Badertscher, Katz & Rego, 2013; Dyreng *et al.*, 2010; Ratnawati *et al.*, 2018). However, the findings are inconclusive.

Ratnawati, Freddy and Hardi (2018) study examine the moderating role of tax avoidance on the effect of institutional and managerial ownerships on firm performance. The study employs a sample of 58 manufactured companies listed on Indonesian Stock Exchange and panel data for 2012 – 2014. The authors find that institutional ownership and managerial ownership affects firm performance. Further, the results show that tax avoidance moderates the relationship between ownership (institutional and managerial) on firm performance.

Alkurdi and Mardini (2020) investigated the effect of ownership structure and board of directors' composition on the extent of tax avoidance strategies. The study considers a sample of companies listed in the Amman Stock Exchange and data for 2012 to 2017, which yielded comprising 348 firm-year observations. The finding of the study

demonstrate that avoidance is negatively related to managerial and institution ownership structures. Foreign ownership, however, has a positive impact on tax avoidance strategies. On the other hand, according to Armstrong *et al.,* (2015), the tax avoidance approach that results from poor governance control poses the potential risk of a conflict of interest. In terms of the managers' ownership perspective, managers may trigger the diversion of costs in their own personal interest; this influences the firm's value.

A study by Minnick and Noga (2010), which examined the effect of corporate governance on tax management and used 2,339 firm-year observations from 1996 to 2005, shows a significant and negative association between managerial ownership and tax avoidance. Based on the findings, increasing managerial ownership would lead to an increase in ETR.

Chan *et al.,* (2013), explore how ownership and corporate governance influence a firm's tax aggressiveness. Using 6032 firm-year observations drawn from Chinese listed companies and data for 2003–2009, the findings show that a higher percentage of the managerial ownership the more the firms engage in aggressive tax practices. On the other hand, the findings indicate that government-controlled firms have the political goals of protecting government revenue; hence, they are likely to mitigate aggressive tax planning.

Badertscher *et al.,* (2013) investigated whether separation of ownership and control influences the tax practices of private firms with different ownership structures. The study employed a sample of 549 private firms and panel data for 1980 to 2010, which yielded 2628 firm-year observations. The finding of this study reveals that firms with

greater concentrations of ownership and control avoid less income tax than firms with less concentrated ownership and control.

Core and Larcker (2002) also reported that when managers increase ownership levels to firm financial performance improves, part of which may result from additional ETR planning. Taylor and Richardson (2014) claim that tax expertise of the director and performance based remuneration of the executive are positively related to tax avoidance. Additionally, Austin and Wilson (2017) found that managerial ownership incentivizes managers to lead firms to sustainability through good performance.

Sonia and Suparmun (2019) explored the effect of institutional ownership and managerial ownership on tax avoidance. The study considered 61 manufacturing companies listed in the Indonesian Stock Exchange and panel data from 2014 to 2016 and multiple regression. The findings show that institutional ownership significantly and positively influence tax avoidance; however, managerial ownership does not have a significant effect on tax avoidance.

Although Ashbaugh-Skaife*et al.,* (2006) contends that good governance mechanisms contribute to the monitoring of management actions, thus limiting their opportunistic behaviour and protecting the interests of shareholders, Minnick and Noga (2010) report that incentive compensation drives managers to make investments into longer-horizon payouts such as tax management to maximize shareholders wealth.

From the above discussion, it is evident that tax avoidance practices are related to the principal – agent conflict. In particularly, the effect of managerial ownership on tax depends on managerial compensation and the extent of managerial shareholding.

2.5.2 Relationship between Institutional Ownership and Tax Avoidance

The institutional ownership represents the level of shares owned by the institutional investors comprising of insurance institutions, pension funds, investment banks, and others (Murni, Sudarmaji & Sugihyanti, 2016). Institutional ownership plays a critical role in monitoring manager's behaviors. A high institution ownership is associated with effective supervision of management; implying that the agent was more carefully in making decision such as the company's policy related to tax minimization (Thanatawee, 2014). Consequently, institutional ownership will mitigate the company's likelihood of engaging in tax avoidance through effective supervision.

Institutional ownership raises two major concerns on tax avoidance. On one hand, institutional investors are capable of influencing corporate tax avoidance practices in order to gain more profits compared to minority shareholders (Jiang *et al.*,2020). On other hand, since most institutional investors are manager of public fund, tax avoidance may result to negative publicity of institutional investors; hence, institutional investors are unlikely to promote tax-planning behaviors.

Jiang *et al.,* (2020) assessed the link between institutional ownership and tax avoidance strategies. The study employed a sample of 1108 listed Chinese companies from 2009 to 2017. The study found a significantly positive relationship between institutional shareholdings and the degree of enterprise tax avoidance. The authors concluded that an increase in institutional investors' shareholdings is likely to promote corporate tax avoidance. Similarly, a study of Khurana and Moser (2010) which investigated whether institutional ownership affects firm tax aggressiveness and used a sample of 19,029 firm-year observations for 1995-2008, found that firms with higher levels of total institutional ownership are generally more tax aggressiveness. These findings suggests

that increased institutional ownership drives management into tax aggressive in an attempt to maximize firm value in the short-term

However, a stream of studies shows a negative association between institutional ownership and corporate tax avoidance behaviors. Alkurdi and Mardini (2020) analysis the effect of ownership structure and board of directors' composition on the degree of tax avoidance. The sample comprises of all of the Jordanian first market companies listed on the Amman Stock Exchange for 2012 to 2017, which yielded 348 firm-year observations. The study finds that tax avoidance is negatively connected to managerial and institution ownership structures.

In the same view, Bird and Karolyi (2017), who explore ink between corporate tax avoidance and institutional ownership using a regression discontinuity approach that exploits the quasi-random nature of Russell1000/2000 index, concluded that increased institutional ownership leads to a decreases in effective tax rate (ETR) and prioritization of cash over book-tax savings. The study further indicates that a high percentage of institutional ownership may lead to a greater use of international tax planning using tax haven subsidiaries corporations.

Nugroho and Agustia (2018) explores the link between corporate governance, tax avoidance, and firm value. The study considers 92 manufacturing companies listed on the Indonesia Stock Exchange (IDX) and panel data for 2013 to 2016. The study finds that institutional ownership positively influences tax avoidance and independent commissioners have no effect. Additionally, the authors find that independent commissioner and tax avoidance have significant impact on firm value, while tax avoidance does not mediate the institutional ownership relationship to firm value. Jamei (2017) explored the relationship between certain mechanisms of corporate governance

and tax avoidance using a sample of 104 companies listed on the Tehran Stock Exchange for the years 2011-2015. The results of this study show no significant relationship between board size, proportion of non-duty members, institutional ownership and tax avoidance. Additionally, the findings show no significant relationship between managerial ownership and tax avoidance.

2.5.3 Relationship between Government Ownership and Tax Avoidance

While government ownership is expected to mitigate against tax avoidance, recent studies show conflicting results. Mafrolla (2019) assesses whether government-owned firms engage more in tax avoidance compared to wholly privately owned firm. The study employs a sample of Italian listed corporations and data for 2006 to 2011. The findings show that government ownership has a negative effect on corporate effective tax rate. Additionally, the results reveal that government owners avoid taxation largely than private sector owners, even though tax avoidance is detrimental to government revenue.

Chan, Mo and Zhou, (2013) examined the link between government ownership, corporate governance and tax aggressiveness using a sample of all A-share non-financial companies listed in Shanghai and Shenzhen Stock Exchanges for the period 2003 to 2009. The study found that government-controlled firms engaged less in aggressive tax planning as compared to non-government-controlled firms. The study concluded that managers of government-controlled firms are focused to achieving their political objectives of protecting government revenues; therefore, they push their firms to avoid pursuing aggressive tax strategies

2.5.4 Relationship between Foreign Ownership and Tax Avoidance

Foreign ownership denotes the percentage of share shares owned by foreigners to total shares of a company (Nofal, 2020). According to Ahmed and Iwasaki (2015), foreign investors play a critical role in monitoring managerial behaviors. Foreign ownership is usually associated with strong corporate governance standards and protection for better minority shareholders (Ylä-Anttila, Ali-Yrkkö& Nyberg, 2004). Furthermore, Choi, Sul and Min (2012) contend that foreign block shareholders and foreign outside directors offers expertise and independent monitoring over, which is likely to reduce agency costs and increase firm value. In the context of foreign ownership and tax avoidance, extant literature shows conflicting results.

Suranta, Midiastuty and Hasibuan (2020) examined the effect foreign ownership and on tax avoidance. The study used a sample of 53 non-financial companies listed on the Indonesia Stock Exchange in 2012-2016. Tax avoidance was measured by the effective tax rate proxy (ETR), while foreign ownership as the percentage of foreign ownership to the total company's shares. The findings indicate that the greater the foreign ownership the higher the level of tax avoidance.

Alkurdi and Mardini (2020) studied the impact of ownership structure and board of directors' composition on the extent of tax avoidance strategies. The sample consisted of 58 companies drawn from the financial, manufacturing and services sectors listed firm in the Jordanian first market, and data for 2012 to 2017 that yielded 348 firm-year observations. The authors found that tax avoidance was negatively related to managerial and institution ownership, while foreign ownership had a significant and positive effect on a firm's likelihood of engaging in tax avoidance. Xuerui and Tran (2019) also found that foreign ownership pays more franked dividends to meet the

demands of its Australian shareholders, implying that firms with a high proportion of foreign ownership tends to engage less in corporate tax avoidance;

Kusbandiyah (2021) assessed the effect of ownership structure and corporate governance on tax avoidance. The sample was public listed companies in the Indonesia Stock Exchange and data for the period of 2012-2017. The findings of this study reveal that foreign ownership, family ownership and independent directors had no significant influence tax avoidance.

2.5.5 The moderating role of audit quality on the relationship between ownership structure and tax avoidance

The quality of a firm's corporate governance mechanisms is widely cited as a channel that reduces tax-planning activities. According to Kim, Li and Zhang (2011) tax avoidance reduces stock crash risk in firms with strong corporate governance systems. In the same line of argument, Armstrong *et al.,* (2015), who studied the relationship between corporate governance, managerial incentives, and corporate tax avoidance report that agency problems can prompts managers to over-indulge in tax avoidance. The authors further report that the quality of corporate governance reduces the possibility of tax avoidance.

Previous studies have linked audit quality with tax avoidance. A study by Lestari &Nadya (2019) examined the effect of audit quality on tax avoidance and found a negative effect. The study concluded that when external auditors are rigorous firms will less likely be involve in tax avoidance. Previous literature indicates that forms of ownership significantly affects tax avoidance, a study by Gaaya *et al.*,(2017) concluded that audit quality regulates behaviours of owners towards tax avoidance.

Consistent with the agency theory propositions, audit quality is therefore an essential element in reducing agency conflict between managers and the shareholders. Audit quality is a central corporate governance feature that prevents managers' behaviors that are likely to lead to manipulation of financial report or any other related activities; with the ultimate goal being tax avoidance (DeAngelo & Masulis, 1980). From a practical perspective, external auditors are expected to offer an impartial and objective judgment on firm's financial reports. Besides, external auditors gauge whether their clients is engaging in aggressive tax planning; which is risky and easily detectable by tax authority (Guenther, Matsunaga & Williams, 2017).

Extant literature show that high-quality auditors have less incentives to engage in corporate tax avoidance, as they are aware of the undesirable consequences if tax authorities detect aggressive tax planning. These kinds of activities may lead to loss of public reputation and trust (Hanlon &Slemrod, 2009). Donohoe and Knechel (2014) note that firms engaging in tax avoidance may expose external auditors to higher risk and litigation costs. Consequently, this study hypothesis that audit quality moderates the relationship between ownership structure and tax avoidance.

2.6 Control Variables

The study controlled for several control variables to isolate the effect of the explanatory variables on the dependent variable as suggest by extant literature

2.6.1 Firm size and tax avoidance

Prior studies show that large firms are more likely to engage in tax avoidance compared to smaller firms owing to their high economic power compared with smaller firms. A study by Lanis and Richardson (2015), that used a sample of 434 firm-year observations for the period 2003 to 2009, found a positive and significant relationship between firm

size and tax avoidance. Using a sample of 27 Indonesian firms and panel data for 2011–2015, Pratam (2017) companies reported a positive relationship between firm size and tax avoidance. Similarly, using a sample of 2,339 firm year observations from 1996 to 2005, Minnick and Noga (2010) reported that firm size had a positive effect on tax avoidance. In the same line of research, McGuire, Wang Wilson (2014), Ichsani and Susanti (2019) and Rudyanto and Pirzada (2020) shows found a positive relationship between firm size and tax avoidance.

2.6.2 Firm age and tax avoidance

Older firms have broader businesses and the face higher reputational risk compared to younger ones. Firm have a tendency of mitigating risk and will take actions that do not expose them higher risk. Previous research on tax avoidance practices; show a significant link between firm age and tax avoidance. Employing data drawn from 292 companies in the manufacturing, trade and construction sectors listed on the Indonesia Stock Exchange in period 2015-2018, Sadjiarto, Hartanto and Octaviana (2020), reporting a positive relationship between firm age and tax avoidance.

Yahaya and Yusuf (2020) studied the association between firm age and tax avoidance and found a negative association. The study used a sample of 20 listed Nigerian insurance companies between 2010 and 2018. Similarly, Rudyanto and Pirzada (2020) found a negative relationship between firm age and tax avoidance.

2.6.3 Firm Leverage and tax avoidance

Firms that depends more on debt financing than equity financing for their business operations have a high likelihood of using tax deductibility of interest payments to facilitate tax avoidance. A study by Rudyanto and Pirzada, K. (2020), which used 596 firm-year observation show a negative and significant relationship between leverage

and tax avoidance. In addition, Ichsani and Susanti (2019), who used a sample of 19 companies listed in index LQ45 for the period 2012-2016 period, found a negative relationship between leverage and tax avoidance. Using a sample of 61 manufacturing companies listed in the Indonesia Stock Exchange for the period 2014-2016,Sonia and Suparmun, (2019) found positive but insignificant relationship between leverage and tax avoidance. Turyatini (2017) assessed the link between leverage and tax avoidance using a sample of 18 property and real estate companies listed on Indonesia Stock Exchange 2012-2015. The findings of this study show a positive and significant association between leverage and tax avoidance. However, McGuire, Wang Wilson (2014) reported a positive but insignificant relationship.

2.6.4 Firm performance and tax avoidance

A company's ability to generate profits influence it ability to meet tax obligations. Hence, highly profitable companies tend to have higher effective tax rates (Dhamara & Violita, 2018). A study by Rudyanto and Pirzada (2020) shows a positive and significant relationship between firm performance (measured as return on assets) and tax avoidance. Ichsani and Susanti (2019) also found a positive association between profitability and tax avoidance. However, Sonia and Suparmun, (2019) found a negative and significant association between return on asset and tax avoidance. Considering a sample of 292 companies in the manufacturing, trade and construction sectors which were listed on the Indonesia Stock Exchange for the period 2015-2018, Sadjiarto *et al.,* (2020) reported no relationship between a firm's profitability and tax avoidance. Inversely, McGuire, Wang Wilson (2014) also found no significant relationship.

2.7 Conceptual Framework

A conceptual framework is a diagrammatic representation of the relationship that exists among research variable. The relationship between the research variable is depicted in figure 1 below. Tax avoidance is the study's dependent variable. Ownership structure is the independent variable and it is disintegrated into managerial, government, institutional and foreign ownership. Audit quality is the moderating variable and the control variables comprise of firm size, firm age, leverage and performance.

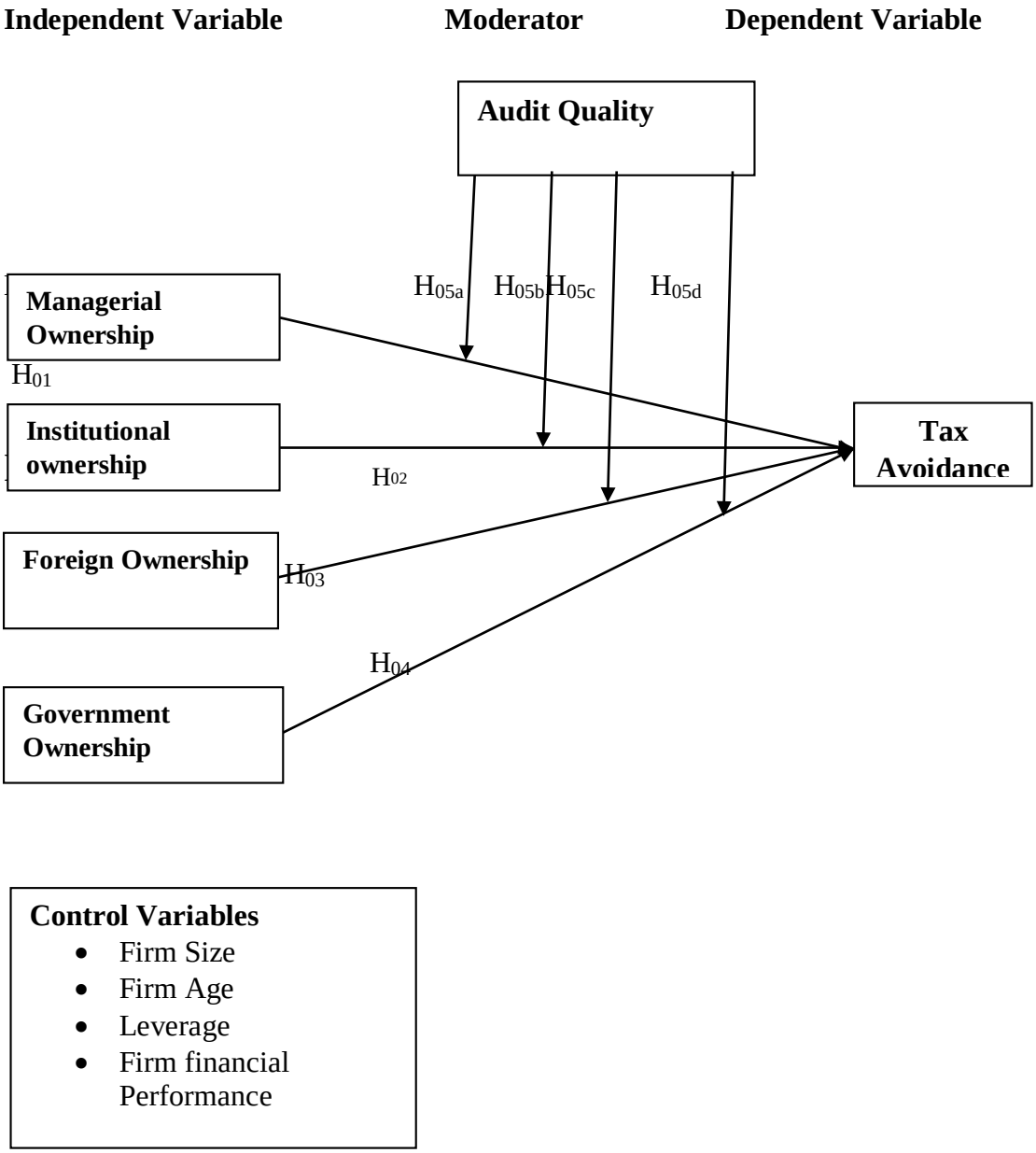

Figure 2.1: Conceptual Framework

Source: Researcher (2021)

CHAPTER THREE

METHODOLOGY

3.0 Overview

This chapter gives an overview of the research design, target population and sample, research model, measurement of variables, data collection and analysis.

3.1 Research Design

Research design refers to the overall strategy that the researcher chooses to integrate the different components of the study in a coherent and logical way, thereby, ensuring they effectively address the research problem. It constitutes the blueprint for the measuring, collecting, and analyzing and interpreting of data (Kothari, 2014). The choice of a research design was informed by the nature of the research problem and the nature of the data. This study adopted three research designs; descriptive, explanatory and longitudinal. According to Blumberg, Cooper and Schindler (2005) a descriptive study is one that purposes to provide a picture of a situation, person or event or show how things are related to each other and as it naturally occurs. Saunders, Lewis and Thornhill (2009) argue that exploratory research design is conducted "when enough is not known about a phenomenon and a problem that has not been clearly defined". Therefore, an explanatory research is used to answer cause-effect relationships so as provide evidence to support or refute an explanation or prediction. Explanatory design also uses secondary sources, such as published literature or data (Mackey & Gass, 2015).

A longitudinal design is primarily defined by the element of time as the emphasis is on data collected at different time points, generally from the same participants (Cockcroft, Goldschagg, &Seabi, 2019). The applicability of this design is informed by the nature

of data to be used to tested hypotheses. Specifically, data was be for the period 2011 to 2020

3.2 Target Population

The target population refers to the group of people or study subjects who are similar in one or more ways and which forms the subject of the study in a particular survey (Orodho, 2003). The target population for this study was all the 62 listed firms listed in the NSE for the period 2011-2020.

3.3 Inclusion/Exclusion criteria

The inclusion and exclusion criteria of the firm was based on the availability of complete data from the and whether the individual firm was in operation throughout the study period. This ensured completeness and consistency of the data for analysis of and ultimately making inferences.

3.4 Data Type, Source and Collection Procedure

Data collection is an integral part of research process. Al-Najran and Dahanayake (2015) defines data collection as "the process of gathering andmeasuring information on variables of interest, in an established systematic fashion that enablesone to answer stated research questions, test hypotheses, and evaluate outcome." Since all the variables are quantitative, equated in monetary terms and reported in annual reports, the data was secondary and quantitative data in nature and was extracted from the annual published reports of the individual firms.

The data collection process was guided by a data collection schedule to ensure that only relevant information is captured and proper data transformations are made.

3.5 Measurement of Variables

This section discusses the measurements of the research variables:tax avoidance, managerial ownership, institutional ownership, government ownership, foreign ownership, audit quality and the controls.The summary is presented in Table 3.1.

Table 3.1: Data Measurements

Type	Variable	Measurement	Source
Dependent variable	Tax avoidance	✓ effective tax rate (ETRs)	Drake, Lusch, & Stekelberg (2019); Cabello, Gaio, & Watrin (2019)
Independent variable	Managerial ownership	✓ the percentage of the firm's equity held by the manager	Hu, & Zhou (2008)
Independent variable	Institutional ownership	✓ the percentage of shares held by institutional investors (such as banks, mutual funds, corporations and so on) over the total shares outstanding.	Dana (2015)
Independent variable	Foreign ownership	✓ By the ratio of shares owned by foreigners to total shares.	Nofal(2020)
Independent variable	Government ownership	✓ the percentage of the equity of a firm owned by the government	Tu, Zheng, Li & Lin (2021).
Moderating variable	Audit quality	✓ by the natural logarithm of frequency of big 4	Gaaya, Lakhal & Lakhal (2017)
Control variables	Firm age	✓ Natural logarithm of the number of years since the firm was founded	Kieschnick & Moussawi (2018)
	Firm size	✓ Natural logarithm of firm’s total assets	Kartikasari & Merianti (2016)
	Firm performance	✓ The return on assets (ROA)	Badriyah, Sari & Basri (2015) ;Githaiga (2020)
	Firm leverage	✓ The ratio of debt to total assets	Sanan (2019)

3.6 Model Specification

3.6.1 General Equation

The study considered several relationship. First, the study examined the effect of the control variables on the dependent variable. Second, the effect of the explanatory variables on the dependent variable. Finally, the moderating effect of audit quality. Therefore, the hypotheses were tested using a set ofhierarchical multipleregression models. The following regression models were used:

$$Yit = \beta_0 + \beta_1 X_{it} + \beta_2 M_{it} + \beta_3 XM_{it} + \varepsilon_{it}$$

Where,

Y_{it}= the dependent variable

X_{it}= the independent variable

M_{it}= the moderator

XM = the interaction term

β= the beta coefficient

ε_{it}= error term

3.6.2 Testing for Direct Effect

The study began by testing the effect of the control variables on the dependent variable. Afterward, all the independent variables were added into the model. The two estimation equations are illustrated as follows;

Model 1. Testing the effect of the control variables on the dependent variable

$$TA_{it} = \beta_0 + \beta_1 FS_{it} + \beta_2 FA_{it} + \beta_3 FLV_{it} + \beta_4 FP_{it} + \varepsilon_{it}$$

Model 2. Testing the effect of the independent variable on dependent variables

$$TA_{it} = \beta_0 + \beta_1 FS_{it} + \beta_2 FA_{it} + \beta_3 FLV_{it} + \beta_4 FP_{it} + \beta_5 MO_{it} + \beta_6 IO_{it} + \beta_7 GO_{it} + \beta_8 FO_{it} + \varepsilon_{it}$$

3.6.3 Testing for moderation

The study adopted the Baron and Kenny (1986) steps and conditions for moderation. First, there must be a relationship to be moderated. Thus, the relationship between the predictor variables and the outcome variable as tested in model 2 must be significant. Second, the moderator must have an effect on the outcome variable. This was tested in model 3. Finally, the effect of interaction term of the predictor and the moderator on the outcome variable must be significant. This was tested using hierarchical multiple regression as shown in models 4,5, 6 and 7. The nature of moderation was tested using Modgraphs. The analytical equations are shown below.

Model 3. Testing the effect of the moderating variable on dependent variables

$$TA_{it} = \beta_0 + \beta_1 FS_{it} + \beta_2 FA_{it} + \beta_3 FLV_{it} + \beta_4 FP_{it} + \beta_5 MO_{it} + \beta_6 IO_{it} + \beta_7 GO_{it} + \beta_8 FO_{it} + \beta_9 AQ_{it} + \varepsilon_{it}$$

Model 4. Testing for moderation- first interaction

$$TA_{it} = \beta_0 + \beta_1 FS_{it} + \beta_2 FA_{it} + \beta_3 FLV_{it} + \beta_4 FP_{it} + \beta_5 MO_{it} + \beta_6 IO_{it} + \beta_7 GO_{it} + \beta_8 FO_{it} + \beta_9 AQ_{it} + \beta_{10} MOXAQ_{it} + \varepsilon_{it}$$

Model 5. Testing for moderation- second interaction

$$TA_{it} = \beta_0 + \beta_1 FS_{it} + \beta_2 FA_{it} + \beta_3 FLV_{it} + \beta_4 FP_{it} + \beta_5 MO_{it} + \beta_6 IO_{it} + \beta_7 GO_{it} + \beta_8 FO_{it} + \beta_9 AQ_{it} + \beta_{10} MOXAQ_{it} + \beta_{11} IOXAQ_{it} + \varepsilon_{it}$$

Model 6. Testing for moderation- third interaction

$$TA_{it} = \beta_0 + \beta_1 FS_{it} + \beta_2 FA_{it} + \beta_3 FLV_{it} + \beta_4 FP_{it} + \beta_5 MO_{it} + \beta_6 IO_{it} + \beta_7 GO_{it} + \beta_8 FO_{it} + \beta_9 AQ_{it} + \beta_{10} MOXAQ_{it} + \beta_{11} IOXAQ_{it} + \beta_{12} GOXAQ_{it} + \varepsilon_{it}$$

Model 7. Testing for moderation- fourth interaction

$$TA_{it} = \beta_0 + \beta_1 FS_{it} + \beta_2 FA_{it} + \beta_3 FLV_{it} + \beta_4 FP_{it} + \beta_5 MO_{it} + \beta_6 IO_{it} + \beta_7 GO_{it} + \beta_8 FO_{it} + \beta_9 AQ_{it} + \beta_{10} MOXAQ_{it} + \beta_{11} IOXAQ_{it} + \beta_{12} GOXAQ_{it} + \beta_{13} FOXAQ_{it} + \varepsilon_{it}$$

Where:

TA= represents tax avoidance

FS=Firm size

FA=Firm age

FLV=Firm leverage

FP=Firm performance

MO = Managerial ownership

IO = Institutional ownership

FO = Foreign ownership

GO = government ownership

AQ= Audit quality

MOxAQ=Interaction of managerial ownership and audit quality

GOxAQ= Interaction of government ownership and audit quality

IOxAQ= Interaction of institutional ownership and audit quality

FOxAQ= Interaction of foreign ownership and audit quality

$\beta 1, \beta 2, \beta 3$ *represents coefficients of the study variables*; ε, *represents the error term*

3.7 Data Analysis

The quantitative data was collected from all listed Kenyan firms. The data was analyzed using both descriptive and inferential statistics with help of STATA Version 13. The descriptive statistics considered the mean, standard deviation, minimum and maximum

values of research variables. While the pairwise correlation analysis and panel data regression were used for inferential analysis.

The study used both the fixed and random effect panel data regression models. Fixed effect regression model assumes that the individual-specific effects are correlated with the independent variables, whereas, random effect assumes that the the unobserved variables are assumed to be uncorrelated with all the observed variables (Park, 2011). The results of the Hausman Test determined the choice between the fixed effect and the random effect for hypotheses testing. Hausman test is premised on two hypotheses; the null hypothesis (H_0) supporting fixed effect and the alternative hypothesis (Ha) favouring the random effect regression model.

3.8 Regression Assumptions and Diagnostic Tests

Several diagnostic tests were performed before regression analyses. The purpose of diagnostic tests is to ensure that the error structure of the model meets the conventional assumptions. Diagnostic tests also assess the reliability and efficiency of the explanatory variables estimates. The regression assumption and panel data diagnostic tests, which were performed, are discussed in the following subsections.

3.8.1 Panel Unit Root Test

The study tested for stationarity because the study used time series data. Time series data is considered stationary if statistical properties, such as mean, variance and covariance, remain constant over time and in any sample of data (Salles*et al.*, 2019). Gujrati (2003) argues that time series must be tested for stationarity in all econometric studies. Non stationary data leads to spurious regression (Pseudo- regression). Unit root test was tested for the variables using Levin-Lin-Chu, (2002) and Breitung (2001). The

null hypothesis for the two test is that the panel are stationary. The problem of unit root is usually cured through first differencing.

3.8.2 Test for Autocorrelation

Autocorrelation also known as serial correlation is an econometric problem that arises whenever two successive error terms in a model are correlated. The study adopted the Woodridge test for autocorrelation. The test is considered suitable since it can be used under general conditions and it is easier to implement. The null hypothesis of the test states that 'there is no first-order autocorrelation' while the alternative hypothesis states that there is autocorrelation.

3.8.3 Test for Heteroscedasticity

Heteroscedasticity is an econometric problem that arises when the error term in the model has no constant variance (Wamono, von Rosen, & Singull, 2021). Econometrics models requires that the error term should have a constant mean and variance. Heteroscedasticity was tested using Breusch-Pagan/Cook-Weisberg test. The null hypothesis of this test is homoscedasticity. Therefore, the p-value of the chi2 should be less than 0.05 for the variance of the error term to be constant.

3.8.4 Multicollinearity

Multicollinearity refers to the linear relationship among two or more predictor variables. A higher degree of association between variables may lead to serious problems with the reliability of the estimates of the model, and in certain situation wrong regression results. This study tested for multicollinearity using the Variance Inflation Factor (VIF). A VIF values that is greater than 10 is an indicator of multicollinearity problem in the data (Alin, 2010). Similarly, multicollinearity was

inspected from the results of pairwise correlation; where it is assumed that a correlation coefficient greater than 0.8 is a sign of multicollinearity.

3.8.5 Linearity

The study used hierarchical regression model. The main assumption of linear regression model is that the relationship between the dependent variable and the explanatory variables must be linear. This premise was tested through scatter plots. Similarly, the research variables were transformed to log-transformed ensure this assumption is not violated.

3.8.6 Normality test

Regression models assume that the residual is normally distributed for valid hypotheses testing. This assumption was tested using Shapiro-Wilk test for normality. The test's null hypothesis is that the data is normally distribution.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents the findings of the research study. Specifically the chapter discusses the results of the diagnostic tests, the descriptive statistics, the correlation analysis and the regression results used for hypotheses testing.

4.2 Descriptive Statistics

Table 4.1 shows the descriptive statistics for all the variables used in the study. The mean ETR was 0.280 mean was 0.119 (minimum= 0.102 and maximum = 0.420; standard deviation = 0.065). The mean value of 28 % implies that listed firms were engaging in relative low levels of tax avoidance considering the corporate tax rate of 30%. The mean management ownership was .122362 (minimum= 0.00and maximum = 0.6997; standard deviation = 0.121). Further, government ownership had a mean of .0739255 (minimum= 0.00 and maximum = 0.893; standard deviation = 0.188). The standard deviation confirms high variability in government ownership among the selected firms. While the mean value of institutional ownership 0.567 (minimum= 0.00 and maximum = 1.00; standard deviation = 0.242). Besides, the average foreign ownership was at 0.2165 (minimum= 0.00and maximum = 0.841; standard deviation 0.236). The standard deviation of 0.236, which is higher than the mean, is an indicator of a wide discrepancy in foreign ownership among listed firms in Kenya. Audit quality had a mean value of 4.116 (minimum= 2.959 and maximum = 5.917; standard deviation = 0.436). Firm age had a mean of 1.760 (minimum= 0.477 and maximum = 2.228; standard deviation = 0.309), the mean firm leverage was .5924703 (minimum= .0291 and maximum = 1.100; standard deviation = 0.223). The mean leverage reveals that East African listed firms prefer debt to equity. The mean firm performance was 0.035

(minimum=-0.891 and maximum = 0.987; standard deviation = 0.151). The minimum and maximum values of firm performance confirm huge performance disparities among the selected firms, with some firms reporting loses while others abnormal profits. The mean firm size was 16.417 (minimum=14.067 and maximum = 17.992; standard deviation = 0.774).

Table 4.1: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ETR	490	.2801834	.0651895	.1021925	.4199618
FA	490	1.760118	.309118	.4771213	2.227887
LEV	490	.5924703	.2220697	.0291509	1.100016
FP	490	.0353028	.1505074	-.8914543	.9874497
FS	490	16.41711	.7739702	14.06734	17.99219
MO	490	.1223625	.120879	0	.6996711
GO	490	.0739255	.1879685	0	.8933448
IO	490	.5672161	.2416531	0	1
FO	490	.2165496	.2357894	0	.841351
AF	490	4.115864	.4364085	2.958564	5.917487

Source: Author 2021

4.3 Robustness Checks

Prior to selecting which panel regression model to use, and to eliminate spurious regression problems some robustness tests were carried out, such as a normality tests, multicollinearity, unit root test, test for heteroscedasticity, autocorrelation test, and specification error test

4.3.1 Normality Tests

The null hypothesis of the Shapiro-Wilk test is that the residuals are normally distributed. The results of the Shapiro Wilk test are shown in Table 4.4. Since the ρ-value (0.103) is larger than 0.05, the hypothesis of normality cannot be rejected.

Table 4.2: Shapiro Wilk Normality Test

Shapiro-Wilk W test for normal data					
Variable	Obs	W	V	z	Prob>z
res	490	0.97064	1.337	1.261	0.10363

Source: Researcher, 2021

4.3.2 Multicollinearity

Multicollinearity means that two or more of the independent variables are highly correlated. The study used the Variance inflation factor (VIF) to test for multicollinearity. Multicollinearity is present if the VIF value is higher than 10 (Gujarati, 2012). The results of the VIF test are shown in Table 4.5. The values range between 1.05 and 1.90; which, are less than 10, implying the research variables do not suffer from multicollinearity.

Table 4. 3: Multicollinearity

Variable	VIF	1/VIF
IO	1.90	0.526190
FO	1.63	0.612503
GO	1.49	0.673116
FS	1.20	0.833435
AF	1.16	0.859878
LEV	1.12	0.892242
MO	1.11	0.899976
FA	1.08	0.923630
FP	1.05	0.952852
Mean VIF	1.31	

Source: Researcher 2021

4.3.3 Unit root test

Non-stationary data refers to a data series that does not have a constant mean, variance, and auto-covariance at various lags over time. Testing for stationarity means that the

mean and variance of variables are time-invariant. This study used Levin- Lin Chu and Harris-Tzavalis unit-root. The two tests have the following hypotheses;

Null hypothesis (Ho): Panel data contains unit root [non-stationary].

The alternative hypothesis (Ha): Panel data is stationary.

The results presented in Table 4.6, the null hypothesis can be rejected at all conventional significance levels for all the study variables, which means that there is no unit root in our data.

Table 4.4: Results of unit root test

	Levin-Lin-Chu	**Harris-Tzavalis unit-root**
ETR	-8.49	-17.04
value	0.00	0.00
MO	-10.07	-9.72
p value	0.00	0.04
GO	-15.42	-6.86
p value	0.00	0.00
IO	-8.20	-7.35
p value	0.00	0.02
FO	-3.40	-10.28
pvalue	0.00	0.00
AQ	-0.063	-8.89
pvalue	0.00	0.00
FS	-7.91	-12.88
p value	0.00	0.00
FA	-7.92	-18.08
p value	0.02	0.00
LEV	-9.87	-9.62
p value	0.00	0.05
FP	-44.48	-17.99
p value	0.00	0.02

Source: Researcher 2021

4.3.4 Test for Heteroskedasticity

The Breusch-Pagan/ Cook-Weisberg test was used to test for heteroskedasticity, and the results are presented in Table 4.7. The findings indicate that the Chi2 (1) value is

2.43 *and ρ-value of 0.1194 implying* that the null hypothesis cannot rejected. Thus, the assumption of constant variance was not violated.

Table 4.5: Breusch-Pagan / Cook-Weisberg Test for Heteroscedasticity

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of ETR
chi2(1) = 2.43
Prob > chi2 = 0.1194

4.3.5 Autocorrelation Test

The study used the Wooldridge to test for autocorrelation. The test's results presented in Table 4.10 indicate that the null hypothesis cannot be rejected at a 5% significance level. Therefore, there is no autocorrelation in the panel data.

Table 4.6: Wooldridge test for autocorrelation in panel data

Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F(1, 48) = 2.751
Prob > F = 0.1037

Source: Researcher 2021

4.3.6 Specification Error Test

The results of the Ramsey RESET test are presented in table 4.11. From the findings in the table, the p-value of the Ramsey RESET test are more than the threshold value of 0.05; implying that the model has no omitted variables.

Table 4.7: Ramsey RESET (test using powers of the fitted values of FP)

Ramsey	RESET test using powers of the fitted values of ETR

Ho: model has no omitted variables

F(3, 478) = 0.72

Prob > F = 0.5417

Source: Researcher 2021

4.4 Correlation Analysis

The purpose of correlation is to determine the nature and magnitude of the relationship between research variables. The pairwise correlation coefficients are shown in Table 4.12. The table show that managerial ownership is negatively correlated with ETR (r= *-0.195; ρ< 0.05*). The table further shows that government ownership and ETR are negatively correlated (r = *-0.1039; ρ< 0.*05). Also, the correlation results indicated that institutional ownership and ETR have a negative correlation (r = *-0.149; ρ< 0.05*). The association between foreign ownership and ETR is positive and significant (r = *0.2035; ρ< 0.05*).The audit quality and ETR correlation is negative (r = *-0.265; ρ< 0.05*). The matrix further indicate a positive correlation between ETR and firm age (r = *0.111; ρ< 0.05*), ETR and leverage (r = *0.110; ρ< 0.05*). However, the relationship between ETR and firm performance(r = *-0.157; ρ< 0.05*), ETR and firm size (r = *-0.178; ρ< 0.05*) is negative.

Table 4.8: Results of Pairwise Correlation Analysis

	ETR	FA	LEV	FP	FS	MO	GO	IO	FO	AF
ETR	1.0000									
FA	0.1119*	1.0000								
LEV	0.1095*	-0.0852	1.0000							
FP	-0.1566*	0.0456	-0.1523*	1.0000						
FS	-0.1797*	-0.1147*	0.1391*	0.0130	1.0000					
MO	-0.1952*	-0.0843	-0.1297*	0.1248*	-0.1361*	1.0000				
GO	-0.1039*	-0.0305	-0.0081	-0.0051	0.1324*	-0.0552	1.0000			
IO	-0.1493*	0.0168	0.1691*	-0.0192	-0.1284*	0.1301*	-0.3702*	1.0000		
FO	0.2035*	0.1048*	-0.0918*	-0.0458	0.0309	-0.1095*	-0.2067*	-0.4619*	1.0000	
AF	-0.2645*	-0.0979*	0.1839*	-0.0419	0.2470*	0.0845	-0.0107	0.1952*	-0.1272*	1.0000

*p<0.05

Source: Researcher 2021

4.5 Testing the Effect of the Control Variables

Before investigating the effect of the predictor variables on the outcome variable, the study examined the impact of the control variables; firm size, firm age, firm performance and leverage on ETR. The results of the Hausman test (*chi2 (4) = 4.28 and Prob >chi2= 0.3698> 0.05*), as shown in Appendix I, supported the use of the fixed-effect regression model to interpret the relationship between the controls and the outcome variable. Table 4.13 shows that firm size had a significantly negative effect on ETR (β*= -0.018,* ρ*<0.05*). The findings are consistent with those of Richardson and Lanis (2007) however; they contradict Panda and Nanda (2020) who reported a positive relationship. The findings suggest that large firms have lower ETRs compared to smaller ones because they have substantial resources to influence tax regimes in their favor and have proper tax planning to achieve optimal tax savings. In contrast, firm age had a significantly positive effect on ETR (β*= 0.041,* ρ*<0.05*), the results are supported by Alkurdi and Mardini (2020). The results conflict with Khemraj and Pasha (2009) who found a positive but insignificant effect among Guyana commercial banks. The results suggest that older firms are unlikely to engage in tax avoidance. The effect of

leverage on ETR was positive and significant ($\beta= 0.034, \rho<0.05$) which is consistent with Chen, Chen, Cheng and Shevlin (2010) but contradict Liu and Cao (2007). The positive association is because firms with higher marginal ETR may borrow more money to obtain a tax-shield benefit. The effect of performance on ETR was negative and significant (($\beta=- 0.078, \rho<0.05$). Similar findings were reported by Derashid and Zhang (2003) and Noor *et al.,* (2010) who found negative relation between profitability and ETR. However, Panda and Nanda (2020) reported a positive relationship. This means that high profitable firms are subject to get more tax advantages and/or are able to undertake efficient tax management.

Table 4.9: Regression results for control variables and the outcome variable

Random-effects regression	GLS	Number of obs	=	490		
Group variable: ID		Number of groups	=	49		
R-sq: within = 0.1153		Obs per group: min	=	10		
between = 0.0623		Avg	=	10.0		
overall = 0.0861		Max	=	10		
		Wald chi2(4)	=	55.92		
corr(u_i, X) = 0 (assumed)		Prob > chi2	=	0.0000		
ETR	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
FS	-.0181861	.0047712	-3.81	0.000	-.0275374	-.0088348
FA	.0408486	.0131624	3.10	0.002	.0150507	.0666465
LEV	.0339702	.0157288	2.16	0.031	.0031422	.0647981
ROA	-.0784893	.0189177	-4.15	0.000	-.1155674	-.0414112
_cons	.4661276	.0919188	5.07	0.000	.28597	.6462852
sigma_u	.03083439					
sigma_e	.05487516					
Rho	.23996702	(fraction of variance due to u_i)				

Source: Researcher 2021

4.6 Testing the Direct Effect

The study had four direct hypotheses that were tested by regressing the outcome variable (ETR) against all the explanatory variables managerial ownership, government

ownership, institutional ownership and foreign ownership) as well as the controls. The study performed both the fixed effect (FE) and the random effect (RE) regression and the results of the Hausman test (Chi2 (8) =65.32; p=0.000) shown in appendix III supported the use of FE to test the direct hypotheses. The regression results for the FE are shown. The fixed-effect panel data analysis model are presented in table 4.15. The findings indicate that ownership structure explains 30.65 % variation in the ETR among listed firms in Kenya. From the table, managerial ownership had a negative and significant effect on ETR (β=- *0.123,* ρ*<0.05*). Specifically, a unit increase in managerial ownership leads to a 0.123 unit decrease in ETR. Moreover, the study found that government ownership had a negative and significant effect on ETR (β= *-0.210,* ρ*<0.05*). The findings suggest that a 1% increase in government ownership leads to a 21.0 % decrease in ETR. Besides, institutional ownership had a negative and significant effect on non-performing loans (β= *-0.117,* ρ*<0.05*); implying, that a unit increase in institutional led to a 0.117 unit decrease in ETR. Additionally, the results showed that foreign ownership significantly and positively affects ETR (β= *0.261,* ρ*<0.05*). Specifically, a unit increase in foreign ownership a 0.261 unit increase in ETR.

Table 4.10: Regression of Results of ETR on Ownership Structure - Fixed Effect

Fixed-effects (within) regression	Number of obs	=	490
Group variable: ID	Number of groups	=	49
R-sq: within = 0.3065	Obs per group: min	=	10
between = 0.1125	avg	=	10.0
overall = 0.1016	max	=	10
	F(8,433)	=	23.92
corr(u_i, Xb) = -0.8759	Prob > F	=	0.0000

ETR	Coef.	Std. Err.	T	P>t	[95% Conf.	Interval]
FS	-.0161645	.0055147	-2.93	0.004	-.0270033	-.0053256
FA	.0500379	.0155444	3.22	0.001	.019486	.0805897
LEV	.0253479	.0168709	1.50	0.134	-.0078112	.058507
FP	-.0648006	.0177886	-3.64	0.000	-.0997633	-.0298379
MO	-.1231729	.0319879	-3.85	0.000	-.1860437	-.0603022
GO	-.2101589	.0569097	-3.69	0.000	-.3220125	-.0983054
IO	-.1172385	.0281017	-4.17	0.000	-.1724712	-.0620058
FO	.2609762	.0399619	6.53	0.000	.1824326	.3395197
_cons	.4567265	.1078612	4.23	0.000	.2447298	.6687232
sigma_u	.08644376					
sigma_e	.04881516					
Rho	.75821279	(fraction of variance due to u_i)				

F test that all u_i=0: F(48, 433) = 6.05 Prob > F = 0.0000

Source: Researcher 2021

4.7 Testing Direct Hypotheses

The study had four null hypotheses that sought to determine the effect of ownership structure on ETR.

The first null hypothesis (H_{01}) stated that: *managerial ownership has no significant effect on tax avoidance among listed firms in Kenya*.

The findings in Table 4.14 confirm that the effect of managerial ownership on ETR was significantly negative ($\beta 1 = -0.123$ *and* ρ*-value*<0.05); therefore, null hypothesis (H_{01}) was rejected. Similar findings were reported in previous studies (Alkurdi & Mardini, 2020; Minnick &Noga, 2010). However, Badertscher *et al.*, (2013) reported a positive but insignificant relationship. The finding suggests that by increasing managerial ownership managers become less entrenched and more concerned about the firm and

its reputation. For instance, manager will avoid unethical practices such as tax avoidance, which may expose the firm to penalties or litigations by tax authorities. Therefore, managerial ownership aligns managerial interests with those of the shareholders; thus, reduces principal-agent conflict.

The second null hypothesis (H_{02}) stated that; *government ownership has no significant effect on tax avoidance among listed firms in Kenya*. .

The findings in Table 4.14 indicate that government had a negative and significant impact on ETR ($\beta 2 = -0.210, \rho < 0.05$); hence H_{02} was rejected. Similar findings were reported by Mafrolla (2019) and Zhang and Han (2008). One possible explanation for this is that the government owner is just an "ordinary shareholder" but also a tax collector. The state is the direct tax collector of corporate income taxes hence will ensure that firms pay as much taxes as possible. However, nongovernment owners (managerial, institutional and foreign ownership) will avoid as much tax as possible to maximize shareholders return. Inversely, government owned firms face less risk of tax audits, which makes these companies more aggressive in tax planning, resulting in decreased tax transparency and potential bankruptcies.

The third hypothesis (H_{03}) stated that; *institutional ownership has no significant effect on tax avoidance among listed firms in Kenya*.

The regression results in Table 4.14 illustrate that institutional ownership is negatively and significantly related with ETR ($\beta 3 = -0.117, \rho < 0.05$); thus H_{03} is rejected. The findings are consistent with those reported by Ying, Wright and Huang (2017) among Chinese listed firms. The results can be attributed by effective monitoring arising from institutional ownership that reduces agency conflict; thus, reduce tax avoidance practices. Therefore, a high percentage of institutional shareholders leads to a reduction in tax avoidance techniques adopted and used by the firm. It can also be argued that

paying more taxes carries with it a good reputation for institutional owners as agents of good corporate governance and as responsible corporate citizens. The findings suggest that institutional investors forego monetary gains arising from avoiding taxes because of the potential costs from tax authorities. Additionally, institutional investors are largely engaged in long-term investments and pay more attention to the long-term profits and value of the enterprise, thus minimizing incentives for the enhancement of corporate tax avoidance. However, the existence of institutional investors with tax planning knowledge in the firm makes tax planning more applicable; hence, an increase in institutional ownership may be a recipe for increased use of tax shelters.

Hypothesis 4(H_{04}) stated that; *foreign ownership has no significant effect on tax avoidance among listed firms in Kenya*.

As illustrated in Table 4.14, the regression output shows that foreign ownership had a positive effect on tax avoidance ($\beta 4 = 0.261$ and $\rho\text{-value} < 0.05$), thus H_{04} was rejected. Similar results were reported by Alkurdi and Mardini, (2020) who studied firms listed on the Amman Stock Exchange; however, Hasan *et al.*,(2016) found a negative association between foreign ownership and tax avoidance. The positive relationship between foreign ownership and ETR implies that the lower the foreign ownership, the lower the tax avoidance and vice versa. Therefore, foreign ownership seems to be less effective in oversighting tax avoidance among listed companies in Kenya. Therefore, the existence of foreign investors impairs the application of good corporate governance among listed firms. Similarly, the local tax structure and policies such as double taxation may force foreign investors to engage in aggressive tax planning in order to reduce their tax liability and maximize profits.

4.8 The Effect of Audit Quality on Tax Avoidance

The study also tested for the effect of audit quality on tax avoidance. The findings show that audit quality has a significantly negative effect on ETR ($\beta = -0.059;\ \rho < 0.05$) similar results were reported by Gaaya *et al.*, (2017) and Marzuki and Al-Amin (2021) among Tunisian listed companies. A study of Lestari and Nedya (2019) that assessed the effect of audit quality on tax avoidance among manufacturing companies listed in Indonesia Stock Exchange (IDX) and data for the period 2012-2017 reported a significantly negative association between audit fee (measure of audit quality) and tax avoidance. The findings of this study suggest that audit quality is important in reducing conflicts of interests between managers and external shareholders. Although, audit quality is a key corporate governance mechanism that deters managers' behaviours associated with earnings manipulation and tax avoidance, the findings of this study associate audit quality with tax avoidance.

Table 4.11: Regression of Tax Avoidance on Audit Quality

Fixed-effects (within) regression	Number of obs	=	490
Group variable: ID	Number of groups	=	49
R-sq: within = 0.3650	Obs per group: min	=	10
between = 0.1433	Avg	=	10.0
overall = 0.1312	Max	=	10
	F(9,432)	=	27.59
corr(u_i, Xb) = -0.8736	Prob > F	=	0.0000

ETR	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
FS	-.0145237	.0052893	-2.75	0.006	-.0249197	-.0041277
FA	.0533839	.0149006	3.58	0.000	.0240971	.0826707
LEV	.0254692	.016162	1.58	0.116	-.0062968	.0572351
ROA	-.0649506	.0170411	-3.81	0.000	-.0984444	-.0314568
MO	-.1097872	.030717	-3.57	0.000	-.1701606	-.0494137
GO	-.1782772	.0547519	-3.26	0.001	-.2858904	-.0706639
IO	-.1069504	.0269702	-3.97	0.000	-.1599595	-.0539413
FO	.2569814	.0382879	6.71	0.000	.1817276	.3322352
AF	-.0593026	.0093978	-6.31	0.000	-.0777737	-.0408314
_cons	.6570361	.1080949	6.08	0.000	.4445788	.8694934
sigma_u	.08701566					
sigma_e	.04676392					
Rho	.77590366	(fraction of variance due to u_i)				

F test that all u_i=0: F(48, 432) = 6.73 Prob > F = 0.0000

4.9 Regression Results for Moderated Effects

In model 4 the dependent variable was regressed against the control variables, the independent variables, moderator and the first interaction (managerial ownership and audit quality). In model 5 the dependent variable was regressed against the control variables, the independent variables, moderator and the first interaction and the second interaction (government ownership and audit quality). In model 6 the dependent variable was regressed against the control variables, the independent variables,

moderator and the first interaction, second interaction and third interaction (institutional ownership and audit quality). In model 7 the dependent variable was regressed against the control variables, the independent variables, moderator and the first, second, third interaction terms and the fourth interaction (foreign ownership and audit quality).

The moderation hypotheses were tested using the results of fixed-effect regression, as supported by the results of Hausman test because the Chi2 (13) = 83.60; Prob>chi2= 0.000 <0.05 for model as shown in the final pooled regression model table 4.19. The regression results presented in model show an R-squared = 0.4107 F (13,428) = 22.95.

H_{05a} stated that; audit quality does not moderate the relationship between managerial ownership and tax avoidance among listed firms in Kenya. Furthermore, the beta coefficients of the interaction term, as shown in model 7 was $\beta = -0.118$ $p < 0.05$, therefore, the null hypothesis was rejected. The modgraph illustrated below figure 4.1 suggests that the high audit quality lower any negative effect of managerial ownership on tax avoidance. Specifically, tax avoidance is low with high audit quality and high managerial ownership.

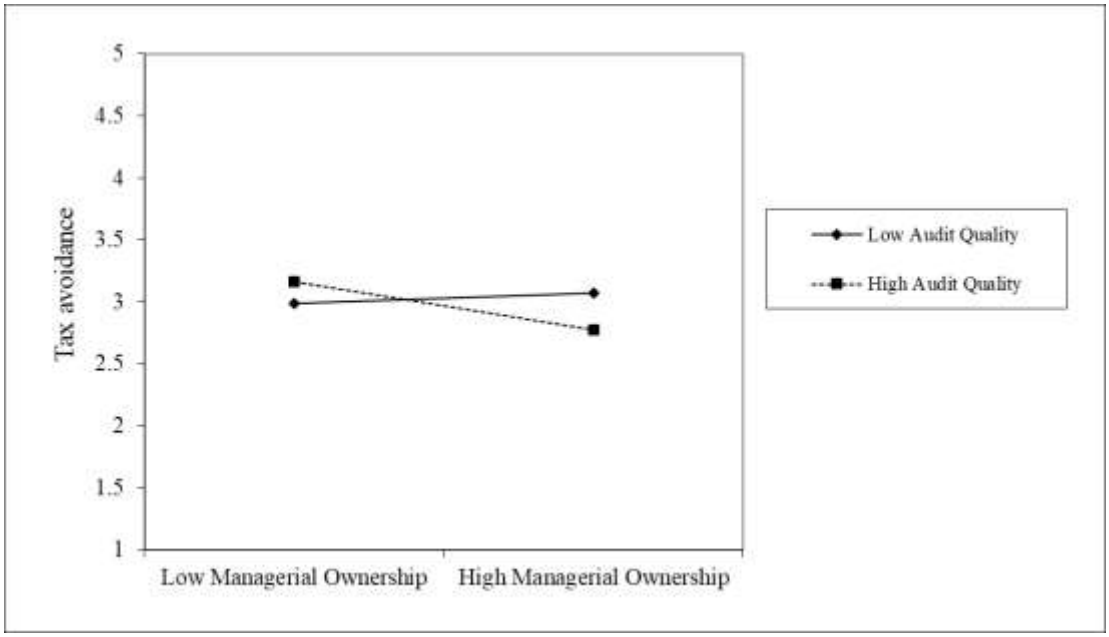

Figure 4.1: Modgraph. Moderating effect of audit quality on the relationship between managerial ownership and tax avoidance

H_{05b} stated that; audit quality does not moderate the relationship between government ownership and tax avoidance among listed firms in Kenya. Furthermore, the beta coefficients of the interaction term, as shown in model 7, was β= -0.132 p-value 0.029 < 0.05, therefore, the null hypothesis was rejected. The modgraph shown in figure 4.2below suggest that in the presence of low audit quality and high government ownership leads to low tax avoidance. The results can be explain by the dual role of the government as an investor and tax collector. The government will strive to maximize collection of corporate taxes. However, government manager may collude with tax expert to extract personal benefits through tax planning. In addition, entities with high government suffer from severe principal-agent conflict and credibility of financial reporting information.

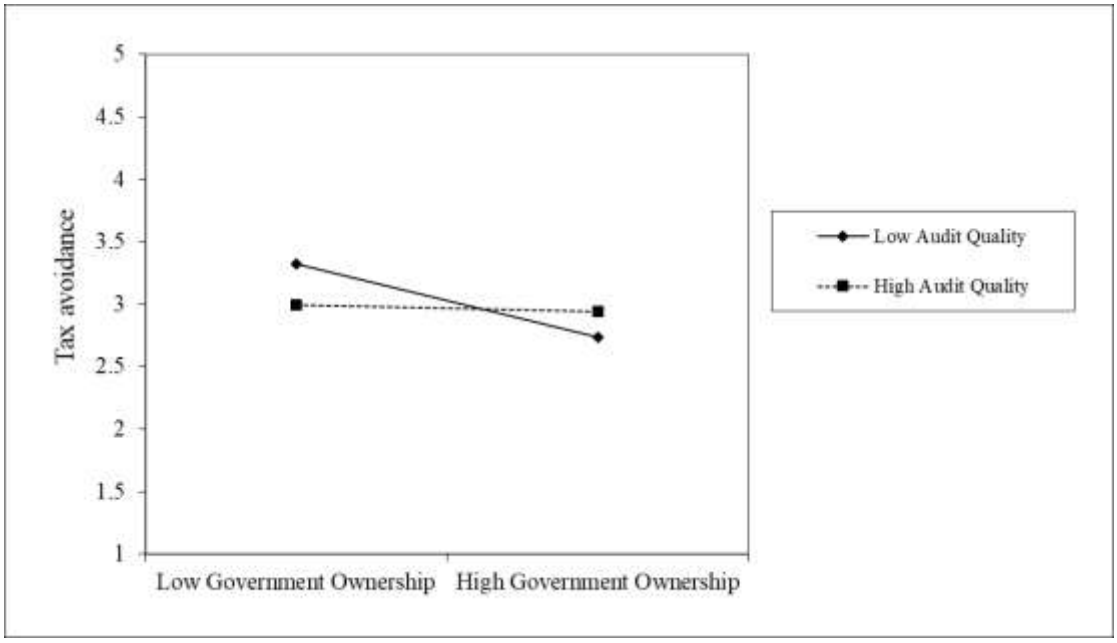

Figure 4. 2: Modgraph. Moderating effect of audit quality on the relationship between government ownership and tax avoidance

H_{05c} stated that; audit quality does not moderate the relationship between institutional ownership and tax avoidance among listed firms in Kenya. Furthermore, the beta coefficients of the interaction term, as shown in model 7, was $\beta = -0.073$ $p < 0.05$, therefore, the null hypothesis was rejected. Based on the modgraph show in figure 4.3 below, tax avoidance is low in the presence of high audit quality and high institutional ownership. The results can be attributed to the effectiveness of institutional investors in monitoring managerial behaviours and the importance of audit independence in financial reporting.

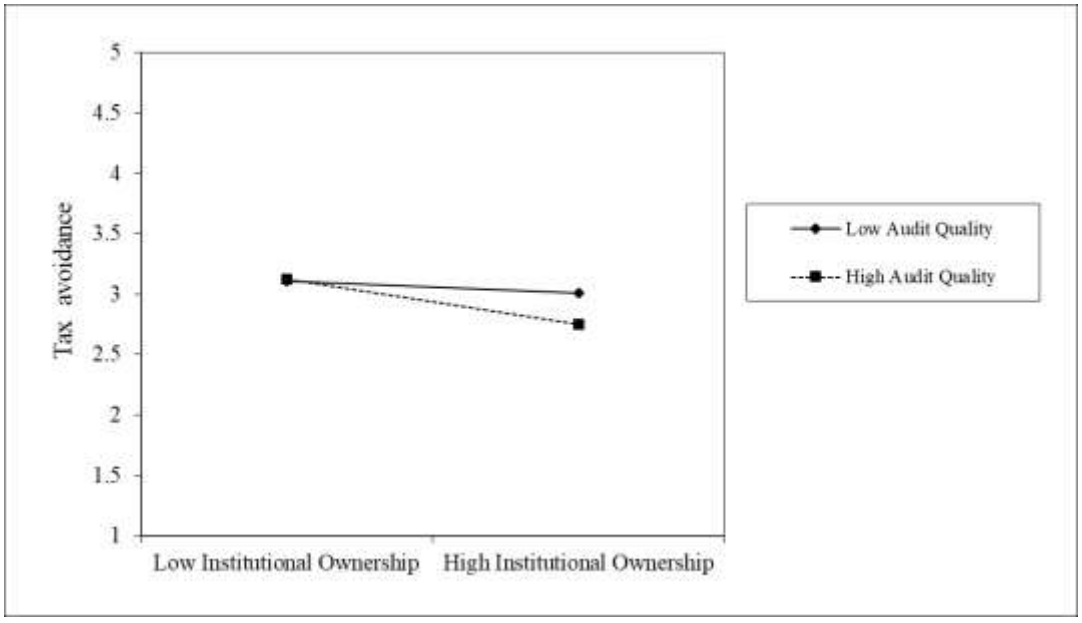

Figure 4.3: Modgraph. Moderating effect of audit quality on the relationship between institutional ownership and tax avoidance

H_{05d} stated that; audit quality does not moderate the relationship between foreign ownership and tax avoidance among listed firms in Kenya. Furthermore, the beta coefficients of the interaction term, as shown in model 4, was $\beta = 0.197$ $p < 0.05$, therefore, the null hypothesis was rejected. The modgraph figure 4.4 shown below suggests that tax avoidance was minimal at low level of foreign ownership and high audit quality and vice versa. Based on these findings, there is need for increased audit quality in firms with a high proportion of foreign ownership to deter tax avoidance practices. Some of the strategies would include prohibiting certain non-audit services (NAS), rotation of auditors and limiting the audit firm tenure.

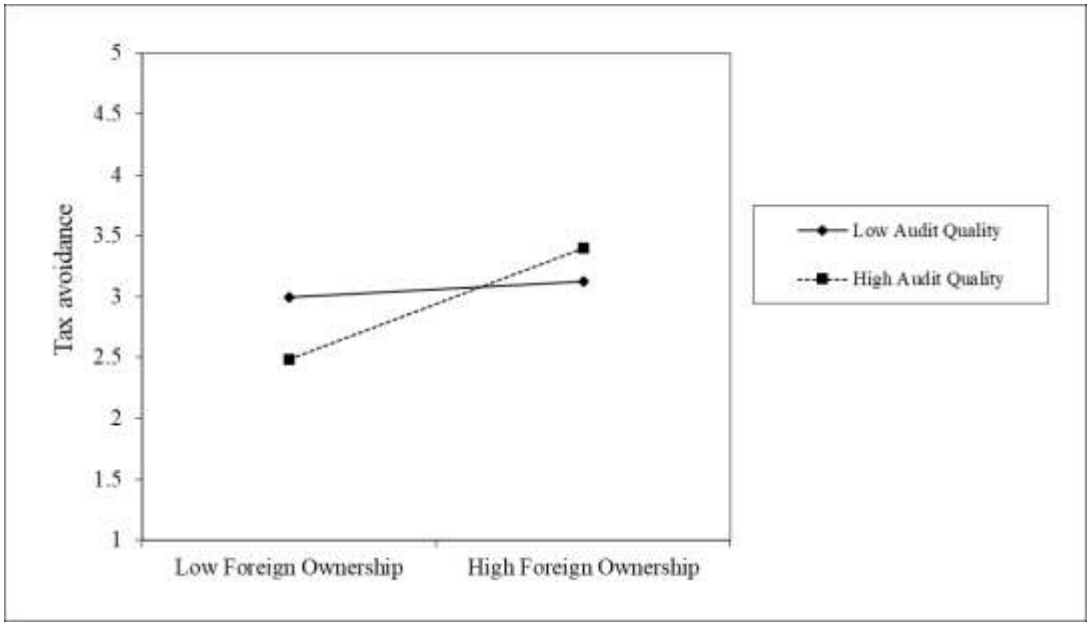

Figure 4.4: Modgraph. Moderating effect of audit quality on the relationship between foreign ownership and tax avoidance

Table 4.12: Regression Results

	Model 1 Coef. (Std. Err.)	**Model 2 Coef. (Std. Err.)**	**Model 3 Coef. (Std. Err.)**	**Model 4 Coef. (Std. Err.)**	**Model 5 Coef. (Std. Err.)**	**Model 6 Coef. (Std. Err.)**	**Model 7 Coef. (Std. Err.)**
_cons	0.466(0.092)**	0.457(0.108)**	0.657(0.108)	0.607(0.091)**	0.522(0.110)**	0.515(0.109)**	0.494(0.109)**
Firm size (FS)	-0.018 (0.005)**	-0.016 (0.006)**	-0.015(0.005)**	-0.015(0.005)**	-0.012(0.005)**	-0.013(0.005)**	-0.013(0.005)**
Firm age (FA)	0.041(0.013)**	0.050(0.016)**	0.053(0.015)**	0.037(0.012)**	0.060(0.015)**	0.062(0.015)**	0.058(0.015)**
Firm leverage	0.034(0.016)**	0.025(0.017)**	0.025(0.016)	0.044(0.015	0.031(0.016	0.029(0.016)*	0.025 (0.016)*
Firm performance	-0.078(0.019)**	-0.065(0.018)**	-0.065(0.017)**	-0.064(0.017)**	-0.050(0.017)**	-0.050(0.017)**-	0.049 (0.017)**
Managerial Ownership		-0.123(0.032)**	-0.110(0.031)**	-0.074(0.027)**	-0.085(0.030)**	-0.083 (0.030)**	-0.076 (0.03)**
Government Ownership		-0.210 (0.057)**	-0.178(0.05)*	-0.079(0.028)**	-0.140(0.054)**	-0.145 (0.054)**	-0.158(0.054)*
Institutional Ownership		-0.117 (0.028)**	-0.107(0.027)**	-0.076(0.020)**	-0.120(0.027)**	-0.110 (0.027)**	-0.103 (0.027)
Foreign Ownership		0.261(0.040)**	0.257(0.038)	0.251(0.022)**	0.253(0.037)**	0.256(0.037)**	0.257(0.037)**
Audit Quality			-0.059(0.009)**	-0.033(0.009)**	-0.040(0.010)**	-0.037(0.010)	-0.030(0.010)
MO*AQ				-0.199(0.049)**	-0.144(0.051)**	-0.134(0.051)**	-0.118(0.051)**
GO*AQ					-0.189(0.061)**	-0.171(0.061)**	0.133(0.063)**
IO*AQ						-0.070(0.035)**	-0.073(0.035)**
FO*AQ							0.197(0.078)**
R-square	0.115	0.307	0.365	0.383	0.397	0.402	0.411
R-square change	-	0.192	0.058	0.018	0.014	.005	.009
Hausman Test							
chi2	4.24	65.23	122.98	48.19	100.57	94.84	83.60
Prob>chi2	0.37	0.000	.000	0.000	0.000	0.000	0.000

***significant at 0.05 level; Figures in parenthesis are t –statistics; Source: Research Data (2021)*

Table 4.13: Summary Results of Hypotheses Tests

Hypotheses	β	P<5%	Decision
H_{01}: Managerial ownership has no significant effect on tax avoidance	-0.123	0.000	Rejected
H_{02}: Government ownership has no significant effect on tax avoidance	-0.210	0.000	Rejected
H_{03}: Institutional ownership has no significant effect on tax avoidance	-0.117	0.000	Rejected
H_{04}: Foreign ownership has no significant effect on tax avoidance	0.261	0.000	Rejected
H_{05a}:Audit quality does not significantly moderate the relationship between managerial ownership and tax avoidance	-0.118	0.000	Rejected
H_{05b}: Audit quality does not significantly moderate the relationship between government ownership and tax avoidance	0.133	0.000	Rejected
H_{05c}: Audit quality does not significantly moderate the relationship between institutional ownership and tax avoidance	-0.073	0.000	Rejected
H_{05d}: Audit quality does not significantly moderate the relationship between foreign ownership and tax avoidance	0.197	0.000	Rejected

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the summary of the findings, the conclusion, recommendations, limitations of the study and areas for further research.

5.1 Summary of Findings

The general objective of the study was to determine whether audit quality moderates the relationship between ownership structure and tax avoidance among listed firms in Kenya. The study found that audit quality significantly moderates the relationship between ownership structure and tax avoidance.

5.1.1 Effect of managerial ownership on tax avoidance

The first specific objective to determine the effect of ownership structure on tax avoidance among listed firms in Kenya. The results showed a significantly negative relationship between managerial ownership and tax avoidance (β = -0.123 ρ<0.05). Therefore, high managerial ownership reduces managerial entrenchment hence less tax avoidance practices.

5.1.2 Effect of Government Ownership on Tax Avoidance.

The second objective sought to assess the effect of government ownership on tax avoidance among listed firms in Kenya. The study found that a negative and significant relationship between government ownership and tax avoidance (β = -0.210, ρ< 0.05); implying that firms with high level of government ownership are less likely to engage in tax planning.

5.1.3 Effect of Institutional Ownership on Tax Avoidance

The third objective sought to examine the effect of institutional ownership on tax avoidance among listed firms in Kenya. The findings show a negative and significant relationship between institutional ownership and tax avoidance (β= -0.117, ρ <0.05).The results a high level of institutional ownership leads to effective monitoring of tax avoidance practices.

5.1.4 Effect of Foreign Ownership on Tax Avoidance

The fourth objective was to evaluate the effect of foreign ownership on tax avoidance among listed firms in Kenya. The study found a significantly positive relationship between foreign ownership and tax avoidance (β= 0.261; ρ <0.05), implying that a low proportion of foreign ownership will lead lower level of tax avoidance

5.2 Effect of Audit Quality on Tax Avoidance

The main objective was to establish whether audit quality moderates the ownership and tax avoidance relationship. Therefore, the audit quality and tax avoidance relationship was analyzed and findings showed that audit quality is significantly and negatively related to tax avoidance (β= -0.059; ρ <0.05).

5.2.1 The moderating effect of audit quality on the relationship between ownership structure and Tax Avoidance.

The study tested for moderation through hierarchical multiple regression. The findings showed that audit quality significantly moderate the relationship between; managerial ownership (β = -0.118, ρ< 0.05); government ownership (β = 0.132, ρ< 0.05), institutional ownership (β = -0.073, ρ< 0.05), foreign ownership (β = 0.197, ρ< 0.05) and tax avoidance

5.3 Conclusion

The study sought to determine the moderating effect of audit quality on the relationship between ownership structure and tax avoidance. To test the relationship a sample of 49 listed firms in Kenya and data for the period 2011 to 2020 was used. The findings show that ownership structure is a significant determinant of tax avoidance and that audit quality moderates the relationship. The study concludes that listed firms should consider ownership structure that constraint unethical practices related to tax avoidance. Specifically, there should be more of managerial, institutional and government ownership of equity. Additionally, there is need for reduced foreign ownership

5.4 Recommendations/ Implications

The findings of this study have policy, managerial and theoretical implications.

5.4.1 Managerial implication

The findings imply that firm with a high proportion of managerial s have less incentive to avoid taxes. In line with these findings, the study recommends that; to reduce the level of principal–agent conflict, and to enhance tax planning and monitoring of management activities, East African listed firms should encourage managerial ownership to agency conflicts associated with aggressive tax planning. In addition, institutional ownership and government ownership mitigates against tax avoidance. Hence, companies should encourage both government and institutional shareholding, which may improve monitoring against unethical and opportunist managerial behaviours. Since audit quality deters tax avoidance, external auditors should consider the importance of audit services in mitigating against tax avoidance practices among listed firms.

5.4.2 Policy implication

The study has several policy and theoretical implications that may help regulators in minimizing corporate tax avoidance. First, the findings there is need for policy measures to encourage managerial, institutional and government ownership, which reduce tax avoidance among listed firms in East Africa.

Second, the regulators should limit foreign ownership concentration that seems to increase tax avoidance. Third, the regulator should strengthen external auditing to prevent rent seeking in tax avoidance. Finally, tax authorities should consider ownership structure in developing corporate income tax laws in order to control tax avoidance among listed firms in East Africa.

5.4.3 Theoretical implication

Unlike prior studies that only examined the direct relationship between ownership structure and tax avoidance, this study went further to investigate how audit quality influences this relationship. In addition to these theoretical contributions, the findings are in support of the agency theory that managerial share ownership align managers' interests to those of the shareholders. First, the findings show that ownership structure affects tax avoidance owing to potential agency problem between managers and different classes of shareholders. Secondly, the finding reveals that increased managerial ownership reduces managerial entrenchment thus lessening agency problems and tax avoidance. Third, results confirm the importance of auditing as an important internal corporate mechanism that deters unethical managerial behaviours.

5.5 Limitations of the Study

In spite of these contributions, this study suffers from some limitations that could be addressed in future studies. While there are several classes of ownership structure that

can affect tax avoidance practices, this study only deals with managerial ownership, institutional, government and foreign ownership. Therefore, adding other ownership classes in the analysis could likely produce other interesting results. Future research can also extend this study by either incorporating corporate governance variables such as board independence and audit committee attributes in the ownership structure and audit quality relationship. In addition, this study used a sample of listed companies. It may not be representative of the population of East African firms. Thus, future research could extend the population of this study by taking into account all unlisted firms. Furthermore, results are representative only for listed firms. Extending the sample to include all listed and unlisted- could be considered as an opportunity to improve the generalizability and robustness of the study. Future studies could examine the relationship between ownership structure, audit quality and tax avoidance by undertaking qualitative methods, using interviews and surveys. These methods may provide new insights and explanations related to the causes and effects of corporate tax avoidance. The study used cash ETR as a measure of tax avoidance. One of the limitation of the cash ETR is the fact that, while its denominator is a measure of book income in the chosen time, its numerator may include tax payments that apply to other periods; further, it only captures nonconforming tax avoidance. Therefore, future studies can consider other proxies of tax avoidance. Finally, audit quality was measured using the audit fee paid, which includes both audit and non-audit services. Therefore, it would important to investigate the individual effect of the two elements of audit fees or other measures of audit quality such discretionary accruals, big four audit firms and industry specialization may be considered.

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APPENDICES

Appendix I: Listed Firms in NSE

1 Eaagads Ltd.
2 Kapchorua Tea Kenya Plc.
3 KakuziPlc
4 Limuru Tea Co. Ltd.
5 Sasini Plc.
6 Williamson Tea Kenya Plc
7 Car & General (K) Ltd.
8 ABSA Bank Kenya Plc.
9 Stanbic Holdings Ltd.
10 I & M Holdings Plc.
11 Diamond Trust Bank Kenya Ltd
12 HF Group Plc.
13 KCB Group Plc.
14 NCBA Group Plc.
15 Standard Chartered Bank Kenya Ltd.
16 Equity Group Holdings Plc.
17 The Co-operative Bank of Kenya Ltd
18 Express Kenya Plc.
19 Kenya Airways Ltd.
20 Nation Media Group Plc.
21 Standard Group Plc.
22 TPS Eastern Africa (Serena) Ltd.
23 WPP Scangroup Plc.
24 Uchumi Supermarket Plc.
25 Eveready East Africa Ltd.
26 Longhorn Publishers Plc.
27 Deacons (East Africa) Plc.
28 Sameer Africa Plc.
29 Nairobi Business Ventures Ltd.
30 Homeboyz Entertainment Plc.
31 ARM Cement Plc.
32 Bamburi Cement Ltd.
33 Crown Paints Kenya Plc.
34 E.A Cables Ltd.
35 E.A Portland Cement Ltd.
36 Total Kenya Ltd.
37 KenGen Plc.
38 Kenya Power & Lighting Plc.
39 Umeme Ltd
40 Jubilee Holdings Ltd
41 Sanlam Kenya Plc.
42 Kenya Re - Insurance Corporation Ltd.
43 Liberty Kenya Holdings
44 Britam Holdings Plc.
45 CIC Insurance Group Ltd.
46 Olympia Capital Holdings Ltd.
47 Centum Investment Plc.
48 Trans - Century Plc.
49 Home Afrika Ltd.
50 Kurwitu Ventures Ltd.
51 Nairobi Securities Exchange Plc.
52 B.O.C Kenya Plc.
53 British American Tobacco Kenya Plc.
54 Carbacid Investments Plc.
55 East African Breweries Ltd.
56 Mumias Sugar Co. Ltd
57 Unga Group Ltd.
58 Kenya Orchards Ltd.
59 Flame Tree Group Holdings Ltd.
60 Safaricom Plc.
61 ILAM Fahari I-REIT
62 ABSA New Gold ETF

Appendix II: Data Collection Schedule

Variable / Years	1 Net income	2 Tax paid	3 Total shareholding	4 No. held management	5 No. held by government	6 No. held by foreigners	7 No. held by institutions	8 MO= 4/3	9 GO= 5/3	10 FO=6/3	11 IO= 7/3	12 ETR= 2/1
2011												
2012												
2013												
2014												
2015												
2016												
2017												
2018												
2019												
2020												

Appendix III:

Fixed-effects (within) regression	Number of obs	=	490
Group variable: ID	Number of groups	=	49
R-sq: within = 0.1155	Obs per group: min	=	10
between = 0.0621	Avg	=	10.0
overall = 0.0855	Max	=	10
	F(4,437)	=	14.26
corr(u_i, Xb) = -0.2418	Prob > F	=	0.0000

ETR	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
FS	-.0223869	.006018	-3.72	0.000	-.0342148	-.010559
FA	.0450526	.0173253	2.60	0.010	.0110012	.0791039
LEV	.0372159	.0188735	1.97	0.049	.0001218	.0743101
ROA	-.0860951	.0198431	-4.34	0.000	-.1250949	-.0470954
_cons	.5236336	.1199605	4.37	0.000	.2878623	.7594049
sigma_u	.03596005					
sigma_e	.05487516					
Rho	.30041875 (fraction of variance due to u_i)					

F test that all u_i=0: F(48, 437) = 4.03 Prob > F = 0.0000

	---- Coefficients ----			
	(b) Fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
FS	-.0223869	-.0181861	-.0042008	.0036678
FA	.0450526	.0408486	.004204	.0112658
LEV	.0372159	.0339702	.0032458	.0104314
ROA	-.0860951	-.0784893	-.0076059	.005989

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg
Test: Ho: difference in coefficients not systematic
chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 4.28
Prob>chi2 = 0.3698

Random-effects GLS regression	Number of obs =	490
Group variable: ID	Number of groups =	49
R-sq: within = 0.2509	Obs per group: min =	10
between = 0.1590	Avg =	10.0
overall = 0.1628	Max =	10
	Wald chi2(8) =	125.06
corr(u_i, X) = 0 (assumed)	Prob > chi2 =	0.0000

ETR	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
FS	-.0195105	.0046946	-4.16	0.000	-.0287118	-.0103092
FA	.0340499	.0128887	2.64	0.008	.0087885	.0593113
LEV	.0373048	.0152231	2.45	0.014	.0074681	.0671415
ROA	-.0678812	.0179568	-3.78	0.000	-.1030759	-.0326865
MO	-.106118	.0281232	-3.77	0.000	-.1612384	-.0509975
GO	-.0857374	.0280837	-3.05	0.002	-.1407804	-.0306943
IO	-.0820316	.0209063	-3.92	0.000	-.1230073	-.041056
FO	.0495202	.0229622	2.16	0.031	.0045151	.0945252
_cons	.5565045	.0913985	6.09	0.000	.3773667	.7356423
sigma_u	.03113233					
sigma_e |	.04881516					
Rho	.28913511	(fraction of variance due to u_i)				

	---- Coefficients ----			
	(b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
FS	-.0161645	-.0195105	.003346	.0028935
FA	.0500379	.0340499	.0159879	.0086896
LEV	.0253479	.0373048	-.0119569	.0072722
ROA	-.0648006	-.0678812	.0030807	.
MO	-.1231729	-.106118	-.017055	.0152417
GO	-.2101589	-.0857374	-.1244216	.0494977
IO	-.1172385	-.0820316	-.0352069	.0187785
FO	.2609762	.0495202	.211456	.0327062

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg
Test: Ho: difference in coefficients not systematic
chi2(8) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 65.23
Prob>chi2 = 0.0000
(V_b-V_B is not positive definite)

Random-effects GLS regression	Number of obs =	490
Group variable: ID	Number of groups =	49
R-sq: within = 0.3129	Obs per group: min =	10
between = 0.1962	Avg =	10.0
overall = 0.1973	Max =	10
	Wald chi2(9) =	164.28
corr(u_i, X) = 0 (assumed)	Prob > chi2 =	0.0000

ETR	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
FS	-.0160418	.0046349	-3.46	0.001	-.025126	-.0069575
FA	.0357941	.0126286	2.83	0.005	.0110424	.0605457
LEV	.0430212	.0148897	2.89	0.004	.013838	.0722044
ROA	-.0686527	.0174178	-3.94	0.000	-.102791	-.0345144
MO	-.0916292	.0275896	-3.32	0.001	-.1457038	-.0375546
GO	-.0818227	.0278283	-2.94	0.003	-.1363651	-.0272802
IO	-.0706037	.0206465	-3.42	0.001	-.1110702	-.0301373
FO	.0494528	.0227029	2.18	0.029	.0049559	.0939497
AF	-.0455819	.0083134	-5.48	0.000	-.061876	-.0292879
_cons	.6712102	.0918716	7.31	0.000	.4911452	.8512751
sigma_u	.03112668					
sigma_e	.04676392					
Rho	.307019	(fraction of variance due to u_i)				

	---- Coefficients ----			
	(b) fe	(B) Re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
FS	-.0145237	-.0160418	.001518	.0025484
FA	.0533839	.0357941	.0175898	.0079087
LEV	.0254692	.0430212	-.017552	.0062856
ROA	-.0649506	-.0686527	.003702	.
MO	-.1097872	-.0916292	-.018158	.0135038
GO	-.1782772	-.0818227	-.0964545	.0471525
IO	-.1069504	-.0706037	-.0363466	.0173526
FO	.2569814	.0494528	.2075286	.0308309
AF	-.0593026	-.0455819	-.0137207	.0043824

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg
Test: Ho: difference in coefficients not systematic
chi2(9) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 122.98
Prob>chi2 = 0.0000
(V_b-V_B is not positive definite)

Random-effects GLS regression	Number of obs =	490
Group variable: ID	Number of groups =	49
R-sq: within = 0.3251	Obs per group: min =	10
between = 0.2427	Avg =	10.0
overall = 0.2317	Max =	10
	Wald chi2(10) =	183.85
corr(u_i, X) = 0 (assumed)	Prob > chi2 =	0.0000

ETR	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
FS	-.0151171	.0045357	-3.33	0.001	-.024007	-.0062272
FA	.0367963	.0123198	2.99	0.003	.01265	.0609426
LEV	.0437966	.0145883	3.00	0.003	.0152041	.0723891
ROA	-.0638194	.0172087	-3.71	0.000	-.0975477	-.030091
MO	-.0737576	.027334	-2.70	0.007	-.1273312	-.020184
GO	-.0790444	.0268187	-2.95	0.003	-.1316081	-.0264808
IO	-.0758408	.0201606	-3.76	0.000	-.1153549	-.0363266
FO	.0411928	.0219584	1.88	0.061	-.0018449	.0842304
AF	-.033484	.008591	-3.90	0.000	-.050322	-.016646
MoxAF	-.1987519	.0486678	-4.08	0.000	-.294139	-.1033649
_cons	.6074294	.0908196	6.69	0.000	.4294262	.7854327
sigma_u	.02930961					
sigma_e	.04615316					
Rho	.28738883	(fraction of variance due to u_i				

Fixed-effects (within) regression	Number of obs	=	490
Group variable: ID	Number of groups	=	49
R-sq: within = 0.3829	Obs per group: min	=	10
between = 0.1573	Avg	=	10.0
overall = 0.1440	Max	=	10
	F(10,431)	=	26.74
corr(u_i, Xb) = -0.8697	Prob > F	=	0.0000

ETR	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
FS	-.0119059	.0052725	-2.26	0.024	-.0222688	-.0015429
FA	.0568196	.0147381	3.86	0.000	.0278522	.0857871
LEV	.0303075	.0160095	1.89	0.059	-.0011589	.0617738
ROA	-.0589057	.0169052	-3.48	0.001	-.0921325	-.0256789
MO	-.0995098	.0304548	-3.27	0.001	-.1593682	-.0396513
GO	-.1641823	.0541836	-3.03	0.003	-.2706792	-.0576854
IO	-.1194527	.0268516	-4.45	0.000	-.1722291	-.0666762
FO	.2518084	.0378162	6.66	0.000	.1774814	.3261355
AF	-.0472681	.0098795	-4.78	0.000	-.0666861	-.02785
MoxAF	-.177517	.0501908	-3.54	0.000	-.2761662	-.0788679
_cons	.5609467	.1100881	5.10	0.000	.3445704	.777323
sigma_u	.08577891					
sigma_e	.04615316					
Rho	.77549709	(fraction of variance due to u_i)				

F test that all u_i=0: F(48, 431) = 6.32 Prob > F = 0.0000

	---- Coefficients ----			
	(b) fe	(B) Re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
FS	-.0119059	-.0151171	.0032113	.0026881
FA	.0568196	.0367963	.0200234	.0080891
LEV	.0303075	.0437966	-.0134891	.0065944
ROA	-.0589057	-.0638194	.0049137	.
MO	-.0995098	-.0737576	-.0257522	.0134295
GO	-.1641823	-.0790444	-.0851378	.047081
IO	-.1194527	-.0758408	-.0436119	.0177358
FO	.2518084	.0411928	.2106157	.0307879
AF	-.0472681	-.033484	-.0137841	.0048786
MoxAF	-.177517	-.1987519	.0212349	.0122704

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg
Test: Ho: difference in coefficients not systematic
chi2(10) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 48.19
Prob>chi2 = 0.0000
(V_b-V_B is not positive definite)

Random-effects GLS regression	Number of obs	=	490
Group variable: ID	Number of groups	=	49
R-sq: within = 0.3403	Obs per group: min	=	10
between = 0.2746	Avg	=	10.0
overall = 0.2529	max	=	10
	Wald chi2(11)	=	200.45
corr(u_i, X) = 0 (assumed)	Prob > chi2	=	0.0000

ETR	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
FS	-.0163963	.0045075	-3.64	0.000	-.0252309	-.0075618
FA	.0376538	.0122106	3.08	0.002	.0137215	.0615861
LEV	.044644	.014443	3.09	0.002	.0163363	.0729517
ROA	-.0576517	.0171047	-3.37	0.001	-.0911762	-.0241272
MO	-.0628159	.0272531	-2.30	0.021	-.116231	-.0094007
GO	-.0586049	.0273244	-2.14	0.032	-.1121599	-.00505
IO	-.0698705	.0200704	-3.48	0.000	-.1092077	-.0305333
FO	.0496777	.0219259	2.27	0.023	.0067036	.0926517
AF	-.0298952	.0085784	-3.48	0.000	-.0467085	-.0130819
MoxAF	-.1470506	.0503924	-2.92	0.004	-.2458179	-.0482833
GOxAF	.1852583	.0536907	3.45	0.001	.0800265	.29049
_cons	.6028915	.0900192	6.70	0.000	.4264571	.7793258
sigma_u	.02933494					
sigma_e	.04569425					
rho	.29185618 (fraction of variance due to u_i)					

Fixed-effects (within) regression	Number of obs	=	490
Group variable: ID	Number of groups	=	49
R-sq: within = 0.3965	Obs per group: min	=	10
between = 0.1717	Avg	=	10.0
overall = 0.1559	Max	=	10
	F(11,430)	=	25.69
corr(u_i, Xb) = -0.8662	Prob > F	=	0.0000

ETR	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
FS	-.0119823	.0052201	-2.30	0.022	-.0222424	-.0017223
FA	.060412	.0146371	4.13	0.000	.0316429	.0891811
LEV	.0307056	.0158508	1.94	0.053	-.0004491	.0618603
ROA	-.0501071	.0169738	-2.95	0.003	-.0834691	-.0167452
MO	-.0850562	.030507	-2.79	0.006	-.1450177	-.0250948
GO	-.1404022	.0541854	-2.59	0.010	-.2469035	-.033901
IO	-.1196257	.0265847	-4.50	0.000	-.1718778	-.0673736
FO	.2532228	.0374429	6.76	0.000	.1796289	.3268168
AF	-.0404104	.010026	-4.03	0.000	-.0601166	-.0207043
MoxAF	-.1443363	.0508209	-2.84	0.005	-.2442246	-.0444481
GOxAF	.1889665	.0606718	3.11	0.002	.0697164	.3082167
_cons	.5215208	.1097261	4.75	0.000	.3058545	.737187
sigma_u	.08451931					
sigma_e	.04569425					
Rho	.77382121	fraction of variance due to u_i)				

F test that all u_i=0: F(48, 428) = 5.99 Prob > F = 0.0000

	---- Coefficients ----			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fe	Re	Difference	S.E.
FA	.0584504	.0387627	.0196877	.0081256
FS	-.0128515	-.0161759	.0033243	.0026598
LEV	.0252464	.0373438	-.0120974	.0065327
ROA	-.0492758	-.0553872	.0061115	.
MO	-.0759982	-.0591394	-.0168588	.0139923
GO	-.1577698	-.0631736	-.0945962	.0466427
FO	.2568492	.058606	.1982432	.0299188
IO	-.1026556	-.0613276	-.041328	.0180515
AF	-.0304437	-.0187857	-.0116579	.0053267
MoxAF	-.1181223	-.1189851	.0008628	.008773
GOxAF	.1329042	.1241228	.0087814	.0292102
IOxAF	-.0730052	-.0754645	.0024594	.0136066
FOxAF	.1968044	.2484917	-.0516873	.

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg
Test: Ho: difference in coefficients not systematic
chi2(13) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 83.60
Prob>chi2 = 0.0000
(V_b-V_B is not positive definite)

Random-effects GLS regression	Number of obs =	490				
Group variable: ID	Number of groups =	49				
R-sq: within = 0.3563	Obs per group: min =	10				
between = 0.2935	Avg =	10.0				
overall = 0.2765	Max =	10				
	Wald chi2(13) =	222.05				
corr(u_i, X) = 0 (assumed)	Prob > chi2 =	0.0000				
ETR	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
FA	.0387627	.0121402	3.19	0.001	.0149683	.0625571
FS	-.0161759	.0044544	-3.63	0.000	-.0249064	-.0074454
LEV	.0373438	.0143801	2.60	0.009	.0091593	.0655283
ROA	-.0553872	.0168756	-3.28	0.001	-.0884629	-.0223116
MO	-.0591394	.026949	-2.19	0.028	-.1119585	-.0063204
GO	-.0631736	.0271158	-2.33	0.020	-.1163197	-.0100275
FO	.058606	.0219586	2.67	0.008	.0155679	.101644
IO	-.0613276	.0199999	-3.07	0.002	-.1005267	-.0221285
AF	-.0187857	.0089537	-2.10	0.036	-.0363346	-.0012369
MoxAF	-.1189851	.0502344	-2.37	0.018	-.2174428	-.0205275
GOxAF	.1241228	.0553867	2.24	0.025	.0155669	.2326786
IOxAF	-.0754645	.0324677	-2.32	0.020	-.1391	-.0118291
FOxAF	.2484917	.0782576	3.18	0.001	.0951096	.4018738
_cons	.5503308	.0899902	6.12	0.000	.3739533	.7267083
sigma_u	.02937899					
sigma_e	.04525902					
Rho	.29645327	(fraction of variance due to u_i)				

Fixed-effects (within) regression	Number of obs	=	490
Group variable: ID	Number of groups	=	49
R-sq: within = 0.4107	Obs per group: min	=	10
between = 0.1789	Avg	=	10.0
overall = 0.1668	max	=	10
	F(13,428)	=	22.95
corr(u_i, Xb) = -0.8582	Prob > F	=	0.0000

ETR	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
FA	.0584504	.0146086	4.00	0.000	.0297369	.0871638
FS	-.0128515	.0051881	-2.48	0.014	-.0230488	-.0026543
LEV	.0252464	.0157944	1.60	0.111	-.0057979	.0562907
ROA	-.0492758	.0168144	-2.93	0.004	-.0823248	-.0162267
MO	-.0759982	.030365	-2.50	0.013	-.1356813	-.0163152
GO	-.1577698	.053952	-2.92	0.004	-.2638136	-.051726
FO	.2568492	.0371122	6.92	0.000	.1839043	.329794
IO	-.1026556	.0269417	-3.81	0.000	-.1556101	-.0497011
AF	-.0304437	.0104183	-2.92	0.004	-.0509211	-.0099662
MoxAF	-.1181223	.0509947	-2.32	0.021	-.2183536	-.0178911
GOxAF	.1329042	.0626172	2.12	0.034	.0098287	.2559797
IOxAF	-.0730052	.0352035	-2.07	0.039	-.1421985	-.0038118
FOxAF	.1968044	.0782215	2.52	0.012	.0430583	.3505504
_cons	.4941353	.1090466	4.53	0.000	.2798017	.7084688
sigma_u	.08221076					
sigma_e	.04525902					
Rho	.76741433	(fraction of variance due to u_i)				

F test that all u_i=0: F(48, 428) = 5.99 Prob > F = 0.0000

	---- Coefficients ----			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fe	re	Difference	S.E.
FA	.0622964	.0407128	.0215836	.007957
FS	-.0128366	-.016529	.0036924	.0026443
LEV	.029063	.0420559	-.0129929	.006435
ROA	-.049634	-.0571457	.0075117	.
MO	-.0831542	-.063766	-.0193882	.0136325
GO	-.1454216	-.0589249	-.0864967	.0465814
FO	.2558785	.0583308	.1975476	.0299939
IO	-.1097322	-.0655483	-.0441839	.0178648
AF	-.0374059	-.026943	-.0104629	.0051775
MoxAF	-.1340331	-.1340361	3.01e-06	.006636
GOxAF	.1707462	.157873	.0128733	.0268769
IOxAF	-.0701919	-.0753215	.0051296	.0133282

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg
Test: Ho: difference in coefficients not systematic
chi2(12) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 94.84
Prob>chi2 = 0.0000
(V_b-V_B is not positive definite)

Random-effects regression	GLS	Number of obs =	490
Group variable: ID		Number of groups =	49
R-sq: within = 0.3507		Obs per group: min =	10
between = 0.2849		Avg =	10.0
overall = 0.2595		Max =	10
		Wald chi2(12) =	208.42
corr(u_i, X) = 0 (assumed)		Prob > chi2 =	0.0000

ETR	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
FA	.0407128	.0122631	3.32	0.001	.0166777	.064748
FS	-.016529	.0045009	-3.67	0.000	-.0253506	-.0077074
LEV	.0420559	.0144508	2.91	0.004	.0137329	.0703789
ROA	-.0571457	.0170228	-3.36	0.001	-.0905097	-.0237816
MO	-.063766	.0271929	-2.34	0.019	-.117063	-.0104689
GO	-.0589249	.0274365	-2.15	0.032	-.1126995	-.0051502
FO	.0583308	.0222405	2.62	0.009	.0147402	.1019215
IO	-.0655483	.0201919	-3.25	0.001	-.1051237	-.0259729
AF	-.026943	.0086793	-3.10	0.002	-.0439542	-.0099318
MoxAF	-.1340361	.0504802	-2.66	0.008	-.2329754	-.0350968
GOxAF	.157873	.0549384	2.87	0.004	.0501956	.2655503
IOxAF	-.0753215	.0327991	-2.30	0.022	-.1396065	-.0110365
_cons	.5845293	.0903542	6.47	0.000	.4074383	.7616202
sigma_u	.029819					
sigma_e	.04553932					
rho	.30009186	(fraction of variance due to u_i)				

Fixed-effects (within) regression	Number of obs =	490	
Group variable: ID	Number of groups =	49	
R-sq: within = 0.4020	Obs per group: min =	10	
between = 0.1819	Avg =	10.0	
overall = 0.1639	Max =	10	
	F(12,429) =	24.03	
corr(u_i, Xb) = -0.8625	Prob > F =	0.0000	

ETR	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
FA	.0622964	.0146184	4.26	0.000	.0335639	.0910289
FS	-.0128366	.0052202	-2.46	0.014	-.0230969	-.0025762
LEV	.029063	.0158188	1.84	0.067	-.002029	.0601549
ROA	-.049634	.0169179	-2.93	0.004	-.0828863	-.0163817
MO	-.0831542	.0304187	-2.73	0.007	-.1429425	-.0233659
GO	-.1454216	.054061	-2.69	0.007	-.251679	-.0391642
FO	.2558785	.03734	6.85	0.000	.1824863	.3292706
IO	-.1097322	.0269604	-4.07	0.000	-.1627231	-.0567413
AF	-.0374059	.0101063	-3.70	0.000	-.05727	-.0175418
MoxAF	-.1340331	.0509145	-2.63	0.009	-.234106	-.0339602
GOxAF	.1707462	.0611604	2.79	0.005	.0505348	.2909577
IOxAF	-.0701919	.0354037	-1.98	0.048	-.1397781	-.0006056
_cons	.5150462	.1094028	4.71	0.000	.3000139	.7300784
sigma_u	.08306556					
sigma_e	.04553932					
Rho	.76889956	(fraction of variance due to u_i)				

F test that all u_i=0: F(48, 429) = 6.25 Prob > F = 0.0000

	---- Coefficients ----			
	(b) fe	(B) Re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
FA	.060412	.0376538	.0227582	.0080713
FS	-.0119823	-.0163963	.004414	.0026328
LEV	.0307056	.044644	-.0139384	.0065306
ROA	-.0501071	-.0576517	.0075446	.
MO	-.0850562	-.0628159	-.0222404	.0137093
GO	-.1404022	-.0586049	-.0817973	.0467914
FO	.2532228	.0496777	.2035452	.0303517
IO	-.1196257	-.0698705	-.0497552	.0174335
AF	-.0404104	-.0298952	-.0105152	.0051897
MoxAF	-.1443363	-.1470506	.0027143	.0065854
GOxAF	.1889665	.1852583	.0037083	.0282555

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg
Test: Ho: difference in coefficients not systematic
chi2(11) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 100.57
Prob>chi2 = 0.0000
(V_b-V_B is not positive definite)