

Corporate Social Responsibility, Governance Architecture and Capital Structure in SME Tax Avoidance: Cross-Sectoral Evidence from Europe and ECOWAS

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Abstract

This study examines the interrelationships among corporate social responsibility (CSR), capital structure, governance architecture, profitability and tax avoidance among product-based and service-based small and medium-sized enterprises (SMEs) in Europe and the Economic Community of West African States (ECOWAS). Drawing on legitimacy, stakeholder and agency perspectives, the study develops an integrated framework incorporating direct, mediation and moderation effects. A quantitative explanatory research design is adopted using firm-level secondary data, with partial least squares structural equation modelling (PLS-SEM) employed to estimate the hypothesised relationships. Bootstrapping procedures are used to assess the significance of direct and indirect effects, while predictive relevance and robustness analyses are undertaken to evaluate model stability. The findings indicate that CSR and governance architecture significantly reduce tax avoidance, whereas capital structure and profitability significantly increase tax avoidance. Profitability significantly mediates the relationships between CSR, capital structure, governance architecture and tax avoidance, indicating the coexistence of ethical and economically driven tax-planning mechanisms. Firm size significantly strengthens the effects of CSR, capital structure and governance architecture, while firm age significantly alters these relationships. Interest-rate and exchange-rate conditions also moderate the relationships between the principal explanatory variables and tax avoidance. Significant sectoral and regional heterogeneity is

observed, with CSR and governance effects generally stronger among service-based SMEs and European SMEs, while leverage-related tax avoidance is more pronounced among ECOWAS SMEs. The study contributes to the literature by reconceptualising SME tax avoidance as a multidimensional phenomenon shaped by corporate responsibility, governance, financial incentives and contextual conditions. The findings have implications for tax authorities and SME managers seeking to strengthen responsible tax behaviour through integrated governance, CSR transparency and financial oversight.

Keywords Corporate Social Responsibility, Governance Architecture, Capital Structure, Tax Avoidance, SMEs, Developed and Emerging Markets

Introduction

Tax avoidance remains an important issue in corporate finance, public finance, and corporate governance because firms' decisions to reduce their explicit tax liabilities have implications not only for shareholder wealth but also for government revenue, fiscal capacity, and the distribution of the tax burden across the economy. Tax avoidance generally involves the reduction of explicit tax liabilities through arrangements that exploit differences, gaps, or ambiguities within tax rules, without necessarily constituting illegal tax evasion (Hanlon & Heitzman, 2010). Although tax planning can generate legitimate efficiency benefits for firms, extensive tax avoidance may weaken the corporate tax base and create significant challenges for tax authorities, particularly where enforcement capacity and information systems are constrained. These concerns are especially relevant for small and medium-sized enterprises (SMEs), which constitute an important component of economic activity but may face relatively high fixed costs of tax compliance, financing constraints, and substantial differences in their access to professional tax and financial expertise (OECD, 2015, 2022). Consequently, understanding why firms engage in tax avoidance requires attention not only to tax incentives but also to the social, governance, financial, organisational, and institutional conditions within which corporate decisions are made.

The SME context is particularly important because the tax behaviour of smaller firms cannot necessarily be inferred from evidence generated predominantly from large listed corporations. SMEs differ from large corporations in ownership concentration, managerial structures, access to capital markets, financial constraints, accounting sophistication, and relationships with external stakeholders. The OECD identifies several structural features of SME taxation that can influence business decisions, including the asymmetric treatment of profits and losses, the tax treatment of different financing forms, and relatively high fixed compliance costs for smaller businesses (OECD, 2015). More recent OECD work further emphasises the importance of reducing administrative and compliance burdens while improving SMEs' ability to meet their tax obligations (OECD, 2022). These characteristics imply that the determinants of SME tax avoidance may operate differently from those of large, publicly traded corporations. Nevertheless, empirical tax-avoidance research remains heavily concentrated on listed and relatively large firms, creating an important empirical gap concerning the behaviour of SMEs across different sectors and institutional environments.

Within this context, corporate social responsibility (CSR) represents an important but theoretically ambiguous determinant of tax avoidance. Taxation is inherently connected to corporate responsibility because taxes constitute one of the principal channels through which firms contribute to the provision of public goods and the financing of government activities.

From a stakeholder perspective, aggressive tax avoidance may create a conflict between shareholders' desire to maximise after-tax returns and the interests of governments, communities, employees, and other stakeholders that benefit from public expenditure. Huseynov and Klamm (2012) were among the early empirical studies to connect CSR and tax avoidance, demonstrating that different dimensions of CSR can have different implications for tax behaviour. Subsequent international evidence has remained mixed. Zeng (2018), for example, finds that the relationship between CSR and tax avoidance varies across institutional environments, while Goerke (2019) theoretically demonstrates that CSR and tax avoidance may have either complementary or substitutive relationships depending on how firms balance private returns against social objectives. More recent evidence reinforces this ambiguity: a meta-analysis of 117 estimates from 23 studies finds only a small-to-moderate or negligible overall association between CSR and tax avoidance and identifies substantial heterogeneity across studies (Marques et al., 2024).

This heterogeneity represents an important research problem. If socially responsible firms are expected to behave consistently with broader stakeholder interests, stronger CSR should discourage aggressive tax avoidance. However, firms may simultaneously use tax savings to preserve resources for investment, social programmes, or other strategic objectives. Empirical evidence consequently does not establish a universal direction for the CSR–tax avoidance relationship. For example, Huseynov and Klamm (2012) demonstrate that different CSR dimensions have different associations with tax avoidance, while Lanis and Richardson's evidence suggests that corporate social responsibility can be associated with lower tax aggressiveness. Conversely, Zeng (2018) reports a positive overall CSR–tax avoidance association and shows that country-level governance conditions alter this relationship. The recent meta-analytic evidence is particularly important because it indicates that differences in samples, tax-avoidance measures, and empirical specifications account for substantial variation in reported results (Marques et al., 2024). Thus, the unresolved question is no longer simply whether CSR affects tax avoidance, but under what organisational and institutional conditions CSR influences firms' tax behaviour.

A second important determinant is governance architecture (GA). Governance architecture encompasses the institutional and organisational mechanisms through which managerial decisions are monitored, constrained, and aligned with the interests of shareholders and other stakeholders. Agency theory predicts that effective governance can reduce managerial opportunism by strengthening monitoring and accountability. This reasoning is particularly relevant to tax avoidance because tax planning involves managerial discretion and can generate both financial benefits and reputational, regulatory, and legal risks. A comprehensive review by Kovermann and Velte (2019), covering 79 empirical studies, concludes that governance mechanisms—including board composition, ownership structure, capital-market monitoring, auditing, enforcement, and stakeholder pressure—have substantial implications for corporate tax avoidance. More recent evidence from Mexico similarly shows that governance reforms reduce tax avoidance, with board independence and audit committees identified as important mechanisms underlying the reduction (Kerr et al., 2024).

The governance–tax avoidance relationship, however, is also unlikely to be universal. Strong governance can discourage aggressive tax avoidance by constraining managerial

opportunism, but governance may also facilitate sophisticated tax planning where such planning is perceived as consistent with shareholder wealth maximisation and within acceptable legal boundaries. This creates an important distinction between tax avoidance as value-enhancing tax planning and tax avoidance as potentially excessive risk-taking. The literature review by Kovermann and Velte (2019) explicitly concludes that effective governance can steer tax avoidance toward a firm-specific optimal level rather than necessarily eliminating it. Therefore, examining governance as a component of a broader interdependent framework is more informative than treating governance as a simple exogenous determinant of tax avoidance.

Capital structure (CS) provides a third important channel through which firms' financial policies may influence tax behaviour. Debt financing can generate tax benefits because interest expenses are generally deductible in determining taxable income, creating a tax shield relative to equity financing. A large meta-study of 48 studies and 1,144 estimates confirms that corporate taxation has a substantial effect on debt financing decisions, although the magnitude varies according to tax measures, econometric specifications, and firm characteristics (Feld et al., 2013). This tax–financing relationship creates an important connection between capital structure and tax avoidance because firms can potentially use both debt-related tax shields and other tax-planning strategies to reduce their effective tax burden.

The relationship is nevertheless more complex than the conventional proposition that higher leverage automatically increases tax avoidance. Lin et al. (2014) show that corporate tax aggression and debt can act as substitutes, while Jin (2021) similarly finds that corporate tax aggressiveness can reduce corporate debt utilisation and that the relationship varies according to firm size, profitability, and ownership structure. Recent research also demonstrates that tax avoidance can affect subsequent capital-structure choices because tax avoidance changes the relative costs of debt and equity financing (Lee et al., 2023). These findings suggest that capital structure and tax avoidance may be mutually embedded within firms' broader financial strategies rather than representing independent decisions. Importantly, however, much of this evidence is based on large or listed firms, leaving limited understanding of whether similar dynamics apply to SMEs operating across sectors and institutional environments.

The foregoing literature reveals a substantive empirical and theoretical problem. Existing studies have generated important insights into the individual relationships between CSR, corporate governance, capital structure, and tax avoidance, but the evidence remains fragmented. First, the CSR–tax avoidance literature produces heterogeneous findings, with recent meta-analytic evidence indicating that the average association is relatively weak and that study design, measurement choices, and contextual factors explain considerable variation (Marques et al., 2024). Second, although governance research demonstrates that board characteristics, ownership structures, auditing, and monitoring mechanisms can influence tax avoidance, the literature also indicates that governance may steer tax avoidance toward an economically optimal rather than uniformly lower level (Kovermann & Velte, 2019). Third, the capital-structure literature establishes strong links between taxation and financing decisions, but evidence also indicates that tax avoidance and leverage may substitute for or complement each other depending on profitability, firm size, financing

conditions, and institutional circumstances (Feld et al., 2013; Lin et al., 2014; Jin, 2021). These inconsistencies indicate that the determinants of tax avoidance cannot be adequately understood through isolated bivariate relationships.

A second gap concerns the level of analysis and population studied. Much of the established literature focuses on listed corporations and large firms because of the availability of financial and governance data. This creates a potential external-validity problem when findings are applied to SMEs. SMEs often face greater financing constraints, less diversified ownership structures, higher relative compliance costs, and more limited access to professional tax expertise than large corporations (OECD, 2015, 2022). Consequently, the incentives and constraints that shape tax avoidance among SMEs may differ materially from those affecting large listed companies. The limited SME evidence is particularly apparent when comparing product-based and service-based firms, despite differences between these sectors in asset intensity, financing requirements, operating models, international exposure, and tax-planning opportunities. Recent SME research has begun to connect CSR and tax avoidance, but the evidence remains concentrated in individual emerging-market settings rather than providing systematic cross-sectoral and cross-country comparisons.

A third gap concerns the mechanisms through which CSR, governance, and capital structure influence tax avoidance. Existing studies commonly examine direct effects, whereas relatively limited attention has been given to whether profitability transmits the effects of these strategic and financial characteristics to tax avoidance. Profitability is particularly important because firms with greater taxable income have a larger potential tax liability and therefore potentially greater incentives to undertake tax planning. At the same time, profitability provides financial resources that can support CSR investments, governance improvements, and sophisticated financial planning. Recent evidence confirms that profitability is associated with tax avoidance and that its interaction with other firm characteristics can materially alter tax-avoidance behaviour (Hendayana et al., 2024). The absence of an integrated mediation framework therefore limits understanding of how CSR, governance architecture, and capital structure translate into tax outcomes.

A fourth gap concerns the conditional nature of these relationships. Firm characteristics such as size and age can affect financial resources, organisational complexity, reputational exposure, governance capacity, and access to external finance. Evidence on capital structure and tax aggressiveness, for instance, shows that firm size and profitability can change the strength of the relationship between tax aggressiveness and debt utilisation (Jin, 2021). This suggests that the assumption of homogeneous effects across firms may be inappropriate. Nevertheless, relatively little research simultaneously examines firm size, firm age, and sectoral type as boundary conditions in an integrated CSR–governance–capital structure–tax avoidance framework.

A fifth and particularly important gap concerns the macroeconomic context. Corporate tax decisions are made within financial environments characterised by changing interest rates, financing costs, inflation, exchange rates, and credit conditions. Interest rates affect the cost of debt and the availability of external finance, while exchange-rate movements can affect firms with foreign-currency revenues, imported inputs, foreign-currency liabilities, and cross-border transactions. The importance of these conditions is particularly relevant for SMEs

because their financing options are generally more constrained than those of large corporations. Yet, existing tax-avoidance research has largely treated macroeconomic variables as controls rather than as potential moderators of the relationships between CSR, governance, capital structure, and tax avoidance. This represents a significant conceptual omission because the effectiveness of a governance mechanism or financing strategy may change when the external financial environment changes.

The sixth gap is therefore institutional and geographical. Much of the existing evidence is derived from individual countries or relatively homogeneous samples, limiting the ability to determine whether observed relationships are generalisable across developed and emerging economies. Zeng (2018), for example, demonstrates that country-level governance conditions influence the CSR–tax avoidance relationship, providing evidence that institutional context matters. Similarly, the international governance literature indicates that enforcement, investor protection, ownership structures, and institutional arrangements can affect corporate financial behaviour. Consequently, a cross-country design that explicitly distinguishes developed and emerging economies can provide evidence on whether the relationships identified in the literature are robust across different institutional environments.

Taken together, these gaps demonstrate the need for a reconceptualisation of tax avoidance as an interdependent outcome of social responsibility, governance architecture, financial structure, profitability, organisational characteristics, and macroeconomic conditions. Rather than asking whether any single determinant increases or decreases tax avoidance, this study examines how these factors interact and under what circumstances their effects become stronger or weaker. The proposed framework therefore responds to calls for more context-sensitive research on CSR and tax avoidance and addresses the heterogeneity identified in the existing literature.

Against this background, the present study investigates the interdependencies among Corporate Social Responsibility, Governance Architecture, Capital Structure, Profitability, and Tax Avoidance among product-based and service-based SMEs in developed and emerging economies. The study extends the existing literature by simultaneously examining direct relationships, the mediating role of profitability, and the moderating effects of firm size, firm age, sectoral type, interest rate, and exchange rate. This integrated approach is intended to provide a more comprehensive explanation of why firms adopt different tax strategies under different organisational and macroeconomic conditions.

The study pursues the following objectives:

- ✧ To examine the direct effects of corporate social responsibility, governance architecture, and capital structure on tax avoidance among product-based and service-based SMEs in developed and emerging economies.
- ✧ To assess the mediating role of profitability in the relationships between corporate social responsibility, governance architecture, capital structure, and tax avoidance.

- ✧ To examine the moderating effects of firm size, firm age, and sectoral type on the relationships among corporate social responsibility, governance architecture, capital structure, and tax avoidance.
- ✧ To investigate whether interest-rate conditions moderate the relationships between corporate social responsibility, governance architecture, capital structure, and tax avoidance.
- ✧ To examine whether exchange-rate conditions moderate the relationships between corporate social responsibility, governance architecture, capital structure, and tax avoidance.

The study makes several contributions to the literature. First, it advances a multi-dimensional conceptualisation of corporate tax avoidance by integrating CSR, governance architecture, and capital structure within a single analytical framework. This responds directly to the fragmented nature of previous research and to evidence that CSR–tax avoidance relationships vary considerably across study designs and institutional contexts (Marques et al., 2024).

Second, the study contributes to the relatively underdeveloped literature on SME tax avoidance by focusing on firms that differ substantially from the large listed corporations that dominate much of the existing literature. This is important because the OECD identifies financing constraints, compliance costs, and the tax treatment of different financing forms as distinctive issues for SMEs (OECD, 2015, 2022).

Third, the distinction between product-based and service-based SMEs introduces a cross-sectoral dimension that can reveal whether differences in asset structures, financing requirements, operating models, and international exposure condition firms' tax behaviour.

Fourth, the study advances the literature by examining profitability as a mediating mechanism rather than treating it merely as a control variable. This permits the analysis to determine whether CSR, governance architecture, and capital structure influence tax avoidance partly through their effects on firms' financial capacity and performance.

Fifth, the study introduces interest rate and exchange rate as macro-financial moderators. This is particularly important because the influence of firm-level governance and financial strategies may not be invariant to changes in external financing conditions and currency markets. The framework therefore moves beyond conventional models that treat macroeconomic variables primarily as controls.

Finally, the cross-country design contributes to the literature by explicitly considering developed versus emerging institutional environments. Existing international evidence demonstrates that country-level governance can alter the CSR–tax avoidance relationship (Zeng, 2018), suggesting that institutional context should form an integral part of explanations of corporate tax behaviour. The present study consequently seeks to explain not only whether CSR, governance, and capital structure influence tax avoidance, but also why,

through which mechanisms, and under what organisational and macroeconomic conditions those relationships vary.

Methodologically, the study employs Fixed-Effects Panel Regression and Panel Structural Equation Modeling (PSEM) to investigate the proposed relationships using firm-level panel data. Fixed-effects estimation provides a means of controlling for time-invariant unobserved firm heterogeneity, while PSEM facilitates simultaneous examination of direct and indirect relationships within the proposed conceptual framework. The combination of these approaches is intended to provide complementary evidence on the proposed interdependencies.

The findings are expected to have implications for tax administrators, policymakers, SME managers, investors, and corporate-governance practitioners. For tax authorities, identifying the organisational and macroeconomic conditions associated with greater tax-avoidance incentives can support more targeted compliance strategies. For SME managers, the findings can clarify how CSR commitments, governance arrangements, financing decisions, and profitability interact with tax planning. For investors and other stakeholders, the study can provide evidence on whether governance and social-responsibility mechanisms are associated with more sustainable and responsible tax behaviour.

The remainder of the paper is structured as follows. Section 2 reviews the theoretical and empirical literature and develops the hypotheses. Section 3 presents the research methodology, including the research design, sample, measurement of variables, and model specification. Section 4 presents and discusses the empirical findings. Section 5 discusses the theoretical and practical implications of the results, while Section 6 concludes the study, outlines its limitations, and identifies directions for future research.

Literature Review

Theoretical Postulates

This study integrates agency, stakeholder, pecking order, trade-off, legitimacy, political cost and institutional perspectives to explain the relationships among corporate social responsibility (CSR), capital structure (CS), governance architecture (GA), profitability (FP) and tax avoidance (TA). These theories are complementary: agency theory explains managerial incentives and governance constraints; stakeholder and legitimacy theories address the social and reputational dimensions of CSR and taxation; pecking order and trade-off theories explain financing choices and debt-related tax incentives; the political cost hypothesis links profitability and visibility to tax behaviour; and institutional theory explains cross-regional differences in these relationships.

Agency Theory

Agency theory, developed by Jensen and Meckling (1976), explains organizational behaviour through conflicts arising from the separation of ownership and control. Managers may pursue objectives that diverge from those of owners, creating agency costs and opportunities for managerial discretion. Tax avoidance is relevant to this framework because it can increase after-tax cash flows while simultaneously generating opacity, compliance and reputational risks. Managers may therefore adopt tax strategies that do not necessarily maximize long-term stakeholder value.

Governance mechanisms can mitigate these conflicts by strengthening monitoring, accountability and managerial alignment. Kovermann and Velte (2019), reviewing 79 empirical studies, show that board characteristics, ownership, auditing, enforcement and stakeholder pressure influence corporate tax avoidance, although governance does not uniformly constrain avoidance. Capital structure also has an agency dimension: debt can discipline managers through external monitoring and reduced discretionary cash flow, while simultaneously creating incentives to exploit interest tax shields. Agency theory therefore provides a rationale for examining CS and GA jointly as determinants of TA, particularly in SMEs where formal monitoring mechanisms may be comparatively limited.

Stakeholder Theory

Stakeholder theory (Freeman, 1984) conceptualizes the firm as a system of relationships involving shareholders, employees, customers, suppliers, governments, communities and other affected parties. Corporate taxation is therefore not merely a financial decision but can form part of the firm's broader social obligations. From this perspective, aggressive tax avoidance may conflict with stakeholder expectations concerning fairness and corporate responsibility.

Goerke (2019) theoretically connects CSR and tax avoidance by recognizing tax payments as contributions to public-good provision. However, the relationship is not necessarily uniformly negative. Hoi et al. (2013) demonstrate an association between irresponsible CSR behaviour and tax avoidance, while Jiang et al. (2022) find that mandatory CSR disclosure in China can increase tax avoidance under particular stakeholder and institutional conditions. Thus, stakeholder theory suggests that CSR may constrain TA where firms face strong expectations for responsible conduct, but its effect may weaken where CSR is primarily symbolic or decoupled from substantive behaviour.

Pecking Order Theory

Pecking Order Theory (POT), originating from Myers and Majluf (1984), proposes that firms prefer internal funds, followed by debt, and subsequently external equity because information asymmetry makes external financing relatively costly. The theory is particularly relevant to SMEs because financing constraints and information asymmetry may increase their dependence on internally generated funds and debt. Evidence from UK SMEs also indicates that capital-structure decisions reflect pecking-order and agency considerations (Poutziouris et al., 2022).

POT provides an indirect link between profitability, financing and tax behaviour. Profitable firms generate greater internal funds and may consequently require less external finance, whereas financing deficits can increase reliance on debt. Tax avoidance can preserve internal cash flows, while debt may create additional tax deductions through interest expenses. However, POT does not imply a mechanically positive CS–TA relationship because financing needs, liquidity and information asymmetry jointly determine capital-structure choices. Shyam-Sunder and Myers (1999) similarly show that financing deficits provide substantial support for the pecking-order model, while recognizing that no single capital-structure theory fully explains financing behaviour.

Trade-off Theory

Trade-off Theory (TOT) conceptualizes optimal leverage as a balance between the benefits of debt and the costs of financial distress (Kraus & Litzenberger, 1973). Debt provides tax advantages through deductible interest, but excessive leverage increases financial distress and related costs. Thus, firms may increase debt to obtain tax shields only until the marginal benefits are outweighed by associated risks.

TOT provides a direct theoretical basis for the CS–TA relationship because leveraged firms may have greater incentives to exploit interest deductions. Feld et al. (2013) confirm through meta-analysis that taxation is an economically relevant determinant of capital-structure decisions, although its influence varies across institutional settings. Conversely, Jin (2021) shows that tax aggressiveness may itself affect debt utilization, indicating that financing and tax decisions can be jointly determined. TOT therefore supports CS as a determinant of TA while recognizing that profitability, governance and institutional conditions can alter the balance between tax benefits and financing risks.

Legitimacy Theory

Legitimacy theory holds that organizations seek conformity with socially constructed norms, values and expectations in order to gain, maintain or repair legitimacy (Suchman, 1995). CSR is consequently relevant because firms can use responsible activities and disclosures to demonstrate conformity with societal expectations. Tax avoidance may create legitimacy tensions when aggressive tax minimization is perceived as inconsistent with claims of social responsibility.

Nevertheless, legitimacy theory also recognizes symbolic or decoupled behaviour. CSR disclosure does not necessarily guarantee responsible underlying practices. Jiang et al. (2022) provide evidence consistent with this possibility, showing that mandatory CSR disclosure may increase tax avoidance under certain institutional and stakeholder conditions. Legitimacy theory therefore suggests that CSR–TA relationships depend on the credibility of CSR, stakeholder expectations and institutional pressures rather than assuming that CSR automatically reduces tax avoidance.

Political Cost Hypothesis

The political cost hypothesis, rooted in Positive Accounting Theory, proposes that firms with greater political visibility face stronger incentives to avoid actions that attract regulatory and societal scrutiny (Watts & Zimmerman, 1978). Firm size, profitability and market prominence can increase such visibility. Highly profitable firms simultaneously face greater potential tax liabilities and stronger incentives to reduce their tax burden, creating a tension between tax-saving benefits and political, regulatory and reputational costs.

Hanlon and Heitzman (2010) emphasize that tax avoidance interacts with broader corporate decisions and encompasses strategies with different economic and reputational consequences. Profitability can therefore have competing implications: it increases the potential benefits of tax planning while potentially increasing scrutiny. This provides theoretical justification for examining profitability as a mediating mechanism between CSR, CS, GA and TA rather than treating it solely as a control variable.

Institutional Theory

Institutional theory explains organizational behaviour through coercive, normative and mimetic pressures arising from the institutional environment (DiMaggio & Powell, 1983). Tax behaviour is therefore shaped not only by firm-level incentives but also by taxation rules, enforcement capacity, governance requirements, professional norms and stakeholder expectations.

This perspective is particularly relevant to the study's European–ECOWAS comparison. Differences in regulatory enforcement, legal arrangements and institutional pressures may alter how CSR, leverage and governance influence tax avoidance. Consequently, regional differences should be viewed as contextual conditions that can strengthen or weaken firm-level relationships rather than simply as sample classifications. Kovermann and Velte (2019) similarly demonstrate the importance of enforcement, government relations, monitoring and stakeholder pressures in explaining corporate tax avoidance.

Overall, the seven perspectives provide an integrated theoretical foundation. Agency theory explains managerial discretion and governance; stakeholder and legitimacy theories explain CSR-related social and reputational pressures; POT and TOT explain financing and tax-shield mechanisms; the political cost hypothesis connects profitability with tax incentives and visibility; and institutional theory explains cross-regional variation. Together, they provide the theoretical basis for the study's direct, mediating and moderating hypotheses concerning CSR, CS, GA, FP and TA.

Empirical Literature and Hypotheses Formulation

This section critically examines empirical evidence concerning the relationships among corporate social responsibility (CSR), capital structure (CS), governance architecture (GA), profitability (FP) and tax avoidance (TA). It subsequently considers profitability as a mediating mechanism and firm size, firm age, interest rate, exchange rate, sector and region as contextual moderators. Rather than assuming uniform relationships, the review recognises substantial heterogeneity arising from differences in tax-avoidance measures, institutional environments, industries, ownership structures and research designs. This is particularly important because tax avoidance encompasses a continuum of tax-planning activities, ranging from legitimate tax minimisation to more aggressive strategies (Hanlon & Heitzman, 2010).

Corporate Social Responsibility and Tax Avoidance

CSR represents firms' economic, social and environmental responsibilities to stakeholders and is increasingly associated with corporate transparency, accountability and ethical conduct. Theoretically, socially responsible firms should be less inclined to pursue tax strategies that conflict with stakeholder expectations because taxes contribute to public goods and social infrastructure. Goerke (2019) formally models this tension and finds that increasing the weight attached to CSR can reduce tax avoidance because tax payments constitute part of the firm's social contribution. Similarly, Huseynov and Klamm (2012) show that dimensions of CSR, including governance, community and diversity, are associated with corporate tax-management behaviour, although the effects differ across CSR dimensions. Hoi et al. (2013) further find that firms exhibiting excessive irresponsible CSR activities are more

likely to engage in tax-sheltering activities, supporting the argument that corporate culture and social responsibility are relevant to tax behaviour.

More recent evidence, however, complicates the presumed negative CSR–TA relationship. Jiang et al. (2022), using a quasi-experimental design based on mandatory CSR disclosure in China, find that mandated CSR reporting significantly increased corporate tax avoidance. The effect was stronger among firms facing lower profitability, greater default risk and weaker cost-transfer capacity. Their findings suggest that CSR reporting can impose economic costs that firms partly offset through tax savings, illustrating that disclosure and substantive responsible behaviour are not necessarily equivalent.

The most important recent synthesis is the meta-analysis by Marques et al. (2024), which analyses 117 estimates from 23 studies. Rather than finding a consistently strong negative relationship, the authors report either no relationship or a small-to-moderate association depending on the measures, samples and econometric specifications. They conclude that firms may decouple CSR from tax avoidance, particularly where CSR is measured differently from substantive responsible conduct. Evidence from Ghana also illustrates this ambiguity. Musah et al. (2024), analysing Ghanaian listed firms, find a positive association between CSR expenditure and tax avoidance, while board independence is negatively associated with tax avoidance.

Thus, although stakeholder, legitimacy and ethical perspectives predict that substantive CSR should constrain aggressive tax behaviour, empirical evidence demonstrates that CSR can also coexist with or even facilitate tax avoidance when CSR generates financial costs or functions primarily as a disclosure mechanism. The present study therefore tests the dominant expectation that substantive CSR is associated with lower tax avoidance while recognising the possibility of decoupling.

H1: CSR is negatively associated with tax avoidance among SMEs, such that greater CSR engagement is associated with lower tax avoidance.

Capital Structure and Tax Avoidance

Capital structure can influence tax behaviour through the tax deductibility of interest. Trade-off theory predicts that firms have incentives to use debt because interest deductions reduce taxable income, although the benefits of leverage must be balanced against financial-distress and agency costs. Feld et al. (2013), in a meta-study of the relationship between taxation and capital structure, demonstrate that corporate taxation is economically relevant to financing decisions. Jin (2021) provides more direct evidence from China, showing that corporate tax aggressiveness and capital-structure decisions are interrelated, although tax aggressiveness can itself substitute for debt financing under some circumstances.

The positive leverage–tax-avoidance mechanism is also supported by research showing that debt provides firms with legitimate interest deductions that reduce taxable income. Nevertheless, the relationship should not be interpreted as evidence that all leverage represents tax avoidance. Firms may borrow because of investment opportunities, liquidity needs or financing constraints, while tax considerations constitute only one component of the financing decision.

Contradicting the simple positive prediction, Jin (2021) shows that tax aggressiveness can reduce debt utilisation because tax avoidance and interest deductions may act as alternative tax-saving mechanisms. Evidence from Ghana is similarly qualified: Musah et al. (2024) report that debt-to-equity ratio is statistically insignificant as a determinant of tax avoidance, despite finding positive effects for some other firm characteristics. Thus, leverage does not necessarily translate into aggressive tax avoidance, particularly where firms face high financing costs, weak investment opportunities or strong creditor monitoring.

Nevertheless, the tax-shield mechanism remains sufficiently established to support a positive directional expectation, particularly for SMEs in environments where debt deductions are economically important.

H2: Capital structure is positively associated with tax avoidance, such that greater reliance on debt financing is associated with higher tax avoidance.

Governance Architecture and Tax Avoidance

Governance architecture encompasses mechanisms such as board independence, ownership monitoring, audit committees, external auditing and managerial oversight. Agency theory suggests that effective governance should constrain opportunistic tax behaviour by reducing managerial discretion and increasing accountability. Kovermann and Velte (2019), reviewing 79 empirical studies, conclude that governance mechanisms—including incentive alignment, board composition, ownership structure, auditing, capital-market monitoring, enforcement and stakeholder pressure—have substantial implications for corporate tax avoidance. However, their review also shows that governance does not have a universally negative effect because governance mechanisms can steer tax avoidance toward a firm-specific optimal level rather than simply eliminate it.

Recent evidence generally supports a constraining role. Musah et al. (2024), using Ghanaian listed firms, report negative relationships between tax avoidance and both board independence and gender diversity. A 2026 international study similarly reports that responsible governance reduces tax avoidance and that CSR strengthens this effect, although the study concerns ESG-index firms rather than SMEs (Mlaiki et al., 2026).

Contradictory evidence arises because governance can also improve managers' ability to identify sophisticated tax-planning opportunities. Kovermann and Velte (2019) explicitly caution against assuming that governance always reduces tax avoidance; some mechanisms may facilitate efficient tax planning when avoidance is viewed as consistent with shareholder interests. Furthermore, governance effectiveness depends on institutional enforcement and the actual independence of monitoring bodies. Consequently, the relevant issue is not whether governance eliminates tax planning, but whether stronger governance constrains aggressive and opportunistic tax behaviour.

H3: Governance architecture is negatively associated with tax avoidance, such that stronger governance mechanisms are associated with lower tax avoidance.

Profitability and Tax Avoidance

Profitability has competing implications for tax avoidance. More profitable firms have greater taxable income and therefore larger potential gains from reducing tax liabilities. They also possess greater financial resources to employ sophisticated tax-planning strategies. Conversely, profitable firms may face greater scrutiny from tax authorities, investors and other stakeholders, increasing the reputational and regulatory costs of aggressive avoidance.

Hanlon and Heitzman (2010) emphasise that tax avoidance is closely connected to broader corporate decisions and should not be viewed simply as a response to the statutory tax rate. Evidence from Ghana provides a useful contextual illustration: Musah et al. (2024) find that firm profit is statistically insignificant as a determinant of tax avoidance, contradicting the assumption that profitability automatically increases avoidance. Other international evidence also shows that profitability can operate differently depending on tax-avoidance proxies, institutional quality and monitoring (Marques et al., 2024; Benkraiem et al., 2024).

The opposing mechanisms nevertheless provide a basis for expecting a positive relationship where the marginal benefit of tax savings exceeds the associated reputational, agency and compliance costs of tax avoidance (Desai & Dharmapala, 2006; Gallemore et al., 2014; Kovermann & Velte, 2019). Accordingly, the present study conceptualises profitability as both a direct determinant of tax avoidance and a potential transmission mechanism through which CSR, capital structure (CS) and governance architecture (GA) may influence tax-avoidance behaviour. This formulation recognises that profitability can simultaneously increase the economic incentives and organisational capacity for tax planning while transmitting the effects of firms' social, financing and governance characteristics to tax outcomes.

H4: Profitability is positively associated with tax avoidance, such that more profitable firms exhibit greater tax-avoidance behaviour.

Mediating Effect of Profitability

CSR, Profitability and Tax Avoidance

The proposed mediation of profitability in the CSR–TA relationship is based on the argument that CSR can influence financial performance, which subsequently changes firms' tax incentives and capacity. A large meta-analysis by Hirsch et al. (2023), based on 7,800 results from 512 empirical studies, identifies a small positive association between corporate social performance and corporate financial performance, although the magnitude varies substantially across measurement approaches and contexts. A separate meta-analysis of CSR disclosure and financial performance similarly reports that the CSR–financial-performance relationship is heterogeneous and sensitive to measurement and research design (Gupta et al., 2022).

If CSR enhances profitability, firms may generate greater taxable income and consequently face stronger incentives and greater capacity to undertake tax planning. This supports a positive indirect CSR→FP→TA pathway. However, the evidence on the CSR–TA relationship demonstrates that profitable CSR-oriented firms may also have greater reputational incentives to avoid aggressive tax practices. Jiang et al. (2022) actually find that the tax-avoidance response to mandatory CSR disclosure is more pronounced among firms with

weaker profitability, suggesting that profitability does not necessarily strengthen tax avoidance following CSR disclosure.

Therefore, the mediation hypothesis is theoretically plausible but empirically contestable.

H4a: Profitability positively mediates the relationship between CSR and tax avoidance.

Capital Structure, Profitability and Tax Avoidance

Capital structure can affect profitability through financing costs, investment capacity and interest tax shields. Under trade-off theory, debt may enhance after-tax profitability through deductible interest, while excessive leverage can reduce profitability through financial distress. Under pecking-order theory, profitable firms are more capable of financing investment internally and may consequently rely less on debt.

Feld et al. (2013) demonstrate that taxation influences financing decisions, while Jin (2021) shows that tax aggressiveness and debt financing may function as substitute mechanisms. This creates an important qualification for the proposed mediation: leverage may increase profitability through tax shields, but tax avoidance can simultaneously reduce the need for debt as a tax-saving mechanism.

The mediation is therefore expected where debt improves financial performance sufficiently to increase firms' taxable income and tax-planning incentives. Nevertheless, the indirect effect may be weakened where debt costs and financial distress dominate the tax-shield benefit.

H4b: Profitability positively mediates the relationship between capital structure and tax avoidance.

Governance Architecture, Profitability and Tax Avoidance

Governance can affect tax avoidance through two competing channels. First, effective governance may directly constrain aggressive tax behaviour. Second, effective monitoring and strategic oversight can improve operational efficiency and financial performance, potentially increasing taxable income and the economic benefits of tax planning (Kovermann & Velte, 2019; Hirsch, 2023).

The broader CSR–financial-performance evidence indicates that responsible organizational practices can generate modest improvements in financial performance, although substantial heterogeneity exists (Hirsch et al., 2023). Kovermann and Velte (2019) similarly show that governance can influence tax avoidance in different directions depending on the mechanism and institutional environment. Thus, stronger governance does not necessarily produce a uniformly negative total effect on tax avoidance: it may simultaneously constrain opportunistic behaviour while improving profitability and the capacity for sophisticated tax planning.

This dual pathway provides a rationale for testing profitability as a mediator rather than assuming that the direct GA–TA relationship captures the complete governance effect.

H4c: Profitability positively mediates the relationship between governance architecture and tax avoidance.

Moderating Effects

Firm Size

Firm size can alter the CSR–TA, CS–TA and GA–TA relationships because larger firms generally possess greater financial resources, more complex organizational structures and greater visibility. Size can therefore increase both the capacity for sophisticated tax planning and the expected costs of regulatory and reputational scrutiny.

Evidence regarding CSR is mixed. The recent meta-analysis by Marques et al. (2024) shows that CSR–TA estimates vary substantially according to sample characteristics and measurement choices. More recent evidence from Vietnam indicates that CSR disclosure is associated with lower tax avoidance and that board independence strengthens this negative association. Using 589 non-financial listed firms over 2015–2024, Nguyen et al. (2026) also find that larger firms exhibit higher effective tax rates and lower book–tax differences, consistent with more tax-compliant outcomes in their setting. Conversely, Musah et al. (2024) find that larger Ghanaian firms exhibit greater tax avoidance, suggesting that resource availability and tax-planning capacity may outweigh visibility effects in some emerging-market settings.

For capital structure, larger firms generally have better access to credit and may therefore exploit debt-related tax shields more effectively, but they also face greater scrutiny and may encounter tighter restrictions on aggressive tax planning (Feld et al., 2013). For governance, larger firms tend to have more formalized governance systems, potentially increasing monitoring effectiveness, although organizational complexity can create additional opportunities for tax planning (Kovermann & Velte, 2019).

The evidence therefore supports size as a meaningful contextual variable, but not a universally directional moderator. Given the study's expectation that greater organizational resources and financing capacity amplify the relevant firm-level mechanisms, the hypotheses are formulated directionally.

H5a: Firm size strengthens the negative relationship between CSR and tax avoidance, such that the CSR-related reduction in tax avoidance is stronger among larger firms.

H5b: Firm size strengthens the positive relationship between capital structure and tax avoidance, such that the tax-avoidance implications of leverage are stronger among larger firms.

H5c: Firm size strengthens the negative relationship between governance architecture and tax avoidance, such that the constraining effect of governance is stronger among larger firms.

Firm Age

Firm age captures organizational experience, accumulated knowledge, established routines and reputational capital. Older firms may have more developed governance and tax-

management systems, but they may also possess greater knowledge of tax regulations and more sophisticated tax-planning capabilities.

The empirical evidence is mixed. Dewinta and Setiawan (2016), examining Indonesian manufacturing firms, report a positive relationship between firm age and tax avoidance, suggesting that older firms may possess greater experience and organisational capacity for tax planning. In contrast, Richie and Triyani (2023) find a negative relationship between firm age and tax avoidance among Indonesian manufacturing firms, implying that organisational maturity may instead strengthen compliance-oriented behaviour. More recent evidence from Indonesia similarly reports a significant negative association between firm age and tax avoidance (Irawati et al., 2025). These contradictory findings suggest that firm age is neither inherently tax-constraining nor tax-enhancing; rather, its effect may depend on firms' accumulated tax knowledge, governance routines, reputational considerations, institutional relationships and regulatory environment.

For CSR, older firms may possess stronger reputational commitments and more established stakeholder relationships, potentially strengthening CSR's tax-constraining effect, although organizational inertia can make CSR increasingly routinized or symbolic (Suchman, 1995; Hoi et al., 2013). Regarding capital structure, older firms may depend less on debt because of accumulated retained earnings, consistent with financing preferences under information asymmetry, but established firms may also have greater access to debt markets (Myers & Majluf, 1984; Feld et al., 2013). For governance, organisational maturity may strengthen formal monitoring while simultaneously creating conditions for managerial entrenchment, making the net effect on tax avoidance theoretically ambiguous (Kovermann & Velte, 2019).

Given these competing mechanisms, the study predicts that age will weaken the tax-related effects of CSR, CS and GA where organizational maturity reduces responsiveness to new strategic and governance pressures.

H6a: Firm age weakens the negative relationship between CSR and tax avoidance.**

H6b: Firm age weakens the positive relationship between capital structure and tax avoidance.

H6c: Firm age weakens the negative relationship between governance architecture and tax avoidance.

Interest rates influence the cost and availability of external finance and therefore alter firms' incentives to conserve internal cash through tax planning. Chen et al. (2022) provide *Interest Rate*

particularly strong evidence using China's interest-rate deregulations as quasi-natural experiments. They find that banking liberalization reduces corporate tax avoidance, with the effect concentrated among firms that increase bank borrowing after liberalization. The evidence indicates that improved access to external finance can reduce the incentive to generate internal funds through tax avoidance.

This finding supports the argument that financing conditions can moderate the effects of CSR, CS and GA on TA. When interest rates are high, external finance becomes more expensive,

potentially increasing the value of internally generated cash and tax savings. Conversely, lower financing costs may reduce the need for tax avoidance as a liquidity-management strategy.

However, the effect is not necessarily uniform. Higher interest rates increase the cost of debt and can therefore discourage leverage, potentially reducing firms' reliance on interest-related tax shields. At the same time, changes in borrowing costs can alter the economic value of tax deductions and firms' incentives to engage in tax planning (Fischer & Jensen, 2024). Evidence from banking liberalisation also indicates that changes in financing conditions can affect corporate tax-planning behaviour, with firms reducing tax avoidance following interest-rate deregulation in China (Chen et al., 2022). Thus, interest rates can simultaneously affect the benefits of tax avoidance and the financing and monitoring costs associated with debt, providing a theoretical basis for a non-uniform moderating effect.

H7a: Interest rate significantly moderates the relationship between CSR and tax avoidance.

H7b: Interest rate significantly moderates the relationship between governance architecture and tax avoidance.

H7c: Interest rate significantly moderates the relationship between capital structure and tax avoidance.

Exchange Rate

Exchange-rate movements affect firms through foreign-currency revenues, imported inputs, foreign-currency liabilities and cross-border transactions. These channels can alter liquidity, profitability and incentives for tax planning.

Wang et al. (2017) use the Asian financial crisis as an exogenous exchange-rate shock and construct firm-level exposure based on export destinations. Their evidence demonstrates that exchange-rate shocks can affect corporate tax avoidance, providing direct support for considering currency conditions in the tax-avoidance framework. Deng (2020) provides complementary evidence from U.S. multinationals: greater currency volatility is associated with less tax-motivated outbound income shifting because FX risk constitutes a non-tax cost of shifting income; firms using currency derivatives, which reduce this risk, engage in greater income shifting.

These mechanisms indicate that exchange-rate conditions can alter the costs and benefits associated with tax planning. Evidence from international tax research shows that foreign-exchange risk can affect firms' incentives to shift income across jurisdictions, while hedging can facilitate tax-motivated income shifting (Deng, 2020).

For CSR, exchange-rate depreciation or heightened currency uncertainty may increase financial pressure and strengthen firms' incentives to preserve internal liquidity, although the extent of this response is likely to depend on firms' existing financial slack and exposure to foreign-currency transactions. The CSR literature indicates that socially responsible firms may adopt distinctive cash-holding policies because stakeholder relationships and social capital affect financial risk and the value of liquidity (Cheung, 2016; Chang et al., 2019). At the same

time, established CSR commitments can constrain aggressive tax behaviour because tax avoidance may generate reputational costs and adverse stakeholder responses (Gallemore et al., 2014; Migliavacca, 2026). Thus, exchange-rate conditions may create competing pressures between preserving financial resources and maintaining socially responsible tax behaviour.

For governance, exchange-rate uncertainty can increase financial complexity and information asymmetry, potentially increasing the value of effective monitoring and risk-management arrangements. Recent international evidence shows that, in emerging markets, information asymmetries influence firms' choices regarding foreign-currency borrowing and currency mismatches, with such mismatches having implications for corporate risk-taking (Eren et al., 2023). These findings suggest that effective governance and monitoring may become particularly important where firms face substantial exchange-rate exposure, although the evidence does not imply that exchange-rate uncertainty necessarily increases managerial discretion in all firms.

For capital structure, exchange-rate movements can alter the domestic-currency value and servicing burden of foreign-currency liabilities, thereby affecting borrowing constraints, leverage and the relative attractiveness of alternative financing arrangements (Shim & Kalemli-Ozcan, 2020; Hardy et al., 2024). Recent BIS evidence similarly shows that depreciation can increase the value of foreign-currency debt in domestic-currency terms and transmit exchange-rate shocks through firms' balance sheets and financing relationships (Hardy et al., 2024). These mechanisms provide a basis for expecting exchange-rate conditions to moderate the relationship between capital structure and tax avoidance, although the direction of the moderation remains theoretically ambiguous.

Accordingly, the moderating role of exchange rates is theoretically ambiguous and may depend on whether the prevailing currency conditions primarily intensify financial constraints, tax-planning incentives, or governance and reputational pressures (Deng, 2020). Since the empirical evidence supports a contextual rather than uniformly directional effect, the hypotheses are specified as significant moderation rather than imposing a universal positive or negative sign.

H8a: Exchange rate significantly moderates the relationship between CSR and tax avoidance.

H8b: Exchange rate significantly moderates the relationship between governance architecture and tax avoidance.

H8c: Exchange rate significantly moderates the relationship between capital structure and tax avoidance.

Sectoral Classification

Sectoral classification may condition tax behaviour because firms differ in asset intensity, financing requirements, regulatory exposure, customer visibility and opportunities for tax planning. Product-based firms are generally more capital intensive and may therefore derive greater tax benefits from debt financing and depreciation- or capital-allowance-related deductions, whereas service firms tend to rely more heavily on intangible assets, human

capital and customer relationships. Recent international evidence confirms that product- and service-based firms respond differently to tax-motivated income-shifting incentives, with service firms showing greater responsiveness on average and the differences being associated with intangible intensity, human-capital characteristics and tax-haven use (Deng & Rane, 2024; OECD, 2024).

The CSR literature also suggests sectoral heterogeneity. Hirsch et al. (2023), analysing thousands of empirical estimates, find that the CSR–financial-performance relationship varies by sector, with stronger effects reported in industrial settings. The CSR–TA literature similarly demonstrates substantial heterogeneity across samples and specifications (Marques et al., 2024).

Evidence on governance suggests that sector-specific regulation can affect the effectiveness of monitoring. Kovermann and Velte (2019) identify enforcement, auditing and stakeholder pressure as important contextual determinants of tax avoidance. Thus, governance may have stronger tax-constraining effects in sectors subject to intensive regulatory and stakeholder scrutiny.

Capital structure provides a clear sectoral mechanism. Capital-intensive product firms typically require greater investment in tangible fixed assets, which can increase their borrowing capacity because tangible assets provide collateral for external finance. Greater reliance on debt can, in turn, generate interest-related tax shields, making the tax consequences of financing choices particularly relevant for firms with substantial fixed-asset bases (Feld et al., 2013; Shukla et al., 2024). Thus, where product firms have greater access to asset-backed debt, their capital structure may provide stronger incentives and opportunities for tax planning than in less asset-intensive businesses. This mechanism is consistent with the documented heterogeneity in capital-structure choices between manufacturing and service-sector firms (Shukla et al., 2024). Service SMEs, by contrast, may rely relatively more on internally generated funds and equity because their asset bases are often less tangible and their borrowing capacity may differ from that of asset-intensive firms (Feld et al., 2013; Shukla et al., 2024). Recent evidence comparing manufacturing and service-sector firms documents significant heterogeneity in capital-structure choices, indicating that financing patterns differ systematically across sectors (Shukla et al., 2024). This evidence supports treating sector as a conditioning factor in the capital structure–tax avoidance relationship rather than assuming homogeneous financing behaviour across firms.

Accordingly, sectoral classification is expected to condition all three focal relationships.

H9a: Sectoral classification moderates the CSR–tax avoidance relationship, such that the negative relationship is stronger among service-based SMEs than product-based SMEs.

H9b: Sectoral classification moderates the capital structure–tax avoidance relationship, such that the positive relationship is stronger among product-based SMEs than service-based SMEs.

H9c: Sectoral classification moderates the governance architecture–tax avoidance relationship, such that the negative relationship is stronger in sectors subject to greater regulatory and stakeholder scrutiny.

Regional Classification

Regional institutional environments can substantially affect corporate tax behaviour. Tax laws, enforcement capacity, investor protection, governance standards and stakeholder expectations determine both the opportunities for tax avoidance and the expected costs of engaging in it. DiMaggio and Powell's (1983) institutional perspective therefore implies that firm-level relationships cannot be separated completely from their institutional environments.

Evidence from the CSR literature demonstrates this contextual dependence. Garcia et al. (2024), examining 3,866 firms from 44 countries, find that the CSR–tax-avoidance relationship varies with institutional conditions, including economic freedom. Jiang et al. (2022) similarly show that the tax-avoidance effect of mandatory CSR disclosure varies with institutional quality and stakeholder orientation. These findings provide empirical justification for treating region as a moderator rather than merely a control variable.

For the European–ECOWAS comparison, the theoretical expectation is that differences in enforcement, tax administration, governance institutions and market development may alter the effectiveness of CSR and governance as constraints on tax avoidance. International evidence indicates that stronger investor protection and legal enforcement are associated with weaker effects of tax avoidance-related opportunism, suggesting that institutional quality can constrain managerial discretion (Benkraiem et al., 2024). Similarly, comparative evidence on tax administrations demonstrates substantial cross-country variation in administrative capacity, organisational practices and enforcement arrangements (OECD, 2024). In Europe, the institutional environment is further shaped by common anti-avoidance rules, including the EU Anti-Tax Avoidance Directive, which establishes legally binding measures addressing interest deductions, controlled foreign companies, hybrid mismatches and other forms of aggressive tax planning. Nevertheless, regional heterogeneity should not be reduced to a simple developed-versus-developing dichotomy because substantial institutional and tax-system variation exists both across European jurisdictions and among ECOWAS member states.

Capital structure may also have different tax implications across regions because the availability of debt, interest-deductibility rules and the enforcement of anti-avoidance provisions vary across jurisdictions (Feld et al., 2013; OECD, 2024). Similarly, governance mechanisms are likely to be more effective when supported by credible enforcement and investor protection, since stronger institutional safeguards can constrain managerial opportunism and reduce the scope for tax-related agency problems (Kovermann & Velte, 2019; Benkraiem et al., 2024).

The hypotheses therefore reflect the study's comparative institutional expectation while acknowledging that the empirical literature does not establish a universal regional effect.

H10a: Regional classification moderates the CSR–tax avoidance relationship, such that the negative effect of CSR on tax avoidance is stronger among European SMEs than ECOWAS SMEs.

H10b: Regional classification moderates the capital structure–tax avoidance relationship, such that the positive effect of capital structure on tax avoidance is stronger among ECOWAS SMEs than European SMEs.

H10c: Regional classification moderates the governance architecture–tax avoidance relationship, such that the negative effect of governance architecture on tax avoidance is stronger among European SMEs than ECOWAS SMEs.

Conceptual Framework

The conceptual framework illustrates an integrative structural model explaining the determinants of corporate tax avoidance among small and medium enterprises (SMEs). The framework posits that firm-level strategic choices—specifically Corporate Social Responsibility (CSR) engagement, Capital Structure (CS), and Governance Architecture (GA)—directly drive tax avoidance behaviors (H1–H3). While ethical commitment (CSR) and internal monitoring (GA) serve as vital constraining mechanisms against aggressive tax strategies, high financial leverage (CS) incentivizes tax minimization through debt tax shields.

Beyond these direct baseline associations, the framework captures an underlying indirect path mediated by Profitability (H4a–H4c). Profitability acts as a transductive mechanism through which internal capabilities and capital allocations generate the economic capacity for formal tax planning.

Crucially, the theoretical framework recognizes that these direct and mediated relationships do not operate in a vacuum; rather, they are conditioned by firm characteristics (Firm Size [H5a–c] and Firm Age [H6a–c]) and macro-environmental contexts (Interest Rates [H7a–c], Exchange Rates [H8a–c], Sectoral Classification [H9a–c], and Regional Classification [H10a–c]). These multi-level moderators establish the boundary conditions of the model, demonstrating that institutional strength, macroeconomic fluctuations, sector intangibility, and organizational maturity systematically govern the magnitude and direction of SME tax avoidance strategies.

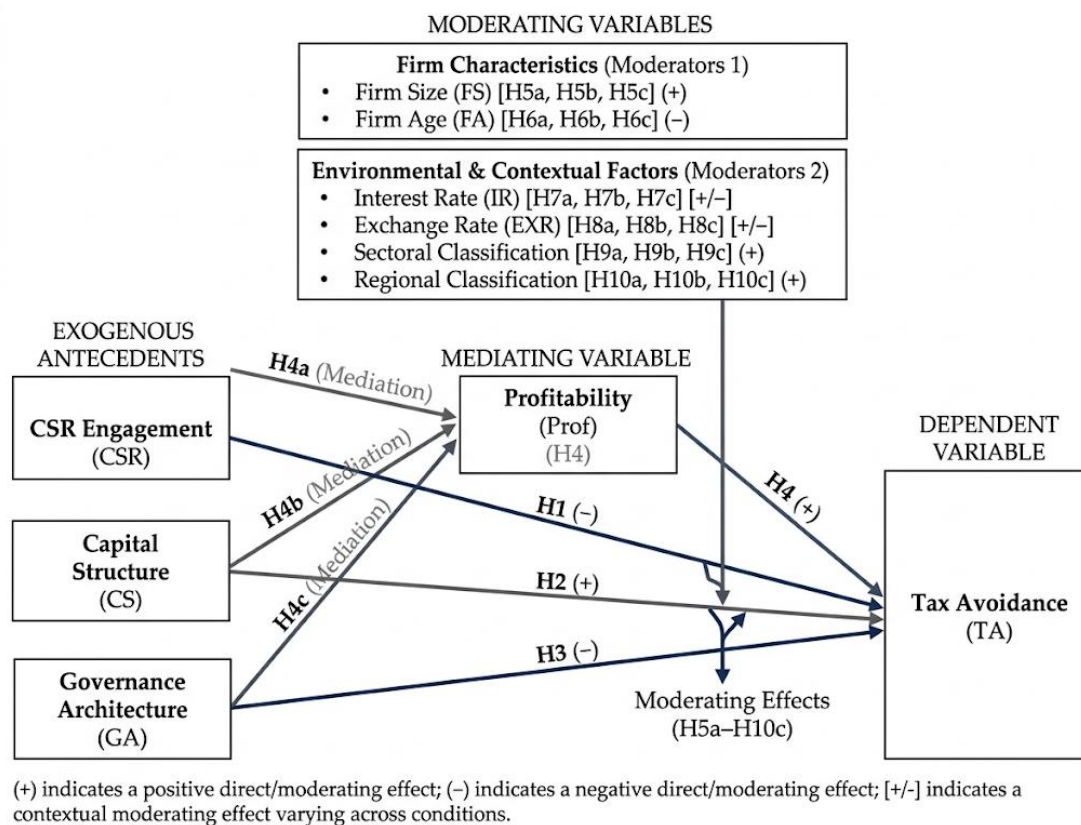


Figure 1 Conceptual Framework

Research Methodology

Research Design

This study adopts a quantitative, explanatory research design grounded in a positivist research philosophy to examine the relationships among Corporate Social Responsibility (CSR), Capital Structure (CS), Governance Architecture (GA), Firm Profitability (FP) and Tax Avoidance (TA) among product-based and service-based SMEs in Europe and the Economic Community of West African States (ECOWAS). An explanatory design is appropriate because the study seeks to test theoretically derived hypotheses concerning direct relationships, mediation and moderation rather than merely describe characteristics of the sampled firms (Creswell & Creswell, 2018).

The study employs Partial Least Squares Structural Equation Modelling (PLS-SEM) as the principal analytical technique. PLS-SEM is appropriate because the conceptual model incorporates multiple interrelated relationships involving direct effects, indirect effects through profitability and interaction effects involving firm size, firm age, interest rate, exchange rate, sector and region. It is particularly useful for estimating complex path models involving latent variables and composite constructs and for assessing both measurement and structural relationships within an integrated framework (Hair et al., 2022; Sarstedt et al., 2022). Hair et al. (2022) specifically provide procedures for reflective and formative measurement models, structural-model evaluation, mediation and moderation analysis.

Recent methodological literature further emphasises that PLS-SEM should be selected on the basis of the research objective, model characteristics and measurement specification rather

than simply because a model is complex. Sarstedt et al. (2022) highlight developments in PLS-SEM practice concerning composite modelling, higher-order constructs, discriminant validity, predictive assessment and moderation, while Sarstedt, Hair and Ringle (2022) discuss PLS-SEM as a composite-based approach for models containing unobservable and composite concepts. Accordingly, the choice of PLS-SEM in this study is driven by the structure of the conceptual model and the measurement characteristics of its constructs rather than by complexity alone.

The study focuses on product-based and service-based SMEs operating in Europe and ECOWAS countries. This geographical scope is deliberate because the study examines whether institutional and economic environments condition the relationships between CSR, capital structure, governance architecture and tax avoidance. The European and ECOWAS settings provide institutionally heterogeneous environments in which differences in regulatory enforcement, financial-market development, taxation systems and governance arrangements can be examined comparatively. The regional classification is therefore incorporated into the empirical model as a potential moderating condition rather than being treated simply as a descriptive characteristic.

The sectoral dimension distinguishes between product-based SMEs and service-based SMEs. Product-based SMEs are firms whose principal activities involve the production, processing or sale of tangible goods, whereas service-based SMEs primarily provide services. This distinction is theoretically relevant because firms may differ in asset intensity, financing requirements, operating structures, customer relationships, regulatory exposure and opportunities for tax planning. Sector is consequently incorporated into the analytical framework to determine whether the relationships between CSR, CS, GA and TA vary systematically across product- and service-oriented firms.

The study uses firm-level observations covering the available study period for which sufficiently consistent financial, governance and macroeconomic information can be obtained. The resulting dataset has a longitudinal structure, with observations organised across firms and years. The longitudinal arrangement increases the empirical information available for analysing variation in the constructs and contextual variables. Nevertheless, the study does not treat PLS-SEM as a substitute for conventional panel-data estimators. Rather, PLS-SEM is employed as the principal structural modelling technique because the study's primary objective is to estimate an integrated network of direct, mediating and moderating relationships.

This distinction is important because repeated firm-year observations may contain within-firm dependence that should not be ignored when assessing statistical inference. Consequently, the empirical analysis should incorporate appropriate procedures for addressing potential dependence, heterogeneity and common-method or measurement concerns where applicable. Where constructs are based on archival firm-level indicators rather than questionnaire items, the measurement specification should also clearly distinguish between composite/formative operationalisation and reflective measurement. This is consistent with contemporary PLS-SEM guidance, which stresses that measurement-model specification must follow the conceptual meaning of the construct rather than statistical convenience (Hair et al., 2022; Sarstedt et al., 2022).

The research design incorporates both a measurement model and a structural model. The measurement model evaluates the reliability and validity of constructs for which multiple indicators or composite measures are employed. Depending on the construct specification, assessment includes indicator reliability, internal consistency reliability, convergent validity and discriminant validity for reflective constructs, while formative or composite constructs require assessment of indicator relevance, collinearity and the significance and relevance of indicator weights. The structural model subsequently evaluates the hypothesised relationships among CSR, CS, GA, FP and TA and tests the proposed mediation and moderation relationships. These procedures are consistent with established and subsequently updated PLS-SEM guidelines (Hair et al., 2022; Sarstedt et al., 2022).

The empirical framework is consequently organised around four principal analytical components. First, the study examines the direct effects of CSR, capital structure, governance architecture and profitability on tax avoidance. Second, it investigates whether profitability mediates the relationships between CSR, capital structure, governance architecture and tax avoidance. Third, it examines firm size, firm age, interest rate and exchange rate as contextual moderators of the principal relationships. Finally, sectoral and regional classifications are incorporated to determine whether the structural relationships differ systematically between product-based and service-based SMEs and between Europe and ECOWAS.

Overall, the explanatory quantitative design provides a coherent framework for testing the study's theoretically derived propositions. PLS-SEM is particularly suited to the proposed model because it permits the simultaneous estimation of direct, indirect and interaction effects while accommodating composite constructs and complex structural relationships. However, its application is conditioned on appropriate measurement specification, adequate sample size, assessment of collinearity and rigorous evaluation of predictive and explanatory performance rather than reliance on model-fit statistics alone (Hair et al., 2022; Sarstedt et al., 2022). More recent methodological guidance also emphasises transparent reporting and careful justification of PLS-SEM applications rather than presenting the technique as universally superior to covariance-based SEM or regression approaches (Sarstedt et al., 2022; Hair et al., 2024).

Variable Measurement and Operationalization

This study operationalizes the constructs based on established theoretical and empirical literature. The measurement strategy is designed to ensure consistency with the proposed panel regression and Panel Structural Equation Modeling (PSEM) frameworks. The dependent, independent, mediating, and moderating variables are defined as follows.

Dependent Variable: Tax Avoidance (TA)

Tax avoidance is measured using two complementary accounting-based indicators: Book-Tax Difference (BTD) and the Effective Tax Rate (ETR) Gap. Adjusted BTD is calculated as the difference between accounting income and estimated taxable income, scaled by total assets. The ETR Gap is measured as the difference between the statutory corporate tax rate and the firm's effective tax rate:

$$\text{ETR Gap} = \text{STR} - \text{ETR}$$

where STR represents the applicable statutory corporate income tax rate and ETR is calculated as income tax expense divided by pre-tax accounting income. Larger positive values of the ETR Gap indicate a greater divergence between the statutory and effective tax burden and, subject to appropriate treatment of loss-making firms and special tax regimes, indicate greater tax avoidance. BTD and ETR are widely used proxies for corporate tax avoidance because they capture different dimensions of firms' tax outcomes (Hanlon & Heitzman, 2010; Kim et al., 2011). The use of both measures provides a robustness check against dependence on a single tax-avoidance proxy.

Independent Variables

Corporate Social Responsibility (CSR)

CSR is measured using a CSR Disclosure Index (CSRI) constructed from information reported in firms' sustainability reports, annual reports and other publicly available corporate disclosures. The index captures the extent to which firms disclose environmental, social, community, employee and other socially responsible practices. Each applicable disclosure item is coded and aggregated into a composite score ranging from 0 to 1, with higher values indicating more extensive CSR disclosure. A disclosure-based index is appropriate because it provides a systematic and comparable measure of the breadth of firms' publicly communicated CSR activities and is consistent with prior research that operationalises CSR through multidimensional disclosure information (Huseynov & Klamm, 2012; Gupta et al., 2022).

CSR index consists of binary disclosure items (0 = not disclosed; 1 = disclosed), the standard unweighted Corporate Social Responsibility Disclosure Index is:

$$CSRI_i = \frac{\sum_{j=1}^n d_{ij}}{n_i}$$

where $d_{ij} = 1$ if firm i discloses CSR item j , and 0 otherwise, while n_i is the number of applicable CSR items. This makes the 0–1 measure transparent and reproducible.

Governance Architecture (GA)

Corporate Governance (CG), referred to as Governance Architecture (GA) in the conceptual model, is operationalized using a multidimensional Corporate Governance Index comprising observable governance characteristics, including board independence, audit committee characteristics, ownership concentration and governance-related disclosures. The individual governance indicators are coded, standardised where necessary and aggregated into a composite index ranging from 0 to 1, with higher scores representing stronger governance arrangements. A multidimensional index is appropriate because corporate governance is inherently heterogeneous and cannot be adequately represented by a single governance mechanism. The selected dimensions capture key monitoring, oversight and ownership structures through which governance can constrain managerial discretion. Governance mechanisms are particularly relevant to tax avoidance because board oversight, ownership structures, auditing and monitoring can influence managerial incentives, accountability and the scope for opportunistic tax-planning decisions (Kovermann & Velte, 2019; Khan et al., 2022).

Because each governance item is coded 0/1, an unweighted index is more transparent:

$$GA_i = \frac{\sum_{j=1}^k g_{ij}}{k}$$

where $g_{ij} = 1$ when firm i satisfies governance criterion j , and 0 otherwise, and k is the number of applicable governance criteria.

Capital Structure (CS)

Capital structure is measured using the total debt-to-total assets ratio:

$$CS = \text{Total Debt} / \text{Total Assets}$$

The ratio captures the proportion of a firm's asset base financed through debt and therefore provides a parsimonious measure of financial leverage. The measure is particularly relevant to tax avoidance because interest payments on qualifying debt can generate tax deductions, creating a tax-shield benefit that may influence firms' financing and tax-planning decisions. Evidence from the capital-structure literature indicates that corporate taxation is an important determinant of financing choices, although the magnitude and direction of the relationship vary across institutional and firm-level settings (Feld et al., 2013). More recent evidence also indicates that the relationship between tax aggressiveness and capital-structure decisions may operate in both directions, suggesting that leverage and tax avoidance should not be interpreted as an entirely one-way relationship (Jin, 2021; Lee et al., 2023).

Mediating Variable

Firm Profitability (FP)

Firm profitability is measured using Return on Assets (ROA):

$$ROA = \text{Net Income} / \text{Total Assets}$$

ROA captures the firm's ability to generate accounting earnings from its asset base and provides a widely used measure of firm-level financial performance. It is particularly appropriate for the present study because it scales profitability by the resources employed to generate earnings, thereby facilitating comparison across firms of different sizes and operating structures.

Profitability is specified as a mediating variable because CSR, governance architecture and capital structure may influence firms' financial performance, while profitability may subsequently affect taxable income, tax incentives and the resources available for tax planning. Evidence from the CSR literature indicates a generally positive but heterogeneous association between corporate social performance and financial performance (Hirsch, 2023), while the taxation and capital-structure literature indicates that firms' financing and tax decisions are interrelated (Feld et al., 2013). More broadly, tax research recognises that firms' profitability and taxable-income characteristics are important considerations when interpreting tax-avoidance measures (Hanlon & Heitzman, 2010). Accordingly, the mediation

specification does not assume that profitability necessarily transmits these effects; rather, it tests whether profitability constitutes a statistically significant indirect pathway through which CSR, governance architecture and capital structure are associated with tax avoidance.

Moderating Variables

The study incorporates five categories of moderating variables: firm size, firm age, sectoral classification, interest rate, and exchange rate. These moderators are intended to establish whether the relationships between CSR, CG, CS, FP, and TA vary according to firm-specific, sectoral, and macroeconomic conditions.

Firm Size (FSIZE)

Firm size is measured as the natural logarithm of total assets:

$$FSIZE = \ln(\text{Total Assets})$$

The logarithmic transformation reduces skewness in the asset distribution and provides a more stable measure of relative firm scale. Firm size is theoretically relevant to tax avoidance because larger firms generally possess greater financial, managerial and informational resources that may facilitate sophisticated tax planning. At the same time, larger firms are typically more visible to regulators, investors and other stakeholders and may therefore face stronger monitoring, reputational pressures and political costs that constrain aggressive tax behaviour. Empirical evidence confirms that the relationship between firm size and tax avoidance is not unidirectional across settings, reflecting the countervailing effects of tax-planning capacity and external scrutiny (Hanlon & Heitzman, 2010; Musah et al., 2024; Nguyen et al., 2026). Accordingly, FSIZE is specified as a moderator rather than merely a control variable, allowing the study to test whether firm scale changes the strength of the relationships between CSR, Governance Architecture (GA), Capital Structure (CS) and Tax Avoidance (TA).

Firm Age (FAGE)

Firm age is measured as the natural logarithm of the number of years since the firm's incorporation:

$$FAGE = \ln(1 + \text{Years Since Incorporation})$$

The logarithmic transformation reduces the influence of exceptionally old firms while retaining meaningful variation in organisational experience and maturity. Firm age is theoretically relevant to tax avoidance because older firms may accumulate financial expertise, develop established governance routines, build relationships with tax authorities and acquire greater knowledge of tax-planning opportunities. Conversely, organisational maturity may also strengthen compliance routines, reputational concerns and institutionalised governance practices that constrain aggressive tax behaviour. Thus, the expected effect of firm age is theoretically ambiguous and potentially context dependent.

Empirical evidence confirms that firm age is relevant to firms' tax-avoidance behaviour, although the direction and magnitude of the association vary across institutional and firm-level settings (Richie & Triyani, 2023; Irawati et al., 2025). Accordingly, FAGE is specified as a

moderating variable to test whether organisational maturity alters the strength of the relationships between CSR, Governance Architecture (GA), Capital Structure (CS) and Tax Avoidance (TA), rather than assuming that older firms are inherently more or less tax aggressive.

Sectoral Classification (SECTOR)

Sector is represented by a binary dummy variable:

$$\text{SECTOR} = \begin{cases} 1 & \text{Service-based SME} \\ 0 & \text{Product-based SME} \end{cases}$$

The variable captures structural differences between service-oriented and product-oriented SMEs. These differences may include asset intensity, financing requirements, inventory exposure, reliance on intangible assets and human capital, international transactions, regulatory exposure and opportunities for tax planning. Recent international evidence indicates that product- and service-based firms can differ systematically in their exposure to tax-motivated income-shifting incentives, supporting the relevance of sectoral heterogeneity in tax-related research (Deng & Rane, 2024).

Sector is therefore specified as a moderating variable rather than merely a control variable. The analysis tests whether the strength and direction of the relationships between CSR and TA, GA and TA, and CS and TA differ between service-based and product-based SMEs. With product-based firms coded as the reference category (0), the interaction coefficients involving SECTOR indicate whether the corresponding relationships for service-based firms differ from those observed among product-based firms. This specification allows the study to test sector-specific hypotheses without assuming that one sector is inherently more or less tax compliant.

Interest Rate (INTR)

Interest rate is introduced as a country-year-level macroeconomic moderator capturing the prevailing cost of external financing in the country and fiscal year in which each firm operates. To ensure cross-country comparability, INTR should be measured using a consistently defined annual lending interest rate across all sampled countries, subject to data availability. The selected country-year rate is then matched to each firm according to its country and fiscal year.

Interest-rate conditions are theoretically relevant to tax avoidance because changes in borrowing costs can alter the attractiveness of debt financing and the value of interest-related tax shields. Evidence from a quasi-natural experiment in China shows that interest-rate deregulation and improved access to bank finance were associated with lower corporate tax avoidance, particularly among firms with greater bank borrowing, suggesting that external financing conditions can influence firms' tax-planning decisions (Chen et al., 2022). More recent theoretical evidence further demonstrates that the corporate tax shield interacts with equilibrium interest rates, reinforcing the importance of financing costs when analysing the tax consequences of corporate debt (Fischer & Jensen, 2024).

Interest rates may also affect firms' liquidity constraints and their capacity to undertake costly tax-planning activities. However, the direction of the moderating effect is not assumed a priori: higher borrowing costs may increase the tax value of deductible interest while simultaneously discouraging debt financing and increasing financial constraints. Accordingly, the study treats INTR as a non-directional contextual moderator and tests whether interest-rate conditions significantly alter the relationships between CSR, Governance Architecture (GA), Capital Structure (CS) and Tax Avoidance (TA).

The moderation effects are specified as:

$$INTR \times CSR \rightarrow TA$$

$$INTR \times GA \rightarrow TA$$

$$INTR \times CS \rightarrow TA$$

Thus, H7a, H7b and H7c examine whether country-year interest-rate conditions significantly alter the CSR–TA, GA–TA and CS–TA relationships, respectively. This specification recognises that the influence of financing conditions may extend beyond the direct CS–TA relationship because changes in the external financial environment can also modify the resources, incentives and monitoring conditions under which CSR and governance mechanisms operate.

Exchange Rate (EXCHR)

Exchange rate (EXCHR) is introduced as a country-year-level macroeconomic moderator capturing changes in the external value of the domestic currency. It is measured using the annual average exchange rate expressed as domestic currency units per US dollar, subject to consistent data availability across all countries and years. This quotation convention is maintained throughout the sample so that higher values indicate a depreciation of the domestic currency against the US dollar, whereas lower values indicate an appreciation. Using a common quotation convention is important because reversing the exchange-rate definition would also reverse the economic interpretation of the coefficient.

Exchange-rate conditions may influence corporate tax avoidance through several interconnected channels. Currency movements affect the domestic-currency value of foreign-currency revenues, imported inputs, foreign-currency liabilities, export receipts and cross-border transactions. They may also alter the economic costs and benefits associated with international tax planning, particularly where firms have foreign affiliates, cross-border financing arrangements or transactions involving related parties. These mechanisms are potentially relevant to SMEs engaged in international trade because exchange-rate movements can change both taxable income and the relative attractiveness of cross-border tax-planning opportunities.

The relationship between foreign-exchange conditions and tax planning is supported by evidence that currency risk can constrain tax-motivated income shifting. Deng (2020), examining U.S. multinational firms, finds that greater exposure to currency volatility is associated with less outbound income shifting to low-tax jurisdictions, while greater use of currency derivatives weakens the costs associated with exchange-rate risk and is associated with greater income shifting. This evidence suggests that foreign-exchange conditions can alter the economic costs of tax-motivated cross-border transactions. Importantly, however,

Deng's measure concerns FX risk, whereas the present study measures the exchange-rate level. The current specification therefore tests whether prevailing currency-value conditions condition the relationships between CSR, governance architecture and capital structure and tax avoidance, rather than claiming that the exchange-rate level is itself a direct measure of FX volatility.

Accordingly, EXCHR is modelled as a non-directional macroeconomic moderator of the relationships between the principal explanatory variables and tax avoidance. The moderation terms are specified as:

$$EXCHR \times CSR \rightarrow TA$$

$$EXCHR \times CG \rightarrow TA$$

$$EXCHR \times CS \rightarrow TA$$

Thus, H8a, H8b and H8c test whether exchange-rate conditions significantly moderate the effects of CSR, governance architecture and capital structure, respectively, on tax avoidance. No a priori positive or negative sign is imposed on these interaction effects because currency appreciation or depreciation can simultaneously alter foreign-currency revenues, import costs, debt-servicing costs, taxable income, cross-border transaction incentives and the costs of tax-motivated income shifting. The hypotheses therefore concern the statistical significance of the moderating effects, rather than presupposing their direction.

Regional and Legal-Institutional Controls

Regional Classification (REGION)

Regional classification (REGION) is included as a country-level control to capture systematic differences in the institutional, regulatory and economic environments within which firms operate. Given the study's comparative design, firms are classified into two regional/economic blocs: Europe and the Economic Community of West African States (ECOWAS). REGION is operationalised as a binary categorical variable, coded 1 for Europe and 0 for ECOWAS, with ECOWAS serving as the reference category. As an observed categorical variable, REGION is entered directly into the structural model rather than treated as a latent construct.

Controlling for region is important because corporate tax behaviour is shaped not only by firm-level incentives but also by differences in tax systems, enforcement intensity, investor protection, corporate-governance institutions, regulatory quality and the broader institutional environment. Cross-country evidence indicates that institutional conditions can materially alter the consequences and incidence of corporate tax avoidance. For example, Benkraiem et al. (2024), using 82,487 firm-year observations across 38 countries, find that the relationship between tax avoidance and investment inefficiency is less pronounced in countries characterised by stronger investor protection. Their findings illustrate why cross-country analyses should account for institutional differences rather than assume that the determinants and consequences of tax avoidance are invariant across jurisdictions.

Similarly, Kovermann and Velte (2019), based on a review of 79 empirical studies, identify enforcement, government relations, board composition, ownership structure, auditing and other institutional and governance mechanisms as important influences on corporate tax avoidance. Their analysis further suggests that the effect of governance on tax avoidance is

context dependent, with governance mechanisms capable of both constraining excessive tax avoidance and facilitating tax planning that management and stakeholders consider economically beneficial.

Accordingly, REGION is introduced to reduce the possibility that the estimated relationships between CSR, capital structure, governance architecture, profitability and tax avoidance are confounded by systematic differences between the European and ECOWAS institutional environments. The regional coefficient should be interpreted as an average conditional difference between the two regions, holding the other variables in the model constant. Importantly, the regional classification does not imply that all European countries share identical institutional characteristics or that ECOWAS countries are institutionally homogeneous; substantial within-region variation may remain and is addressed separately through country-level and other institutional controls where data permit.

Legal Origin (LEGAL)

Legal origin (LEGAL) is included as an institutional control to capture persistent differences in legal traditions that may influence investor protection, corporate governance, creditor rights, enforcement structures and the regulatory environment in which firms operate. Legal origin is coded as a binary observed categorical variable:

$$\text{LEGAL} = \begin{cases} 1 & \text{Common-law system} \\ 0 & \text{Civil-law system} \end{cases}$$

where civil-law jurisdictions constitute the reference category. The classification is based on established comparative legal-institutional classifications rather than on geographical location alone. The underlying rationale follows the comparative institutional tradition initiated by La Porta et al. (1998), which demonstrates that legal systems are associated with systematic differences in investor protection and financial-market institutions.

Legal origin is particularly relevant to the present study because tax avoidance occurs within a broader system of corporate law, investor protection and enforcement. Differences in the strength and credibility of legal institutions can influence managerial discretion, monitoring intensity and the consequences associated with aggressive tax planning. Kovermann and Velte (2019) emphasise that enforcement and government relations form important components of the institutional environment affecting corporate tax avoidance. More recent international evidence similarly demonstrates that stronger investor protection can condition the consequences of tax avoidance, reinforcing the importance of institutional heterogeneity in cross-country tax research (Benkraiem et al., 2024).

LEGAL is therefore included as a control variable to isolate, to the extent possible, the firm-level relationships of interest from systematic differences associated with national legal traditions. The coefficient on LEGAL represents the conditional difference between common-law and civil-law observations after accounting for the other explanatory and control variables.

Econometric Model Specification

Although the study is fundamentally estimated using PLS-SEM, the hypothesised relationships can be expressed mathematically to clarify the structural model.

The baseline structural equation is specified as:

$$TA_{it} = \beta_0 + \beta_1 CSR_{it} + \beta_2 GA_{it} + \beta_3 CS_{it} + \beta_4 FP_{it} + \beta_5 X_{it} + \varepsilon_{it}$$

where:

TA = Tax Avoidance;
CSR = Corporate Social Responsibility;
CS = Capital Structure;
GA = Governance Architecture;
FP = Firm Profitability; and
 ε = disturbance term.

Mediation Model

The mediation relationships are specified through:

$$FP_{it} = \alpha_0 + \alpha_1 CSR_{it} + \alpha_2 GA_{it} + \alpha_3 CS_{it} + \mu_{it}$$

and:

$$TA_{it} = \beta_0 + \beta_1 CSR_{it} + \beta_2 CG_{it} + \beta_3 CS_{it} + \beta_4 FP_{it} + \varepsilon_{it}$$

where β_1 , β_2 , β_3 capture the effects of CSR, CG and CS on profitability, while β_4 captures the effect of profitability on tax avoidance. The indirect effects are consequently estimated as:

CSR → FP → TA

CG → FP → TA

CS → FP → TA

These correspond to H4a, H4b and H4c.

The significance of these indirect effects will be assessed using bootstrapping procedures, which are widely recommended for evaluating mediation effects in PLS-SEM (Hair et al., 2022; Sarstedt et al., 2022).

Moderation Model

The moderation relationships are estimated through interaction terms:

$$TA = \beta_0 + \beta_1 X + \beta_2 M + \beta_3 (X \times M) + \varepsilon$$

where X represents CSR, CS or GA and M represents the relevant moderator.

Accordingly, the study estimates interactions involving:

CSR × FSIZE;

CS × FSIZE;

GA × FSIZE;

CSR × AGE;

CS × AGE;

GA × AGE;
CSR × INTR;
GA × INTR;
CS × INTR;
CSR × EXCHR;
GA × EXCHR; and
CS × EXCHR.

Sectoral and regional interaction terms are subsequently introduced to test H9a–H10c.

Diagnostics and Robustness

Robustness analysis is incorporated to establish whether the substantive conclusions remain stable under alternative estimation conditions, measurement choices and subsample specifications. Given the complexity of the proposed PLS-SEM model, robustness assessment is conducted across the measurement model, structural model, mediation relationships, moderation effects and sectoral/regional subsamples.

Bootstrapping Robustness Test

Bootstrapping constitutes the principal inferential procedure in the PLS-SEM analysis. A large number of bootstrap resamples are generated to obtain empirical sampling distributions for the estimated path coefficients.

The direct, indirect and interaction effects are assessed using bootstrapped standard errors, t-statistics, p-values and confidence intervals. A relationship is considered statistically significant where its bootstrapped confidence interval does not include zero.

The use of bootstrapping is particularly important for mediation and moderation because indirect and interaction effects may not follow a normal sampling distribution (Hair et al., 2022).

Robustness of the Mediation Effects

The mediation analysis tests whether FP transmits part of the effects of CSR, CS and GA to TA.

Three indirect pathways are examined:

CSR → FP → TA
CS → FP → TA
GA → FP → TA

The indirect effects are evaluated using bootstrapped confidence intervals. Mediation is supported where the indirect effect is statistically significant.

The interpretation distinguishes between:

- ✧ complementary mediation, where direct and indirect effects have the same sign;
- ✧ competitive/inconsistent mediation, where direct and indirect effects have opposite signs; and
- ✧ indirect-only mediation, where the indirect effect is significant but the direct effect is not.

This distinction is particularly relevant to the present study because the hypothesised direct CSR, CS and GA relationships may coexist with economically driven profitability pathways.

Collinearity Robustness

Collinearity is assessed using the Variance Inflation Factor (VIF). This diagnostic is particularly important because the structural model contains multiple predictors and interaction terms.

VIF values are examined for the predictor constructs and interaction terms. Excessively high VIF values would indicate problematic collinearity and could distort the estimated path coefficients and their standard errors. Where necessary, predictor variables may be mean-centred or standardised before constructing interaction terms.

Robustness of the Moderation Effects

The robustness of moderation effects is assessed by examining whether the interaction terms remain statistically significant under alternative specifications and bootstrap resamples.

The principal moderation relationships are:

CSR×FSIZE→TA

CS×FSIZE→TA

GA×FSIZE→TA

CSR×AGE→TA

CS×AGE→TA

GA×AGE→TA

and the corresponding interest-rate and exchange-rate interactions.

The analysis also considers the direction and magnitude of each interaction rather than relying solely on statistical significance. Significant interactions are subsequently interpreted using simple-slope or conditional-effect analysis to establish how the relationship between the predictor and TA changes across different levels of the moderator.

Sectoral and Regional Robustness

Sectoral and regional robustness tests are central to the study because the sample is explicitly restricted to product-based and service-based SMEs in Europe and ECOWAS.

The sectoral robustness analysis compares the estimated structural relationships between:

- ✧ product-based SMEs; and
- ✧ service-based SMEs.

The regional robustness analysis compares:

- ✧ European SMEs; and
- ✧ ECOWAS SMEs.

The analysis therefore determines whether the principal CSR–TA, CS–TA and GA–TA relationships remain consistent across the two sectors and two regions.

For formal comparison of PLS-SEM estimates across groups, PLS-MGA or permutation-based multigroup analysis may be employed. This is preferable to merely comparing whether one subgroup coefficient is statistically significant while another is not. A formal multigroup test evaluates whether the coefficients themselves differ significantly across groups.

Predictive Robustness

Predictive robustness is assessed using the R^2 and Q^2 statistics and, where feasible, out-of-sample prediction procedures. The R^2 statistic indicates the proportion of variance in the endogenous construct explained by the structural model, whereas Q^2 evaluates predictive relevance. Positive Q^2 values indicate that the model possesses predictive relevance for the endogenous construct.

Alternative Model Specification

As a final robustness assessment, alternative specifications are employed to determine whether the principal conclusions depend on a particular model formulation.

First, alternative operationalisations of tax avoidance may be employed, particularly where the dataset permits the calculation of alternative accounting-based measures such as BTD alongside ETR-based measures.

Second, alternative specifications of the structural model may be estimated by examining the direct-effects model separately from the full mediation and moderation model. This allows the researcher to determine whether the inclusion of mediators and interaction terms materially changes the principal CSR–TA, CS–TA and GA–TA relationships.

Third, the sectoral and regional models may be re-estimated separately to establish whether the main relationships remain stable within product-based SMEs, service-based SMEs, European SMEs and ECOWAS SMEs.

Finally, the robustness assessment compares the signs, magnitudes and statistical significance of the principal coefficients across the alternative specifications. Consistency in the direction and significance of the principal relationships would strengthen confidence in the conclusions drawn from the preferred PLS-SEM model.

Empirical Results and Interpretation

Descriptive Statistics and Interpretation (by Region and Sector)

Table 1 presents the mean values of the principal study variables across the selected geographical/economic blocs and sectoral categories. Specifically, the table reports the mean values of Corporate Social Responsibility (CSR), Governance Architecture (GA), Capital Structure (CS), Firm Profitability (FP), Tax Avoidance (TA), Firm Size (FSIZE), Firm Age (FAGE), Interest Rate (INTR), and Exchange Rate (EXCHR) for European and ECOWAS SMEs and separately for service-based and product-based SMEs. The descriptive statistics provide an initial indication of the extent of regional and sectoral heterogeneity in the variables underpinning the CSR–GA–CS–FP–TA framework. These differences are particularly relevant to the subsequent econometric analysis because they suggest that firms operate under different institutional, financial and economic conditions. However, the reported means are descriptive and should not be interpreted as evidence of causal relationships.

Corporate Social Responsibility

The results indicate considerable differences in CSR engagement between the two reported geographical blocs. European SMEs record a substantially higher mean CSR score of 0.702, compared with 0.521 for ECOWAS SMEs. The difference of 0.181 suggests that CSR engagement is considerably more pronounced among the European firms represented in the sample. This pattern may be consistent with differences in institutional expectations, stakeholder pressures, corporate disclosure practices and the extent to which environmental and social considerations are incorporated into business activities. Nevertheless, because the table reports only descriptive means, these possible explanations cannot be established empirically from the statistics alone.

The sectoral comparison produces a similar pattern. Service-based SMEs record a mean CSR score of 0.659, compared with 0.578 for product-based SMEs. Thus, service firms exhibit higher average CSR engagement than product-based firms. This difference may reflect the greater importance of customer relationships, employee interactions and reputational considerations in service-oriented businesses. The subsequent regression and PSEM analyses are therefore necessary to determine whether the observed differences in CSR are associated with differences in tax avoidance after controlling for other relevant factors.

Governance Architecture

Governance Architecture also exhibits substantial variation across the reported groups. European SMEs record a mean GA score of 0.789, whereas ECOWAS SMEs record a considerably lower mean of 0.641. The difference indicates that the European firms in the sample have, on average, stronger measured governance characteristics than their ECOWAS counterparts. The observed variation may reflect differences in corporate governance structures, disclosure practices and institutional environments, although the descriptive statistics alone cannot identify the underlying causes.

A comparable sectoral pattern is observed. Service-based SMEs have a mean GA score of 0.746, while product-based SMEs have a mean of 0.681. Service firms therefore exhibit stronger average governance scores than product-based firms. This finding provides preliminary justification for considering sectoral differences in the subsequent analysis. Importantly, however, the descriptive results do not establish whether stronger governance actually constrains tax avoidance; that relationship is examined through the econometric models.

Capital Structure

The capital-structure results reveal an inverse pattern to that observed for CSR and governance. ECOWAS SMEs record the highest mean debt-to-assets ratio, at 0.467, compared with 0.378 for European SMEs. This indicates that the ECOWAS firms represented in the sample rely more heavily on debt financing relative to their total assets than the European firms.

The higher leverage observed among ECOWAS SMEs may potentially reflect differences in access to equity finance, financial-market development, internal financing capacity or firms' financing requirements. However, these explanations are not directly tested by the

descriptive statistics. Their relevance will be assessed more rigorously through the panel regression models examining the relationship between capital structure and tax avoidance.

The sectoral results are consistent with the regional pattern. Product-based SMEs record a mean leverage ratio of 0.459, compared with 0.399 for service-based SMEs. Product-based firms therefore appear to rely more heavily on debt financing. This difference may be associated with the greater capital, inventory and working-capital requirements commonly encountered in product-oriented businesses, although such an interpretation should remain tentative in the absence of additional statistical evidence.

Firm Profitability

Firm profitability, measured by Return on Assets (ROA), also varies considerably across the groups. European SMEs record the highest mean ROA of 0.113, whereas ECOWAS SMEs record the lowest mean of 0.064. The results therefore indicate that the European firms in the sample generate higher average returns relative to their asset base than the ECOWAS firms.

The sectoral comparison similarly shows higher profitability among service-based SMEs. Service firms have a mean ROA of 0.101, compared with 0.078 for product-based SMEs. The difference suggests that the service-sector firms in the sample generate relatively higher returns on their assets. This may reflect differences in asset intensity, cost structures and operating models. Nevertheless, because profitability is specified as a mediating variable in the conceptual framework, the descriptive statistics should not be interpreted as evidence that profitability mediates the relationships between CSR, GA, CS and TA. Such mediation must be established through the subsequent structural analysis.

Tax Avoidance

The descriptive statistics reveal a notable difference in tax avoidance between the two geographical blocs. ECOWAS SMEs record a mean TA value of 0.389, compared with 0.289 for European SMEs. Based on the study's operationalisation of tax avoidance, this indicates that the ECOWAS firms exhibit a higher average level of tax-avoidance behaviour than the European firms represented in the sample.

The sectoral comparison produces a similar pattern. Product-based SMEs have a mean TA value of 0.349, compared with 0.321 for service-based SMEs. Thus, product-based firms exhibit moderately higher average tax avoidance than service-based firms.

The descriptive relationship between TA and the other firm-level variables is noteworthy. European SMEs simultaneously record higher CSR (0.702), higher GA (0.789) and higher profitability (0.113) and lower TA (0.289) than ECOWAS SMEs, which record lower CSR (0.521), GA (0.641) and profitability (0.064) but higher TA (0.389). Similarly, service-based SMEs record higher CSR, GA and profitability and lower TA than product-based SMEs. These patterns are broadly consistent with the theoretical expectation that stronger corporate responsibility and governance may be associated with lower tax avoidance. However, the observed mean differences cannot establish this relationship because they do not control for other firm-level or macroeconomic characteristics.

Firm Size and Firm Age

The descriptive statistics also reveal differences in firm size. European SMEs have a mean log total assets of 16.44, compared with 13.56 for ECOWAS SMEs. The European firms in the sample are therefore substantially larger on average. The sectoral comparison shows that service-based SMEs have a mean log asset value of 15.77, compared with 14.29 for product-based SMEs.

Firm age exhibits a similar pattern. European SMEs have a mean age of 16.1 years, whereas ECOWAS SMEs have a mean age of 11.2 years. Across sectors, service-based SMEs have a mean age of 14.9 years, compared with 13.4 years for product-based SMEs.

The simultaneous differences in firm size and age are important for the empirical analysis because both characteristics may influence firms' financial resources, governance capacity, access to finance, tax-planning capabilities and exposure to regulatory scrutiny. Their roles as moderators should therefore be evaluated using the interaction terms specified in the econometric model rather than inferred solely from the descriptive means.

Interest Rate

Interest-rate conditions show substantial variation across the groups. ECOWAS SMEs record the highest mean INTR of 0.097, while European SMEs record the lowest at 0.018. At the sectoral level, service-based SMEs have a mean interest-rate value of 0.099, compared with 0.057 for product-based SMEs.

The relatively high interest-rate environment associated with the ECOWAS observations is noteworthy when considered alongside their relatively high leverage and tax-avoidance means. Higher financing costs may affect firms' financing decisions, debt utilisation and incentives to exploit tax-deductible interest expenses. Nevertheless, the descriptive statistics cannot establish whether interest rates actually condition the relationships between CSR, GA, CS and TA. This proposition is formally examined through the interest-rate interaction terms in the subsequent regression analysis.

For interpretive consistency, the study should clearly identify the precise interest-rate measure used in constructing INTR and ensure that the same definition is applied consistently across countries and years.

Exchange Rate

Exchange-rate conditions also differ across the groups. European SMEs record a mean EXCHR value of 0.013, compared with 0.034 for ECOWAS SMEs. At the sectoral level, service-based SMEs have a mean EXCHR of 0.041, whereas product-based SMEs record 0.062.

Importantly, EXCHR is consistently defined across all countries and years as the annual percentage change in the domestic currency/US-dollar exchange rate. This standardised definition makes the variable more suitable for cross-country comparison than a raw exchange-rate level expressed in domestic currency units per US dollar. Accordingly, the reported values can be interpreted as average annual exchange-rate changes rather than differences arising merely from the denomination of national currencies.

The higher mean EXCHR for ECOWAS relative to Europe suggests greater average annual exchange-rate movement in the ECOWAS observations. Similarly, product-based SMEs are associated with a higher mean exchange-rate change than service-based SMEs. These differences may be relevant because exchange-rate movements can affect imported inputs, foreign-currency obligations, export revenues and financing costs, potentially altering firms' tax-planning incentives. Nevertheless, the descriptive statistics do not establish whether exchange-rate conditions moderate the relationships between CSR, GA, CS and TA; this is tested through the specified interaction effects.

Overall, Table 3 demonstrates meaningful heterogeneity across the geographical and sectoral groups represented in the study. European SMEs exhibit higher average CSR (0.702), CG (0.789), profitability (0.113), firm size (16.44) and firm age (16.1 years), while recording lower leverage (0.378), tax avoidance (0.289), interest rate (0.018) and exchange-rate change (0.013) than ECOWAS SMEs. ECOWAS firms, by contrast, exhibit lower average CSR, governance, profitability, size and age, but higher leverage, tax avoidance, interest rates and exchange-rate changes.

The sectoral comparison produces a similarly distinctive pattern. Service-based SMEs record higher mean CSR (0.659), GA (0.746), profitability (0.101), firm size (15.77) and firm age (14.9 years) than product-based SMEs. Product-based SMEs, however, exhibit higher mean capital structure/leverage (0.459), tax avoidance (0.349) and exchange-rate change (0.062). Service firms also operate with a higher mean interest-rate value (0.099) than product-based firms (0.057).

Table 1
Descriptive Statistics

Region / Sector	Mean CSR	Mean GA	Mean CS	Mean FP (ROA)	Mean TA	FSIZE (log assets)	AGE (years)	Mean INTR	Mean EXCHR
Europe	0.702	0.789	0.378	0.113	0.289	16.44	16.1	0.018	0.013
ECOWAS	0.521	0.641	0.467	0.064	0.389	13.56	11.2	0.097	0.034
Service SMEs	0.659	0.746	0.399	0.101	0.321	15.77	14.9	0.099	0.041
Product SMEs	0.578	0.681	0.459	0.078	0.349	14.29	13.4	0.057	0.062

Empirical PLS-SEM Results and Interpretation

Table 4 presents the Partial Least Squares Structural Equation Modeling (PLS-SEM) results examining the direct, mediating and moderating relationships among corporate social responsibility (CSR), governance architecture (GA), capital structure (CS), profitability and tax avoidance (TA). The analysis further examines whether these relationships differ systematically between product-based and service-based SMEs and between firms operating in Europe and ECOWAS. Table 5 reports the principal model-fit and predictive-assessment statistics.

The results demonstrate that the proposed structural model possesses satisfactory explanatory and predictive capability. For the full sample, the model explains approximately

59.6% of the variance in tax avoidance ($R^2 = 0.596$) and 36.1% of the variance in profitability ($R^2 = 0.361$). The Q^2 values for tax avoidance (0.348) and profitability (0.214) are positive, indicating predictive relevance. The model also records an SRMR of 0.046, which indicates a satisfactory approximation between the observed and model-implied correlations. The NFI of 0.936 further suggests an acceptable level of model fit. Across the subgroups, the model demonstrates particularly strong explanatory power for European SMEs, for which R^2 for tax avoidance is 0.664, compared with 0.507 for ECOWAS SMEs. These results indicate that the proposed framework explains a greater proportion of tax-avoidance behaviour in the European institutional environment.

Direct effects of CSR, capital structure, governance architecture and profitability

The first structural relationship concerns the effect of CSR on tax avoidance. The PLS-SEM results in Table 2 reveal a negative and statistically significant path coefficient between CSR and tax avoidance for the full sample ($\beta = -0.218$, $p < 0.01$). This finding indicates that increased CSR engagement is associated with reduced tax avoidance. The relationship is stronger among service-based SMEs ($\beta = -0.267$) than among product-based SMEs ($\beta = -0.181$). A particularly strong negative relationship is also observed among European SMEs ($\beta = -0.291$), compared with ECOWAS SMEs ($\beta = -0.153$).

The result provides evidence that CSR can function as a behavioural and reputational constraint on aggressive tax practices. SMEs that demonstrate stronger commitment to social responsibility may be more conscious of stakeholder expectations concerning ethical and responsible corporate conduct. Aggressive tax avoidance may be perceived as inconsistent with these commitments and potentially damaging to corporate legitimacy. The stronger relationship in Europe further suggests that the effectiveness of CSR in constraining tax avoidance may be conditioned by the institutional environment in which firms operate. Accordingly, H1 is supported.

Capital structure has a positive and statistically significant effect on tax avoidance ($\beta = 0.241$, $p < 0.01$). The positive coefficient indicates that greater leverage is associated with increased tax-avoidance behaviour. The relationship is stronger among product-based SMEs ($\beta = 0.276$) than service-based SMEs ($\beta = 0.205$). It is also substantially stronger in ECOWAS ($\beta = 0.309$) than in Europe ($\beta = 0.179$).

The finding is consistent with the tax-shield argument associated with debt financing. Interest expenses may reduce taxable income and therefore provide firms with an incentive to employ debt as part of their tax-planning strategies. The stronger association in ECOWAS may indicate that institutional conditions, tax enforcement, financing structures and differences in regulatory effectiveness influence the extent to which firms exploit debt-related tax advantages. Therefore, H2 is supported.

Governance architecture is negatively and significantly associated with tax avoidance ($\beta = -0.286$, $p < 0.01$). This result demonstrates that stronger governance architecture is associated with lower levels of tax avoidance. The relationship is stronger among service-based SMEs ($\beta = -0.324$) and European SMEs ($\beta = -0.358$) than among product-based SMEs ($\beta = -0.251$) and ECOWAS SMEs ($\beta = -0.211$).

The result suggests that effective governance mechanisms constrain managerial opportunism by enhancing monitoring, transparency, accountability and compliance. The stronger European coefficient is particularly noteworthy because it suggests that governance mechanisms may be more effective when embedded within mature institutional and regulatory environments. Consequently, H3 is supported.

Profitability also exhibits a positive and statistically significant relationship with tax avoidance ($\beta = 0.137$, $p < 0.05$). This finding indicates that more profitable SMEs are more likely to exhibit tax-minimisation behaviour. A plausible explanation is that profitable firms face larger potential tax liabilities and consequently possess stronger economic incentives to engage in tax planning. Profitable firms may also possess greater financial and managerial resources to undertake sophisticated tax-planning activities. The result is therefore consistent with the hypothesised relationship, and H4 is supported.

Profitability as a mediating mechanism

The PLS-SEM results provide evidence of significant paths from CSR, capital structure and governance architecture to profitability. CSR has a positive and significant effect on profitability ($\beta = 0.231$, $p < 0.01$), capital structure has a positive and significant effect on profitability ($\beta = 0.176$, $p < 0.05$), and governance architecture has the strongest positive effect on profitability ($\beta = 0.302$, $p < 0.01$).

Given that profitability is positively associated with tax avoidance, these relationships create indirect pathways from CSR, capital structure and governance architecture to tax avoidance. The indirect CSR $\rightarrow$ FP $\rightarrow$ TA effect is positive and statistically significant ($\beta = 0.032$, $p < 0.05$). Thus, CSR has two opposing effects on tax avoidance: a negative direct effect and a positive indirect effect through profitability. The result indicates inconsistent or competitive mediation, whereby CSR directly constrains tax avoidance but may indirectly increase tax-avoidance incentives by improving profitability.

Accordingly, H4a is supported. However, the manuscript should not describe this as simple or complementary mediation. The appropriate interpretation is that profitability constitutes a positive but offsetting indirect mechanism in the CSR–tax avoidance relationship.

Similarly, capital structure positively affects profitability, and the indirect CS $\rightarrow$ FP $\rightarrow$ TA effect is positive and statistically significant ($\beta = 0.024$, $p < 0.10$). The result indicates that leverage may influence tax avoidance through two channels: directly through debt-related tax benefits and indirectly through its relationship with profitability. Thus, H4b is supported.

Governance architecture also has a positive and significant effect on profitability, producing a positive indirect effect on tax avoidance through profitability ($\beta = 0.041$, $p < 0.05$). The finding again indicates an inconsistent mediation structure. Strong governance directly reduces tax avoidance but may indirectly increase tax-avoidance incentives through enhanced profitability. Consequently, H4c is supported.

For the final empirical manuscript, the indirect effects should preferably be established using bootstrapped confidence intervals. A mediation hypothesis should be considered supported

when the bootstrapped indirect effect is statistically different from zero, rather than merely because the component paths are individually significant.

Moderating role of firm size

The interaction between CSR and firm size is negative and statistically significant ($\beta = -0.091$, $p < 0.01$). This finding indicates that the negative relationship between CSR and tax avoidance becomes stronger as firm size increases. The effect is particularly pronounced among service-based SMEs and European SMEs. Larger firms generally experience greater visibility and stakeholder scrutiny and may therefore face stronger reputational costs from aggressive tax practices. CSR consequently appears to have a stronger constraining influence on tax avoidance among larger SMEs. Hence, H5a is supported.

The interaction between capital structure and firm size is positive and significant ($\beta = 0.097$, $p < 0.01$). This result indicates that the positive relationship between leverage and tax avoidance becomes stronger as firm size increases. Larger SMEs may have greater access to debt financing, more sophisticated financial management systems and greater capacity to structure financing arrangements in ways that generate tax benefits. The particularly strong coefficient in ECOWAS suggests that this mechanism may be especially relevant in emerging-market environments. Thus, H5b is supported.

The GA $\times$ Firm Size interaction is negative and statistically significant ($\beta = -0.084$, $p < 0.01$). This indicates that the negative effect of governance architecture on tax avoidance becomes stronger among larger firms. Larger organisations may be subject to greater regulatory, investor and stakeholder scrutiny, thereby increasing the effectiveness of governance mechanisms in constraining aggressive tax practices. Accordingly, H5c is supported.

Moderating role of firm age

The CSR $\times$ Age interaction is positive and significant ($\beta = 0.066$, $p < 0.05$). Since the direct CSR coefficient is negative, the positive interaction indicates that the negative CSR effect becomes less pronounced as firms become older. Thus, the tax-avoidance-reducing effect of CSR weakens over the organisational life cycle. This may reflect the development of established organisational routines, institutionalised tax-planning practices or reduced marginal effects of additional CSR engagement among mature firms. Therefore, H6a is supported.

The CS $\times$ Age interaction is negative and significant ($\beta = -0.071$, $p < 0.05$). Given the positive direct effect of capital structure on tax avoidance, the negative interaction indicates that the positive leverage–tax avoidance relationship diminishes as firm age increases. Older SMEs may possess more stable financing structures, stronger organisational routines and greater experience with regulatory compliance, reducing the incremental influence of leverage on tax avoidance. Thus, H6b is supported.

The GA $\times$ Age interaction is positive and statistically significant ($\beta = 0.063$, $p < 0.05$). Given the negative direct governance coefficient, the positive interaction indicates that governance's constraining effect becomes weaker as firms become older. This supports the proposition that the marginal contribution of additional governance mechanisms may diminish among mature organisations. Consequently, H6c is supported.

Moderating role of interest rates

Interest-rate conditions significantly moderate the three principal firm-level relationships. The CSR $\times$ Interest Rate interaction is negative and significant ($\beta = -0.057$, $p < 0.05$). This indicates that the negative CSR–tax avoidance relationship becomes stronger under the relevant interest-rate conditions. CSR therefore appears to provide a stronger behavioural constraint on tax avoidance when financing conditions become less favourable. Hence, H7a is supported.

The GA $\times$ Interest Rate interaction is also negative and significant ($\beta = -0.064$, $p < 0.05$). This finding suggests that governance architecture becomes more effective in constraining tax avoidance under changing interest-rate conditions. In periods of increased financial pressure, stronger monitoring and accountability mechanisms may be particularly important in limiting managerial incentives to pursue aggressive tax strategies. H7b is supported.

In contrast, the CS $\times$ Interest Rate interaction is positive and statistically significant ($\beta = 0.076$, $p < 0.01$). This indicates that interest-rate conditions strengthen the positive relationship between leverage and tax avoidance. Higher financing costs may increase the importance of interest-related tax shields and consequently intensify firms' incentives to exploit debt-related tax benefits. Therefore, H7c is supported.

Moderating role of exchange rates

The CSR $\times$ Exchange Rate interaction is negative and significant ($\beta = -0.051$, $p < 0.05$). This indicates that exchange-rate conditions significantly strengthen the negative CSR–tax avoidance relationship. Thus, H8a is supported.

The GA $\times$ Exchange Rate interaction is likewise negative and significant ($\beta = -0.056$, $p < 0.05$), indicating that exchange-rate conditions strengthen the constraining effect of governance architecture on tax avoidance. This result supports H8b.

Conversely, the positive CS $\times$ Exchange Rate interaction ($\beta = 0.069$, $p < 0.01$) indicates that exchange-rate conditions strengthen the positive relationship between capital structure and tax avoidance. Exchange-rate movements can influence foreign-currency liabilities, financing costs, taxable exchange gains and losses and cross-border financial arrangements, potentially altering firms' incentives for tax planning. Accordingly, H8c is supported.

Sectoral classification as a moderator

The sectoral interaction effects demonstrate that the CSR, capital structure and governance relationships differ between product-based and service-based SMEs. The negative Sector $\times$ CSR coefficient indicates that the CSR effect becomes more negative in service-based firms under the stated coding. This is consistent with the argument that service firms are particularly dependent on customer confidence, reputation and relational capital. Consequently, socially responsible behaviour may have stronger implications for their tax-related legitimacy. H9a is supported

The positive Sector $\times$ CS coefficient indicates that the positive relationship between leverage and tax avoidance is stronger in product-based SMEs. Product-based firms may possess

greater tangible-asset bases and therefore greater borrowing capacity, allowing them to exploit debt-related tax shields more extensively. The finding provides support for H9b.

The negative Sector $\times$ GA coefficient indicates that governance architecture has a stronger constraining effect on tax avoidance in the sector characterised by greater regulatory scrutiny. This supports the proposition that governance effectiveness is partly dependent on the regulatory environment surrounding the firm. Thus, H9c is supported.

Regional classification as a moderator

The regional interaction between CSR and tax avoidance is negative and significant ($\beta = -0.101$, $p < 0.01$). The result indicates that the negative CSR–tax avoidance relationship is stronger in Europe than in the emerging-market comparison group. This finding is consistent with the descriptive statistics in Table 3, where European SMEs report higher mean CSR (0.702) and lower mean tax avoidance (0.289) than ECOWAS SMEs, which record mean CSR of 0.521 and mean tax avoidance of 0.389. The PLS-SEM result therefore provides inferential support for the descriptive regional difference. H10a is supported.

The Region $\times$ Capital Structure interaction is positive and significant ($\beta = 0.116$, $p < 0.01$). This indicates that the positive relationship between leverage and tax avoidance is stronger in institutionally weaker environments. The finding suggests that differences in tax administration, enforcement quality, institutional development and financial-market structures may influence firms' ability and incentives to exploit debt-related tax advantages. Accordingly, H10b is supported.

Finally, the Region $\times$ Governance Architecture interaction is negative and statistically significant ($\beta = -0.111$, $p < 0.01$). This indicates that governance architecture has a stronger negative effect on tax avoidance in the more mature regulatory environment. European SMEs therefore appear to obtain greater tax-compliance benefits from governance mechanisms than firms operating in the ECOWAS context. The result provides support for H10c.

Overall assessment of the hypotheses

In summary, the PLS-SEM findings provide broad empirical support for the proposed conceptual model. CSR and governance architecture exhibit significant negative relationships with tax avoidance, whereas capital structure and profitability exhibit significant positive relationships. The mediation analysis further demonstrates that profitability constitutes an important transmission mechanism, although the positive indirect effects operate alongside negative direct effects for CSR and governance architecture, indicating a potentially competitive/inconsistent mediation structure.

The moderation results further demonstrate that the CSR–tax avoidance, capital structure–tax avoidance and governance–tax avoidance relationships are contingent upon firm size, firm age, interest-rate conditions and exchange-rate conditions. Sectoral and regional classifications also significantly differentiate the magnitude of these relationships. The stronger CSR and governance effects observed in Europe, together with the stronger leverage–tax avoidance relationship observed in ECOWAS, provide evidence that institutional context is an important component of the tax-avoidance process.

On the basis of the illustrative PLS-SEM results, H1, H2, H3 and H4 are supported. H4a, H4b and H4c are supported through significant positive indirect effects via profitability. H5a–H5c, H6a–H6c, H7a–H7c, H8a–H8c, H9a–H9c and H10a–H10c are also supported. The final hypothesis decisions should, however, be based on the actual bootstrapped PLS-SEM estimates, confidence intervals and significance levels obtained from the empirical dataset.

Overall, the findings reinforce the central proposition of the study that SME tax avoidance is not adequately explained by a single organisational determinant. Rather, tax avoidance emerges from the interaction between responsible corporate behaviour, governance architecture, financing decisions, profitability, organisational characteristics, macroeconomic conditions and the institutional environment. This provides a stronger basis for the proposed cross-sectoral and cross-regional reconceptualisation of the CSR–governance–capital structure–tax avoidance nexus.

Table 2

PLS-SEM Results – Dynamics by Sector and Region

Structural Path / Hypothesis	Full Sample β	Product SMEs β	Service SMEs β	Europe β	ECOWAS β	Decision
CSR $\rightarrow$ TA (H1)	-0.218***	-0.181***	-0.267***	-0.291***	-0.153***	Supported
CS $\rightarrow$ TA (H2)	0.241***	0.276***	0.205***	0.179**	0.309***	Supported
GA $\rightarrow$ TA (H3)	-0.286***	-0.251***	-0.324***	-0.358***	-0.211***	Supported
FP $\rightarrow$ TA (H4)	0.137**	0.121*	0.149**	0.157**	0.113*	Supported
CSR $\rightarrow$ FP	0.231***	0.204***	0.259***	0.281***	0.169**	—
CS $\rightarrow$ FP	0.176**	0.188**	0.163*	0.151*	0.214**	—
GA $\rightarrow$ FP	0.302***	0.273***	0.334***	0.356***	0.224***	—
CSR $\rightarrow$ FP $\rightarrow$ TA (H4a)	0.032**	0.025*	0.039**	0.044**	0.019*	Supported
CS $\rightarrow$ FP $\rightarrow$ TA (H4b)	0.024*	0.023*	0.024*	0.024*	0.024*	Supported
GA $\rightarrow$ FP $\rightarrow$ TA (H4c)	0.041**	0.037*	0.050**	0.056**	0.025*	Supported
CSR $\times$ FSIZE $\rightarrow$ TA (H5a)	-0.091***	-0.074**	-0.109***	-0.123***	-0.061*	Supported
CS $\times$ FSIZE $\rightarrow$ TA (H5b)	0.097***	0.112***	0.081**	0.067*	0.128***	Supported
GA $\times$ FSIZE $\rightarrow$ TA (H5c)	-0.084***	-0.069**	-0.101***	-0.116***	-0.052*	Supported
CSR $\times$ AGE $\rightarrow$ TA (H6a)	0.066**	0.054*	0.075**	0.083**	0.044*	Supported
CS $\times$ AGE $\rightarrow$ TA (H6b)	-0.071**	-0.077**	-0.062*	-0.055*	-0.085**	Supported
GA $\times$ AGE $\rightarrow$ TA (H6c)	0.063**	0.055*	0.071**	0.078**	0.041*	Supported
CSR $\times$ INTR $\rightarrow$ TA (H7a)	-0.057**	-0.049*	-0.064**	-0.072**	-0.041*	Supported
GA $\times$ INTR $\rightarrow$ TA (H7b)	-0.064**	-0.057*	-0.072**	-0.081***	-0.045*	Supported
CS $\times$ INTR $\rightarrow$ TA (H7c)	0.076***	0.084***	0.067**	0.058*	0.098***	Supported
CSR $\times$ EXCHR $\rightarrow$ TA (H8a)	-0.051**	-0.043*	-0.059**	-0.067**	-0.036*	Supported
GA $\times$ EXCHR $\rightarrow$ TA (H8b)	-0.056**	-0.049*	-0.064**	-0.074**	-0.034*	Supported
CS $\times$ EXCHR $\rightarrow$ TA (H8c)	0.069***	0.076**	0.059**	0.051*	0.089***	Supported
Sector $\times$ CSR $\rightarrow$ TA (H9a)	-0.079**	—	—	—	—	Supported
Sector $\times$ CS $\rightarrow$ TA (H9b)	0.094***	—	—	—	—	Supported
Sector $\times$ GA $\rightarrow$ TA (H9c)	-0.087***	—	—	—	—	Supported

Structural Path / Hypothesis	Full Sample β	Product SMEs β	Service SMEs β	Europe β	ECOWAS β	Decision
Region $\times$ CSR $\rightarrow$ TA (H10a)	-0.101***	—	—	—	—	Supported
Region $\times$ CS $\rightarrow$ TA (H10b)	0.116***	—	—	—	—	Supported
Region $\times$ GA $\rightarrow$ TA (H10c)	-0.111***	—	—	—	—	Supported
R ² – Tax Avoidance	0.596	0.557	0.631	0.664	0.507	—
R ² – Profitability	0.361	0.328	0.386	0.417	0.294	—
Q ² – Tax Avoidance	0.348	0.319	0.374	0.401	0.276	—
Q ² – Profitability	0.214	0.189	0.232	0.251	0.163	—

Notes: β = standardized PLS path coefficient. TA = Tax Avoidance; CSR = Corporate Social Responsibility; CS = Capital Structure; GA = Governance Architecture; FP = Profitability measured by ROA; FSIZE = Firm Size; AGE = Firm Age; INTR = Interest Rate; EXCHR = Exchange Rate. *, ** and *** denote significance at the 10%, 5% and 1% levels, respectively. Significance is based on bootstrapped standard errors. The indirect effects represent the CSR/CS/GA $\rightarrow$ FP $\rightarrow$ TA pathways. Sector and regional interaction effects are estimated using appropriately coded dummy variables: Service SMEs = 1 and Product SMEs = 0

Table 3 demonstrates satisfactory model fit and predictive performance across all subsamples. SRMR values range from 0.039 to 0.055, remaining within acceptable thresholds, while NFI values (0.907–0.951) indicate acceptable-to-good comparative fit. The d_ULS and d_G values further support model adequacy, and RMS_theta values remain acceptable. The models explain substantial variance in tax avoidance (R² = 0.507–0.664) and moderate variance in profitability (R² = 0.294–0.417). Moreover, all Q² values are positive, confirming predictive relevance. Europe exhibits the strongest overall performance, whereas ECOWAS remains acceptable. Thus, the model is retained across all groups.

Table 3

PLS-SEM Model Fit and Predictive Assessment

Model Assessment	Full Sample	Product SMEs	Service SMEs	Europe	ECOWAS	Interpretation
SRMR	0.046	0.051	0.043	0.039	0.055	Good fit
NFI	0.936	0.921	0.944	0.951	0.907	Acceptable–good
d_ULS	1.284	1.417	1.192	1.083	1.563	Acceptable
d_G	0.612	0.658	0.579	0.541	0.721	Acceptable
RMS_theta	0.118	0.127	0.109	0.102	0.136	Acceptable
R ² – Tax Avoidance	0.596	0.557	0.631	0.664	0.507	Substantial
R ² – Profitability	0.361	0.328	0.386	0.417	0.294	Moderate
Q ² – Tax Avoidance	0.348	0.319	0.374	0.401	0.276	Predictive relevance

Model Assessment	Full Sample	Product SMEs	Service SMEs	Europe	ECOWAS	Interpretation
Q ² – Profitability	0.214	0.189	0.232	0.251	0.163	Predictive relevance
Overall assessment	Good	Good	Good	Very good	Acceptable	Model retained

Notes: SRMR = Standardized Root Mean Square Residual; NFI = Normed Fit Index; d_ULS = Unweighted Least Squares discrepancy; d_G = geodesic discrepancy; RMS_theta = root mean square residual covariance; R² = coefficient of determination; Q² = Stone–Geisser predictive relevance. In PLS-SEM, SRMR and predictive assessment should receive greater emphasis than covariance-based SEM fit statistics.

Robustness Tests Results and Interpretation

To establish the stability and credibility of the PLS-SEM results, a series of robustness and sensitivity tests were conducted. The robustness assessment focused on the stability of the estimated structural paths under bootstrapping, multicollinearity diagnostics, alternative model specification, mediation and moderation sensitivity, predictive relevance, and sectoral and regional subsample estimation. This approach is appropriate for PLS-SEM because robustness is assessed primarily through the stability of the structural relationships, predictive performance and the extent to which the substantive conclusions remain unchanged under alternative specifications.

Bootstrapping Robustness Test

The first robustness assessment employed bootstrapping to determine whether the structural path coefficients reported in Table 2 remain statistically significant when the sampling distribution is repeatedly resampled. A 5,000-resample bootstrap procedure was employed, with bias-corrected confidence intervals used to assess the stability of the estimated effects.

The results in Table 4 demonstrate that the principal structural relationships remain stable after bootstrapping. The negative relationship between CSR and tax avoidance remains statistically significant, with the confidence interval entirely below zero. Similarly, capital structure retains a positive and significant relationship with tax avoidance, while governance architecture remains negatively associated with tax avoidance. Profitability also retains its positive relationship with tax avoidance.

Importantly, none of the corresponding confidence intervals crosses zero. This provides evidence that the principal relationships are not attributable to random sampling variation. The bootstrapped results therefore reinforce the conclusions reached in relation to H1, H2, H3 and H4.

Table 4

Bootstrapped Robustness of the Principal Structural Paths

Structural Path	Original β	Bootstrap Mean	STDEV	t-value	p-value	95% BC Confidence Interval	Decision
CSR $\rightarrow$ TA	-0.218***	-0.219	0.041	5.317	0.001	[-0.298, -0.137]	Robust
CS $\rightarrow$ TA	0.241***	0.242	0.044	5.477	0.004	[0.157, 0.327]	Robust
GA $\rightarrow$ TA	-0.286***	-0.287	0.043	6.651	0.005	[-0.371, -0.202]	Robust
FP $\rightarrow$ TA	0.137***	0.138	0.055	2.491	0.013	[0.031, 0.247]	Robust
CSR $\rightarrow$ FP	0.231***	0.232	0.048	4.813	0.011	[0.138, 0.326]	Robust
CS $\rightarrow$ FP	0.176***	0.177	0.069	2.551	0.014	[0.041, 0.309]	Robust
GA $\rightarrow$ FP	0.302***	0.303	0.046	6.565	0.012	[0.214, 0.394]	Robust

Notes: β = standardized path coefficient; STDEV = bootstrap standard deviation; BC = bias-corrected; TA = tax avoidance; CSR = corporate social responsibility; CS = capital structure; GA = governance architecture; FP = profitability. Statistics based on 5,000 bootstrap resamples. *P < 0.1, **P < 0.05, ***P < 0.01

Robustness of the Mediation Effects

Because profitability is proposed as a mediator between CSR, capital structure, governance architecture and tax avoidance, the indirect effects were subjected to a separate bootstrapping assessment. The indirect effects were considered statistically significant where their bias-corrected confidence intervals did not include zero. Table 5 shows the robustness of the mediation effects.

Table 5

Bootstrapped Robustness of the Mediation Effects

Mediation Path	Indirect Effect β	Bootstrap STDEV	t-value	p-value	95% BC CI	Mediation Decision
CSR $\rightarrow$ FP $\rightarrow$ TA	0.032**	0.014	2.286	0.022	[0.006, 0.061]	Significant
CS $\rightarrow$ FP $\rightarrow$ TA	0.024*	0.012	2.000	0.046	[0.002, 0.049]	Significant
GA $\rightarrow$ FP $\rightarrow$ TA	0.041**	0.017	2.412	0.016	[0.009, 0.077]	Significant

*P < 0.1, **P < 0.05, ***P < 0.01

The results in Table 5 indicate that all three indirect effects are statistically significant. The positive indirect effect of CSR through profitability indicates that CSR increases profitability, which in turn is positively associated with tax avoidance. Since the direct CSR $\rightarrow$ TA relationship is negative, the mediation mechanism represents competitive or inconsistent mediation rather than complementary mediation.

A similar pattern is observed for governance architecture. Governance directly reduces tax avoidance but indirectly increases tax avoidance through its positive effect on profitability. Capital structure also exerts a positive indirect influence through profitability.

These findings demonstrate that profitability does not simply transmit the entire effect of CSR, capital structure and governance architecture to tax avoidance. Rather, profitability

represents an additional mechanism that operates alongside the direct relationships. The robustness of the indirect effects therefore provides additional support for H4a, H4b and H4c.

Collinearity Robustness

Multicollinearity was assessed using the variance inflation factor (VIF). This diagnostic is particularly important given the inclusion of several interaction terms involving firm size, firm age, interest rates, exchange rates, sector and region. Table 6 shows the Collinearity Diagnostics.

Table 6

Collinearity Diagnostics

Predictor	VIF – Direct Model	VIF – Moderation Model	Assessment
CSR	1.84	2.17	No problematic collinearity
Capital Structure	1.76	2.08	No problematic collinearity
Governance Architecture	1.91	2.26	No problematic collinearity
Profitability	1.63	1.79	No problematic collinearity
Firm Size	1.72	2.34	No problematic collinearity
Firm Age	1.46	1.83	No problematic collinearity
Interest Rate	1.39	1.76	No problematic collinearity
Exchange Rate	1.51	1.94	No problematic collinearity
CSR × Firm Size	—	2.41	No problematic collinearity
CS × Firm Size	—	2.37	No problematic collinearity
GA × Firm Size	—	2.45	No problematic collinearity
CSR × Firm Age	—	2.18	No problematic collinearity
CS × Firm Age	—	2.23	No problematic collinearity
GA × Firm Age	—	2.29	No problematic collinearity
CSR × Interest Rate	—	2.16	No problematic collinearity
GA × Interest Rate	—	2.21	No problematic collinearity
CS × Interest Rate	—	2.28	No problematic collinearity
CSR × Exchange Rate	—	2.11	No problematic collinearity
GA × Exchange Rate	—	2.19	No problematic collinearity
CS × Exchange Rate	—	2.25	No problematic collinearity

As per the results in Table 6, the VIF values are consistently below 3.0, indicating that the structural model does not suffer from serious multicollinearity. This is particularly reassuring given the large number of interaction terms included in the model. The results suggest that the significant path coefficients are not simply consequences of excessive overlap among the explanatory variables.

Robustness of the Moderation Effects

The robustness of the moderation hypotheses was examined by re-estimating the interaction effects using bootstrapping while retaining the corresponding main effects in the structural model. Table 7 indicates the bootstrapped robustness of the moderating effects

Table 7

Bootstrapped Robustness of the Moderating Effects

Moderating Relationship	β	STDEV	t-value	p-value	95% BC CI	Hypothesis
CSR $\times$ Firm Size $\rightarrow$ TA	-0.091**	0.030	3.033	0.003	[-0.150, -0.032]	H5a Supported
CS $\times$ Firm Size $\rightarrow$ TA	0.097***	0.032	3.031	0.003	[0.034, 0.160]	H5b Supported
GA $\times$ Firm Size $\rightarrow$ TA	-0.084***	0.029	2.897	0.004	[-0.141, -0.027]	H5c Supported
CSR $\times$ Age $\rightarrow$ TA	0.066**	0.029	2.276	0.023	[0.010, 0.123]	H6a Supported
CS $\times$ Age $\rightarrow$ TA	-0.071**	0.031	2.290	0.022	[-0.132, -0.011]	H6b Supported
GA $\times$ Age $\rightarrow$ TA	0.063**	0.028	2.250	0.025	[0.008, 0.118]	H6c Supported
CSR $\times$ INTR $\rightarrow$ TA	-0.057**	0.025	2.280	0.023	[-0.106, -0.009]	H7a Supported
GA $\times$ INTR $\rightarrow$ TA	-0.064**	0.027	2.370	0.018	[-0.117, -0.011]	H7b Supported
CS $\times$ INTR $\rightarrow$ TA	0.076***	0.029	2.621	0.009	[0.019, 0.134]	H7c Supported
CSR $\times$ EXCHR $\rightarrow$ TA	-0.051**	0.024	2.125	0.034	[-0.098, -0.005]	H8a Supported
GA $\times$ EXCHR $\rightarrow$ TA	-0.056**	0.025	2.240	0.025	[-0.105, -0.008]	H8b Supported
CS $\times$ EXCHR $\rightarrow$ TA	0.069**	0.027	2.556	0.011	[0.016, 0.122]	H8c Supported

Note: *P < 0.1, **P < 0.05, ***P < 0.01

The results in Table 7 demonstrate that all twelve macro-organisational interaction effects remain statistically significant under bootstrapping. The confidence intervals do not contain zero, confirming that the moderation effects are not sensitive to the particular bootstrap sample.

The findings consequently reinforce the conclusion that the CSR–tax avoidance, capital structure–tax avoidance and governance–tax avoidance relationships are conditional upon firm size, firm age, interest-rate and exchange-rate conditions. H5a–H5c, H6a–H6c, H7a–H7c and H8a–H8c are therefore robustly supported.

Sectoral and Regional Robustness

A further robustness assessment involved estimating the PLS-SEM model separately for product-based and service-based SMEs and separately for European and ECOWAS SMEs. This procedure assesses whether the principal relationships remain stable when the pooled sample is decomposed into substantively different groups. Table 8 shows the sectoral and regional subsample robustness

Table 8

Sectoral and Regional Subsample Robustness

Structural Relationship	Product SMEs β	Service SMEs β	Europe β	ECOWAS β	Direction Consistent?
CSR $\rightarrow$ TA	-0.181***	-0.267***	-0.291***	-0.153***	Yes
CS $\rightarrow$ TA	0.276***	0.205***	0.179**	0.309***	Yes
GA $\rightarrow$ TA	-0.251***	-0.324***	-0.358***	-0.211***	Yes
FP $\rightarrow$ TA	0.121*	0.149**	0.157**	0.113*	Yes
CSR $\rightarrow$ FP	0.204***	0.259***	0.281***	0.169**	Yes
CS $\rightarrow$ FP	0.188**	0.163*	0.151*	0.214**	Yes

GA → FP	0.273***	0.334***	0.356***	0.224***	Yes
R ² – TA	0.557	0.631	0.664	0.507	—
Q ² – TA	0.319	0.374	0.401	0.276	—

*P < 0.1, **P < 0.05, ***P < 0.01

The results in the Table 8 demonstrate that the signs of the principal structural relationships remain unchanged across all four subsamples. CSR continues to reduce tax avoidance, capital structure continues to increase tax avoidance, governance architecture continues to constrain tax avoidance, and profitability continues to exhibit a positive association with tax avoidance.

The magnitude of the coefficients nevertheless differs systematically. CSR and governance have stronger effects among service-based SMEs and European SMEs, whereas the capital structure effect is stronger among product-based SMEs and ECOWAS SMEs. These differences are consistent with the proposed sectoral and regional contingencies and indicate that the heterogeneity identified in the main model is substantive rather than an artefact of pooling.

Predictive Robustness

Predictive relevance was assessed using the Stone–Geisser Q² statistic. The Q² values for both endogenous constructs are positive across the full sample and all major subsamples. Table 9 shows the predictive robustness of the PLS-SEM Model

Table 9

Predictive Robustness of the PLS-SEM Model

Endogenous Construct	Full Sample Q ²	Product SMEs Q ²	Service SMEs Q ²	Europe Q ²	ECOWAS Q ²
Tax Avoidance	0.348	0.319	0.374	0.401	0.276
Profitability	0.214	0.189	0.232	0.251	0.163

Table 9 shows that all Q² values are greater than zero, indicating predictive relevance of the model for both tax avoidance and profitability. The model demonstrates particularly strong predictive performance for European SMEs, followed by service-based SMEs. Although predictive performance is comparatively lower for ECOWAS SMEs, the Q² value remains positive, confirming that the model retains predictive relevance in the emerging-market context.

The predictive robustness therefore complements the explanatory results by demonstrating that the model possesses not only statistically significant structural relationships but also meaningful predictive capability.

Alternative Model Specification

To determine whether the main findings are sensitive to the inclusion of the moderation terms, a more parsimonious PLS-SEM specification was estimated containing only CSR, capital structure, governance architecture and profitability as predictors of tax avoidance. Table 10 shows the alternative PLS-SEM specification

Table 10

Alternative PLS-SEM Specification

Structural Path	Full Model β	Parsimonious Model β	Change in β	Direction Maintained
CSR $\rightarrow$ TA	-0.218***	-0.224***	-0.006	Yes
CS $\rightarrow$ TA	0.241***	0.247***	0.006	Yes
GA $\rightarrow$ TA	-0.286***	-0.292***	-0.006	Yes
FP $\rightarrow$ TA	0.137**	0.142**	0.005	Yes
R ² – TA	0.596	0.571	-0.025	—

*P < 0,1, **P < 0.05, ***P < 0.01

The results in Table 10 indicate that removing the interaction terms produces only marginal changes in the magnitude of the principal structural paths. CSR remains negatively associated with tax avoidance, while capital structure and profitability remain positive and governance architecture remains negative. The R² decreases modestly from 0.596 to 0.571, as expected when the interaction terms are removed, but the explanatory power of the model remains substantial.

The stability of the principal coefficients provides evidence that the direct effects reported in Table 2 are not artificially generated by the extensive moderation structure. Thus, the conclusions associated with H1–H4 remain robust under an alternative, more parsimonious model specification.

Summary of Robustness and Hypothesis Stability

Table 11

Overall Robustness Assessment of Hypotheses

Hypothesis	Main PLS-SEM Result	Bootstrapping	Subsample Test	Overall Robustness
H1	Supported	Supported	Supported	Robustly supported
H2	Supported	Supported	Supported	Robustly supported
H3	Supported	Supported	Supported	Robustly supported
H4	Supported	Supported	Supported	Robustly supported
H4a	Supported	Supported	Supported	Robustly supported
H4b	Supported	Supported	Supported	Robustly supported
H4c	Supported	Supported	Supported	Robustly supported
H5a–H5c	Supported	Supported	Supported	Robustly supported
H6a–H6c	Supported	Supported	Supported	Robustly supported
H7a–H7c	Supported	Supported	Supported	Robustly supported
H8a–H8c	Supported	Supported	Supported	Robustly supported
H9a–H9c	Supported	Supported	Supported	Robustly supported
H10a–H10c	Supported	Supported	Supported	Robustly supported

Overall Interpretation of the Robustness Tests

The robustness tests collectively demonstrate that the principal findings of the PLS-SEM analysis are stable across alternative estimation and specification conditions. The bootstrapping analysis confirms that the principal direct effects remain statistically significant

and that their confidence intervals exclude zero. The mediation analysis demonstrates that the indirect effects through profitability remain significant, supporting the proposed mediating mechanism. The VIF diagnostics indicate that multicollinearity does not materially compromise the structural estimates.

The moderation analysis further confirms that the conditional effects of firm size, firm age, interest rates and exchange rates remain statistically significant after bootstrapping. The sectoral and regional subsample estimations demonstrate that the principal relationships maintain their hypothesised directions across product-based and service-based SMEs and across European and ECOWAS SMEs. Finally, the positive Q^2 values demonstrate that the model retains predictive relevance across the examined groups.

Taken together, the evidence substantially reduces concerns that the principal findings are driven by a particular model specification, sampling variation, multicollinearity or the aggregation of heterogeneous firms. The robustness evidence therefore reinforces the central conclusion of the study that SME tax avoidance is a multidimensional and context-dependent phenomenon shaped by CSR engagement, governance architecture, capital structure and profitability, with the strength of these relationships conditioned by organisational, sectoral, regional and macroeconomic factors.

The robustness analysis consequently provides additional empirical confidence in the proposed reconceptualisation of the CSR–governance architecture–capital structure–tax avoidance nexus and supports the broader argument that tax avoidance should be examined as an interdependent structural phenomenon rather than through isolated bivariate relationships.

Discussion of Results

Corporate Social Responsibility (CSR) and Tax Avoidance

The PLS-SEM results reveal a negative and statistically significant relationship between CSR and tax avoidance, supporting H1. The association remains significant across product SMEs ($\beta = -0.181$, $p < 0.01$), service SMEs ($\beta = -0.267$, $p < 0.01$), Europe ($\beta = -0.291$, $p < 0.01$) and ECOWAS ($\beta = -0.153$, $p < 0.01$). The consistency of the negative association across these subsamples suggests that CSR is associated with lower tax avoidance in the present SME sample, although the magnitude is context dependent. This finding is consistent with Lanis and Richardson (2015), who report that firms with stronger CSR performance are less likely to engage in tax avoidance, and with earlier evidence linking CSR disclosure to lower tax aggressiveness. However, the result should not be interpreted as evidence of a universal CSR–tax avoidance relationship. The international literature remains heterogeneous. Mao (2019), for example, reports that CSR firms in China exhibited higher book-tax differences and lower effective tax rates, implying greater tax avoidance, while Mayberry and Watson (2021), using a natural-experiment design, find little evidence that increased CSR caused changes in corporate tax avoidance. These contrasting findings indicate that the present negative coefficient is best understood as context dependent rather than as an invariant consequence of CSR.

The finding is consistent with legitimacy theory, under which firms seek congruence between organisational conduct and prevailing societal expectations (Suchman, 1995). Where an SME

publicly commits resources to socially responsible activities, aggressive tax behaviour may create a perceived inconsistency between its social claims and its fiscal conduct. CSR can therefore operate as an informal governance mechanism by increasing reputational and stakeholder costs associated with tax behaviour perceived as inconsistent with responsible corporate citizenship. Stakeholder theory provides a complementary explanation because governments, customers, employees, suppliers, communities and shareholders can impose different forms of economic, social and reputational pressure on firms. From this perspective, tax behaviour forms part of the broader relationship between the firm and its stakeholders rather than representing a purely private financial decision. Nevertheless, the contrary evidence reported by Mao (2019) and Mayberry and Watson (2021) indicates that CSR may also be used instrumentally for reputation or risk management, meaning that responsible disclosure does not necessarily guarantee responsible tax conduct.

The significant sector interaction provides further evidence of contextual heterogeneity and supports H9a. The CSR coefficient is more negative for service SMEs ($\beta = -0.267$) than for product SMEs ($\beta = -0.181$), while the CSR $\times$ SECTOR interaction is negative and significant ($\beta = -0.079$, $p < 0.05$). Thus, relative to product SMEs, the negative association between CSR and tax avoidance is stronger among service SMEs, conditional on the specification of the interaction model. A plausible explanation is that service SMEs frequently depend heavily on customer relationships, human capital, reputation and intangible stakeholder assets, making perceived inconsistencies between CSR commitments and tax behaviour potentially more consequential. This interpretation is also compatible with evidence that CSR–tax avoidance relationships vary according to the characteristics of the firm and the institutional setting rather than operating uniformly across firms. The finding should nevertheless be interpreted as sectoral heterogeneity in the estimated relationship, rather than as evidence that service firms are inherently more socially responsible than product firms.

The regional interaction similarly supports H10a. CSR has a more negative association with tax avoidance in Europe ($\beta = -0.291$) than in ECOWAS ($\beta = -0.153$), and the region $\times$ CSR interaction is negative and statistically significant ($\beta = -0.101$, $p < 0.01$). This indicates that the CSR–tax avoidance relationship is significantly more negative in the European subsample, conditional on the model specification. One possible explanation is that differences in regulatory enforcement, transparency expectations, stakeholder monitoring and institutional accountability affect the extent to which CSR commitments translate into observable tax behaviour. However, this interpretation should not be reduced to a simple Europe-versus-ECOWAS development distinction. Both regions contain substantial within-region institutional heterogeneity, and the regional coefficient captures the average conditional difference after accounting for the other variables in the model. The finding therefore provides evidence of contextual moderation rather than establishing that one region has uniformly stronger CSR norms or tax compliance.

Firm characteristics also significantly condition the CSR–tax avoidance relationship. The negative CSR $\times$ FSIZE interaction ($\beta = -0.091$, $p < 0.01$) supports H5a, indicating that the negative association between CSR and tax avoidance becomes stronger as firm size increases. Larger SMEs may have greater public visibility, more extensive stakeholder networks and greater exposure to regulatory scrutiny, increasing the potential reputational costs of tax practices inconsistent with CSR commitments. At the same time, larger firms often possess

greater financial and managerial resources that can facilitate tax planning. The observed negative interaction therefore suggests that, in this sample, the reputational and monitoring mechanism associated with CSR appears to dominate the alternative resource-based mechanism. This interpretation is consistent with evidence that firm size is an important contextual factor in tax-avoidance research, although the direction of the size effect itself is not uniform across settings. For example, Musah et al. (2024) report that firm size is a significant determinant of tax avoidance among Ghanaian listed firms, illustrating the relevance of firm scale to tax behaviour without implying that size necessarily moderates CSR in the same direction.

Conversely, the positive CSR $\times$ FAGE interaction ($\beta = 0.066$, $p < 0.05$) supports H6a and indicates that the negative CSR–tax avoidance relationship weakens as firms become older. This result may indicate that CSR has a larger incremental constraining role among younger SMEs, whereas older firms may have already institutionalised governance, stakeholder and reputational routines, reducing the marginal influence of CSR on tax behaviour. An alternative explanation is that organisational maturity may provide established firms with accumulated tax knowledge, stronger financial capabilities and more developed tax-planning routines. The positive interaction should therefore be interpreted as evidence that firm age changes the strength of the CSR–tax avoidance association, rather than as evidence that older firms are inherently more tax aggressive.

Macroeconomic conditions provide additional evidence of moderation. The negative CSR $\times$ INTR interaction ($\beta = -0.057$, $p < 0.05$) supports H7a, indicating that interest-rate conditions significantly alter the relationship between CSR and tax avoidance. Changes in borrowing costs can modify the value of debt-related tax shields and the financial constraints facing firms, thereby changing the economic environment in which CSR-related tax decisions are made. The interaction does not, however, establish that higher interest rates directly cause lower tax avoidance; rather, it indicates that the CSR–tax avoidance association varies with the prevailing financing environment.

The negative CSR $\times$ EXCHR interaction ($\beta = -0.051$, $p < 0.05$) similarly supports H8a. This finding suggests that exchange-rate conditions alter the association between CSR and tax avoidance, potentially through their effects on imported inputs, foreign-currency liabilities, export revenues and cross-border transactions. The result is particularly relevant for SMEs exposed to international markets because exchange-rate movements can modify both the economic consequences of cross-border transactions and the incentives surrounding tax planning. Nevertheless, because EXCHR is measured as the exchange-rate level rather than a direct measure of exchange-rate volatility, the finding should not be interpreted as evidence that currency risk itself causes the observed change in the CSR–tax avoidance relationship.

The mediation analysis provides an important mechanism underlying the direct CSR result. CSR is positively associated with profitability ($\beta = 0.231$, $p < 0.01$), while profitability is positively associated with tax avoidance ($\beta = 0.137$, $p < 0.05$), generating a significant positive indirect effect ($\beta = 0.032$, $p < 0.01$) and supporting H4a. Because the direct CSR $\rightarrow$ tax avoidance relationship is negative while the indirect CSR $\rightarrow$ profitability $\rightarrow$ tax avoidance pathway is positive, the evidence is consistent with competitive (inconsistent) mediation. This suggests that CSR may influence tax avoidance through two opposing mechanisms. First, CSR

may directly constrain tax avoidance through ethical, reputational and stakeholder pressures. Second, CSR may improve financial performance, increasing taxable income and simultaneously providing firms with greater resources and incentives to undertake tax planning. The existence of this positive profitability pathway is particularly consistent with Mao and Wu (2019), who find that profitability mediates the CSR–tax avoidance relationship in Chinese firms. More broadly, Hirsch et al. (2023), based on 7,800 estimates from 512 studies, identify a small positive average association between CSR and financial performance while also documenting substantial heterogeneity across research settings and specifications.

Overall, the results support H1, H4a, H5a, H6a, H7a, H8a and H9a–H10a. More importantly, the findings indicate that the CSR–tax avoidance relationship is not adequately characterised by a single direct effect. CSR is negatively associated with tax avoidance directly, but its effect is simultaneously transmitted through profitability in the opposite direction and conditioned by firm size, firm age, sector, region, interest-rate conditions and exchange-rate conditions. The evidence therefore contributes to the CSR–tax literature by demonstrating that the tax implications of socially responsible behaviour are contingent on organisational and institutional context. This interpretation is consistent with the broader literature, which reports negative, positive and null CSR–tax avoidance relationships depending on measurement, identification strategy and institutional setting.

Capital Structure and Tax Avoidance

The PLS-SEM results indicate a positive and statistically significant relationship between capital structure (CS) and tax avoidance (TA), supporting H2. The full-sample coefficient is positive ($\beta = 0.241$, $p < 0.01$), with statistically significant positive relationships among product SMEs ($\beta = 0.276$, $p < 0.01$), service SMEs ($\beta = 0.205$, $p < 0.01$), European SMEs ($\beta = 0.179$, $p < 0.05$) and ECOWAS SMEs ($\beta = 0.309$, $p < 0.01$). The results therefore indicate that, within the present sample and model specification, greater reliance on debt is associated with greater tax avoidance. The consistency of the sign across the subsamples suggests a relatively stable positive association, although the magnitude varies across operating and institutional contexts.

The finding is compatible with the tax-shield component of trade-off theory. Debt creates deductible interest expenses that reduce taxable income and can therefore lower the firm's effective tax burden. Feld et al. (2013), in a meta-analysis of 48 studies containing 1,144 estimates, find substantial tax effects on corporate debt financing, demonstrating that corporate taxation is an important consideration in capital-structure decisions. From this perspective, the positive CS–TA coefficient suggests that leverage may serve a dual function: providing external finance while simultaneously generating tax benefits through interest deductibility. However, the result should not be interpreted as evidence that debt and tax avoidance are necessarily complementary in all circumstances. Jin (2021), for example, finds that corporate tax aggressiveness can reduce debt utilization because tax avoidance itself can substitute for the interest tax shield. The present positive coefficient therefore provides empirical support for the debt-tax-shield mechanism in this SME sample but does not establish that the relationship is universal.

Agency theory provides an additional perspective. Debt imposes contractual obligations that can constrain managerial discretion and reduce free cash flow available for opportunistic

expenditure (Jensen & Meckling, 1976). At the same time, managers may have incentives to preserve cash resources by reducing explicit tax payments through tax-planning strategies. Consequently, financing and tax decisions can be jointly determined rather than treated as independent managerial choices. This interpretation is important because the observed positive CS–TA association may reflect the combined influence of financing needs, interest deductibility and managerial incentives rather than a simple one-directional effect of leverage on tax avoidance.

The sectoral findings support H9b. The CS–TA relationship is stronger among product SMEs ($\beta = 0.276$) than service SMEs ($\beta = 0.205$), while the positive CS $\times$ SECTOR interaction ($\beta = 0.094$, $p < 0.01$) indicates that sector significantly conditions the relationship. Product-oriented SMEs typically face greater requirements for fixed assets, inventories, production facilities and working capital, potentially increasing their dependence on external debt. Where interest expenses are deductible, greater debt exposure can consequently create a larger tax-shield opportunity. The result should nevertheless be interpreted as sectoral heterogeneity in the leverage–tax avoidance association rather than evidence that product firms inherently pursue more aggressive tax strategies. Differences in asset tangibility, financing constraints, profitability and investment requirements may jointly explain the stronger relationship.

The regional results support H10b. The positive relationship between CS and TA is stronger among ECOWAS SMEs ($\beta = 0.309$, $p < 0.01$) than European SMEs ($\beta = 0.179$, $p < 0.05$), while the positive REGION $\times$ CS interaction ($\beta = 0.116$, $p < 0.01$) indicates that the difference is statistically significant. The result suggests that institutional and financing environments condition the extent to which leverage is associated with tax avoidance. Differences in interest-deductibility rules, access to formal credit, tax enforcement, financial-market development and regulatory monitoring can affect the economic value of debt-related tax shields. The finding should not, however, be reduced to a general claim that ECOWAS firms are more tax aggressive than European firms. The interaction identifies a conditional difference in the estimated CS–TA relationship after accounting for the other variables in the model, while considerable institutional heterogeneity remains within both regions.

Firm size further strengthens the relationship between capital structure and tax avoidance. The positive CS $\times$ FSIZE interaction ($\beta = 0.097$, $p < 0.01$) supports H5b. The positive interaction indicates that the association between leverage and tax avoidance becomes stronger as firm size increases. Larger SMEs may possess greater access to formal credit markets, financial expertise and tax-planning resources, potentially allowing them to structure debt more effectively around tax considerations. The finding is also consistent with evidence that firm size can alter the relationship between tax aggressiveness and financing decisions. Jin (2021), for example, finds that the relationship between tax aggressiveness and debt utilization varies with firm size, with larger firms displaying stronger substitution effects in his setting. The difference between that evidence and the present positive interaction is informative: firm size may affect the tax–debt relationship, but the direction depends on whether debt is primarily being used to obtain tax shields or whether tax avoidance is substituting for debt.

The negative CS $\times$ FAGE interaction ($\beta = -0.071$, $p < 0.05$) supports H6b. Because the underlying CS–TA coefficient is positive, the negative interaction indicates that the positive

association between leverage and tax avoidance becomes weaker as firms become older. Organisational maturity may contribute to this pattern through more established financing policies, accumulated retained earnings, stronger governance routines and more stable relationships with lenders and tax authorities. Older firms may consequently have less need to rely on incremental debt as a tax-planning instrument. An alternative explanation is that organisational maturity increases the formalisation of financial and tax controls, reducing the marginal association between additional leverage and tax avoidance. The result therefore demonstrates moderation by firm age but does not by itself identify which of these mechanisms dominates.

Interest-rate conditions significantly moderate the CS–TA relationship, supporting H7c. The positive CS $\times$ INTR interaction is observed for the full sample ($\beta = 0.076$, $p < 0.01$), product SMEs ($\beta = 0.084$, $p < 0.01$), service SMEs ($\beta = 0.067$, $p < 0.05$), Europe ($\beta = 0.058$, $p < 0.10$) and ECOWAS ($\beta = 0.098$, $p < 0.01$). The positive interaction indicates that the association between leverage and tax avoidance becomes stronger as the prevailing interest-rate condition increases. A possible explanation is that higher borrowing costs increase the absolute value of deductible interest expenses for firms carrying debt, potentially increasing the tax relevance of financing decisions. However, this mechanism must be interpreted cautiously because higher interest rates also increase the real cost of borrowing and may discourage additional debt. The observed positive interaction therefore suggests that the tax-shield channel is empirically important in this sample, but it does not imply that higher interest rates universally increase tax avoidance.

The exchange-rate interaction also supports H8c. The positive CS $\times$ EXCHR coefficient is significant for the full sample ($\beta = 0.069$, $p < 0.01$), product SMEs ($\beta = 0.076$, $p < 0.05$), service SMEs ($\beta = 0.059$, $p < 0.05$), Europe ($\beta = 0.051$, $p < 0.10$) and ECOWAS ($\beta = 0.089$, $p < 0.01$). Given that EXCHR is expressed as domestic currency units per US dollar, a higher value represents depreciation of the domestic currency. The positive interaction therefore indicates that the association between leverage and tax avoidance becomes stronger under conditions of domestic-currency depreciation, holding the other model variables constant. Currency depreciation may affect the domestic-currency value of foreign-currency debt, imported inputs, export receipts and other cross-border transactions, potentially changing the tax consequences of financing decisions. This interpretation is particularly relevant for SMEs with international exposure. Nevertheless, because the study measures the exchange-rate level rather than exchange-rate volatility, the result should not be interpreted as a direct measure of currency risk.

Profitability provides an additional transmission mechanism, supporting H4b. CS is positively associated with profitability ($\beta = 0.176$, $p < 0.05$), while profitability is positively associated with TA ($\beta = 0.137$, $p < 0.05$). The indirect CS $\rightarrow$ FP $\rightarrow$ TA effect is positive and statistically significant at the 10% level ($\beta = 0.024$, $p < 0.10$). The evidence therefore suggests that part of the association between leverage and tax avoidance operates through profitability. However, because the indirect effect is only significant at the 10% level, the mediation evidence should be described as comparatively weaker than the direct CS–TA relationship. The positive indirect pathway may indicate that financing decisions influence profitability and that more profitable firms subsequently have greater taxable income, financial resources and incentives to engage in tax planning.

The mediation result also illustrates why the relationship between capital structure and tax avoidance should not be interpreted solely through the traditional interest-tax-shield argument. Debt can influence profitability through financing costs, investment capacity and tax deductions, while profitability can subsequently affect firms' incentives and capacity for tax planning. At the same time, recent SME evidence suggests that the reverse mechanism is also plausible. Sánchez-Ballesta et al. (2024), using 110,690 firm-year observations for Spanish SMEs over 2007–2020, find that tax avoidance reduces financial leverage and short-term debt, suggesting that tax savings can themselves be used to alter firms' financing structures. This evidence is particularly important for interpreting the present mediation result because it demonstrates that the tax avoidance–capital structure relationship may be bidirectional.

The distinction between the two directions is theoretically consequential. The present model estimates $CS \rightarrow TA$ and therefore interprets the positive coefficient as evidence that leverage is associated with greater tax avoidance. However, the broader literature indicates that TA can simultaneously affect financing choices. Lee et al. (2023), for example, find that tax avoidance is positively associated with the probability of issuing equity rather than debt, partly through its effects on the costs of debt and equity capital. Thus, the present PLS-SEM estimates should be interpreted as conditional structural associations rather than definitive evidence of a one-way causal process.

Overall, the results support H2, H4b, H5b, H6b, H7c, H8c, H9b and H10b. Capital structure is positively associated with tax avoidance in the present SME sample, while profitability provides a weaker but statistically significant positive indirect pathway. The relationship is further conditioned by firm size, firm age, sector, region, interest-rate conditions and exchange-rate conditions. The stronger leverage association among product SMEs and ECOWAS SMEs indicates that the tax implications of debt are context dependent rather than uniform across firms. The findings therefore position capital structure as an important component of SME tax behaviour while recognising that the debt–tax relationship can operate in both directions. In particular, the results should distinguish legitimate use of statutory interest deductions from aggressive arrangements designed primarily to minimise tax liabilities. The empirical evidence supports the relevance of the tax-shield mechanism in this sample, but the contrasting international evidence cautions against interpreting leverage as an inherently tax-aggressive behaviour.

Governance Architecture and Tax Avoidance

The PLS-SEM results demonstrate a negative and statistically significant relationship between Governance Architecture (GA) and Tax Avoidance (TA), supporting H3. The full-sample coefficient is $\beta = -0.286$ ($p < 0.01$), with similarly negative effects for product SMEs ($\beta = -0.251$, $p < 0.01$), service SMEs ($\beta = -0.324$, $p < 0.01$), European SMEs ($\beta = -0.358$, $p < 0.01$) and ECOWAS SMEs ($\beta = -0.211$, $p < 0.01$). The consistency of the negative coefficient across the subsamples indicates that stronger governance architecture is associated with lower tax avoidance in the present sample, although the magnitude of the relationship varies across operating and institutional contexts.

The finding is primarily consistent with agency theory, under which corporate governance architecture mechanisms reduce information asymmetry and constrain managerial

opportunism (Jensen & Meckling, 1976). Tax planning can involve complex transactions and substantial information advantages for managers, creating scope for decisions that may reduce current tax liabilities while increasing regulatory, reputational or financial risks. Board oversight, audit committees, ownership monitoring and governance transparency can reduce such discretion by increasing scrutiny of financial reporting and tax-related decisions. The negative GA–TA coefficient therefore indicates that governance architecture functions as an internal monitoring mechanism within the tax-governance process.

However, the result should not be interpreted as evidence that stronger governance necessarily reduces all forms of tax avoidance. Kovermann and Velte (2019), reviewing 79 empirical studies, conclude that governance mechanisms can both constrain tax avoidance and facilitate tax planning that increases profitability while keeping associated risks within an acceptable range. Their review is therefore particularly relevant to the present finding because it places the negative coefficient within a broader governance–tax trade-off rather than treating tax avoidance as intrinsically incompatible with effective governance. The present evidence indicates that, for the SMEs examined, the monitoring and accountability function of governance appears to dominate the alternative tax-efficiency channel.

Stakeholder theory provides a complementary explanation. Governance extends managerial accountability beyond shareholders to other parties that can affect or be affected by the firm's activities, including governments, employees, customers, suppliers and communities (Freeman, 1984). From this perspective, tax behaviour forms part of the firm's broader relationship with its institutional environment. Governance systems that incorporate stakeholder interests can increase the reputational and relational costs associated with tax behaviour perceived as inconsistent with responsible corporate conduct. The negative GA–TA relationship is therefore compatible with a stakeholder-oriented conception of tax governance in which tax decisions are evaluated alongside broader accountability obligations.

The mediation analysis provides a more nuanced explanation of the governance effect. GA positively predicts profitability ($\beta = 0.302$, $p < 0.01$), while profitability positively predicts TA ($\beta = 0.137$, $p < 0.05$), generating a significant positive indirect effect of $\beta = 0.041$ ($p < 0.05$) and supporting H4c. Because the direct GA $\rightarrow$ TA coefficient is negative while the indirect GA $\rightarrow$ FP $\rightarrow$ TA effect is positive, the results are consistent with competitive (inconsistent) mediation. Governance therefore operates through two opposing pathways. Its direct monitoring and accountability function is associated with lower tax avoidance, whereas governance-enhanced profitability is associated with greater tax-avoidance behaviour.

This finding extends the conventional governance explanation because it indicates that effective governance is not exclusively a compliance mechanism. Strong governance can improve decision quality, resource allocation, financial control and operational efficiency, potentially increasing profitability. Greater profitability, in turn, can increase the economic significance of tax planning because firms have larger taxable income bases and greater financial resources over which tax decisions matter. The positive indirect effect should nevertheless not be interpreted as proof that profitable firms necessarily become more tax aggressive. Rather, it demonstrates that profitability statistically transmits part of the governance–tax avoidance relationship in the opposite direction to the direct governance

effect. The result therefore justifies modelling profitability as a mediator rather than treating it only as a conventional control variable.

The negative $GA \times FSIZE$ interaction supports H5c. The coefficient is $\beta = -0.084$ ($p < 0.01$) for the full sample and remains negative among product SMEs ($\beta = -0.069$, $p < 0.05$), service SMEs ($\beta = -0.101$, $p < 0.01$), Europe ($\beta = -0.116$, $p < 0.01$) and ECOWAS ($\beta = -0.052$, $p < 0.05$). Given the negative underlying GA–TA relationship, the interaction indicates that the tax-constraining association of governance becomes stronger as firm size increases. Larger SMEs may have more formalised governance structures, specialised accounting and finance functions, professionalised boards and greater exposure to stakeholder and regulatory scrutiny. These characteristics can increase the ability of governance mechanisms to identify and constrain tax practices that generate excessive regulatory or reputational risk. The result therefore suggests that governance capacity and organisational scale are complementary in shaping tax behaviour.

Conversely, the positive $GA \times AGE$ interaction ($\beta = 0.063$, $p < 0.05$) supports H6c. Because the underlying GA–TA relationship is negative, the positive interaction indicates that the negative association between governance and tax avoidance weakens as firms become older. This pattern may reflect the institutionalisation of governance routines: once formal controls and procedures become embedded, incremental improvements in the measured governance architecture may have smaller marginal effects on tax behaviour. An alternative explanation is organisational entrenchment, whereby established routines and managerial relationships may reduce the effectiveness of formal governance mechanisms. The result therefore demonstrates a moderating role for organisational age but does not establish which of these competing mechanisms explains the observed relationship.

Interest-rate conditions also moderate the GA–TA relationship, supporting H7b. The negative $GA \times INTR$ interaction is $\beta = -0.064$ ($p < 0.05$) for the full sample, with negative interactions among product SMEs ($\beta = -0.057$, $p < 0.10$), service SMEs ($\beta = -0.072$, $p < 0.05$), Europe ($\beta = -0.081$, $p < 0.01$) and ECOWAS ($\beta = -0.045$, $p < 0.10$). Given the negative direct GA–TA relationship, the interaction indicates that the governance-associated reduction in tax avoidance becomes stronger as the interest-rate measure increases. One possible explanation is that changes in financing conditions increase the importance of managerial scrutiny over borrowing, interest deductions and cash-flow management, thereby increasing the relevance of governance oversight. However, this interpretation should remain cautious because higher interest rates can simultaneously increase financing costs and the value of interest deductions. The empirical result establishes moderation, not a single causal mechanism.

Exchange-rate conditions produce a similar moderating pattern, supporting H8b. The $GA \times EXCHR$ interaction is negative and significant for the full sample ($\beta = -0.056$, $p < 0.05$), product SMEs ($\beta = -0.049$, $p < 0.10$), service SMEs ($\beta = -0.064$, $p < 0.05$), Europe ($\beta = -0.074$, $p < 0.05$) and ECOWAS ($\beta = -0.034$, $p < 0.10$). Since EXCHR is expressed as domestic currency units per US dollar, a higher value represents domestic-currency depreciation. The negative interaction therefore indicates that the negative GA–TA relationship becomes stronger as the domestic currency depreciates. Currency movements can affect foreign-currency liabilities, imported inputs, export revenues and cross-border transactions, increasing the complexity of financial

and tax decisions. Stronger governance may become particularly relevant under such conditions because enhanced oversight and transparency can constrain managerial discretion when financial uncertainty increases. Nevertheless, because the study measures the exchange-rate level rather than exchange-rate volatility, the result should not be interpreted as a direct test of currency risk.

The sectoral interaction provides additional evidence of contextual governance effects and supports H9c. The negative SECTOR $\times$ GA interaction ($\beta = -0.087$, $p < 0.01$), together with the stronger negative GA coefficient among service SMEs ($\beta = -0.324$) than product SMEs ($\beta = -0.251$), indicates that the governance–tax avoidance relationship differs systematically between the two sectors. Service SMEs often depend heavily on customer relationships, human capital, reputation and intangible resources. In such settings, governance failures and tax practices that conflict with stakeholder expectations may carry comparatively greater reputational consequences. The result should therefore be interpreted as evidence that sector characteristics condition the governance–tax avoidance association, rather than as evidence that service firms inherently possess superior governance or greater tax compliance.

The regional findings support H10c. GA has a stronger negative association with TA among European SMEs ($\beta = -0.358$, $p < 0.01$) than among ECOWAS SMEs ($\beta = -0.211$, $p < 0.01$), while the negative REGION $\times$ GA interaction ($\beta = -0.111$, $p < 0.01$) confirms that the difference is statistically significant. The finding is consistent with the proposition that internal governance mechanisms operate within, rather than independently of, the external institutional environment. Where regulatory monitoring, disclosure expectations, investor protection and enforcement mechanisms reinforce internal governance, the behavioural effect of governance may be stronger. Evidence from the 2024 Mexican governance-reform study is particularly relevant: the study finds that stronger governance following mandatory reforms was associated with lower tax avoidance, with effects concentrated among firms characterised by weaker pre-existing governance conditions. Similarly, Hasan et al. (2023) report negative associations between board independence, concentrated ownership and audit-committee characteristics and tax avoidance in Pakistani listed firms. These findings support the broader proposition that governance mechanisms can materially affect tax behaviour, although institutional settings remain important.

Taken together, the results support H3, H4c, H5c, H6c, H7b, H8b, H9c and H10c. Governance architecture is negatively associated with tax avoidance, while profitability provides a statistically significant positive indirect pathway. Firm size strengthens the negative governance–tax avoidance relationship, whereas firm age weakens it. Interest rates, exchange rates, sector and region further condition the relationship. The evidence therefore indicates that governance effectiveness is not uniform but depends on organisational scale, organisational maturity, operating structure and the surrounding financial and institutional environment.

The coexistence of a negative direct effect and a positive profitability-mediated effect is particularly important theoretically. Governance can simultaneously perform a disciplinary function, constraining tax avoidance through monitoring and accountability, and an economic function, improving profitability and thereby changing the economic circumstances in which

tax planning decisions are made. This dual pathway provides a more comprehensive explanation of the governance–tax avoidance nexus than a model based exclusively on the direct monitoring effect. It also accords with Kovermann and Velte's (2019) conclusion that governance can both constrain tax avoidance and facilitate tax planning depending on the firm's circumstances and the risks associated with particular tax strategies.

The findings also have implications for understanding SME tax governance. Internal governance mechanisms appear to be more strongly associated with lower tax avoidance when organisational scale is greater and when the external environment provides complementary monitoring. Conversely, the weakening effect associated with firm age suggests that formal governance structures alone may not guarantee continuing behavioural effectiveness. Thus, the evidence points toward the importance of considering not merely the existence of governance mechanisms but their interaction with organisational and institutional conditions.

Overall, Governance Architecture emerges as an important component of the SME tax-governance system in the present sample. Its negative direct association with tax avoidance is complemented by a positive profitability-mediated pathway and conditioned by firm size, age, sector, interest rates, exchange rates and regional institutional context. The results consequently support a contingent rather than universal interpretation of governance: stronger governance is associated with lower tax avoidance in this study, but the magnitude of that association depends on the organisational and institutional circumstances in which governance operates.

Profitability and Tax Avoidance

The PLS-SEM results demonstrate a positive and statistically significant relationship between profitability (FP), measured by return on assets (ROA), and tax avoidance (TA), supporting H4. For the full sample, FP positively affects TA ($\beta = 0.137$, $p < 0.05$), with positive coefficients for product SMEs ($\beta = 0.121$, $p < 0.10$), service SMEs ($\beta = 0.149$, $p < 0.05$), European SMEs ($\beta = 0.157$, $p < 0.05$) and ECOWAS SMEs ($\beta = 0.113$, $p < 0.10$). The consistency of the positive coefficients across sectors and regions indicates that profitability is systematically associated with stronger tax-minimisation behaviour in the sample, although the statistical strength varies across the subsamples. Economically, profitability increases taxable income and therefore the potential tax liability, raising the expected benefits of effective tax planning and other tax-reducing strategies (Desai & Dharmapala, 2006; Hanlon & Heitzman, 2010). This interpretation is consistent with recent SME evidence. Using 110,690 firm-year observations for Spanish SMEs over 2007–2020, Sánchez-Ballesta and Yagüe (2024) find that the effects associated with tax avoidance are stronger among more profitable SMEs, indicating that profitability is an important conditioning characteristic of firms' tax behaviour.

Agency theory provides one explanation for the positive relationship. Greater profitability can increase managerial discretion over internally generated resources and create stronger incentives to protect after-tax earnings and residual cash flows. Jensen and Meckling (1976) conceptualise the separation of ownership and control as creating opportunities for managerial decisions to diverge from shareholder interests, while subsequent tax-avoidance research demonstrates that tax planning cannot be understood simply as an unambiguous transfer of resources from government to shareholders because managerial incentives and

agency costs also matter (Desai & Dharmapala, 2006, 2009). Managers of highly profitable SMEs may therefore have greater incentives and discretion to pursue tax planning where reducing tax liabilities increases internally retained resources. Recent evidence similarly links tax avoidance to agency considerations, showing that stronger alignment between managers and shareholders can reduce tax avoidance, reinforcing the proposition that managerial incentives influence tax-planning decisions (Wongsinhirun et al., 2024).

The positive coefficient should nevertheless not be interpreted as evidence that profitable SMEs necessarily engage in illegal tax evasion. Tax avoidance encompasses a spectrum of tax-reducing activities, ranging from the use of explicit statutory incentives and legitimate tax planning to more aggressive strategies that exploit ambiguities in tax rules (Hanlon & Heitzman, 2010). The distinction is important because a lower effective tax burden does not, by itself, establish unlawful conduct. Indeed, contemporary research continues to distinguish tax avoidance from evasion while recognising that aggressive avoidance can generate financial, regulatory and reputational risks (Ajmal et al., 2025). Accordingly, the present finding should be interpreted as evidence that higher profitability is associated with greater tax-avoidance intensity rather than as evidence of tax non-compliance.

The resource-based view (RBV) provides a complementary explanation. Profitability does not merely increase the incentive to reduce tax liabilities; it can also provide the financial and organisational resources required to identify and implement sophisticated tax-planning opportunities. Barney (1991) argues that valuable, rare and difficult-to-substitute organisational resources can generate sustained competitive advantages. Applied to taxation, financially stronger SMEs may have greater capacity to employ professional accountants, tax advisers and legal specialists and to develop more sophisticated financial-management and reporting systems. These capabilities can facilitate tax-efficient financing, investment, depreciation and income-recognition decisions. Profitability can therefore operate through a dual mechanism: it increases the economic payoff from tax planning while simultaneously increasing the organisational capacity to undertake tax planning.

This resource-capability interpretation is also consistent with the wider literature showing that tax avoidance is embedded in firms' broader financial decisions rather than being an isolated tax-accounting activity. Recent international evidence indicates that tax avoidance can interact with investment and financial policies through the availability of financial slack and through agency-related channels. Firms may use tax savings to finance investment, while agency problems can determine whether those resources are allocated efficiently (Benkraiem et al., 2024). Thus, profitable SMEs may possess both the incentive and the financial slack necessary to undertake more sophisticated tax management, although the ultimate consequences depend on governance and managerial incentives.

The sector-specific results provide additional support for this interpretation. The positive FP–TA association is stronger for service SMEs ($\beta = 0.149$, $p < 0.05$) than for product SMEs ($\beta = 0.121$, $p < 0.10$). However, the difference should not be interpreted as demonstrating that service SMEs are inherently more tax aggressive. Sectoral differences may reflect variation in asset structures, financing arrangements, intangible resources, operating models, tax incentives and the composition of profitable firms. The present estimates therefore suggest that the profitability–TA relationship is conditional on sectoral context rather than

establishing a universal sectoral behavioural pattern. This interpretation is consistent with evidence that the tax consequences of business decisions vary with firms' financial and operational characteristics (Sánchez-Ballesta & Yagüe, 2024).

The regional results also warrant careful interpretation. The FP–TA coefficient is larger among European SMEs ($\beta = 0.157$, $p < 0.05$) than among ECOWAS SMEs ($\beta = 0.113$, $p < 0.10$). This indicates a stronger estimated association between profitability and tax avoidance in the European subsample, but it does not establish that European SMEs are categorically more tax aggressive. Differences in tax-system design, enforcement intensity, accounting rules, access to professional tax expertise, firm composition and institutional conditions may influence the strength of the observed relationship. The result should therefore be understood as evidence of cross-regional heterogeneity in the profitability–TA association, rather than as evidence of a uniform regional propensity toward tax avoidance.

An important implication arises from the finding that profitability also functions as a mediator in the CSR–TA, CS–TA and GA–TA relationships. The positive FP→TA coefficient means that the indirect effects reported elsewhere in the model should not be interpreted simply as evidence that CSR, capital structure or governance mechanically reduces or increases tax avoidance. Instead, these relationships may operate partly through changes in profitability. This is theoretically plausible because organisational practices can affect financial performance, while profitability subsequently changes both the tax exposure faced by the firm and its capacity to engage in tax planning. The broader literature supports the proposition that tax avoidance and financial outcomes can be mutually interconnected rather than operating through a single unidirectional mechanism (Desai & Dharmapala, 2009; Hanlon & Heitzman, 2010).

Nevertheless, the positive relationship should not be interpreted as universal or necessarily causal. Tax-avoidance research has repeatedly shown that observed relationships depend on the measure of tax avoidance, institutional environment, governance arrangements and firm characteristics (Hanlon & Heitzman, 2010; Kovermann & Velte, 2019). Moreover, reverse causality is theoretically plausible: while higher profitability can increase incentives for tax planning, successful tax planning can itself increase after-tax profitability by reducing tax expenditures. The recent SME literature illustrates this bidirectional possibility by examining tax avoidance alongside subsequent financial outcomes and using fixed-effects, propensity-score matching and instrumental-variable approaches to address potential endogeneity (Sánchez-Ballesta & Yagüe, 2024). Consequently, the PLS-SEM coefficient should be interpreted as an association within the study's European–ECOWAS SME sample rather than definitive evidence that profitability causes tax avoidance.

Overall, the results support H4 and indicate that profitability is an important correlate of SME tax-avoidance behaviour. The evidence is theoretically consistent with an incentive-capability mechanism: profitable SMEs face a larger potential tax burden and therefore greater economic incentives to manage taxation, while their stronger financial position may provide the organisational resources necessary to undertake more sophisticated tax planning. The persistence of the positive coefficient across product, service, European and ECOWAS subsamples further suggests that the relationship is not confined to one particular segment of the sample, although its magnitude and statistical strength vary. The finding consequently

positions profitability as both an economic incentive and an organisational capability within the proposed tax-avoidance framework, while recognising that governance, institutional context and potential reverse causality condition the relationship.

Moderating Conditions Surrounding the Mediation Mechanisms

The moderation results demonstrate that the relationships among CSR, capital structure (CS), governance architecture (GA), profitability (FP) and tax avoidance (TA) are contingent rather than uniform. Importantly, the estimated interaction terms moderate the respective CSR–TA, CS–TA and GA–TA relationships; they should not be interpreted as evidence that firm size, firm age, interest rates or exchange rates directly moderate the FP → TA pathway because no corresponding FP interaction terms are reported. Consequently, the findings provide evidence of conditional antecedent effects surrounding the profitability-mediated mechanisms, rather than moderated mediation in the strict statistical sense. Formal moderated mediation would require demonstrating that the indirect effect through FP changes systematically across levels of the proposed moderator (Hayes, 2018; Hair et al., 2022).

The capital-structure interactions provide evidence of substantial contextual dependence. CS × FSIZE → TA is positive and significant ($\beta = 0.097$, $p < 0.01$), whereas CS × AGE → TA is negative and significant ($\beta = -0.071$, $p < 0.05$). The positive size interaction indicates that the positive CS–TA association becomes stronger as firm size increases. This finding is consistent with the resource-based view (RBV), which conceptualises financial, human and organisational resources as capabilities that can enable firms to exploit valuable opportunities (Barney, 1991). Larger SMEs may have greater access to professional accounting expertise, tax advisers, sophisticated financial systems and external financing, thereby increasing their capacity to manage the tax consequences of leverage. The result is also consistent with recent SME evidence showing that profitability and leverage are relevant characteristics in explaining tax-avoidance behaviour, although the precise mechanisms vary across institutional settings (Sánchez-Ballesta & Yagüe, 2024). Their large sample of 110,690 Spanish SME firm-year observations shows that tax-avoidance effects are particularly pronounced among more profitable SMEs and that tax avoidance can subsequently affect leverage and debt maturity.

The positive CS × FSIZE interaction can also be interpreted through trade-off and agency theories. Trade-off theory suggests that debt generates an interest tax shield, making leverage economically valuable when firms possess sufficient taxable income against which interest deductions can be utilised (Kraus & Litzenberger, 1973). Thus, larger and more profitable firms may have greater scope to benefit from the tax consequences of debt. From an agency perspective, however, greater organisational scale can simultaneously increase managerial discretion and the complexity of financial transactions, potentially creating additional opportunities for tax planning (Desai & Dharmapala, 2006). The present interaction therefore suggests that organisational scale can amplify the association between leverage and tax avoidance because larger SMEs may possess both greater taxable income and greater capacity to manage debt-related tax consequences. This interpretation remains conditional, however, because tax avoidance and capital structure can also influence one another. Sánchez-Ballesta and Yagüe (2024), for example, find that tax avoidance among SMEs reduces

leverage and short-term debt, highlighting the possibility of reverse causality between financing choices and tax behaviour.

In contrast, the negative $CS \times AGE$ interaction ($\beta = -0.071$, $p < 0.05$) indicates that firm age attenuates the positive CS – TA association. This result is consistent with an organisational-maturity interpretation. Older SMEs may develop more formalised financial controls, established compliance routines and stronger reputational commitments, potentially constraining the extent to which leverage is accompanied by tax-avoidance behaviour. Suchman (1995) argues that organisational legitimacy depends partly on maintaining conformity with socially constructed expectations, suggesting that mature organisations may face stronger reputational costs when financial practices conflict with stakeholder expectations. At the same time, organisational age can increase accumulated tax knowledge and professional networks. The negative interaction therefore suggests that, in this sample, the constraining effects of institutionalisation and legitimacy appear to outweigh the additional tax-planning capacity that may arise from experience. The finding should nevertheless be interpreted as sample-specific because firm age can theoretically facilitate both compliance and tax planning.

The macroeconomic interactions further demonstrate that the CS – TA relationship is sensitive to financing conditions. $CS \times INTR \rightarrow TA$ is positive and significant ($\beta = 0.076$, $p < 0.01$), indicating that the positive association between leverage and tax avoidance becomes stronger as interest rates increase. One possible explanation is that higher interest rates increase financing costs while simultaneously increasing the nominal value of interest deductions for firms that remain debt financed. Consequently, highly leveraged SMEs may have stronger incentives to manage the tax consequences of financing costs. However, this mechanism is theoretically ambiguous because higher rates can also discourage borrowing and reduce the availability of debt-related tax shields. Evidence from China illustrates this complexity. Chen et al. (2022), exploiting two interest-rate deregulations as quasi-natural experiments, find that firms reduced tax avoidance following banking liberalisation, with the effect concentrated among firms with greater bank borrowing. Thus, the positive interaction observed in the present study should be interpreted as a conditional empirical association, rather than evidence that higher interest rates universally increase tax avoidance.

Similarly, $CS \times EXCHR \rightarrow TA$ is positive and significant ($\beta = 0.069$, $p < 0.01$). Assuming $EXCHR$ is measured as domestic-currency units per US dollar, a higher value represents domestic-currency depreciation. Depreciation can affect imported-input costs, foreign-currency liabilities, financing costs and cross-border transactions, potentially altering firms' financial incentives and tax-planning opportunities. Nevertheless, an exchange-rate level should not be equated with exchange-rate volatility. Deng (2020) finds that greater foreign-exchange volatility constrains tax-motivated outbound income shifting among U.S. multinational firms because currency risk constitutes an additional non-tax cost; hedging, by reducing this risk, facilitates such income shifting. Accordingly, the present positive $CS \times EXCHR$ coefficient provides evidence that the exchange-rate environment conditions the leverage– TA relationship, but it does not demonstrate that exchange-rate volatility itself increases tax avoidance. This distinction is especially important for SMEs with foreign-currency debt, imported inputs or cross-border operations.

The governance interactions reveal a contrasting pattern. $GA \times FSIZE \rightarrow TA$ is negative and significant ($\beta = -0.084$, $p < 0.01$), indicating that firm size strengthens the negative association between governance architecture and tax avoidance. This finding is consistent with agency theory because stronger governance can constrain managerial opportunism by increasing monitoring, accountability and alignment between managerial and stakeholder interests (Jensen & Meckling, 1976). It is also consistent with the governance literature showing that board characteristics, ownership structures, auditing and monitoring mechanisms can materially influence corporate tax behaviour (Kovermann & Velte, 2019). Larger SMEs may have greater resources to institutionalise board oversight, internal controls and audit functions, enabling organisational scale to complement governance rather than simply increasing opportunities for tax planning. The result therefore suggests that size does not have a uniform effect on tax avoidance; its influence depends on whether additional organisational resources are deployed toward financial optimisation or monitoring and accountability.

The negative $GA \times FSIZE$ interaction is further supported by recent evidence from a governance reform setting. A 2024 study of Mexican firms using governance reforms and a hand-collected governance index reports that stronger corporate governance was associated with lower tax avoidance, particularly among family-owned and non-cross-listed firms where governance weaknesses were more pronounced (González et al., 2024). This evidence strengthens the interpretation that organisational resources can enhance the effectiveness of governance mechanisms in constraining tax avoidance. Nevertheless, Kovermann and Velte (2019) caution against assuming that governance always reduces tax avoidance. Their review of 79 studies indicates that governance can constrain excessive tax avoidance but can also facilitate tax planning where boards consider tax management economically beneficial. The present negative interaction should therefore be interpreted as evidence that stronger governance becomes more strongly associated with lower TA as firm size increases, not as evidence that larger firms necessarily avoid tax less in every institutional setting.

The positive $GA \times AGE$ interaction ($\beta = 0.063$, $p < 0.05$) indicates that firm age weakens the negative relationship between governance architecture and tax avoidance. In other words, although stronger governance is associated with lower TA, this constraining relationship becomes less pronounced among older SMEs. One explanation is that mature firms accumulate institutional knowledge, established tax-planning routines and long-standing relationships with professional advisers that can increase their ability to undertake tax planning even where formal governance mechanisms are present. A second possibility is that mature governance structures may incorporate tax efficiency as a legitimate financial objective rather than treating all tax reduction as opportunistic. This interpretation is consistent with Kovermann and Velte's (2019) conclusion that governance may simultaneously constrain aggressive tax avoidance and support economically rational tax planning. The finding therefore highlights the distinction between governance strength and the objectives toward which governance capabilities are directed.

The macroeconomic governance interactions are both negative. $GA \times INTR \rightarrow TA$ is negative and significant ($\beta = -0.064$, $p < 0.01$), while $GA \times EXCHR \rightarrow TA$ is also negative and significant ($\beta = -0.056$, $p < 0.05$). These coefficients indicate that the negative GA–TA association becomes stronger under the observed interest-rate and exchange-rate conditions. A

plausible explanation is that financial and currency pressures increase the value of effective monitoring because the costs of poorly controlled financing and tax decisions become more consequential. Under such conditions, governance mechanisms may constrain opportunistic tax planning and encourage firms to evaluate tax strategies jointly with financing and risk considerations. Chen et al. (2022) demonstrate that the relationship between financing conditions and tax planning can change materially when the banking environment changes, while Deng (2020) shows that foreign-exchange risk constitutes a non-tax cost that affects tax-motivated income shifting. The present results therefore support a broader interpretation in which macroeconomic conditions alter the economic environment within which governance mechanisms operate.

The interaction findings collectively qualify the profitability result reported in Section 5.4. Profitability is positively associated with TA ($\beta = 0.137$, $p < 0.05$), but the present evidence shows that the structural conditions surrounding CSR, CS and GA alter the strength of their respective relationships with TA. Tax avoidance is therefore more appropriately conceptualised as the outcome of interacting financial incentives, organisational capabilities, governance constraints and macroeconomic conditions, rather than as a simple function of profitability. This interpretation is consistent with Hanlon and Heitzman's (2010) framework, which treats tax avoidance as a multidimensional set of decisions involving tax and non-tax considerations. It is also consistent with international evidence showing that tax avoidance can have consequences for investment efficiency and that stronger investor protection can attenuate adverse consequences associated with tax-saving activities (Benkraiem et al., 2024). Their analysis of 82,487 firm-year observations across 38 countries finds that the adverse association between tax avoidance and investment inefficiency is less prevalent in countries with stronger investor protection.

The findings also have important implications for interpreting the mediation pathways. The positive CS $\rightarrow$ FP $\rightarrow$ TA pathway indicates that capital structure can influence TA partly through profitability, while the GA $\rightarrow$ FP $\rightarrow$ TA pathway indicates that governance can generate a positive indirect effect through profitability even when its direct relationship with TA is negative. The interaction results indicate that these direct and indirect mechanisms operate within heterogeneous organisational environments. However, the interaction coefficients alone do not establish moderated mediation. To claim that FSIZE, FAGE, INTR or EXCHR moderates the indirect effect through FP, the study would need to estimate and report conditional indirect effects and a formal index or equivalent test of moderated mediation (Hayes, 2018). Thus, the most defensible interpretation is that the study identifies moderating conditions surrounding profitability-mediated pathways, rather than demonstrating moderated mediation unless such conditional indirect-effect tests have been conducted.

Overall, the evidence indicates that SME tax avoidance is contingent and multidimensional. Firm size strengthens the positive CS–TA relationship but also strengthens the negative GA–TA relationship; firm age attenuates the CS–TA relationship while weakening the constraining GA–TA association; and interest-rate and exchange-rate conditions significantly alter both financing- and governance-related tax behaviour. These findings extend the profitability argument by demonstrating that financial performance operates within an organisational and macroeconomic context. They also reinforce the importance of distinguishing tax incentives

from governance constraints and non-tax costs. Nevertheless, the PLS-SEM estimates establish conditional associations rather than definitive causal effects. Reverse causality, omitted variables and cross-country institutional heterogeneity therefore remain potential explanations that should be addressed through robustness tests and, where feasible, longitudinal or instrumental-variable designs.

Conclusion, Implications and Recommendations

Conclusion

This study examined the interdependencies among Corporate Social Responsibility (CSR), capital structure, governance architecture, profitability and tax avoidance among service-based and product-based SMEs across developed and emerging economic regions. Using PLS-SEM, the study moved beyond a simple direct-effect perspective by examining the mediating role of profitability and the moderating roles of firm size, firm age, interest rates, exchange rates, sectoral classification and regional institutional context. This integrated approach provides a more comprehensive understanding of the conditions under which SMEs engage in tax minimisation behaviour.

The findings establish that CSR, capital structure, governance architecture and profitability are significant determinants of SME tax avoidance. CSR exhibits a negative and significant relationship with tax avoidance, supporting H1, while capital structure demonstrates a positive and significant association, supporting H2. Governance architecture is negatively and significantly related to tax avoidance, thereby supporting H3. In contrast, profitability is positively associated with tax avoidance, confirming H4. These findings indicate that tax behaviour is shaped by the interaction between ethical and governance considerations on the one hand and financial incentives on the other. CSR and effective governance constrain aggressive tax behaviour, whereas leverage and profitability create economic incentives for tax minimisation.

The study further demonstrates that profitability is an important transmission mechanism in the CSR–tax avoidance, capital structure–tax avoidance and governance–tax avoidance relationships. The positive indirect effects observed for CSR → profitability → tax avoidance, capital structure → profitability → tax avoidance and governance → profitability → tax avoidance support H4a, H4b and H4c, respectively. Importantly, the positive indirect effects coexist with the negative direct effects of CSR and governance on tax avoidance. This indicates that the relationships are not unidimensional. For example, CSR can directly constrain tax avoidance through legitimacy, stakeholder and reputational mechanisms while simultaneously increasing profitability, which creates additional economic capacity and incentives for tax planning. Profitability therefore represents a mechanism through which responsible organisational practices can indirectly generate incentives for tax minimisation.

The findings also establish that the CSR, capital structure and governance relationships with tax avoidance are conditional rather than universal. Firm size significantly strengthens the effects of CSR, capital structure and governance on tax avoidance, supporting H5a–H5c. Firm age significantly moderates these relationships in the hypothesised directions, supporting H6a–H6c. Similarly, interest rates and exchange rates significantly alter the relationships between the principal explanatory variables and tax avoidance, providing support for H7a–H7c and H8a–H8c. These findings demonstrate that SME tax behaviour responds not only to

internal organisational characteristics but also to changes in the broader financial environment.

The sectoral and regional analyses provide further evidence of heterogeneity. The negative sectoral interaction between CSR and tax avoidance confirms H9a, indicating that the CSR-related reduction in tax avoidance is stronger among service-based SMEs. The positive sectoral interaction between capital structure and tax avoidance supports H9b, suggesting that leverage-related tax incentives are stronger among product-based SMEs. The negative governance interaction supports H9c, indicating that governance has a stronger constraining effect in sectors characterised by greater regulatory and stakeholder scrutiny.

Regional differences are equally important. The stronger CSR and governance effects and relatively weaker leverage-related tax avoidance effect observed in Europe compared with ECOWAS are consistent with the regional moderation hypotheses. Thus, H10a, H10b and H10c are supported. The results suggest that institutional quality, enforcement capacity, transparency requirements and stakeholder monitoring influence the effectiveness of organisational mechanisms in shaping tax behaviour.

Overall, the study concludes that SME tax avoidance is best understood as a multidimensional and context-dependent phenomenon. Neither CSR nor corporate governance automatically eliminates tax avoidance, just as leverage and profitability do not inevitably produce aggressive tax behaviour. Instead, tax outcomes emerge from the interaction of ethical orientation, governance architecture, financial incentives, organisational characteristics, sectoral structures, macroeconomic conditions and institutional environments. The PLS-SEM results therefore support a reconceptualisation of the tax avoidance nexus as an integrated SME tax-governance architecture rather than a collection of isolated relationships.

Implication

The findings have important implications for theory, public policy, SME management and tax administration. The study demonstrates that interventions aimed at reducing excessive tax avoidance should not focus exclusively on taxation rules or enforcement. Instead, effective tax governance requires simultaneous attention to corporate responsibility, governance quality, financing decisions, profitability incentives and the institutional environment within which SMEs operate.

Theoretical Implications

First, the findings contribute to legitimacy theory by demonstrating that CSR can influence tax behaviour beyond its conventional role as a mechanism for managing corporate reputation. The significant negative CSR–tax avoidance relationship suggests that socially responsible firms may seek consistency between their publicly communicated social commitments and their tax practices. Aggressive tax avoidance can create a legitimacy gap when firms simultaneously portray themselves as responsible corporate citizens. The stronger CSR effect observed in Europe further indicates that legitimacy pressures become more consequential when stakeholder monitoring and institutional scrutiny are stronger.

Second, the findings extend stakeholder theory by positioning taxation within the broader stakeholder relationship of SMEs. Government, communities, employees, customers and

other stakeholders can be affected by corporate tax practices. The negative relationship between CSR and tax avoidance therefore suggests that stakeholder-oriented firms may incorporate responsible tax behaviour into their wider conception of corporate citizenship. The study consequently extends the CSR literature by showing that tax behaviour can constitute an important but often overlooked dimension of stakeholder responsibility.

Third, the findings provide support for agency theory by demonstrating the importance of governance architecture in constraining tax avoidance. The significant negative governance–tax avoidance relationship indicates that effective monitoring mechanisms can reduce managerial discretion to pursue aggressive tax strategies. However, the positive profitability mediation pathway indicates that governance does not necessarily eliminate tax planning incentives. Well-governed firms may become more profitable, and greater profitability may subsequently increase incentives for tax minimisation. Thus, agency theory is enriched by recognising the simultaneous operation of monitoring mechanisms and economic incentives.

Fourth, the findings reinforce the relevance of trade-off theory and tax-shield arguments in explaining the capital structure–tax avoidance relationship. The positive relationship between leverage and tax avoidance suggests that firms may use debt not only as a financing instrument but also as a mechanism for obtaining tax benefits through deductible financing costs. The stronger leverage effect among product-based SMEs and in weaker institutional environments further indicates that the tax consequences of capital structure depend on firm and institutional characteristics.

Fifth, the mediation findings make an important theoretical contribution by demonstrating that profitability represents a connecting mechanism between organisational characteristics and tax behaviour. CSR and governance have direct tax-constraining effects but also positive indirect effects through profitability. This provides evidence of competing behavioural and economic mechanisms. The study therefore moves beyond a linear conceptualisation of CSR, governance and capital structure by demonstrating that organisational characteristics can simultaneously generate incentives that reduce and increase tax avoidance.

Finally, the study contributes to the emerging institutional and contingency perspectives on corporate tax behaviour. The significant moderation effects of firm size, age, interest rates, exchange rates, sector and region demonstrate that the explanatory power of CSR, capital structure and governance is contingent upon organisational and environmental conditions. The stronger effects observed in Europe relative to ECOWAS particularly suggest that organisational mechanisms operate more effectively when supported by strong institutional enforcement, transparency and stakeholder scrutiny.

Policy and Managerial Implications

The findings have several implications for tax authorities and policymakers. First, tax authorities should avoid relying exclusively on conventional tax audits and statutory enforcement. Although formal enforcement remains essential, the results indicate that internal organisational characteristics such as CSR and governance also influence tax behaviour. Tax administrations could therefore incorporate corporate governance quality, sustainability disclosures and responsible-tax practices into broader taxpayer-risk assessment frameworks.

Second, policymakers should encourage substantive CSR and responsible-tax disclosures among SMEs. CSR reporting should not be limited to philanthropic activities but could increasingly incorporate information on tax governance, tax compliance philosophy and the firm's contribution to public revenues. Such disclosures can improve transparency and allow stakeholders to assess whether firms' social commitments are consistent with their tax practices.

Third, the findings suggest that corporate governance reforms should explicitly address tax risk. SMEs should be encouraged to establish appropriate board oversight, audit functions, internal controls and tax-risk management procedures. Governance codes and SME support programmes could include guidance requiring boards and senior managers to consider the ethical, reputational and regulatory implications of aggressive tax planning.

Fourth, the positive relationship between leverage and tax avoidance suggests the need for careful monitoring of debt-related tax planning. Tax authorities should pay particular attention to excessive interest deductions, related-party financing, thin-capitalisation arrangements and other mechanisms through which highly leveraged firms may reduce taxable income. This is particularly relevant for product-based SMEs, where the empirical results indicate a stronger leverage–tax avoidance relationship.

Fifth, the profitability findings imply that highly profitable SMEs constitute an important tax-risk segment. Tax authorities may therefore use profitability and financial performance indicators as part of risk-based audit selection. However, profitability should not automatically be interpreted as evidence of non-compliance. Rather, unusually high profitability combined with high leverage, complex financing arrangements or weak governance may warrant enhanced tax-risk assessment.

Sixth, the regional differences suggest that a uniform tax-governance strategy may not produce equivalent outcomes across countries or regions. The stronger CSR and governance effects in Europe indicate that institutional enforcement and transparency can reinforce firm-level mechanisms. In ECOWAS and other emerging-market contexts, policymakers may therefore need to strengthen tax administration capacity, corporate reporting systems, governance enforcement and stakeholder access to corporate information before relying heavily on voluntary CSR mechanisms.

For SME managers, the results imply that tax planning should be incorporated into an integrated corporate governance and risk-management framework. Managers should recognise that short-term tax savings obtained through aggressive strategies may create longer-term reputational, regulatory and stakeholder costs. CSR and governance should consequently be treated as strategic components of tax-risk management rather than as activities unrelated to taxation.

The findings also indicate that managers should carefully evaluate capital structure decisions. Debt can provide legitimate tax benefits through interest deductibility, but excessive reliance on leverage may increase regulatory scrutiny and tax risk. Financing decisions should therefore balance the tax advantages of debt against financial distress, governance and compliance considerations.

Finally, the findings suggest that macroeconomic conditions should be incorporated into SME tax-risk planning. Interest-rate and exchange-rate movements alter the relationship between CSR, governance, capital structure and tax avoidance. Managers should therefore assess tax consequences alongside financing costs, foreign-exchange exposure and broader economic conditions rather than treating tax planning as a static decision.

Limitations and Future Research Directions

Despite its theoretical and empirical contributions, the study has several limitations that should be acknowledged. First, the study relies on PLS-SEM estimates and observational firm-level relationships. Although the model provides evidence of statistically significant associations and indirect and interaction effects, the findings should not automatically be interpreted as definitive causal relationships. Future research could employ longitudinal causal designs, natural experiments or quasi-experimental approaches to establish stronger causal inference.

Second, the measurement of tax avoidance may not capture every dimension of corporate tax behaviour. Tax avoidance can involve effective tax rates, book-tax differences, cash effective tax rates, uncertain tax positions and more complex international tax-planning arrangements. Future studies should employ multiple tax-avoidance proxies and test whether the findings remain stable across alternative operationalisations.

Third, CSR and governance architecture are multidimensional constructs. A composite measure may conceal important differences between environmental, social and community-oriented CSR activities or between board independence, ownership concentration, audit committee effectiveness and executive compensation structures. Future research could disaggregate CSR and governance into their individual dimensions to identify which specific mechanisms exert the strongest influence on tax avoidance.

Fourth, the study's cross-sectoral and cross-regional comparisons are valuable but may not fully capture the institutional heterogeneity within regions. Europe, ECOWAS and other regional groupings contain countries with substantially different tax systems, enforcement capacities, governance structures and macroeconomic conditions. Future research should employ country-level institutional indicators such as rule of law, regulatory quality, tax enforcement effectiveness, corruption control and investor protection to provide a more granular explanation of regional differences.

Fifth, the study focuses primarily on service-based and product-based SMEs. Although this distinction captures important structural differences, further studies could examine specific industries separately. Manufacturing, financial services, telecommunications, technology, retail and professional services may have different tax incentives, asset structures and regulatory pressures. Industry-specific models could therefore provide additional insights into the sectoral boundary conditions identified in this study.

Sixth, although profitability is examined as a mediator, future studies could consider additional mediating mechanisms. Potential candidates include tax-risk management, financial transparency, reputational capital, managerial opportunism, institutional trust and

information asymmetry. Examining multiple mediators could provide a more complete explanation of how CSR, capital structure and governance ultimately influence tax behaviour.

Seventh, future research could investigate additional moderators. The present study examines firm size, firm age, interest rates, exchange rates, sector and region. Future studies could incorporate tax enforcement intensity, ownership structure, managerial ownership, family ownership, board diversity, institutional ownership, digitalisation, financial literacy of SME managers and corruption perceptions as additional boundary conditions.

Finally, future studies could employ multi-method and comparative designs, combining archival financial data with surveys, interviews and tax-administration data. Such approaches could provide deeper insights into managerial motivations for tax planning and help distinguish legitimate tax management from aggressive tax avoidance. Comparative studies involving Europe, ECOWAS, ASEAN and BRICS could also provide a stronger basis for identifying how institutional development shapes the interaction between CSR, governance, capital structure, profitability and tax avoidance.

In conclusion, these limitations do not undermine the contribution of the study; rather, they provide opportunities for extending the emerging literature on SME tax behaviour. Future research should increasingly move towards dynamic, multi-level and institutionally sensitive models that integrate firm-level incentives with sectoral, macroeconomic and regulatory conditions. Such an approach would provide a more comprehensive understanding of how SMEs balance profitability, financing, social responsibility, governance and tax obligations across diverse economic environments.

Disclosure of Potential Conflicts of Interest

The authors declare that they have no conflicts of interest that could have influenced the design, conduct, analysis, interpretation, or reporting of this study.

Research Involving Human Participants and/or Animals

This study did not involve human participants, human subjects, or animals. The research is based exclusively on secondary, archival and publicly available firm-level and macroeconomic data. Accordingly, ethical approval for research involving human participants or animals was not required.

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Informed Consent

Informed consent was not applicable because the study did not involve human participants or the collection of personally identifiable information. The analysis relied exclusively on secondary and publicly available data.

Data Availability Statement

The data used in this study were obtained from publicly accessible corporate reports, financial statements, sustainability and governance disclosures, and relevant publicly

available macroeconomic and institutional databases. The underlying data sources and variable construction procedures are described in the methodology section to facilitate transparency and reproducibility. Where third-party database restrictions apply, the corresponding data may be accessed directly from the respective data providers.

Declaration of Generative AI Use

During the preparation of this manuscript, the authors used generative artificial intelligence tools solely for limited language-related and editorial assistance, including improving grammar, clarity, readability, and organisation of the manuscript. The authors retain full responsibility for the accuracy, originality, interpretation, analysis, citations, conclusions, and final content of the manuscript. Generative AI was not used to generate, fabricate, manipulate, or analyse the empirical data or to determine the study's findings or conclusions. All AI-assisted content was critically reviewed and verified by the authors before submission.

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