How CSR mediates Tax Avoidance and Corporate Ownership Structure Relationship: Insights from Egyptian ESG companies

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Abstract :

Purpose – The study investigates the role of Corporate Social Responsibility (CSR) in mediating the relationship between institutional ownership and corporate tax avoidance, with particular emphasis on the Egyptian context.

Design/methodology/approach – This study uses a panel dataset of 29 Egyptian companies listed on the Environmental, Social, and Governance (ESG) index, covering the period from 2017 to 2022. The structural equation modeling using path analysis was used to examine the direct and indirect effects of institutional ownership on tax avoidance, and how CSR mediates such relationship in ESG companies.

Findings – The study finds that institutional ownership positively impacts corporate social responsibility (CSR), but its direct effect on tax avoidance is insignificant. CSR mediates the relationship between institutional ownership and corporate tax avoidance, while firm size, leverage, and ROA are significant factors influencing tax avoidance.

Practical implications: The findings have important regulatory and practical implications that can assist tax policymakers and regulators in enhancing market oversight. By developing integrated CSR and tax policies, encouraging or mandating CSR disclosures, exploring tax incentives for firms engaging in CSR activities, and limiting corporate ownership structures, regulators may effectively reduce tax avoidance in Egyptian enterprises.

Social Implications: For stakeholders such as managers and institutional investors, the results provide strategic insights for promoting ethical business practices, strengthening corporate governance, and contributing to sustainable economic development.

Originality/value – This study contributes to the existing body of knowledge by examining the impact of institutional ownership on corporate tax avoidance in Egyptian ESG companies, with a particular focus on the mediating role of CSR.

Keywords Corporate social responsibility, Tax avoidance, Institutional ownership, ESG companies

الملخص :

الغرض – تبحث الدراسة في دور المسؤولية الاجتماعية للشركات (CSR) في التوسط في العلاقة بين الملكية المؤسسية وتجنب الشركات للضرائب، مع التركيز بشكل خاص على السياق المصري.

المنهجية/طريقة البحث – تستخدم هذه الدراسة مجموعة بيانات لـ ٢٩ شركة مصرية مدرجة في مؤشر الحوكمة البيئية والاجتماعية وحوكمة الشركات (ESG)، وتغطي الفترة من ٢٠١٧ إلى ٢٠٢٢. تم استخدام نمذجة المعادلات الهيكلية باستخدام تحليل المسار لفحص التأثيرات المباشرة وغير المباشرة للملكية المؤسسية على تجنب الضرائب، وكيف تساهم المسؤولية الاجتماعية للشركات في التوسط في هذه العلاقة في شركات ESG.

النتائج – وجدت الدراسة أن الملكية المؤسسية تؤثر بشكل إيجابي على المسؤولية الاجتماعية للشركات (CSR)، لكن تأثيرها المباشر على تجنب الضرائب غير مهم. المسؤولية الاجتماعية للشركات تتوسط العلاقة بين الملكية المؤسسية وتجنب الضرائب، في حين أن حجم الشركة، والرفع المالي، والعائد على الأصول (ROA) هي عوامل مهمة تؤثر على تجنب الضرائب.

الآثار العملية: تحتوي النتائج على دلالات تنظيمية وعملية مهمة يمكن أن تساعد واضعي السياسات الضريبية والمنظمين في تعزيز الرقابة على السوق. من خلال تطوير سياسات متكاملة للمسؤولية الاجتماعية والضرائب، وتشجيع أو فرض الإفصاحات المتعلقة بالمسؤولية الاجتماعية للشركات، واستكشاف الحوافز الضريبية للشركات التي تمارس أنشطة المسؤولية الاجتماعية، والحد من هياكل الملكية المؤسسية، قد يتمكن المنظمون من تقليل تجنب الضرائب في الشركات المصرية بشكل فعال.

الآثار الاجتماعية: بالنسبة لأصحاب المصلحة مثل المديرين والمستثمرين المؤسسيين، توفر النتائج رؤى استراتيجية لتعزيز ممارسات الأعمال الأخلاقية، وتقوية الحوكمة المؤسسية، والمساهمة في التنمية الاقتصادية المستدامة.

الأصالة/القيمة – تسهم هذه الدراسة في زيادة المعرفة من خلال دراسة تأثير الملكية المؤسسية على تجنب الشركات للضرائب في شركات ESG المصرية، مع التركيز بشكل خاص على الدور الوسيط الذي تلعبه المسؤولية الاجتماعية للشركات.

الكلمات المفتاحية: المسؤولية الاجتماعية للشركات، تجنب الضرائب، الملكية المؤسسية، شركات ESG.

1. Introduction

Companies and taxpayers often view taxes as a financial burden that reduces their net income. Tax avoidance, as a strategic practice, is adopted by businesses to reduce their tax liabilities by leveraging existing legal provisions, in contrast to illegal tax evasion practices (Dewi et al., 2023; Sari et al., 2021). Companies and governments have divergent perspectives on tax avoidance. Businesses engage in tax avoidance to minimize tax liabilities and maximize shareholder returns, whereas governments view tax avoidance negatively because of its harmful effects on public revenue and fiscal resources (Wijaya et al., 2022; Olanisebe, 2023; Nur Alya & Husnaini, 2024). Tax avoidance practices have garnered increased attention in recent years, propelled by a series of high-profile tax scandals that spotlight firms' tax practices. These scandals have captivated the interests of politicians, tax authorities, media outlets, and activists, prompting them to thoroughly investigate and address their implications (De and Grossetti, 2024). Consequently, policymakers worldwide have collaborated on the OECD's Base

Erosion and Profit Shifting (BEPS) initiative, which addresses tax challenges from digitalization in 2021, and proposed new policies, such as the global minimum tax (OECD, 2023). Tax authorities have also intensified their scrutiny of corporate group structures engaged in profit shifting between jurisdictions to mitigate tax liabilities (Markle, 2016).

This study investigates how corporate social responsibility (CSR) affects corporate tax avoidance and institutional ownership in ESG companies that exhibit a commitment to social responsibility and thus, engage in fewer tax avoidance activities. Such companies may fear negative public perception and erode stakeholder support for ethical business practices. CSR has an impact on tax avoidance because CSR initiatives require write-offs, which reduce taxable income (Mahmudi, 2024; Pantazi, 2024). The media has recently brought attention to tax evasion and its effects on public service funding through cases like the Apple, Phillips Morris, Facebook, Swissleaks, and Bahamas leaks (Souguir *et al.*, 2023). Vodafone's UK tax evasion, worth £6 billion, has sparked investigation due to its violation of CSR morals, potentially avoiding it through the implementation of CSR projects (Whalley and Curwen, 2014). CSR and tax avoidance relationship is more prevalent in developing countries like Egypt due to a lack of ethical concern. Aggressive tax avoidance leads to a significant revenue gap, contributing to underdevelopment in a country (Rashid *et al.*, 2023).

Egypt, a lower-middle-income country with a diversified economy, has transitioned to a market-oriented system over the past two decades. By collaborating with international organizations, Egypt aims to boost market confidence and implement sustainable market standards. In response to declining corporate tax revenues, the government has reduced tax rates to attract foreign investment, while simultaneously addressing tax evasion through stricter regulations and incentives. Law No. 91 of 2005 was introduced to provide tax benefits and exemptions for firms engaged in Corporate Social Responsibility (CSR) activities, although some companies may exploit this regulation to minimize or eliminate their tax liabilities. Since tax revenues constitute nearly 77% of government income and 15.8% of GDP, the Egyptian Tax Authority amended Income Tax Law No. 91 of 2005 with Article 92 bis (added to Law No. 53 in 2014) to combat harmful tax avoidance and nullify the adverse impacts on the tax base (Abdelfattah & Aboud, 2020;and Awad, 2021).

Agency theory provides a framework for understanding corporate tax avoidance, highlighting conflicts between managers seeking to maximize profits and shareholders aiming to minimize taxes. This conflict leads to tax avoidance strategies that balance both interests (Ramadhanti & Marlinah, 2023; (Dewi et al., 2023; and P et al., 2023). Corporate governance plays a crucial role in shaping management decisions, including tax compliance, with institutional ownership serving as a key proxy for governance

(Yuni & Setiawan, 2019). High institutional ownership enhances oversight, reduces management-shareholder conflicts, and promotes higher corporate standards, particularly in relation to ESG issues (Pattiasina et al., 2019 ; I & Simbolon, 2021; and Roland Szívós, 2023). Legitimacy theory suggests that companies can gain legitimacy by adhering to tax laws, minimizing tax avoidance, and engaging in CSR to gain community and external recognition.

Accordingly, this study aims to address the gap in the existing literature by examining whether CSR mediates the relationship between corporate tax avoidance and institutional ownership and how this relationship impacts ESG-focused companies in developing countries. Additionally, the study seeks to address the increasing societal demand for corporations to engage in socially responsible behavior, which may conflict with institutional owners' profit maximization goals due to the substantial costs associated with such activities. To achieve this objective, a path analysis was employed to investigate the indirect role of CSR using a sample of 29 companies listed on the Egyptian EGX, comprising 696 observations over the period 2017–2022.

The study reveals that institutional ownership positively influences corporate social responsibility (CSR), suggesting that companies with higher ownership are more likely to engage in socially responsible activities. However, the direct impact of institutional ownership on tax avoidance is negligible. CSR mediates the relationship between institutional ownership and tax avoidance, suggesting that firms with higher CSR involvement are more likely to engage in tax avoidance. Companies increase ESG disclosures to address public concerns about low tax contributions, which aligns with the legitimacy theory and improves their social legitimacy.

This paper is organized into several sections. Section 2 describes how the research hypotheses were developed and includes a review of the relevant literature. Section 3 explains the study's research methodology. Section 4 presents the empirical results and findings, and Section 5 summarises the key conclusions.

Literature Review and Hypotheses Development

In recent years, there has been a growing emphasis on conducting research to identify the identification of factors that contribute to tax avoidance in the accounting field (Edeline & Sandra, 2018; Mocanu et al., 2021; and Dakhli, 2022). The literature explores several factors that influence tax avoidance practices, including the firm ownership structure and CSR. CSR has an ambiguous, complex, and context-dependent relationship with tax avoidance and ownership structure, with mixed empirical findings (Navaranti and Puspitosari, 2023).Click or tap here to enter text. Investigating CSR's role of CSR as a mediator in such complex relationship in Egypt may help us better understand how CSR affects Egyptian ESG firms' tax avoidance.

2.1. Theoretical Framework:

Agency theory

Agency theory is widely used in the literature (e.g., Navaranti & Puspitosari, 2023 ; Riset & Terpadu, 2024;Shafanur & Ratnasari, 2023 and Dakhli, 2022) to explore the relationship between institutional ownership and corporate tax avoidance. This theory posits that firms act as intermediaries between shareholders (principals) and managers (agents), where managers often possess more information and authority. This imbalance can lead to agency conflicts, particularly concerning tax avoidance (Mahmudi, 2024). Tax issues can damage company reputation, leading businesses to use tax avoidance as a strategy to reduce tax expenditures and maximize profits by optimizing expenses (Kasim and Saad, 2019). Shareholders may prefer tax savings through reduced profits, whereas managers, motivated by personal goals, may use tax avoidance strategies to maximize profits and compensation (Dakhli, 2022 ; Riset & Terpadu, 2024). Institutional ownership plays a key role in corporate governance, helping to mitigate tax avoidance (Kovermann & Velte, 2021). Khan et al. (2017) and Dakhli (2021) demonstrate that institutional ownership increases the utilization of tax shelters, thereby supporting the agency theory of corporate tax avoidance. Active monitoring by owners can influence tax decisions and reduce adverse effects on both companies and government tax revenue (Callista and Susanty, 2022). Additionally, CSR initiatives can help align managerial and shareholder interests, with institutional investors shaping their outcomes (Abdul Wahab *et al.*, 2022).

Stakeholder Theory

Stakeholder theory states that companies should account for the interests of all stakeholders, including shareholders, creditors, customers, suppliers, governments, and others involved in labor, markets, or products. As key stakeholders, the government expects companies to comply with tax policies and avoid harmful tax avoidance practices. However, stakeholders are attracted to firms with higher net profits, which can be achieved through tax avoidance by reducing the tax burden and increasing profits, ultimately improving stakeholder relations and drawing more investments (Safitri & Oktris, 2023). CSR plays a vital role in maintaining stakeholder relationships in ESG companies. CSR initiatives should be carefully designed to meet stakeholder needs and foster trust, cooperation, and long-term success (Pratiwi, 2018; Navaranti & Puspitosari, 2023). Egypt's CSR activities are shaped by charitable cultures and religious beliefs. A country's secretive culture, characterized by high-risk avoidance and power distance, reinforces obedience to top management and resistance to change (Abdelfattah & Aboud, 2020). To promote community participation and economic reform, the Egyptian government offered tax benefits and exemptions to CSR companies under Tax Law No. 91 of 2005, including tax exemptions for donations and subsidies to public associations and hospitals. Consequently, corporate management aims to increase its CSR contributions. Effective corporate governance, particularly through institutional investors, benefits shareholders, stakeholders, and society by supporting CSR activities and tax payments (Rashid *et al.*, 2023).

Legitimacy theory

Legitimacy theory posits that organizations strive to align their values with those of the broader social system, as failure to do so can jeopardize survival. Corporate tax practices play a key role in maintaining or restoring legitimacy (Deegan, 2009). Organizations must adapt to evolving ethical standards and managers should disclose pertinent information to bridge legitimacy gaps. Adhering to tax regulations, avoiding tax avoidance, and engaging in CSR activities can help companies gain positive recognition from the community and external parties (Aryatama & Raharja, 2021; and Pandapotan, 2023). Tax avoidance is viewed negatively by the government and society, as it reduces the tax revenues needed for public spending (Gallemore *et al.*, 2014), which can, in turn, influence CSR initiatives. Signal theory suggests that increased tax avoidance may deter investors, negatively impacting a company's share price and value (Alfian and Ghozali, 2024). However, another perspective holds that tax avoidance, while legal, helps corporations reduce their tax burden through strategic planning and tax loopholes, which prevents the government from penalizing them (Nur Alya & Husnaini, 2024; and Safitri & Oktris, 2023). In response, the Egyptian tax authority amended Income Tax Law No. 91 of 2005 to Law No. 53 of 2014 to prevent harmful tax avoidance. Companies are now required to disclose tax payments in their financial statements, enabling shareholders to track tax avoidance. Egyptian firms, preferring indirect communication, often disclose CSR activities through intermediaries, especially to avoid reputational damage following the 2011 Egyptian Revolution (Abdelfattah & Aboud, 2020).

2.2. Institutional ownership and tax avoidance

Institutional ownership plays a vital role in corporate governance because to the extensive resources and investment experience of large corporations (Riset & Terpadu, 2024). It is essential for effective oversight, reducing agency costs between management and owners (Angelina & Atiningsih, 2021; Muhammad et al., 2022; and Dewi et al., 2023), and for minimizing corporate tax avoidance, enhancing institutional influence, and mitigating tax liabilities (Sunarto et al., 2021; Dini & Anggeresia Ginting, 2023). However, prior research on the relationship between institutional ownership and tax avoidance has generated inconsistent findings. Some studies, based on agency theory, suggest a positive correlation, arguing that greater control allows management to engage in tax avoidance more easily (Khan et al., 2016; Darsani & Sukartha, 2021; and Dini & Anggeresia Ginting, 2023). Others propose a negative relationship, indicating that institutional ownership decreases the use of tax avoidance strategies (Hidayat & Zuhroh, 2023 ; Udisifan Michael, 2020; Ayuthaya & Simbolon, 2021; and Dakhli, 2022). Conversely, some studies conclude that institutional ownership has no significant effect on tax avoidance, as institutional shareholders delegate oversight to the board of commissioners, which may not prevent such behaviors (Edeline & Sandra, 2018 ; Yusri et al., 2022 ; Ramadhanti & Marlinah, 2023; Safitri & Oktris, 2023; Navaranti & Puspitosari, 2023; Nur Alya & Husnaini, 2024). Based on these mixed results, the first hypothesis is formulated as follows:

H_1: *A significant relationship exists between institutional ownership and the implementation of tax avoidance strategies in ESG firms.*

2.3. Institutional ownership and corporate social responsibility

CSR involves an organization's ongoing commitment to reduce the societal and environmental impacts of its decisions and activities. Effective CSR disclosure enhances a company’s value by boosting its community image and gaining legitimacy. According to agency theory, institutional investors, owing to their substantial ownership and experience, are more focused on strategic decisions and are inclined to support CSR initiatives. They can demand transparent annual reports and CSR disclosures from management to demonstrate that a company's performance and activities align with community goals (Singal and Putra, 2019). Research on the impact of institutional ownership on CSR has presented mixed findings. Some studies (e.g. Siew Yee et al., 2018; Yani & Suputra 2020 ; and Chabachib et al., 2019) indicate a positive effect, showing that firms with higher institutional ownership tend to have more extensive CSR disclosures. Conversely, Navaranti & Puspitosari (2023) find that institutional ownership does not significantly influence CSR, as institutional investors may not actively promote CSR initiatives. The relationship between institutional ownership and CSR remains unclear, particularly regarding whether it is driven by reputational concerns or the recognition of responsible tax behavior, especially in ESG companies. Accordingly, the research second hypothesis can be formulated as follows:

H_2*. *Institutional ownership is significantly related to corporate social responsibility (CSR) in ESG firms.

2.4. Corporate Social Responsibility (CSR) and tax avoidance

The stakeholder theory states that companies with high CSR disclosure have lower tax avoidance, implying a complementary relationship (Goerke, 2019). Some studies (e.g. Abdelfattah & Aboud, 2020 ; Abid & Dammak, 2022; and Mahmudi, 2024) find a positive correlation, indicating that tax avoidance strategies might enhance a company’s image while reducing taxes. CSR-focused companies prioritizing ethics and public image may engage in tax-deductible CSR activities to boost their reputation. Conversely, managers may employ CSR to mask tax avoidance practices and minimize potential adverse outcomes (Ismail et al., 2024; and Abid & Dammak, 2022). Examples include Vodafone's significant tax evasion, which potentially affects its CSR reputation, and major corporations such as Apple and Google, which use strategies to minimize their tax liabilities (Whalley & Curwen, 2014).Click or tap here to enter text. Empirical findings are mixed: some studies report a negative association between CSR and tax avoidance (Pratiwi, 2018; Edeline & Sandra, 2018; Awad, 2021; Dakhli, 2021; Kovermann & Velte, 2021; Aryatama & Raharja, 2021 ; and Rashid et al., 2023) as firms with higher CSR expenditure have lower tax avoidance. However, others have found a positive relationship (Abdelfattah & Aboud, 2020 ;Abid & Dammak, 2022; Hidayat & Zuhroh, 2023). Additionally, Kim et al. (2020) and Shafanur & Ratnasari (2023) reported no significant impact of CSR and ESG disclosure on tax evasion. The relationship between CSR and tax avoidance varies and is influenced by country-level governance and differing interpretations of CSR and causality (Jemiolo & Farnsel, 2023; Kovermann & Velte, 2021). Based on these contradictory findings, the third hypothesis is proposed as follows.

H_3*: *CSR is significantly correlated with tax avoidance practices in ESG firms.

2.5. Institutional ownership and tax avoidance: the mediating role of corporate social responsibility

Institutional ownership positively influences both tax avoidance (Dini & Anggeresia Ginting, 2023;Putri Firdaus et al., 2024) and CSR (Yani & Suputra, 2020). As both taxes and CSR aim to benefit the public, CSR can indirectly affect institutional ownership and tax evasion. Stakeholder theory explains the interconnectedness of these factors. Tax avoidance can indicate a company's failure to contribute positively to society, whereas CSR benefits both shareholders and the government through enhanced tax payments. Institutional investors promote CSR disclosure to enhance a company's public perception and value, thereby reducing tax avoidance effects (Tahar and Rachmawati, 2020). Dakhli (2022) finds that the relationship between institutional ownership and tax avoidance is partially mediated by CSR, whereas Navaranti & Puspitosari (2023) find no evidence of CSR serving as a mediator. Such mixed results motivated the researcher to formulate the fourth hypothesis as follows:

***H_4**: Corporate social responsibility (CSR) mediates the relationship between institutional ownership and tax avoidance in ESG firms.*

3. Research Methodology

3.1. Sample Selection and Data Collection

Every year, the EGX 100 companies are evaluated by the Egyptian Stock Market using the S&P/EGX ESG index, which includes variables related to corporate governance, social responsibility, and the environment. The top 30 constituents were selected based on the ESG30 index. For this study, a sample of 29 EGX companies (excluding one bank due to differing corporate governance regulations) was analyzed from 2017 to 2022. The analysis, detailed in Table 1, involves data from quarterly financial reports, resulting in 696 observations over 22 quarters. Financial data were sourced from the Thomson Reuters and Eikon databases, while quarterly ESG index scores were obtained from the Egyptian Information Dissemination Company.

Table 1: ESG LSITED COMPANIES TILL 2022

1. Alexandria Containers & Good	2. Cleopatra Hospital Company
3. Alexandria Mineral Oils Company	4. Amer Group Holding
5. Juhayna Food Industries SAE	6. Citadel Capital Corp
7. Edita Food Industries S.A.E	8. Egyptian Kuwaiti Holding
9. Egyptian Transport (EGYTRANS	10. Emaar Misr for Development
11. GB Auto	12. Raya Contact Center S.A.E
13. Medinet Nasr Housing	14. Naeem Holding
15. Orascom Construction Limited	16. Oriental Weavers
17. Orascom Development Egypt SAE	18. Palm Hills Development Company
19. Porto Group Holding	20. Sidi Kerir Petrochemicals
21. Six of October Development & Investment (SODIC)	22. Suez Cement
23. Talaat Moustafa Group Holding	24. Telecom Egypt
25. Arabian Food Industries	26. El Sewedy Electric company
27. Cairo for Investment and Real Estate Development SAE.	28. Ibnsina Pharma.
29. Tenth of Ramadan Pharmaceutical Industries & Diagnostic-Rameda	

Source: Researcher’s own creation (2024).

3.2.Variables Measurement

3.2.1 Tax avoidance (dependent variable).

Tax avoidance involves legally minimizing tax liability, which can affect a company's profits (Heryawati et al., 2021; Navaranti & Puspitosari, 2023). The Effective Tax Rate (ETR) is a crucial metric for assessing the effectiveness of tax policy, revealing both long-term and short-term tax evasion techniques by dividing tax expense by profit before tax. (Salhi et al., 2020; Abdelfattah & Aboud, 2020; Awad, 2021; Abd-Elmageed & Abo Ashour, 2021; I & Simbolon, 2021;Arieta, 2024; Putri Firdaus et al., 2024)

3.2.2 Institutional ownership (independent variable).

Institutional ownership (INST) refers to the proportion of a company's shares held by institutions such as insurance companies, banks, asset management firms, and investment companies at the end of the year. These institutions have the capability to monitor, influence, and guide managers to act appropriately (Darsani & Sukartha, 2021; and Sunarto et al., 2021)

3.2.3 Corporate social responsibility (Mediating variable).

The ESG score is used to measure CSR performance, as per the Egyptian literature (e.g. (Abdelfattah & Aboud, 2020) Awad, 2021; Abd-Elmageed & Abo Ashour, 2021; and Abdelmoneim, 2024). In March 2010, the Egyptian Institute of Directors, Standard and Poor's (S&P) collaborated with the Egyptian Corporate Responsibility Center and the credit rating agency CRISIL developed an ESG index (a composite score encompassing economic, social, environmental, and governance dimensions) to enhance transparency, corporate governance, and CSR disclosure among Egyptian listed companies, marking the first such index in the Middle East. The Egyptian Stock Exchange (ESE) produces an annual ESG score by comparing a company's ESG score to those of its peers, with scores weighted and ranked. The ESG Index highlights the top 30 Egyptian companies, which form the sample for this study.

3.2.4 Control Variables

This study follows previous research in controlling firm characteristics like ROA, leverage, and firm size. (e.g. Abdelfattah & Aboud, 2020 ; Kristiani et al., 2024; Riset & Terpadu, 2024; Dakhli, 2022; Tan et al., 2023) as firm size, leverage and ROA. Firm size (SIZE), measured by total assets, affects operational and strategic factors like tax planning and potential tax evasion. Larger corporations, with more resources for tax planning, can more effectively minimize tax obligations and address tax avoidance strategies (Mills, 1998). They may also face increased tax audits and pressure from stakeholders, potentially influencing their tax avoidance behavior (Riset & Terpadu, 2024).

A company's degree of debt can be measured by its leverage (LEV), which is calculated as total debts divided by total assets. Firms with high leverage are often more inclined to use tax avoidance strategies due to their significant interest costs (Hossain *et al.*, 2024). However, Dewi et al. (2023) find that leverage negatively affects tax avoidance, while Darsani & Sukartha (2021) report no relationship between leverage and tax avoidance.

Return on assets (ROA) measures how effectively a company generates profit from its assets, with higher profitability leading to a higher tax burden (Hossain *et al.*, 2024). Profitable companies gain greater legitimacy and exhibit a higher propensity to adhere to tax regulations, as tax avoidance can negatively impact their public image, profitability, and sustainability (Riset & Terpadu, 2024). To determine ROA, pre-tax income is divided by total assets (Salhi et al., 2020; Muhammad et al., 2022; Dakhli, 2022).

Table 2 presents the measurements of the research variables according to the literature.

Table (2): Variables Definitions and measurement

Variable	**Acronym**	**Measurement**	**Source**
Dependent Variable			
Tax Avoidance	*ETR*	total tax expense divided by the pre-tax income	(Nur Alya & Husnaini, 2024; Mahmudi, 2024; Pantazi, 2024; Hossain et al. 2024 ; Safitri & Oktris, 2023 ; and Abdelfattah & Aboud, 2020)

Independent Variable			
Institutional Ownership	*INST*	Percentage of shares owned by institutional investors	(Nur Alya & Husnaini, 2024 ;Sunarto et al., 2021; Jiang et al., 2021;
Mediating Variable			
Corporate Social Responsibility	*CSR*	ESG score: obtained from ESG reports. A combined score of the four dimensions (economic, social, environmental and governance)	(Mahmudi, 2024 ; Alsaadi, 2020;
Control variables			
Firm size	*SIZE*	Natural Log of total assets	(Riset & Terpadu, 2024;Hossain et al., 2024 Salhi et al., 2020
Firm Leverage	*LEV*	Total debt divided by total assets	(Hossain et al., 2024; Pantazi, 2024 ; Salhi et al., 2020; Dakhli, 2022)(Safitri & Oktris, 2023)
Return on Assets	*ROA*	Pretax Income divided by total assets	(Hossain et al., 2024;Riset & Terpadu, 2024; Salhi et al., 2020; Muhammad et al., 2022)

Source: Researcher's own creation (2024).

3.3.Research Model

Figure 1 illustrates the conceptual model of the research, depicting the relationships among the three main variables identified from previous literature and analyzed in the current study.

Fig. (1) Research Conceptual Model: Relations among Variables

Source: Researcher's own creation (2024).

The research hypotheses are tested using the path analysis model to find out whether Egyptian firms' tax avoidance is mediated by CSR, as other researchers (e.g. Fernández-Rodríguez et al., 2019; and Dakhli, 2022). This statistical method simultaneously examines the variables to identify both direct and indirect effects. According to Baron & Kenny (1986), full mediation is indicated when only an indirect effect is present, whereas partial mediation occurs when both direct and indirect effects are observed. Their method entails regressing the mediator on the independent variable, then the dependent variable on the independent variable, and finally on both the independent and mediator variables. SPSSv20 and Amos software are used for this analysis, employing Structural Equation Modeling (SEM) to evaluate these effects using the following equations:

$$ETR_{it} = \beta_0 + \beta_1 \, INST_{it} + \beta_2 \, SIZE_{it} + \beta_3 \, LEVit + \beta_4 \, ROA_{it} + \varepsilon_{it} \quad \text{(Model 1)}$$

$$CSR_{it} = \beta_0 + \beta_1 \, INST_{it} + \beta_2 \, SIZE_{it} + \beta_3 \, LEVit + \beta_4 \, ROA_{it} + \varepsilon_{it} \quad \text{(Model 2)}$$

$$ETR_{it} = \beta_0 + \beta_1 \, CSR_{it} + \beta_2 \, SIZE_{it} + \beta_3 \, LEVit + \beta_4 \, ROA_{it} + \varepsilon_{it} \quad \text{(Model 3)}$$

$$ETR_{it} = \beta_0 + \beta_1 \, INST_{it} + \beta_2 \, CSR_{it} + \beta_3 \, SIZE_{it} + \beta_4 \, LEVit + \beta_5 \, ROA_{it} + \varepsilon_{it} \quad \text{(Model 4)}$$

4. Results and discussion

4.1 Descriptive statistics

All of the research variables' descriptive statistics, including sample size, mean, minimum, maximum, and standard deviation, are shown in Table 3. The results indicate deviations from normal distribution, as will be discussed in the normality test. The Effective Tax Rate (ETR) ranges from -29.21 to 9.55, with a mean of 0.14 and a standard deviation of 1.71, reflecting negative skewness and significant variation, with some extremely low or negative ETR values. Negative ETR values suggest that companies benefit from tax credits and incentives, implying that Egyptian ESG companies leverage tax exemption programs. Institutional ownership (INST) averages 11% with a standard deviation of 13%, indicating high variability. The data shows a left-skewed distribution with a mean above most values. The high kurtosis value of 11.509 points to a sharp peak and heavy tails in the distribution, signifying substantial variation in ownership percentages among companies.

Over the study period, the CSR score ranged from 0 to 0.09, with an average of 0.02 and a standard deviation of 0.02. This indicates that most companies have CSR scores close to the mean, suggesting modest CSR activities with some variation within the 0 to 0.09 range. Additionally, Table 3 shows that the average firm has a leverage ratio of 0.61 (SD = 0.55), a firm size of 22.85 (SD = 1.35), and an average ROA of 2% (SD = 6%). These figures reveal considerable variability in leverage ratios among firms, with variations around the average firm size, and significant differences in profitability.

Table (3) Descriptive Statistics of the research variables

Variable	Mean	Min.	Max.	SD.	Skew	Ku	Obs.
ETR	0.14	-29.41	9.55	1.71	-29.41	9.55	696
INST	0.11	0	0.52	0.13	-1.731	11.509	696
CSR	0.02	0	0.09	0.02	1.449	1.666	696
SIZE	22.85	19.43	25.82	1.35	-0.213	-.762-	696
LEV	0.61	0.032	13.75	0.55	2.552	7.263	696
ROA	*0.02*	*-1.33*	*0.27*	*0.06*	*20.153*	*486.481*	*696*

Source: Researcher's own computations (2024).

4.1.1 Normality test

A normality test determines if a set of variables follows a normal distribution. Non-parametric tests are used for data not following a normal distribution, while parametric tests are used for variables that do. The significance level is less than 0.05, and all variables were found to have non-normal distributions with values below 0.05, as shown in Appendix Table 2.

4.1.2 Unit Root test

The stationarity assumption ensures that statistical properties like variance, autocorrelation, and mean remain constant over time, enabling causality tests. Non-stationary data may have skewed conclusions due to variable-to-variable relationships distortion. To confirm stationary data, unit root tests like the Augmented Dickey-Fuller or Phillips-Perron are used. Data is considered stationary when p-values are less than 0.05, as shown in Appendix table 3, allowing causality tests without additional adjustments.

4.1.3. Granger Causality test

The linear Granger causality test identifies directional relationships between variables over time by assessing whether past values of one variable can predict the current values of another. Results in Appendix Table 4 show that institutional ownership (INST) Granger-causes ETR (Effective Tax Rate), and CSR Granger-causes ETR. However, ETR does not Granger-cause INST, indicating a one-way causality. Similarly, CSR influences ETR, but does not impact INST. This analysis demonstrates unidirectional causality between INST, CSR, and ETR with a 95% confidence level, meaning that changes in INST and CSR can influence ETR, but not vice versa. These results emphasize the role of institutional ownership and CSR in shaping tax strategies.

4.2 Empirical results

4.2.1 Pearson Correlation results

Table 4 presents the correlation matrices for the model's variables, showing strong positive correlations between institutional ownership (INST), tax avoidance, and CSR scores. This suggests that companies with higher institutional ownership and those engaging in tax avoidance tend to have better CSR performance. However, the control variables—firm size (SIZE) and leverage (LEV)—are not correlated with the independent variable (INST). ROA, as a control variable, is significantly correlated with both INST and CSR, indicating that more profitable firms attract institutional investors and are likely to engage in CSR activities. The correlation between firm size and CSR suggests that larger firms, with more market influence and resources, are more inclined to participate in CSR initiatives, potentially due to public scrutiny or their capacity to allocate resources for social responsibility. Variance Inflation Factors (VIF) are used to assess multicollinearity in regression models, ensuring that predictor variables are not excessively correlated. High multicollinearity can lead to increased variance in coefficient estimates and instability in the model. According to Table 4, the highest VIF is 3.44, which falls within the acceptable range of 1 to 5, indicating moderate correlation. This demonstrates that multicollinearity is not present in the model. Therefore, the independent variables are not highly correlated, allowing for more reliable estimation of their effects on the dependent variable (Chatterjee & Hadi, 2015).

Table (4) Pearson Correlations for research variables

Variable	*INST*	*ETR*	*CSR*	*LEV*	*ROA*	*SIZE*	*VIF*
INST	1						1.05
ETR	-0.07	1					1.03
CSR	**0.132	**0.374	1				1.03
LEV	-0.068	0.029	-0.058	1			3.38
ROA	0.150**	0.006	0.089*	0.635**	1		3.44
SIZE	-0.041	0.018	0.141**	0.093*	0.013	1	1.03

Notes: *, **and*represent significance at the 10, 5 and 1% levels, respectively**

Source: Researcher's own computations (2024).

4.2.2 Fixed and random effect models.

Using the given models for empirical analysis, the study applies the Hausman test to determine the best choice between fixed and random effects models for empirical analysis. Results in table 6 indicate that the fixed effects model is the better choice, as confirmed by a p-value lower than 0.05, outperforming the random effects model in data fit.

$$CSR = \beta_0 + \beta_1 INST + \epsilon_i$$

$$ETR = \beta_0 + \beta_1 INST + \beta_2 CSR + \beta_3 size + \beta_4 ROA + \beta_5 leverage + \epsilon_i$$

Table 5 results reveal that institutional ownership (INST) significantly and positively influences CSR, with an impact coefficient of 1.603 at the 95% confidence level. CSR, in turn, has a significant positive effect on tax avoidance (ETR), with an impact coefficient of 0.708. However, INST has no significant direct effect on ETR at the 95% confidence level. Notably, CSR mediates the relationship between INST and ETR, with an indirect effect of 1.13 at the 95% confidence level. These findings underscore CSR's critical role as a mediator in the relationship between institutional ownership and tax avoidance.

Table (5): Regression analysis results

Variables	CSR	ETR
INST	1.603***	22.7
	-0.2925	-45.3
CSR		0.708***
		-0.0601
ROA	0.0137	0.165
	-0.0217	-0.336
SIZE	0.0066516***	0.0375541
	-0.001893	-0.02988
LEV	0.000338	0.014
	-0.00237	-0.0367
Constant	-0.148	-26.29***
	-0.31	-4.795
F-test(p-value)	3.51(0.0075) ***	6.42(0.000) ***
Obs.	696	696
R^2	0.306	0.351
N-obs.	29	29

Notes: *, **and*represent significance at the 10, 5 and 1% levels, respectively**

Source: Researcher's own computations (2024).

Table 6: Hausman Test for INST and ETR mediated by CSR

	P-value
Hausman Test	0.038

Source: Researcher's own computations (2024).

4.2.3 Structural Equation Model Results

The four research hypotheses are tested using Structural Equation Modelling (SEM), a popular analytical tool for testing cause-and-effect models with latent variables, using "path analysis" to assess hierarchical relationships among variables and investigate possible mediating effects (F. Hair Jr et al. 2014).

Measurements of the model's goodness of fit include the Incremental Fit Index (IFI), Relative Fit Index (RFI), Comparative Fit Index (CFI), Normed Fit Index (NFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA). As shown in Table 6, the model fits the data well with RMSEA values below 0.05 and NFI, RFI, IFI, TLI, and CFI near 1 within acceptable ranges. Although it indicates a poor fit, the Chi-Square test requires alternative measures due to its sample size sensitivity.

SEM analysis uses Maximum Likelihood (ML) estimates and a distribution-free method to handle the non-normal data distribution, as confirmed by the normality test in Appendix Table 2. This ensures more robust and reliable results. The analysis, conducted with SPSSv20 and Amos software, assesses the significance of paths using p-values and regression coefficients. Mediation occurs when there is a two-way influence between the independent variable (INST) and the mediator (CSR), and between the mediator and the dependent variable (ETR). Only one model is tested for the mediation effect. The

SEM model includes one independent variable (INST), one dependent variable (ETR), one mediator (CSR), and three control variables (SIZE, LEV, and ROA). Appendix Figure 1 illustrates the path diagram representing the hierarchical relationships among the research variables.

Table (6) Regression weights for testing the effects of INST on CSR, ETR, and control variables according to Maximum Likelihood Estimates.

Path			Unstandardized estimate	Standardized estimate	S.E.	C.R.	SIG.
CSR	<---	INST	0.085	0.406	0.006	14.949	0.001***
ETR	<---	CSR	0.918	0.109	0.344	2.671	0.008**
ETR	<---	INST	-0.127	-0.072	0.072	-1.772	0.076
ETR	<---	SIZE	0.006	0.037	0.001	9.794	0.001***
ETR	<---	LEV	0.052	0.12	0.016	3.222	0.001***
ETR	<---	ROA	0.428	0.111	0.143	2.992	.003**
Normed Chi-Square=4.597 probability level=0.005 NFI=0.845 RFI=0.998 IFI=0.950 TLI=0.989 CFI=0.972 RMSEA=0.021							

Notes: *, **and*represent significance at the 10, 5 and 1% levels, respectively**
Source: Researcher's own computations (2024).

Table 6 results indicate that the direct impact of institutional ownership (INST) on effective tax rate (ETR) is insignificant, suggesting that institutional ownership does not significantly influence tax avoidance without considering corporate social responsibility (CSR). This implies that INST affects ETR indirectly through CSR rather than directly. These findings support the first hypothesis ***(H_1)*** and align with previous research (Dewi et al., 2023 ; Navaranti & Puspitosari, 2023;and Arliani Yohanes, 2023)

Second, INST has a *significant direct positive* impact on CSR, with an estimated coefficient of 0.918 at the 95% confidence level. This implies that higher institutional ownership results in more CSR activities. Thus, the second hypothesis ***H_2*** is supported and consistent with (e.g. Yani & Suputra, 2020; Singal & Putra, 2019).

Third, CSR has *a significant direct positive* impact on ETR, with an impact coefficient of 0.918 at the 95% confidence level, indicating that companies that prioritise CSR are also more likely to engage in tax avoidance strategies. This result supports the third hypothesis ***(H_3)*** and in line with (Shafanur and Ratnasari, 2023) and (Abdelfattah & Aboud, 2020) who stated that managers view tax avoidance strategies as beneficial for shareholders, but they worry about sanctions, reputation damage, public pressure, and media pressure. To hide tax avoidance or gain benefits, they increase CSR disclosure.

Fourth, CSR mediates the relationship between institutional ownership (INST) and the effective tax rate (ETR), with an indirect effect of 0.078 at the 95% confidence level. This indicates that institutional ownership influences tax avoidance primarily through CSR activities. Consequently, at the 95% confidence level, INST has a total effect of 0.078 on ETR, accounting for both direct and indirect effects. This finding supports the fourth hypothesis ***(H$_4$)*** and aligns with the research of Dakhli (2022). The results from the SEM analysis presented in Table 6 are consistent with the regression findings in Table 5, reinforcing the study's hypothesis that CSR significantly mediates the impact of institutional investors on corporate tax strategies.

Table 6 reveals that among the control variables, firm size *significantly influences* ETR, with tax avoidance increasing by 0.006 for each unit increase in firm size, at a 95% confidence level. Firm leverage also *significantly affects* ETR, with tax avoidance rising by 0.052 for each unit increase in leverage, at a 95% confidence level. Additionally, ROA has *a significant impact* on tax avoidance, with an increase of 0.428 in tax avoidance per unit increase in ROA, at a 95% confidence level. Thus, the results from the four regression models confirm the validity of research four hypotheses.

4.3 Discussion of the results

The study finds that institutional ownership (INST) *does not have a direct effect on* tax avoidance, aligning with the results of (Dewi et al., 2023 ; Navaranti & Puspitosari, 2023**;** Arliani Yohanes, 2023 ; Hassan et al., 2022; Pratiwi, 2018; Putri Firdaus et al., 2024 ; Kristiani et al., 2024 ; Nur Alya & Husnaini 2024 ; and Safitri & Oktris, 2023), who also report no direct influence of INST on tax avoidance. This supports legitimacy theory, which suggests that companies adhere to tax regulations to maintain legitimacy and avoid harming stakeholder interests (Aryatama & Raharja, 2021). Conversely, Hassan et al. (2022); Qawqzeh (2023) and Hidayat & Zuhroh (2023) find a significant negative impact of INST on tax avoidance, indicating that institutional investors can reduce tax avoidance through better governance and monitoring. Institutional investors can reduce information asymmetry when paying taxes. They prioritize corporate legitimacy and long-term investments over tax evasion, preventing firms from avoiding taxes (Dakhli, 2022 ; Riset & Terpadu, 2024; Arliani Yohanes, 2023; Callista & Susanty, 2022). However, Khan et al. (2017) ; Jiang et al., 2021; and Dini & Anggeresia Ginting, 2023) argue that institutional ownership may positively impact tax avoidance due to short-term profit incentives, as per agency theory.

The second findings that INST has a *significant direct positive impact* on CSR and aligning with stakeholder theory, which advocates for ethical and socially responsible conduct to enhance brand image and financial performance. This finding is also consistent with the literature (e.g. Yani & Suputra, 2020; Singal & Putra, 2019) as institutional investors are inclined to support CSR initiatives for long-term profit sustainability. However, Navaranti & Puspitosari (2023) found that INST does not affect CSR.

The third finding, that CSR has a *significant direct positive impact* on ETR, is consistent with the agency theory, which posits that CSR initiatives help align managerial incentives with shareholder interests, potentially reducing agency conflicts. Socially irresponsible firms may invest in CSR to counteract the negative effects of tax avoidance, whereas firms engaged in CSR might use tax avoidance strategies to recoup costs and allocate more resources to CSR activities. This finding aligns with the literature suggesting that Egyptian companies involved in tax avoidance may disclose more CSR information (e.g. Dakhli, 2022;Abid & Dammak, 2022; Kim et al., 2020; Hunjra et al., 2021; Shafanur & Ratnasari, 2023; Abdelfattah & Aboud, 2020; Abd-Elmageed & Abo Ashour, 2021) who find that Egyptian companies that avoid taxes may disclose more CSR information. It also reflects legitimacy theory, which argues that increased ESG disclosures can address community concerns about low tax payments, enhancing corporate legitimacy. The results show that CSR is seen as a limitation in Egypt, and tax avoidance tactics are important for shareholder wealth maximization. However, this result contrasts with other studies reporting a negative correlation between CSR and tax evasion (e.g. (Mahmudi, 2024 ; Arieta, 2024 ; Putri Firdaus et al., 2024 ; Rashid et al., 2023 ; Shafanur & Ratnasari, 2023; and Aryatama & Raharja, 2021; Chouaibi et al., 2022; Oboh & Nosa, 2021; and Yoon et al., 2021), suggesting that CSR initiatives should ethically aim to minimize practices such as tax avoidance. Additionally, some research indicates no relationship between CSR and tax avoidance, (Mohanadas et al., 2020 ; Natanael et al., 2021 ; and Sambodo & Ramadhan, 2021).

The fourth finding that INST has an indirect impact on tax avoidance through CSR, aligning with legitimacy theory. This theory posits that companies enhance their ESG disclosures to address public concerns about insufficient tax contributions, thereby strengthening their social legitimacy. This result supports Dakhli (2022) who found that CSR partially mediates the relationship between INST and tax avoidance using the Sobel test. Conversely, Navaranti & Puspitosari (2023) found no evidence of CSR mediating this relationship in Indonesia.

The study's findings on control variables align with Hossain et al. (2024) who find a positive correlation between tax avoidance and firm size, profitability, and leverage. This suggests that companies with higher leverage and profitability are more inclined to use tax avoidance strategies. However, Dewi et al. (2023) and Arliani Yohanes (2023) find that firm leverage has a negatively impacts tax avoidance. While Putri Firdaus et al., (2024); and Safitri & Oktris (2023) find no significant effect of leverage on tax avoidance. Regarding the firm size, Riset & Terpadu (2024) ; Hidayat & Zuhroh (2023) and Abd-Elmageed & Abo Ashour (2021) find that larger firms generally have a significant negative impact on tax avoidance. This is because larger corporations face stricter penalties, have a stronger reputation, and have limited access to aggressive tax strategies, making them less likely to engage in tax evasion. Additionally, their increased transparency and adherence to tax laws are attributed to the risks associated with their size. In contrast, Kristiani et al. (2024) and Putri Firdaus et al. (2024) and Edeline & Sandra (2018) find that firm size does not significantly impact tax avoidance. ROA *significantly affects* tax avoidance. Abd-Elmageed & Abo Ashour (2021) ; and Putri Firdaus et al. (2024) find a strong positive relationship, suggesting that higher ROA, indicating increased profitability, leads to greater tax avoidance to manage the tax burden. On the contrary, ROA has a negative effect on tax avoidance as profitable companies prioritize profitability and cash flow over complex tax strategies due to factors like building a good reputation, relying on capital providers and stakeholders, and maintaining strong relationships with related parties. Conversely, some studies (e.g. Muhammad et al., 2022; Riset & Terpadu, 2024 ; and Kristiani et al., 2024). argue that profitable companies may focus on reputation and stakeholder relationships, leading to a negative effect on tax avoidance. Additionally, Hidayat & Zuhroh (2023) and Aryatama & Raharja (2021) find that ROA may not affect tax avoidance, as high profitability might prompt effective tax planning rather than avoidance.

5. Conclusions

This study sheds light on the interplay between institutional ownership, CSR, and tax avoidance in the Egyptian context, offering important policy insights for developing markets. The study highlights the mediating role of CSR in the relationship between institutional ownership and corporate tax behaviour using a five-year dataset of ESG ratings for Egyptian firms. According to the results, institutional ownership has no effect on tax avoidance per se, but it does encourage CSR, which in turn makes tax avoidance more effective. Complex corporate tax strategies are further complicated by the fact that CSR seems to mediate the impact of institutional ownership on tax avoidance. To better comprehend the tax practices of corporations in Egypt and the wider MENA area, these findings are of utmost importance.

Several limitations are present in the study. To begin, the study is limited by the accessibility and thoroughness of yearly financial reports and ESG disclosures posted on Egyptian Stock Exchange and company websites. Second, due to Egypt's status as a developing market with distinct institutional settings, the findings may not be applicable to developed markets. Third, the complexity of the ESG score complicates the identification of specific CSR disclosure factors most closely related to a company's tax strategy and ownership structure. Fourth, the absence of standardized CSR disclosure rating methodologies for Egyptian firms limits the ability to compare findings with other CSR studies.

The importance of this study is highlighted by the far-reaching social, political, and economic consequences of tax evasion. The findings provide valuable insights for policymakers, regulators, and stakeholders—including institutional investors and corporate executives—by offering evidence-based recommendations for addressing tax avoidance. These findings can be utilised by policymakers to create rules that promote or mandate CSR disclosures and offer tax breaks to businesses that participate in CSR initiatives. The study also supports stakeholders in crafting strategies that promote ethical business practices, enhance corporate governance, and drive sustainable economic growth. Corporate managers are advised to incorporate CSR into their business strategies to improve their social image and potentially influence tax avoidance. Balancing CSR initiatives with transparent tax practices is essential to avoid regulatory scrutiny and reputational damage. For institutional investors, promoting CSR activities within their portfolio companies can enhance oversight, inform investment decisions, and assess potential tax behaviours.

Future research could further explore the intricate dynamics of tax avoidance, focusing on compliance factors, knowledge, and education. It should investigate the mechanisms and potential moderating factors within various industries and regions, as well as the long-term implications.

One possible avenue to explore is the influence of data analytics, blockchain, and artificial intelligence on tax regulations, enforcement, and planning, as well as their effects on tax evasion. Understanding these technological impacts will help policymakers and tax authorities develop effective strategies to address technology-driven tax evasion.

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Appendix

Table 1: Goodness of fit indices

Indices	Abbreviation	Recommended Criteria	Results	conclusion
Chi-Square	χ^2	P-value > 0.05	50.564	
Degree of Freedom			11	Not Good Fit
Level of Significance			***	
Normed Chi-Square	$\frac{\chi^2}{DF}$	$1< \frac{\chi^2}{DF} <5$	4.597	Good Fit
RMESA	Root Mean Square Error of Approximation	< 0.05 Good Fit < 0.08 Acceptable Fit	0.021	Good Fit
NFI	Normed Fit Index	> 0.90	0.845	Good Fit
RFI		> 0.90	0.998	Good Fit
IFI		> 0.90	0.950	Good Fit
TLI	Tucker-Lewis Index	> 0.90	0.989	Good Fit
CFI	Comparative Fit Index	> 0.90	0.972	Good Fit

Source: Researcher’s own computations (2024).

Table (2) Normality test

Variables	**Kolmogorov Smirnov**			**Shapiro-Wilk**		
	Statistic	*df*	*Sig.*	*Statistic*	*df*	*Sig.*
ERT	0.405	696	0	0.131	696	0
INST	0.248	696	0	0.781	696	0
CSR	0.203	696	0	0.882	696	0

Source: Researcher’s own computations (2024).

Table (3) Unit root test

Variable	ADF	PP
CSR	124.645***	91.146***
ETR	290.244***	405.463***

Source: Computations conducted by the researcher (2024).

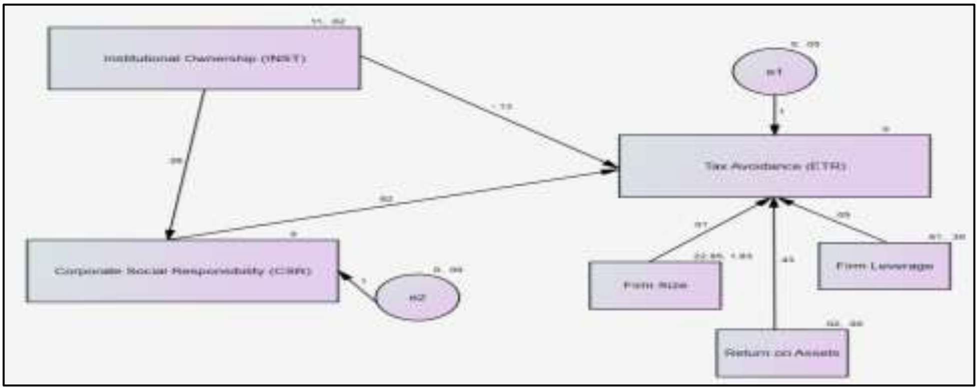
Table 4 Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
INST does not Granger Cause ETR	667	9.42510	0.000
ETR does not Granger Cause INST		0.06071	0.8054
CSR does not Granger Cause ETR	667	10.03010	0.0000
ETR does not Granger Cause CSR		1.14695	0.2846
CSR does not Granger Cause INST	667	1.93471	0.1647
INST does not Granger Cause CSR		10.00301	0.000

Source: Researcher’s own computations (2024).

Figures

Figure (1) : Path diagram



Source: Researcher’s own creation (2024).