

The Effect of the Control Environment on Tax Compliance of Listed Manufacturing Firms in Kenya.

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Abstract: Tax compliance remains one of the most persistent governance and financial management challenges facing listed manufacturing firms in Kenya. Despite the existence of structured internal control systems, strengthened regulatory oversight, and continuous reforms by the Kenya Revenue Authority (KRA), several prominent listed manufacturing firms continue to face significant tax disputes, arrears, and compliance failures. Therefore, this study examined how control environment affects tax compliance of listed manufacturing firms in Kenya. Anchored on system theory, the study adopted a descriptive-causal research design. The target population was all the listed manufacturing companies. The study employed census sampling technique therefore data was collected in all the companies. Data was collected through structured data extraction forms from audited financial statements and analyzed by aid of STATA, employing correlation, and panel regression analysis. Results were presented in tables. The study found that control environment has a positive and significant effect on tax compliance ($\beta = 0.5874$, $p = 0.000$). Overall, the model was statistically significant (Wald $\chi^2 = 33.05$, $p = 0.0000$) and explained 52.15% of the variation in tax compliance ($R^2 = 0.5215$). The study recommends that listed manufacturing firms in Kenya strengthen control environment systems to enhance tax compliance. Firms should improve the control environment through ethical leadership and strong governance, enhance risk assessment by regularly identifying and managing tax risks, and invest in reliable information systems to ensure accurate financial reporting.

I. Introduction

Tax compliance is the extent to which taxpayers fulfil their tax obligations as stipulated by law. It involves accurate reporting of taxable income, timely filing of returns, and prompt payment of taxes due. High levels of tax compliance are essential for governments because they ensure adequate revenue to support public services and economic development (Fauziati, Minovia, Muslim, & Nasrah, 2020). The concept of tax compliance also encompasses voluntary compliance, where taxpayers willingly fulfil obligations, and enforced compliance, which occurs due to audits, penalties, and legal enforcement (Slemrod, 2019).

Abdu and Adem (2023) argues that compliance behavior is influenced by factors such as perceived fairness of the tax system, complexity of tax regulations, taxpayer knowledge, administrative efficiency of tax authorities, and the presence of deterrent measures like fines and audits. In the organizational context, tax compliance is essential for maintaining legal legitimacy, avoiding financial penalties, and upholding corporate reputation (Dularif & Rustiarini, 2023). Tax compliance constitutes a foundational pillar of public finance and state capacity, particularly in developing economies where domestic revenue mobilization remains central to financing public goods and achieving fiscal stability (Slemrod, 2019).

On the other hand, control environment systems are the structured processes, policies, and procedures that organizations establish to safeguard assets, ensure the accuracy and reliability of financial information, and promote operational efficiency (Al-Mashhadi, 2021). They encompass mechanisms designed to prevent and detect errors, fraud, and mismanagement while supporting adherence to organizational goals and regulatory requirements. Typically, internal control systems are built around components such as control environments, risk assessment, control activities, information and communication channels, and monitoring practices (Hamed, 2023).

Abernethy, Li, Zhang, and Shi (2023), claims that clear lines of authority, standardized documentation, separation of duties, and continuous oversight, internal controls aim to strengthen accountability within an organization (Mulemba, Ouma, & Atieno, 2022). Ultimately, these systems enhance the integrity of financial reporting and provide assurance to stakeholders that organizational processes are functioning as intended. According to the Hamed (2023), internal control is affected by an entity's board of directors, management, and other personnel, designed to provide reasonable assurance regarding the achievement of objectives in operations, reporting, and compliance (Hutabarat, 2024).

Musah, Padi, Blay, Okyere, and Ofor (2025), highlighted that the relationship between control environment systems and tax compliance arises from the role that controls environment play in regulating financial activities, ensuring accuracy in accounting processes, and promoting adherence to statutory obligations. Effective internal

control systems establish transparent financial procedures that support the correct identification, recording, and reporting of taxable transactions (Kraievskiy & Muravskiy, 2024). Through components such as segregation of duties, authorization procedures, and regular internal audits, organizations minimize errors and deliberate misstatements that could result in tax non-compliance. Strong controls enhance the reliability of accounting information, which is essential for accurate computation of tax liabilities and timely submission of tax returns (Chen, Yang, Zhang, & Zhou, 2020).

Moreover, control environment systems contribute to a culture of accountability that influences employee behavior toward compliance. When internal processes are well-defined and continuously monitored, the likelihood of fraudulent activities such as underreporting income, manipulating expenses, or withholding tax remittances is reduced (Shakir, Kadhim, & Jawad, 2024). In addition, internal controls facilitate proper documentation and record-keeping, enabling organizations to provide evidence of transactions during tax audits and reducing exposure to penalties. From a regulatory perspective, tax authorities rely on such systems as indicators of an entity's compliance capacity, often viewing firms with robust controls as lower-risk taxpayers. Consequently, the strength of an organization's internal control environment is a key determinant of its ability and willingness to comply with tax laws (Khairunnisa & Rahadian, 2021).

Globally, United States operates one of the most developed tax-administration systems, anchored by the Internal Revenue Service (IRS), which produces periodic tax-gap estimates that guide enforcement and policy. Despite strong institutional capacity, the U.S. continues to register a substantial tax gap driven by underreporting, non-filing and underpayment, with recent IRS projections indicating a net tax gap in the order of hundreds of billions of dollars. In response to persistent non-compliance among high-income and complex taxpayers, recent policy and administrative actions have emphasized digital tools, enhanced analytics, and stepped-up enforcement supported by increased funding and staffing. These developments illustrate that even advanced administrations rely on a mix of technology, resourcing, and targeted enforcement to reduce the compliance gap (IRS, 2022).

Italy's tax system has historically faced large compliance challenges, particularly in VAT and informal-economy driven underreporting, but recent years have seen measurable improvements attributable to digital reporting, stronger controls and sustained enforcement. Authorities and analysts report a sizeable, though shrinking, VAT/tax gap; policy measures such as mandatory electronic invoicing, real-time reporting and intensive investigations into large taxpayers have contributed to recovery of previously unreported liabilities. The Italian experience demonstrates how combining digital invoicing mandates, targeted audits, and negotiated settlements can improve declared revenues while also generating political debates about the balance between enforcement and incentives (Gallucci, Pansini, & Pisani, 2020).

In Germany tax-compliance record reflects a relatively low VAT gap compared with many EU peers, underpinned by a well-resourced administration, comprehensive tax rules, and robust data-sharing across agencies. EU-level VAT gap monitoring shows Germany's VAT compliance gap falling substantially in recent years, a pattern that aligns with intensified digital reporting, frequent reconciliations between VAT and customs data, and strong corporate reporting requirements. Nevertheless, Germany still confronts challenges common to advanced economies, tax avoidance schemes, cross-border VAT fraud, and the ongoing need to adapt controls to digital commerce, which require continual modernization of administration and controls (European Commission, 2024).

In East Asia countries, (Japan, Korea, Singapore) typically exhibit high compliance supported by modernized tax administrations and pervasive electronic filing, while many lower-income economies in South and Southeast Asia face larger informal sectors, weaker administrative capacity and greater compliance costs. Across the region, a clear trend is the adoption of digitalization, e-invoicing, real-time reporting, data analytics, and regional cooperation initiatives, technical assistance, knowledge hubs, aimed at raising compliance and broadening tax bases. Despite progress, many jurisdictions still struggle with taxpayer education, capacity constraints, and policy design that balances revenue needs with the administrative burden on firms. The Asian Development Bank and multilateral partners have emphasized digital transformation and capacity building as priority responses to these challenges (ADB, 2023).

Regionally, South Africa has the most advanced tax administrations in Africa, with the South African Revenue Service (SARS) recognized for its relatively strong institutional capacity, digitization, and compliance enforcement mechanisms. In recent years, SARS has modernized its systems through e-filing platforms, automated risk engines, and third-party data integration, which have significantly improved taxpayer profiling and audit targeting. However, compliance levels have fluctuated due to economic slowdown, perceived governance weaknesses, and a growing tax gap linked to underreporting and illicit financial flows. The large VAT-vendor base and corporate taxpayers remain priority compliance segments, prompting SARS to intensify audits on high-net-worth individuals, transfer pricing arrangements, and VAT refund risks. South Africa's experience demonstrates that

technological sophistication must be accompanied by institutional credibility to sustain tax compliance (OECD, 2022).

Morocco has made considerable progress in modernizing its tax system through digitization, policy reforms, and strengthening of the Direction Générale des Impôts (DGI), (government authority responsible for tax administration, typically in French-speaking countries (such as France, Morocco, Algeria, Côte d'Ivoire, Senegal,)). The country's compliance improvements are linked to the rollout of e-filing and e-payment services, expansion of VAT invoicing systems, and the integration of taxpayer accounts with digital portals. Morocco has also implemented comprehensive reforms aimed at reducing tax exemptions, broadening the tax base. Despite these advancements, compliance gaps persist, particularly in VAT, where fraud and underreporting remain concerns. The government has emphasized tax fairness, transparency, and simplification as part of its Fiscal Reform Strategy, which aims to align tax administration practices with international standards. Morocco's experience demonstrates how administrative modernization and policy rationalization reinforce each other in strengthening compliance (OECD, 2024).

Nigeria faces more complex compliance challenges driven by economic informality, tax fragmentation, and limited administrative capacity. The Federal Inland Revenue Service (FIRS) oversees federal tax administration, while states manage personal income taxes, resulting in overlaps that complicate compliance. The country's tax-to-GDP ratio has historically been among the lowest globally, reflecting high levels of non-compliance, widespread informality, and low trust in government. Recent reforms, including the Finance Acts (2019–2023), the introduction of TaxPro-Max for centralized e-filing, and enhanced VAT enforcement, have begun addressing structural weaknesses. Yet, the enforcement environment remains uneven, and compliance is hindered by perceptions of corruption, administrative burden, and weak audit coverage. Nigeria's case highlights the importance of institutional trust, simplification, and coordinated reforms in improving compliance (Jibir, Abdu, & Muhammad, 2020).

Rwanda is widely regarded as a continental leader in tax-administration reforms despite being a low-income economy. The Rwanda Revenue Authority (RRA) has adopted a digital-first compliance model, utilizing electronic billing machines (EBMs), e-filing, mobile tax payments, and real-time VAT invoice transmission. These innovations have contributed to rising tax-to-GDP ratios and improved compliance, particularly among small and medium enterprises. Rwanda's emphasis on taxpayer education, simplified filing mechanisms, and integration of digital invoicing has significantly reduced opportunities for tax evasion and increased transparency. However, compliance challenges persist in the informal sector, which still represents a major share of economic activity. Nonetheless, Rwanda's trajectory shows that administrative innovation, even in resource-constrained environments, can substantially improve compliance outcomes (Wassermann & Bornman, 2020).

In Kenya, tax compliance remains a central governance and fiscal concern for it's a developing economy, corporate tax revenues constitute a significant portion of government funding for public services, infrastructural development, and economic stabilization. Manufacturing firms listed on the Nairobi Securities Exchange (NSE) play a critical role in national revenue generation due to their scale of operations, diversified product bases, and extensive supply chain networks. However, persistent gaps in tax compliance among corporate entities continue to undermine revenue mobilization efforts by the Kenya Revenue Authority (KRA). Issues such as inaccurate tax reporting, under-declaration of taxable income, delayed filing, and tax disputes are frequently observed, signaling underlying weaknesses in internal governance structures. This context places significant focus on internal control systems (ICS) as a critical determinant of tax compliance outcomes (KRA, 2025).

In addition, tax compliance challenges are magnified by a dynamic regulatory environment, heightened enforcement measures, and substantial penalties for non-compliance. The KRA has intensified digitalization through systems such as iTax and the Electronic Tax Invoice Management System (eTIMS), intended to promote transparency and streamline reporting. Nevertheless, firms continue to face difficulties arising from inadequate control mechanisms, limited integration of tax processes into internal audit systems, insufficient staff capacity, and occasional management override of controls. These systemic weaknesses may create loopholes that foster tax avoidance or non-compliance, either knowingly or due to operational inefficiencies (KRA, 2025).

Moreover, listed manufacturing firms are subject to corporate governance requirements under the Capital Markets Authority (CMA) Code of Governance, which mandates effective risk management, board oversight, and transparent financial reporting. Despite these expectations, compliance gaps still arise, raising questions about the effectiveness of internal controls and the extent to which they are embedded within tax management processes. Empirical studies in both local and international contexts suggest that internal controls significantly influence statutory compliance, yet the strength of this relationship varies by industry, regulatory environment, and organizational culture. For the manufacturing sector, factors such as production complexity, diverse tax obligations,

(including VAT, excise duty, corporate income tax, and withholding taxes), and fluctuating macroeconomic conditions further complicate compliance.

The Kenyan manufacturing sector faces additional pressures such as high production costs, currency fluctuations, technological changes, and competition from imports, which may incentivize firms to engage in aggressive tax planning or exploit control weaknesses to reduce tax burdens. As a result, internal control systems become essential in ensuring accuracy, consistency, and transparency in tax-related activities. Firms with strong control environments, well-coordinated risk assessment processes, and effective monitoring frameworks are more likely to maintain adequate documentation, reconcile transactional data, detect discrepancies early, and comply with tax regulations. Conversely, weak internal controls increase exposure to errors and tax risks, ultimately attracting penalties, audits, and reputational damage.

Despite the importance of these control mechanisms, limited empirical evidence exists addressing how internal controls specifically influence tax compliance among listed manufacturing firms in Kenya. Most local studies have focused on tax compliance in SMEs, state corporations, or general corporate governance issues, leaving a knowledge gap regarding the unique operational context of publicly listed manufacturers. Given their economic significance and heightened regulatory scrutiny, it is imperative to evaluate how internal control systems operate within these firms and how effectively they support tax compliance.

This study therefore sought to bridge this gap by examining the relationship between control environment systems and tax compliance among listed manufacturing firms in Kenya. The study aimed to generate evidence-based insights that can inform corporate governance practices, tax policy, and managerial decision-making. The findings enhanced understanding of the mechanisms through which firms can strengthen internal governance, improve tax reporting accuracy, and support national revenue mobilization efforts

1.2 Study Objective

To determine the effect of the control environment on tax compliance of listed manufacturing firms in Kenya.

1.3 Study Hypothesis

H₀₁: Control environment has no significant effect on tax compliance of listed manufacturing firms in Kenya.

II. Literature Review

2.1 Theoretical Review

2.1.1 System Theory

Systems theory, originally advanced by Von-Bertalanffy in 1950, posits that an organization functions as an interconnected and interdependent set of components that work together to achieve common objectives (Whitchurch & Constantine, 1993; Hofkirchner & Schafranek, 2011). According to this theory, no component operates in isolation; instead, each part influences and is influenced by the others. Within organizational settings, internal controls, information flows, decision-making structures, and compliance mechanisms form subsystems that interact to shape overall organizational performance (Hofmann-Wellenhof, Lichtenegger, & Collins, 2012).

In the context of this study, systems theory provides a holistic framework for understanding how internal control systems collectively influence tax compliance within listed manufacturing firms in Kenya. Internal control systems, comprising the control environment, risk assessment, information systems, and monitoring, can be conceptualized as subsystems within the broader organizational system. The effectiveness of tax compliance depends on how well these subsystems function individually and in coordination (Aström & Wittenmark, 2013). For example, a strong control environment may establish ethical standards and accountability, but without robust information systems or effective monitoring, the controls may fail to prevent tax errors, omissions, or non-compliance. Systems theory therefore underscores the need for integrated, rather than fragmented, internal control practices (Guy-Evans, 2020).

Additionally, systems theory highlights the importance of feedback loops, where monitoring activities generate information that is used to improve risk assessment and control processes. In tax compliance, feedback is evident in periodic audits, tax reconciliation reports, and error detection mechanisms that help firms adjust their internal processes to align with regulatory requirements. This dynamic interaction supports continuous improvement, reinforcing the idea that compliance is not a static outcome but an ongoing process shaped by learning and adaptation.

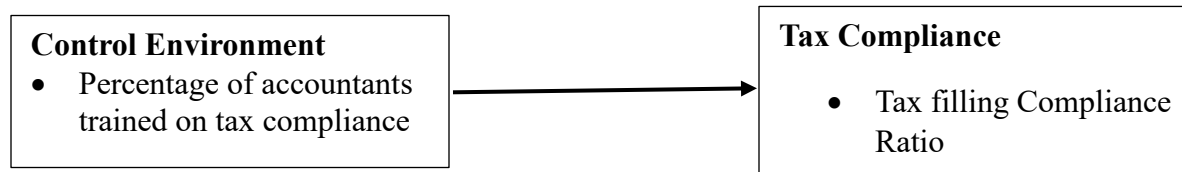
The theory also emphasizes openness, meaning organizations must interact with and respond to external environments. Tax regulations, enforcement actions, and compliance expectations constitute external stimuli that influence how internal control systems are designed and implemented. Listed manufacturing firms must therefore adapt their internal control subsystems to the changing tax environment to maintain compliance. Systems theory

thus provides an appropriate lens for examining how internal controls help firms respond to external tax obligations while maintaining internal stability and efficiency.

Overall, systems theory enhanced the explanatory power of the study by situating internal control systems within a broader organizational ecosystem. It demonstrated that tax compliance is the result of coordinated interactions among multiple control components, supporting the study's conceptualization that improvements in any single internal control element must align with the entire system to achieve effective and sustainable tax compliance.

2.2 Conceptual Framework

According to Mugenda and Mugenda, (2003) conceptual framework is an assemblage of ideas and concepts that directs research by delineating essential variables and their interconnections. The relationship between control systems and tax compliance of listed manufacturing companies is illustrated in figure 1 below.



2.3 Literature Review

2.3.1 Control environment and tax compliance

Omar and Yussuf (2021) explore the relationship between the control environment and financial performance in public higher learning institutions in Zanzibar. The study found that a well-structured control environment enhances financial accountability and transparency, improving overall performance. However, the study's focus on Zanzibar limits the generalizability of the findings to other regions with different political, economic, or institutional contexts. Additionally, it does not account for external factors, such as macroeconomic conditions or funding structures, that could influence financial performance. Future research could compare the control environment's impact on financial performance across different regions, particularly in developing economies, and conduct longitudinal studies to assess the control environment's effectiveness over time, factoring in changes in government policy or economic instability.

Surya (2025) examines the influence of COSO control environment elements on the effectiveness of e-commerce information systems. The study shows that a robust control environment, based on COSO principles, enhances the reliability and security of e-commerce platforms, reducing risks associated with transactions and ensuring compliance with legal standards. While the study focuses on e-commerce, it does not explore the complexities of rapidly evolving technologies like artificial intelligence, which are increasingly integrated into e-commerce platforms. Additionally, the study does not delve into the potential challenges faced by small and medium enterprises (SMEs) in implementing the COSO framework, particularly in resource-constrained environments. There is a need for research that evaluates the effectiveness of COSO's control environment elements in emerging technologies in AI-driven e-commerce systems.

Ilyas, Sutisna, and Saudi (2021) highlight the importance of a strong control environment in fostering effective internal controls and good corporate governance. The study underscores that organizations with a solid control environment tend to have better compliance with regulations, which leads to enhanced corporate governance and overall organizational performance. The study, while providing a clear link between the control environment and corporate governance, lacks a focus on the dynamic nature of internal controls and how they adapt to changing market conditions and regulatory environments. Further research could explore the adaptability of control environments in response to changing business landscapes and regulatory frameworks. Additionally, the influence of organizational culture, leadership styles, and employee perceptions on the effectiveness of internal controls and governance practices warrants deeper investigation.

Harahap and Isgiyarta (2023), review the role of the control environment in preventing fraud in the public sector. The study argued that a well-established control environment is essential for ensuring accountability and reducing opportunities for fraudulent activities within public institutions. While the study highlights the importance of the control environment in fraud prevention, it primarily focuses on theoretical concepts without offering empirical data to support its claims. The literature review also does not consider the limitations of control environments in real-world public sector organizations, particularly in developing countries where resources for implementing robust controls may be scarce. Future studies should examine empirical cases where control environments have successfully prevented fraud in the public sector. Research could also explore the challenges

faced by public institutions in developing economies when establishing effective control environments and propose practical solutions for overcoming these challenges.

Lamboglia and Mancini (2021) investigate how auditors' human capital, such as experience, expertise, and training, affects their assessment of the control environment. The study concludes that auditors with higher levels of expertise and experience are more likely to accurately assess the effectiveness of the control environment. While the study provides valuable insights into the role of human capital in control environment assessments, it does not explore the potential biases auditors may bring into the process, particularly in cases where personal relationships or conflicts of interest may affect their judgments. Furthermore, the study does not address the impact of continuous professional development on the accuracy of assessments over time.

III. Study Methodology

3.1 Research Design

The study adopted explanatory research design, which systematically investigate the influence of internal control systems on tax compliance among listed manufacturing firms in Kenya. The descriptive component of the design enables the study to identify, document, and characterize the existing control environment practices within the manufacturing sector. This component provided a comprehensive overview of the current state of control environment and the prevailing levels of tax compliance among the firms under study.

3.2 Target Population

The target population of this study consisted of all listed manufacturing firms in Kenya that are publicly traded on the Nairobi Securities Exchange (NSE). These firms are the units of analysis because they are directly responsible for implementing and maintaining internal control systems, including the control environment, risk assessment procedures, information systems, and monitoring mechanisms, all of which are pivotal in influencing their tax compliance behavior. The study specifically focused on listed manufacturing firms due to their significant role in Kenya's economy, reliance on both domestic and international markets, and the complex regulatory environment they operate within, which includes adherence to tax regulations and internal control requirements.

For this study, which relied on secondary data sources, the target population includes all publicly listed manufacturing firms in Kenya that have publicly available financial records over a specified period. These records included annual financial statements, tax compliance records, internal control policies, and audit reports that provide quantitative and qualitative data on the firm's internal control systems and their influence on tax compliance. The target population was expected to be composed of firms across different manufacturing sectors, such as food processing, textiles, chemicals, and machinery, ensuring a diverse representation of the industry.

The specific sample of firms was selected based on their availability of complete financial and audit records and their active listing on the Nairobi Securities Exchange during the study period. This population ensured that the data collected is both relevant and comprehensive, allowing for a detailed analysis of the relationship between internal control systems and tax compliance.

3.3 Data presentation, processing, and discussion

The data processing stage involved cleaning and organizing the dataset, computing relevant ratios and indicators aligned with the conceptual framework. Data presentation employed tables, to visually communicate the distribution and characteristics of the key variables, enabling clear comparisons and highlighting notable trends. Each presentation element was supplemented with narrative explanations that contextualize the data and link it directly to the conceptual framework, ensuring coherence between the evidence and the theoretical assumptions underpinning the study.

In the discussion, inferential statistical techniques included multiple regression modeling, that was utilized to examine the relationships between the independent variables (control environment) and the dependent variable, tax compliance. The findings were interpreted in relation to the study's objectives. The study employed panel data analysis techniques to examine the relationship between control environment systems and tax compliance in listed manufacturing firms in Kenya. Panel data, which combined cross-sectional data with time-series data, allowed the study to capture both between-firm variations and within-firm dynamics over time. This approach enhanced the efficiency of estimation, controls for unobserved heterogeneity, and provides more robust and reliable results compared to purely cross-sectional or time-series analyses. The analytical model for this study was specified as follows: Model 3.1:

$$TC_{it} = \beta_0 + \beta_1 CE_{it} + \varepsilon_{it} \dots \dots \dots (3.1)$$

FS – Represents Tax Compliance.

β_0 – Constant

β_1 – Regression coefficients.

CE – Control Environment

i – Denotes the observations (Listed Manufacturing Firms)

t – Represents the time dimensions from 2020 to 2024

ϵ_{it} – The error term

IV. Data Analysis Presentation and Discussion

4.1 Random Effect Model Results

The random effects model assumes that unobserved individual-specific effects are statistically independent and uncorrelated with the explanatory variables. This assumption allows for more efficient estimation compared to the fixed effects model. The random effects model is often preferred because it avoids the loss of degrees of freedom associated with fixed effects and produces smaller standard errors. Additionally, it allows for the inclusion and estimation of time-invariant variables, which the fixed effects model cannot capture. Based on these advantages and the results of the Hausman test, the random effects model was adopted in this study. Table 1 therefore presents the estimated random effects model results.

Table 1: Random Effects Model Results

Variable	Coefficient	Std. Error	Z-Statistic	P-value
CE	0.5874	0.1412	4.160	0.000
Constant (_cons)	0.3794	0.0580	6.541	0.000
	R-sq (within)	0.5041		
	R-sq (between)	0.6025		
	R-sq (overall)	0.5215		
	Wald χ^2 (3)	33.05		
	Prob > χ^2	0.0000		
	Corr (u_i , X)	0 (assumed)		

Source: Study Data 2026

The study used the random effect model to extract the regression model that was used to interpret the study results. The regression model is represented in model 4.1.

$$TC_{it} = 0.3794 + 0.5874CE_{it} \quad (3.1)$$

The constant term (0.3793) represents the baseline level of performance when control environment system variables are held constant. This implies that even in the absence of strong control environment practices, firms still exhibit a moderate level of the outcome variable due to other external or structural factors not included in the model.

4.2 Discussion of Results

4.2.1 Control Environment and Tax Compliance of Listed Manufacturing Firms

The first specific objective of the study was to determine the effect of the Control Environment (CE) on tax compliance of listed manufacturing firms in Kenya. The null hypothesis stated that the control environment has no significant influence on tax compliance. Table 4.9 shows that the control environment has a positive and statistically significant effect on tax compliance, with a coefficient of 0.5874, a p-value of 0.000 (< 0.05), and a Z-statistic of 4.160, which is greater than the critical value of 1.96. These results imply that the null hypothesis is rejected, leading to the conclusion that the control environment significantly influences tax compliance among listed manufacturing firms in Kenya.

These findings indicate that a unit improvement in the Control Environment leads to an increase in tax compliance by 0.5874 units, holding other factors constant. This suggests that strong governance structures, ethical leadership, management integrity, and clear organizational policies enhance compliance with tax regulations. In essence, firms with a strong control environment are more likely to foster accountability and discipline in financial reporting, thereby improving their ability to comply with tax obligations effectively.

The findings are generally consistent with prior empirical and theoretical literature, although some differences in scope and context are evident. For instance, Omar and Yussuf (2021) found that a well-structured control environment enhances financial accountability and transparency in public higher learning institutions in Zanzibar, leading to improved performance. This aligns closely with the study, which also confirms that a strong control environment improves compliance outcomes. However, while Omar and Yussuf focus on financial performance in public institutions, the study extended this relationship to tax compliance in listed manufacturing firms, thereby broadening the applicability of the control environment beyond public sector accountability to regulatory compliance in the private sector.

Similarly, Surya (2025) established that a robust COSO-based control environment improves the reliability and security of e-commerce systems by reducing transaction risks and ensuring compliance. This supports the

current study's finding that control environment enhances compliance outcomes, although Surya's study is technology-oriented, focusing on e-commerce systems, whereas the current study is concerned with organizational tax compliance. Despite this contextual difference, both studies reinforce the idea that a strong control environment reduces risks and strengthens compliance systems.

In addition, Ilyas, Sutisna, and Saudi (2021) found that organizations with a strong control environment tend to have better regulatory compliance and improved corporate governance. This is highly consistent with the current study, which demonstrates that a strong control environment significantly improves tax compliance. Both studies emphasize the foundational role of governance structures, ethical leadership, and organizational discipline in ensuring compliance with rules and regulations

However, Harahap and Isgiyarta (2023), while also supporting the importance of the control environment in preventing fraud, rely largely on theoretical arguments rather than empirical evidence. Unlike the current study, which provides statistical proof through regression analysis, their findings are more conceptual. This makes the current study stronger in terms of empirical validation of the control environment's effect on compliance outcomes in real organizational settings.

On the other hand, Lamboglia and Mancini (2021) focus on auditors' human capital and how it influences their assessment of the control environment. While their study does not directly examine the effect of control environment on compliance, it indirectly supports the importance of accurate evaluation of control systems. However, it differs from the current study in that it emphasizes auditor judgment rather than organizational compliance behavior. The current study instead shows the actual impact of control environment on tax compliance outcomes within firms.

Overall, there is strong theoretical and empirical convergence between the current study and existing literature regarding the importance of the control environment. Most studies agree that a strong control environment enhances accountability, transparency, governance, and compliance. However, the current study contributes uniquely by providing quantitative evidence in the context of tax compliance among listed manufacturing firms in Kenya, an area less explored in previous studies. The key distinction lies in context and methodology: while prior studies focus on public institutions, e-commerce systems, fraud prevention, or auditor judgment, often with limited empirical modeling, the study provides statistically tested evidence using panel regression, confirming that the control environment significantly influences tax compliance in the Kenyan manufacturing sector.

V. Conclusions and Recommendation

5.1 Conclusions

The study concluded that control environment has a positive and significant effect on tax compliance. Firms with well-established governance structures, ethical leadership, and clear policies are more likely to adhere to tax regulations, as they foster accountability and transparency in financial reporting.

5.2 Recommendations

First, firms should strengthen the control environment by fostering a culture of integrity, ethical behavior, and accountability. Top management must take the lead in setting the tone at the top by emphasizing transparency and compliance with tax regulations. Organizations should develop and enforce clear internal control policies, codes of conduct, and governance frameworks. Regular training programs should also be conducted to sensitize employees on ethical standards and the importance of compliance, ensuring that all staff understand their roles in maintaining effective internal controls.

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