Audit Committee Effectiveness: Does it Matter for Relation between Ownership Structure and CSR disclosure in Egyptian stock market?

Presented by

Prof. Omayma Rizk Elguoshy

Lecturer of Accounting & Auditing .

Higher Institute of Computer and Business Administration, Al Zarka, Egypt. Email: omaymarizk@hotmail.com

Prof. Mahmoud Ibrahim Mohamed Abdelmawgoud

Lecturer of Accounting & Auditing.

Faculty of Commerce. Sohag University. Email: ibrahem.mahmoudb@gmail.com

Prof. Mohamed Elsayed Ahmed Ramadan

Lecturer of Accounting & Auditing.

Higher Institute for Administrative Sciences , Belbeis, Al Sharqia

Email: mohamedelsayed201031@gmail.com

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Abstract

This study investigates the correlation between ownership structure and corporate social responsibility (CSR) disclosure in Egyptian firms, highlighting the moderating influence of audit committee effectiveness (ACE). The sample comprises 68 non-financial companies from 2020 to 2024, resulting in 340 firm-year observations. CSR disclosure was assessed using a content-analysis index, whereas ownership structure including institutional, managerial, foreign, and government ownership, ACE was evaluated based on board size, independence, financial knowledge, and meeting frequency. An applied analysis was performed utilizing STATA .17, employing panel regressions (OLS, RE GLS) and (2SLS) to mitigate endogeneity, furthermore, SmartPLS 4 was utilized to evaluate the structural model and demonstrate its robustness. The data indicate that institutional, management, and foreign ownership substantially improve CSR disclosure, whereas ACE intensifies these impacts. This research contributes to governance literature by contextualizing it within Egypt, presenting empirical evidence from an emerging market with evolving CSR disclosure, and delivering practical advice for regulators and investors.

1. Introduction

Corporate social responsibility (CSR) disclosure has attained global significance in recent years, pushed through rising stakeholder expectations and legal demands(Khan et al., 2022, Velte, 2024). Investors and regulators are pressing firms globally to enhance their CSR reporting due to the growing demand for transparency in their CSR practices(Al Amosh and Khatib, 2022, Uyar et al., 2023). In response to global trends and to adhere to international sustainability standards, regulators in several emerging economies have been mandating CSR disclosures(Khayal and Srour, 2024) . In Egypt, the Financial Regulatory Authority (FRA) promulgated regulations No (107/ 108) in July 2021, requiring all publicly listed firms and major financial institutions to submit annual ESG reports(FRA, 2021).The legislation, effective from 2022, instituted a compulsory CSR disclosure framework on the Egyptian Stock Exchange, signifying a transition from the formerly optional CSR reporting environment(Khayal and Srour, 2024) . According to the new regulations, publicly traded companies in Egypt are required to disclose certain environmental, social, and governance parameters and submit quarterly progress reports to the FRA regarding their sustainability policies(Khayal and Srour, 2024). The developing regulatory environment emphasizes the need of understanding the factors influencing quality and quantity of CSR disclosure in Egypt (Salah and Hassaan, 2024, El-Deeb et al., 2023).

Throughout the literature of corporate governance, ownership structure and board monitoring mechanisms are recognized as critical factors influencing voluntary disclosure behavior(Khan et al., 2022, Uyar et al., 2023). Diverse ownership pattern frequently possess varying motivations and abilities to affect a firm's transparency, also, institutional and overseas investors typically demand higher responsibility and compliance with international best practices, hence compelling corporations to enhance transparency in CSR reporting (Velte, 2024, Al Amosh and Khatib, 2022). Foreign shareholders, specifically, often exert pressure on companies to enhance disclosure in order to safeguard their reputations and adhere to international standards (Arslan et al., 2024, Chowdhury et al., 2021), the effect of managerial and state ownership on CSR disclosure is less definitive. Some studies suggest state shareholders may encourage legitimacy and accountability, thereby increasing ESG disclosures(ElHawary, 2024). Evidence from emerging economies demonstrates that government ownership can enhance sustainability reporting as a component of national development (Ntim and Soobaroyen, 2013, Habbash, 2016). Nonetheless, some studies indicate that state-owned enterprises may sometimes exhibit reduced openness due to political influences or inadequate external supervision(Al Amosh and Khatib, 2022, Uyar et al., 2023). Family or managerial ownership may either promote or obstruct CSR disclosure, depending on the circumstances(Soliman et al., 2013). International literature indicates that ownership patterns can variably influence a firm's propensity to publish CSR information (Velte, 2024, Arslan et al., 2024, Garanina and Kim, 2023). In the Egyptian context, the newly mandated reporting requirements need an analysis of how various ownership structures influence CSR transparency amid increased regulatory oversight**(**ElHawary, 2024**).**

Furthermore, Audit committee(AC) is another crucial element of governance that influences transparency, ACs are essential to company governance, primarily charged with monitoring financial reporting and internal controls (Velte, 2024). In recent years, their role expanded to include the assurance of non-financial disclosures, such as CSR and sustainability reports, as stakeholders demand verification of the authenticity of these disclosures(Khan et al., 2022, Uyar et al., 2023). In this context , AC effectiveness defined from attributes such independence, financial expertise, frequent meeting , and suitable size, may enhance the quality and reliability of company disclosures(Qaderi et al., 2023, Farah Freihat and Al-Hiyari, 2025). Global research indicates that robust ACs enhance the integrity and dependability of CSR reporting from guaranteeing thorough examination and compliance with disclosure norms(Dwekat et al., 2022, Velte, 2024). Hence, ACs effectiveness may act as a moderating factor that either facilitates or limits the impact of various owners on CSR disclosure results(Al Amosh and Khatib, 2022, Arslan et al., 2024).Despite its theoretical significance, the relationship among ownership structure and audit committees regarding CSR disclosure has been inadequately examined in previous studies(Meqbel et al., 2025).

Prior studies have examined the various connections between ownership structure and governance systems in relation to CSR disclosure, however there is a scarcity of thorough information regarding their combined effects particularly in emerging economies (Khan et al., 2022). Current literature provides fragmented insights, where some studies focus on various ownership patterns (e.g., family-owned enterprises or institutional owners), while others analyze board characteristics or audit quality in isolation(Al Amosh and Khatib, 2022, Salah and Hassaan, 2024). Nonetheless, few have gathered several ownership aspects and internal governance elements into a unified structure. There has been no comprehensive research in Egyptian context that simultaneously investigates the relationship between different ownership types (institutional, foreign, managerial and state) and the extent of CSR disclosure, nor the possible moderating influence of an effective AC on these relationships(Desoky, 2025). Where recent research from several markets suggests that companies with high institutional ownership tend to disclose more ESG information(Uyar et al., 2023, Arslan et al., 2024),this discrepancy is substantial due to the diverse and occasionally conflicting findings globally. Nevertheless, the results of management and state ownership are inconsistent or dependent on context(Al Amosh and Khatib, 2022). Certain studies indicate that family-controlled corporations may excel in CSR reporting compared to widely-held companies, while state-owned enterprises may underperform in specific ESG dimensions (Farah Freihat and Al-Hiyari, 2025, Meqbel et al., 2025). These conflicting findings indicate a necessity for a comprehensive strategy to discern the conditions under which each ownership type promotes or hinders CSR transparency (Velte, 2024, Qaderi et al., 2023). The primary research problem addressed in this study is therefore:

How do different ownership structures patterns relate to CSR disclosure in Egyptian listed firms, and do ACs effectiveness alter these relationships?

This issue is especially important in Egypt after 2021, when ESG disclosure is no longer optional but is required by legislation(FRA, 2021).The new regulatory environment provides a natural setting to observe whether firms with certain ownership structures are more compliant or forthcoming in their CSR disclosures, and whether a vigilant AC can strengthen (or weaken) the influence of those owners. We argue that without considering the moderating function of ACEs, it is impossible to fully explain the difference in CSR disclosure levels between organizations. Notably, most existing research disregard the audit committee as a potential moderator of ownership and disclosure, instead concentrating solely on direct effects (Velte, 2024, Qaderi et al., 2023) emphasize this study gap, stating that the relationship between ownership structure and CSR disclosure has been largely examined without considering the oversight role of audit committees. Also, previous research that did not account for AC effectiveness may have overlooked a critical internal governance mechanism that might either assist or restrain owners' impact on CSR disclosure procedures. So, current study addresses that gap by include audit committee effectiveness in the analysis, hence, the study challenge focuses on resolving the lack of comprehensive evidence on whether and how audit committees influence on relationship between ownership and CSR disclosure in Egypt's capital market. The study subsequent sections will analyze relevant literature, establish hypotheses, describe the methodology for applied analysis, and discuss the findings, with the goal of contributing significant knowledge to both academics and practice in accounting and auditing.

2. Theoretical Background

CSR disclosure can analyzed through agency theoretic, which regard CSR disclosure as a potential agency cost, where managers may excessively invest in CSR or disclose socially favorable information to enhance their personal reputation or placate stakeholders, even if such actions do not directly enhance shareholder value. According to (Jensen and Meckling, 2019, Velte, 2022, Gillan et al., 2021) CSR disclosure may constitute managerial opportunism if they are not aligned with shareholder interests. Conversely, CSR may be regarded as a long-term value-enhancing strategy desired by astute shareholders, whereby diminishing agency conflicts should amplify authentic CSR initiatives and transparent disclosures(Cho and Ryu, 2022, Gillan et al., 2021). Agency theory posits that managers' interests increasingly match with those of shareholders, hence promoting corporate social responsibility actions that augment long-term business value (Cho and Ryu, 2022, Wei et al., 2024, Lavin and Montecinos-Pearce, 2021).

Recent studies (Cho and Ryu, 2022, Lin and Nguyen, 2022) indicates that enterprises with elevated managerial ownership demonstrate greater engagement in CSR, as managers with significant equity shares are inclined to invest in CSR initiatives that bolster long-term organizational value, aligning with shareholder objectives. Conversely, many studies (Nugraheni et al., 2022, Bose et al., 2024, Chen et al., 2020) refers to if CSR disclosure enhances long term firm performance or risk management, institutional investors may advocate for increased transparency and accountability in CSR reporting. Certain researches(Gillan et al., 2021, Kolasa and Sautner, 2024) indicate that institutional ownership enhances CSR disclosure, whilst others suggest that specific institutional investors may inhibit CSR disclosure due to a focus on short-term profits. Stakeholder theory posits that firms undertake CSR initiatives and publish related information to manage relationships with important stakeholders and resolve their concerns(Alobaid et al., 2024, Velte, 2022). CSR disclosure serves as a communication mechanism to exhibit accountability and responsiveness to stakeholder concerns.

Institutional investors functioning within strong governance frameworks or overseeing funds with ESG mandates generally embrace stakeholder-oriented perspectives; they may actively advocate for improved CSR transparency to fulfill stakeholder expectations and mitigate risks(Chen et al., 2020, Bose et al., 2024, Döring et al., 2020). The existence of specific institutional owners is associated with enhanced accountability, (Dyck et al., 2019) discovered that institutional investors contribute to the improvement of CSR practices in the enterprises they invest in. Recent researches (Nugraheni et al., 2022, Gillan et al., 2021) indicate that institutional ownership correlates with a focus on both financial and social performance, this aligning with stakeholder theory's assertion that enterprises must address diverse interests. One study found that market participants have greater expectations on state-involved firms to be CSR, indicating stakeholders view state ownership as a sign that the firm should pursue social value alongside profits(Garanina, 2024).Such cases, CSR disclosure by SOEs can be a response to stakeholder demands for transparency about how the company is contributing to social goals an effect consistent with broader evidence that SOEs tend to engage more in ESG practices than non SOEs in China (Shen et al., 2023). Stakeholder theory is supported a state ownership a positive effect of CSR reporting, where (Garanina, 2024, Garanina and Kim, 2023) shows that higher CSR disclosure is related with more conservative reporting and has market value implications. Additional evidence from study (Doshi et al., 2024) indicates that government ownership is positively related to CSR disclosure scores, reinforcing the view that public ownership aligns firms with societal expectations.

Also, ownership structure can influence the need and approach to seeking legitimacy, where(Garanina and Aray, 2021)) provide evidence consistent with legitimacy theory, in Russia firms with foreign board members or international cross-listings significantly increased their CSR disclosures. This aligns with broader international evidence that firms disclose more CSR to mitigate liability of foreignness and satisfy global investors' expectations(Yu and Van Luu, 2021) (Wu et al., 2024) (Setiawan et al., 2021). Together, results indicate that when foreign owners actively engage in governance legitimacy concerns drive up CSR transparency(Yu and Van Luu, 2021, Garanina and Aray, 2021) Based on the above, theoretical frameworks of theory agency, stakeholder, and legitimacy provide a lens to predict how different ownership structures could impact on CSR disclosure

3. Literature Review & Hypotheses Development

Different owner types may exert distinct pressures or incentives on management regarding CSR engagement and transparency (Zhou et al., 2024, Garanina and Aray, 2021, Doshi et al., 2024). So, understanding these dynamics is critical, as CSR disclosure can affect stakeholder trust, corporate legitimacy, and even financial performance (Garanina, 2024, Garanina and Kim, 2023, Nugraheni et al., 2022).

3.1 Institutional Ownership *and CSR Disclosure*

Numerous studies indicate a beneficial effect of institutional ownership on CSR disclosure from supporting the notion that institutions promote enhanced governance and accountability (Dyck et al., 2019, Nofsinger et al., 2019, Li et al., 2023). **(**Nugraheni et al., 2022**)** discovered that increased institutional ownership correlates with enhanced CSR disclosure, as institutions may have reputational incentives to guarantee corporations handle CSR concerns and possess the influence to require superior quality disclosures. This finding dovetails with earlier evidence(Dyck et al., 2019, Nofsinger et al., 2019) that institutional investors care about both financial and social outcomes , they can exert pressure for more comprehensive reporting on CSR matters as part of improving the firm's information environment. Furthermore, the active engagement of institutional investors can bolster disclosure quality, (Feng et al., 2025) show that when institutional investors conduct direct engagement, it leads to improved quality of CSR disclosure and significantly raised the credibility and completeness of environmental disclosures. This result is consistent with related evidence that institutional site visits improve subsequent ESG and CSR disclosure (Jiang et al., 2022, Zhou and Gan, 2022). This effect was more pronounced in companies without dominant state ownership and with more diffuse ownership(Feng et al., 2025). These findings substantiate the idea that institutional investors might act as accelerators for transparency and CSR accountability.

Some research (Cheng et al., 2022, Martínez-Ferrero and Lozano, 2021, Al Fadli et al., 2022, Dewi and Wirawati, 2021), uncovers a negative or null relationship between institutional ownership and CSR disclosure, pointing to the heterogeneity among institutional investors. Furthermore, (Nurhalisa and Hernawati, 2023) indicate that increased institutional ownership adversely affects CSR disclosure, suggesting that enterprises reveal less CSR information when institutions possess higher interests. Institutional shareholders seeking short term returns may perceive comprehensive CSR initiatives or transparency as distractions or expenses, thus deterring management from dedicating resources to CSR or disclosing information that does not directly enhance immediate profits(Bonsall Iv et al., 2025, Cheng et al., 2022) .Consequently, when a firm's investor base is mostly comprised of transient institutions, the probability of reduced emphasis on CSR disclosure increases **(**Bushee, 2001**,** Gaspar et al., 2005**,** Velte, 2022**)**. Contrasting studies(Nugraheni et al., 2022) indicate a favorable correlation between institutional ownership and CSR disclosure, also (Nurhalisa and Hernawati, 2023) report a negative association reflect differences in the prevailing types of institutional investors in the sampled, sectoral composition, and regulatory institutional environments. Such heterogeneity is consistent with evidence that industry characteristics and country level governance quality moderate the ownership and CSR linkage (Li et al., 2024, Doshi et al., 2024, Cheng et al., 2022, Ali et al., 2024) . Another factors play a role too, in emerging markets with weaker investor protection, domestic institutional investors might behave differently than international ones**(**Döring et al., 2020**,** Bose et al., 2024**)**. There is evidence that foreign institutional investors often drive CSR disclosure improvements more than local institutions (Bose et al., 2024, Döring et al., 2020, Yu and Van Luu, 2021). For instance, (Nguyen, 2025, Lin and Nguyen, 2022, Kabir and Thai, 2021) finds a positive correlation between foreign institutional investors and CSR scores. Institutional ownership typically has the capacity to improve CSR disclosure via oversight and stakeholder influence(Nurhalisa and Hernawati, 2023, Feng et al., 2025). Yet, this impact can turn negative if the institutions are short term oriented or prefer management not to divert attention to CSR(Nurhalisa and Hernawati, 2023).As a result, we propose our first hypothesis:

H1. Institutional Ownership traits influence their CSR disclosure

3.2 Managerial Ownership and CSR Disclosure

Increased managerial ownership can motivate managers to contemplate the long term consequences of their decisions, particularly with CSR(Ongsakul et al., 2021). When managers are substantial stakeholders, they may perceive CSR investments and transparent disclosures as advantageous for the firm's enduring success and reputation, hence augmenting firm value(Wei et al., 2024, Ongsakul et al., 2021). Empirical evidence (Cho and Ryu, 2022) investigated that firms with elevated executive shareholding have significantly superior CSR records and enhanced CSR .This effect occurs when managers are more inclined to invest in CSR efforts that improve the firms image and reduce social hazards, hence ensuring long term shareholder value(Yue et al., 2025, Ongsakul et al., 2021) .Nonetheless, the relationship is not merely characterized by an increase in ownership or corporate social responsibility in a linear fashion**(**Shan et al., 2021**).** (Cho and Ryu, 2022) reveal that the influence of managerial ownership on corporate social responsibility is notably strong, particularly beyond specific ownership limits. In their study, when managers owned at least 5% (and especially above 25%) of shares, the firms were much more likely to be among top CSR performers, whereas at intermediate levels (around 5–25%) the effect was statistically insignificant.

Also, (Velte, 2024)found that in firms with low accounting transparency or indications of earnings manipulation, managers with high ownership tended to reduce CSR investments and divert resources elsewhere . In those cases, managers did not value building a CSR reputation, possibly because opaque reporting environments allowed them to prioritize private benefits **(**Zheng and Shen, 2024**)**.This nuance means that managerial ownership’s effect on CSR disclosure is context-dependent it works best with good governance and transparency, but can turn neutral or negative in weak information environments**(**Wei et al., 2024**)**. Other studies offer additional perspectives, several emerging market studies **(**Nugraheni et al., 2022**,** Dewi and Wirawati, 2021**)**report either no significant or a negative effect of managerial ownership on CSR disclosure, ,evidence from Jordan shows a negative association between managerial ownership and the extent of CSR reporting(Al Fadli et al., 2022), while work in Pakistan notes insignificance of managerial ownership for environmental disclosure **(**ul Rehman et al., 2023**)**. Divergence also appears in China , in heavily polluting industries, higher managerial ownership is linked to weaker environmental information disclosure and a higher cost of debt(Zheng and Shen, 2024) , whereas broader samples show positive links between managerial ownership and environmental disclosure (Wei et al., 2024). Two mechanism studies help reconcile these contrasts, **(**Shan et al., 2021**)** show a nonlinear (threshold) among between managerial ownership and carbon transparency positive at low or high stakes but negative in the entrenchment middle range; and(Ongsakul et al., 2021) show that economic policy uncertainty strengthens the CSR enhancing effect of managerial ownership, underscoring context-dependence. So, managerial ownership is a double edged sword for CSR disclosure. When insider stakes are sufficiently high and reporting quality is strong, firms typically exhibit stronger CSR engagement as shown in Korea (Cho and Ryu, 2022). However, the net effect varies with ownership thresholds, information environment, and country level governance quality, which can amplify or dampen the ownership CSR link(Ali et al., 2024). Hence, predictions about CSR disclosure should jointly consider both the degree of managerial ownership and the firm's governance and transparency context. As a result, we propose our second hypothesis:

H2. Managerial Ownership traits influence their CSR disclosure

3.3Foreign ownership and CSR Disclosure

Foreign investors call for more rigorous sustainability reporting to satisfy global standards and home-market stakeholders (Chowdhury et al., 2021, Marshall et al., 2022), their experience using CSR as a strategic tool can spill over into investee firms to raise transparency and performance(Cui et al., 2022, Zhang and Wu, 2024). Empirical studies indicate a positive correlation between foreign ownership and CSR disclosure, with findings from Indonesia and China(Zhang and Wu, 2024, Orbaningsih et al., 2021), additional evidence from other markets suggests that foreign directors can enhance CSR engagement (Setiawan et al., 2021). In Saudi Arabia, companies with more foreign ownership demonstrated more efficient investment and engagement in CSR, indicating that foreign shareholders may choose sustainable practices that enhance capital allocation (Alobaid et al., 2024). However, evidence has emerged that the effect of foreign ownership is highly context dependent and varies with investor type and institution (Chen et al., 2020, Kabir and Thai, 2021, Hummel and Jobst, 2024).

According to (Garanina and Aray, 2021) foreign ownership did not enhance CSR disclosure, a notable study (Garanina and Aray, 2021) foreign ownership did not improve CSR disclosure. In such cases, foreign shareholders might be passive and not interested in pushing costly CSR; some could even be related parties or beneficial owners using offshore status, thus not representing an independent force for CSR (Dyck et al., 2019) .Therefore, the mere fact that ownership is foreign is not enough; their identity, motives, and engagement level matter greatly(Yahia et al., 2023, Kabir and Thai, 2021). Interestingly, the same Russian study(Garanina and Aray, 2021) highlights that when foreign influence is coupled with active governance mechanisms, the effect on CSR disclosure turns positive. Specifically, foreign board members having directors of foreign nationality on the board and cross-listing on foreign exchanges were both associated with significantly increased CSR disclosures by firms(Garanina and Aray, 2021)); these channels also align with evidence that foreign investor bases heighten disclosure expectations(Chowdhury et al., 2021) and with legitimacy theory pressures linked to evolving global reporting rules (Hummel and Jobst, 2024),so, absent those channels foreign shareholding alone did not guarantee improved CSR transparency(Garanina and Aray, 2021) .

(Purnomo and Rizki, 2020) revealed that although board diversity in nationality positively influenced outcomes, increased foreign ownership in certain models correlated with less CSR disclosure. One view suggests (Cheng et al., 2022) that foreign owners may occasionally be state-affiliated investors or those indifferent to voluntary disclosures, or they may invest solely for financial motives without regard for non-financial disclosures. (Gunawan and SeTin, 2019) observed that in Indonesian enterprises, board nationality diversity enhanced CSR transparency, but foreign share ownership had a significant negative impact on CSR disclosure, This was posited by indicating that foreign shareholders may repatriate earnings and are less engaged in advocating costly CSR initiatives, whereas a diverse board introduces wider perspectives that promote transparency(Setiawan et al., 2021) . It can be inferred that the impact of foreign ownership on CSR disclosure is not consistently beneficial; it depends on the characteristics of the foreign investor and the local institutional context(Chowdhury et al., 2021, Hummel and Jobst, 2024). As a result, we propose our third hypothesis:

H3. Foreign ownership traits influence their CSR disclosure

3.4 Government ownership and CSR Disclosure

In emerging economies, governments frequently utilize state-owned enterprises (SOEs) as tools of social policy, prompting them to exemplify CSR(Boubakri et al., 2021, Kang, 2024). Research(Garanina, 2024) indicated that state engagement influences stakeholder views, resulting in state-owned enterprises (SOEs) participating in (CSR) experiencing a more favorable value effect. Additionally, CSR disclosure mitigates the adverse market reaction to earnings manipulation in the presence of state ownership. Evidence from China indicates that state-owned capital is associated with improved (CSR) practices in private enterprises (Zhang et al., 2023), which leads state-owned enterprises (SOEs) to frequently publish more CSR information to meet heightened expectations. Evidence from other studies(Tee et al., 2024, Ervits, 2023). Supports the assertion (SOEs) generally provides more CSR information. Prior studies (Guo et al., 2022, Parsa et al., 2021) refer to the government having aggressively endorsed sustainability and mandated specific CSR reporting, particularly for state-controlled corporations, which often lead in disclosure indices. They frequently produce specialized sustainability reports and comply with governmental mandates on environmental protection (Song et al., 2024, Parsa et al., 2021), government ownership serves as a catalyst for these enterprises to demonstrate their commitment to national social objectives through disclosure(Yu and Chi, 2021, Tee et al., 2024).

In one Chinese study, it was observed that political connections and state shareholding correlated with higher likelihood of CSR reporting(Yu and Chi, 2021, Parsa et al., 2021) .where the SOEs engage in CSR disclosure to maintain legitimacy since they are often large, impactful entities(Song et al., 2024). However, (Rauf et al., 2021)introduces different view, state ownership might sometimes correlate with lower quality disclosures about CSR, also (Garanina and Kim, 2023)suggests that when the central government holds shares, it might impose certain disclosure practices, while more local government ownership is less influential or more aligned with normal corporate behavior .Another angle is that market discipline on SOEs is weaker, which could either reduce the incentive to disclose or, conversely, compel them to disclose more to compensate for weaker market oversight. The evidences (Ervits, 2023, Tee et al., 2024) tends to favor the latter SOEs often over-compensate by disclosing a lot to assure investors and the public of their good conduct. Nonetheless, (Christensen et al., 2021) found that companies with government ownership were more prone to certain CSR controversies, insinuating that disclosure alone doesn't guarantee ethical behavior(Elamer and Boulhaga, 2024, Juca et al., 2024) . So, relation between government ownership and CSR disclosure depends on firm's characteristics, as a result, we propose our fourth hypothesis:

H4. Government ownership traits influence their CSR disclosure

3.5 *Impact of ACE on Ownership Structure and CSR Disclosure*

Recent scholarship has intensely examined how AC characteristics and effectiveness influence CSR disclosure practices,(Tumwebaze et al., 2022) found that higher ACE which measured through a composite score of attributes led to significantly greater CSR disclosure levels, Research has delved into specific AC attributes and their relationship with sustainability reporting. In contexts, (Aziz and Haron, 2021) showed that Malaysian firms with stronger audit committees had higher CSR disclosure and better financial performance concurrently. (Pucheta-Martínez and Gallego-Álvarez, 2019, Al-Shaer and Zaman, 2018, Qaderi et al., 2020, Velte, 2024, Arif et al., 2021) they found that firms with more independent

ACs and those where audit members hold ownership stakes tend to have significantly higher levels of CSR disclosure(Buallay and Al-Ajmi, 2020, Dwekat et al., 2022). A significant European study(Pozzoli et al., 2022) investigated the AC and their correlation with (ESG) performance. Research indicates a strong correlation between AC independence and ESG performance scores, suggesting that organizations with more independent audit committees generally excel in CSR/ESG metrics. This indicates that a proficient, autonomous AC can enhance openness in sustainability reporting(Al-Shaer and Zaman, 2018, Dwekat et al., 2022, Pucheta-Martínez and Gallego-Álvarez, 2019), independent AC boost the scope and CSR reporting quality by overseeing management and advocating for transparency (Trireksani and Djajadikerta, 2016). (Buallay and Al-Ajmi, 2020) indicate that ACs consisting solely of independent directors positively influenced the quality of CSR reporting, independence enables AC to advocate for comprehensive disclosure of CSR operations (Al-Shaer and Zaman, 2018, Dwekat et al., 2022).

Moreover, AC members' expertise, especially in finance, was linked to stronger ESG, (Sahu et al., 2025, Uyar et al., 2023, Mohammadi et al., 2021, Pucheta-Martínez et al., 2021) found that greater AC independence and financial expertise are significantly associated with a higher likelihood of CSR reporting and obtaining external assurance of CSR reports. These findings align with earlier evidence that AC with accounting or finance experts tend to demand higher quality disclosure across the board(Samaha et al., 2015, Li et al., 2012). (Khan et al., 2022)emphasize diversity and indicate that the inclusion of female directors with pertinent experience on AC substantially enhances the extent of carbon disclosure by enterprises. Also, the discovery(Abbasi et al., 2024, Gonenc and Krasnikova, 2022) corresponds with the overarching concept that diversity can improve board supervision. Furthermore, (Nuber and Velte, 2021, Alkhawaja et al., 2023) found female AC members, particularly those with professional competence, may introduce viewpoints to heighten awareness of sustainability issues, so enhancing the committee's oversight of environmental reporting. Also empirical evidence supporting regulators' and investors' demands for more gender diversity on critical board committees to more effectively address ESG issues (Alkhawaja et al., 2023, Dias et al., 2024) . (Pozzoli et al., 2022) (Velte, 2025) noted that extended AC tenure correlates with reduced CSR performance. This indicates that although experience is advantageous, prolonged tenure of audit committee members may have detrimental effects. However, not all studies are uniform; a few note exceptions. For example, an earlier study (Appuhami and Tashakor, 2017) in Australia found no effect of AC financial expertise on CSR reporting. Also,(Pucheta-Martínez and Gallego-Álvarez, 2019, Samaha et al., 2015) discovered an inverse relationship, older AC chairs were associated with lower CSR disclosure, suggesting that generational or tenure factors might reduce a chair's effectiveness in championing sustainability reporting.

In this line, (Pasko et al., 2024) find that larger ACs is positively associated with improved CSR disclosure quality, reflecting the benefits of having a diverse, expansive committee to handle the complexities of sustainability reporting. In contrast, (Pasko et al., 2024) found that the ratio of independent directors on the AC and the frequency of AC meetings did not exhibit a significant positive correlation with the quality of CSR disclosure in their data. Evidence from Jordan shows that foreign and government ownership are each associated with higher CSR disclosure, while institutional ownership is insignificant on average(Al Fadli et al., 2022). Separately, evidence documents that AC configurations independence, expertise, chair independence, size, and activity behind high CSR disclosure(Dwekat et al., 2020), and recent study (Velte, 2024) confirms that ACs influence CSR outputs. So, ownership type shapes the pressure to disclose, and the AC's effectiveness governs how fully that pressure translates into credible CSR reporting (Al Fadli et al., 2022, Dwekat et al., 2022, Velte, 2022).

In that context, strong ACs shown to raise sustainability disclosure quality across studies are positioned to counteract disclosure-weak incentives when a subset of institutions resists detailed CSR transparency(Arslan et al., 2024, Dwekat et al., 2020, Meqbel et al., 2025, Velte, 2024) . Also, foreign ownership significantly raises the extent of CSR reporting(Al Fadli et al., 2022). It shows that AC effectiveness (independence, expertise) is a decisive lever for the relationship between ownership structure and CSR(Velte, 2024, Dwekat et al., 2020). Combining these results, the foreign ownership and CSR link is amplified when ACs are effective, because foreign block holders' disclosure demands are more likely to be translated into specific, verifiable CSR text and metrics when an independent, expert AC challenges management, aligns report content with recognized indexes, and ensures coverage of material topics (Velte, 2024, Dwekat et al., 2020, Qaderi et al., 2023).

In practical terms for foreign shareholders, AC independence and chair committee expertise are features that are empirically tied to higher CSR reporting (Al Fadli et al., 2022, Qaderi et al., 2023). Evidence from (Dwekat et al., 2020, Nguyen, 2025, Velte, 2024) ownership composition influences carbon and climate disclosure, with ACs and related board monitoring mechanisms central to reporting quality and completeness across listed firms. Hence, for firms combining foreign stakes and strong ACs, CSR disclosure tends to be both more extensive and more credible(Dwekat et al., 2020, Nguyen, 2025) . In another view, government ownership moderates the link between corporate-governance features, including AC characteristics and CSR disclosure, in Jordan's industrial firms(Farah Freihat and Al-Hiyari, 2025) .That is, when the state is a significant owner, AC characteristics matter differently for CSR reporting, sometimes strengthening the CG and CSR pathway (Farah Freihat and Al-Hiyari, 2025, Uyar et al., 2023).

This is important for companies with state-connected ownership; where ACs are independent, meet frequently, and include financial/legal expertise, the presence of the state as owner is more likely to coincide with higher, more structured CSR disclosure (Farah Freihat and Al-Hiyari, 2025, Qaderi et al., 2023). Complementary evidence (Desoky, 2025, Uyar et al., 2023) from the GCC (Bahrain and Kuwait) shows that AC independence and size are determinants of environmental and community disclosure. Although that study does not split results by owner type, taken together with Jordan's ownership-specific findings, it implies that in state-influenced firms, AC strength is the mechanism that moves CSR disclosure from minimal compliance toward fuller transparency(Al Fadli et al., 2022, Desoky, 2025, Farah Freihat and Al-Hiyari, 2025) . In short, government ownership plus an effective AC tends to produce more and more reliable CSR reporting than government ownership with a weak AC.

On the other hand, studies continue to document that AC effectiveness raises sustainability disclosure quality (Meqbel et al., 2025, Arslan et al., 2024, Velte, 2024), it's documented that the AC's independence, activity, and expertise can partially offset weak disclosure preferences among certain institutions, preserving or improving CSR disclosure (Dwekat et al., 2020, Arslan et al., 2024, Velte, 2024, Meqbel et al., 2025) . That setting, AC leadership attributes of independence, expertise, and size showed a clear positive association with CSR reporting(Qaderi et al., 2023). Together, these results indicate that when ownership structure does not, by itself, push CSR disclosure, effective ACs become the pivotal driver of non-financial reporting quality. Arab evidence shows foreign and government owners associate with more extensive CSR disclosure(Al Fadli et al., 2022) , while institutions can be neutral or even disclosure-averse in certain European samples(Meqbel et al., 2025). The joint configuration that maximizes disclosure therefore looks like, foreign or state ownership providing pressure or public interest scrutiny, plus an AC that is independent, expert, and active. Under that combination, CSR reports are more likely to be broader and better (Al Fadli et al., 2022, Dwekat et al., 2022, Velte, 2024, Qaderi et al., 2023). By contrast, high institutional ownership without a strong AC risks thinner or more selective sustainability reporting (Meqbel et al., 2025).

Empirically, on EGX firms, (Soliman et al., 2013) find that foreign ownership is positively associated with broader CSR disclosure, while (Samaha et al., 2012) show that audit related governance, including the attributes of ACs, is linked to more extensive voluntary CG disclosure. More recently, for Egypt's segment disclosure (2015–2023), (Abdelhak and Hussainey, 2025) find that AC existence, board independence, and selected audit-quality attributes are among the main drivers of richer disclosure consistent with prioritizing AC effectiveness so that ownership incentives do not dictate disclosure quality. So, AC is the moderator that converts ownership-level incentives into observable CSR disclosure outcomes(Fuadah et al., 2022, Nguyen, 2025). Empirical results from both Europe and Arab markets consistently show that AC independence, expertise, and activity are the attributes most often linked to stronger sustainability reporting (Dwekat et al., 2020, Qaderi et al., 2020, Velte, 2024, Desoky, 2025, Karim et al., 2024) . Accordingly, Egyptian firms targeting international publication-quality CSR reporting should design ACs for independence and competence, document meeting frequency, and publicly evidence the committee's oversight of non-financial information. As a result, we propose our fifth hypothesis:

***H5.* Audit committee effectiveness moderates the relationship between ownership structure and CSR disclosure**

1. Research Methodology

4.1 Sample & Data Collection

Our analysis includes 68 non-financial firms listed on the Egyptian Stock Exchange (EGX), which operate under the ESG disclosure mandate established by the FRA following the 2021 climate-laws.org. The emphasis on non-financial companies seeks to provide a uniform regulatory environment and disclosure framework, given that banks and other financial organizations normally conform to different reporting standards. The analysis will examine a recent period, including the years just prior to and following the implementation of mandatory ESG reporting, to identify changes and trends in CSR disclosure practices. In this context, ownership structure variables will be quantified for each firm-year observation, delineating the percentage of shares owned by institutional investors, foreign investors, managerial insiders, and the government. Additionally, ACE will be assessed using established standards found in the literature on corporate governance, these standards include the committee's independence, experience, size, and frequency of meetings, as revealed in the 340 annual reports from 2020 to 2024.

4.2 Measurements of Variables

4.2.1 Dependent Variable

The dependent variable in our research is CSR disclosure, which has been thoroughly evaluated in the literature through content analysis of corporate reports. Recent studies formulate disclosure indexes by identifying relevant CSR concerns and assessing the extent of information provided. (Garanina and Kim, 2023, Sampong et al., 2018) manually gathered data from annual reports and created indices of 22 disclosure items that address themes including environment, community, and workplace. Each item was assigned a code on an ordinal scale, with 0 indicating no disclosure, 1 signifying a broad mention, 2 representing qualitative detail, and 3 denoting quantitative evidence; the scores were then averaged to create a comprehensive CSR disclosure index (Soliman et al., 2013, El-Deeb et al., 2023).Other studies operationalize CSR disclosure through internationally recognized frameworks such as (GRI), (Thuy et al., 2021) conducted their content analysis in accordance with the GRI Standards, categorizing the disclosure of each suggested item as a binary variable (1 for revealed, 0 for absent). The sum of these items constituted the disclosure score, with elevated values indicating enhanced transparency and improved conformity with international sustainability standards. The GRI-based approach offers the benefit of enhancing cross-country comparability and aligning corporate reporting with global best practices.

In Egypt, current study reveals that enterprises are increasingly reporting ESG characteristics in accordance with international norms following FRA Decrees Nos. 107-108 of 2021. In line with these approaches, the current study calculates CSR disclosure as a percentage score by dividing the number of CSR items disclosed by the total possible disclosure items, the score is then normalized, yielding a ratio or percentage ranging from 0% (no disclosure) to 100% (full disclosure). A higher percentage score reflects greater compliance and transparency, whereas lower scores indicate partial or minimal adherence. Hence, this approach eliminates bias induced by discrepancies in the size of the disclosure checklist and allows for comparability across organizations and reporting years. This method is widely used in CSR disclosure research(Khayal and Srour, 2024, El-Deeb et al., 2023)because it allows for a relative measure rather than an absolute count. As a result, this metric not only standardizes measurement across the sample but also aligns the study with international academic practice and regulatory expectations.

4.2.2 Independent Variables

Our independent variables are the ownership structure patterns (institutional, managerial, foreign and state), consistent with prior literature these variables are operationalized as the proportion of shares held by each ownership relative to the firm’s total outstanding shares (Khan et al., 2022, Uyar et al., 2023). Measuring ownership as a percentage provides a standardized and comparable basis across firms with different capital sizes, Institutional ownership (INSOWNE) is quantified as the percentage of shares owned by institutional investors (Arslan et al., 2024). Managerial ownership (MANOWN) denotes the proportion of shares owned by executive directors, senior management, and board members. Foreign ownership (FOROWN) is calculated as the proportion of shares owned by non-domestic investors(Chowdhury et al., 2021). Government ownership (GOVOWN) represents the percentage of shares held directly by the government or related state-owned entities(Ntim and Soobaroyen, 2013, Habbash, 2016).

4.2.3 Moderating Variable

The moderating variable is audit committee effectiveness (ACE), which denotes the ability of a firm's AC to supervise financial reporting, internal controls, and, increasingly, non-financial disclosures such as CSR and ESG reporting(DeZoort et al., 2002, Qaderi et al., 2023). In previous literature, ACE has been defined through various individual attributes, the most commonly utilized being, committee size, quantified by the number of directors on AC; independence, generally represented by the ratio of non-executive or external directors on the committee; financial expertise, frequently indicated by the presence or percentage of members possessing accounting or finance qualifications; and meeting frequency, represented by the annual number of meetings conducted by the committee. Certain studies have suggested further metrics, like member diversity and tenure(Purwiyanti and Laksito, 2022). Nonetheless, these four characteristics (size, independence, expertise, and meeting frequency) continue to be the principal proxies in governance studies(Rochmah Ika and Mohd Ghazali, 2012, Velte, 2024). To encapsulate ACE more thoroughly, numerous researchers have amalgamated these individual metrics into a composite index, whereby each attribute is evaluated against best-practice standards or regulatory mandates, and firms accrue points upon meeting established thresholds(DeZoort et al., 2002, Ika et al., 2017).

Empirical research indicates that elevated ACE index scores correlate with superior financial reporting quality, increased compliance, and augmented credibility of CSR disclosures(Velte, 2024). In this study, ACE measure by using a composite index that includes the four qualities of (size, independence, expertise, and meeting frequency), this multidimensional measure is selected because it provides a comprehensive view of committee effectiveness, overcomes the limits of using a single proxy, and is consistent with accepted approaches in governance literature. Given Egypt's statutory ESG reporting requirements, using a composite ACE index enables the study to systematically evaluate whether more effective audit committees attenuate the association between ownership structures and CSR disclosure.

4.2.4 Control Variables

This study analyzes the variable controls that are well recognized and directly relevant to disclosure and governance results, firm profitability is governed by return on assets (ROA) and return on equity (ROE), as more prosperous enterprises are likely to have the resources and incentive to engage in CSR disclosure (Velte, 2021). Financial leverage (LEV), defined as the ratio of total debt to total assets, is included to assess the influence of capital structure, as firms with elevated leverage may demonstrate unique patterns in disclosure and performance(Tarighi et al., 2022). Board size (BSIZE) is accounted for, since larger boards may offer increased diversity of perspectives but may also encounter coordination issues that impact governance efficacy(Uyar et al., 2023). Moreover, the market-to-book ratio (MTB) acts as an indicator of companies' growth potential and market valuation, both of which may affect disclosure incentives(Khayal and Srour, 2024). The presence of a CSR committee (CSRC) is acknowledged, as this specialized governance structure can significantly enhance the quality, trustworthiness, and comprehensiveness of CSR reporting(Qaderi et al., 2023). The assessment of the dependent, independent, moderating, and control variables involved in the study is summarized in Table (1).

Table. 1 Summary of variable measures

CSR Disclosure (CSR)	Score is the percentage of disclosed CSR index items compared to total items.
Institutional Ownership (INSOWN)	Percentage of shares held by institutional investors
Managerial Ownership (MANOWN)	Executive directors, managers, and board members' proportion of shares.
Foreign Ownership	Foreign shareholder percentage.

(FOROWN)	
Government Ownership (GOVOWN)	Percentage of government or state-owned shares.
Audit Committee Effectiveness (ACE)	The composite index considers committee size, independence, financial expertise, and meeting frequency.
Return on Assets (ROA)	Divide net income by total assets.
Return on Equity (ROE)	Total equity/net income.
Leverage (LEV)	Total debt/assets.
Board Size (BSIZE)	Total board directors.
Market-to-Book Ratio (MTB)	Market equity divided by book equity.
CSR Committee (CSRC)	Dummy variable 1 if firm has dedicated CSR/ESG committee, 0 otherwise.

4.3 Model Specification

Our study employs both standard panel regressions and two-stage least squares (2SLS) regressions to examine the relationship between ownership structures, (ACE), and CSR disclosure, to test direct and moderating effects while also addressing potential endogeneity problems.

4.3.1 Standard Regression Models

The first model tests the direct effect of ownership structure on CSR disclosure, the dependent variable is CSR disclosure , while (INSOWN), (MANOWN), (FOROWN), and (GOVOWN) are the dependent variable, also the control variables include (FSIZE), profitability (ROA, ROE), leverage (LEV), board size (BSIZE), market-to-book ratio (MTB) and CSR committee (CSRC).

$$CSR\_{it} = \alpha + \beta_1\ INSOWN\_{it} + \beta_2\ MANOWN\_{it} + \beta_3\ FOROWN\_{it} + \beta_4\ GOVOWN\_{it} + \beta_5\ FSIZE\_{it} + \beta_6\ ROA\_{it} + \beta_7\ ROE\_{it} + \beta_8\ LEV\_{it} + \beta_9\ BSIZE\_{it} + \beta_{10}\ MTB\_{it} + {}_{\beta 11}\ CSRC\_{it}\ \varepsilon\_{it} \quad \textbf{(1)}$$

The second model incorporates ACE as both a direct predictor of CSR disclosure and as a moderator of the ownership and CSR relationship through interaction terms.

$CSR\_{it} = \alpha + \beta_1\ INSOWN\_{it} + \beta_2\ MANOWN\_{it} + \beta_3\ FOROWN\_{it} + \beta_4\ GOVOWN\_{it} + \beta_5\ ACE\_{it} + \beta_6\ (ACE \times INSOWN)\_{it} + \beta_7\ (ACE \times MANOWN)\_{it} + \beta_8\ (ACE \times FOROWN)\_{it} + \beta_9\ (ACE \times GOVOWN)\_{it} + \beta_{10}\ FSIZE\_{it} + \beta_{11}\ ROA\_{it} + \beta_{12}\ ROE\_{it} + \beta_{13}\ LEV\_{it} + \beta_{14}\ BSIZE\_{it} + \beta 15\ MTB\_{it} + \beta 16\ CSRC\_{it} + \varepsilon\_{it}$ **(2)**

4.3.2 2SLS Regression Models

This study utilizes two-stage least squares (2SLS) estimation to mitigate potential endogeneity in ownership variables, specifically reversing causality and bias due to omitted variables.. First stage, Ownership variables are regressed on instrumental variables (lagged ownership, industry) and firm-level controls. This stage generates predicted values (INSOWN^, MANOWN^, FOROWN^, GOVOWN^) that are uncorrelated with the error term.

$INSOWN\_it = \pi 0 + \pi 1\ Z\_it + \pi 2\ CONTROLS\_it + u\_it$ (**3a**)
$MANOWN\_it = \pi 0 + \pi 1\ Z\_it + \pi 2\ CONTROLS\_it + u\_it$ (**3b**)
$FOROWN\_it = \pi 0 + \pi 1\ Z\_it + \pi 2\ CONTROLS\_it + u\_it$ (**3c**)
$GOVOWN\_it = \pi 0 + \pi 1\ Z\_it + \pi 2\ CONTROLS\_it + u\_it$ (**3d**)

Then, the fitted values from the first stage replace the original ownership variables in the CSR disclosure regressions.

$CSR\_it = \alpha + \beta 1\ INSOWN\hat{}\_it + \beta 2\ MANOWN\hat{}\_it + \beta 3\ FOROWN\hat{}\_it + \beta 4\ GOVOWN\hat{}\_it + \beta 5\ ACE\_it + \beta 6\ (ACE \times INSOWN\hat{})\_it + \beta 7\ (ACE \times MANOWN\hat{})\_it + \beta 8\ (ACE \times FOROWN\hat{})\_it + \beta 9\ (ACE \times GOVOWN\hat{})\_it + CONTROLS + YEAR\ DUMMIES + \varepsilon\_it$ **(4)**

1. Empirical Results & Discussion

5.1 Descriptive Statistics

Descriptive statistics in Table (2) provide insights into (OWNE_STRUC), (ACE) and (CSR) of Egyptian non-financial listed firms, (INSOWEN) has the highest average (29.67%), reflecting the strong presence of local investment funds in the Egyptian capital market. This aligns with the post-2016 reforms of the Egyptian Exchange (EGX) that promoted a more proactive monitoring role for institutional investors. Furthermore, (MANOWEN) averages 19.90%, indicative of the customary dominance of founder led enterprises in Egypt, where concentrated managerial stakes are frequently employed to uphold control. In this context (FOROWEN) records a mean of 22.07%, reflecting the partial openness of the Egyptian market to international investors, especially after the economic reforms of 2016 and FRA Decrees (107 & 108 of 2021) that enhanced disclosure standards. In addition that, (GOVOWEN) averages 10.32%, which indicates the state's continuing role as a significant shareholder in strategic sectors such as fertilizers, energy, and telecommunications. Furthermore, Corporate Social Responsibility (CSR) disclosure remains modest (mean = 0.388), confirming prior evidence that CSR reporting in Egypt is still in an early stage of institutionalization and often driven by external legitimacy pressures rather than integrated corporate strategy. (ACE) averages 0.545, suggesting partial compliance with the mandatory governance reforms introduced by the Egyptian Financial Regulatory Authority (FRA), although there is still variation in how firms structure and empower their audit committees.

For control variables , (FSIZE) shows high variation, consistent with the dual structure of the Egyptian market where large state-affiliated enterprises and multinational subsidiaries coexist with smaller businesses; (ROA and ROE) display wide dispersion, reflecting macroeconomic volatility, currency fluctuations, and sectorial differences; Lev(mean = 0.599) suggests that Egyptian firms are relatively dependent on debt financing, a common feature in emerging markets with underdeveloped equity financing channels.(BSIZE) averages approximately 10 members,

aligning with Egyptian corporate governance regulations that advocate for a minimum of seven directors; (MTB) mean of 1.53 underscores considerable variability in investor valuation of Egyptian enterprises, indicative of disparities in transparency and growth potential. Ultimately, fifty percent of the surveyed enterprises possess a CSR committee (CSRC = 0.5), indicative of recent regulatory focus on sustainability and non-financial reporting, but this practice is not yet ubiquitous. Overall, these results illustrate that the Egyptian context is characterized by mixed ownership patterns, moderate ACE

Table.2 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
INSOWEN	340	29.665	11.763	10.202	49.602
MANOWEN	340	19.901	8.981	5.325	34.992
FOROWEN	340	22.07	9.997	5.162	39.891
GOVOWEN	340	10.32	5.982	.128	19.959
CSR	340	.388	.192	0	1
ACE	340	.545	.145	.3	.798
FSIZE	340	22.096	2.2	14.729	27.799
ROA	340	.061	.106	-.258	.38
ROE	340	.102	.171	-.427	.752
LEV	340	.599	.192	0	1
BSIZE	340	9.935	2.951	4	18
MTB	340	1.531	.507	.007	2.783
CSRC	340	.5	.501	0	1

5.2 Correlation Analysis

The correlation matrix in Table (3) demonstrates multiple significant correlations among (OWNE_STRUC), ACE, CSR, and business characteristics within the Egyptian setting. CSR disclosure demonstrates substantial and affirmative connections with (INSOWEN) ($r = 0.547$, $p < 0.01$), (MANOWEN) ($r = 0.345$, $p < 0.01$), and (FOROWEN) ($r = 0.235$, $p < 0.01$). This indicates that increased ownership concentration by these groups correlates with enhanced CSR disclosure, consistent with the notion that institutional and international investors, along with managers possessing equity stakes, may drive enterprises towards greater openness and legitimacy. Significantly, (GOVOWEN) ($r = 0.161$, $p < 0.01$) exhibits a robust link with CSR, highlighting the regulatory emphasis in Egypt on sustainability disclosure for state influenced firms in critical industries. Furthermore, CSR disclosure has a substantial correlation with ACE ($r = 0.688$, $p < 0.01$) and the existence of CSRC ($r = 0.799$, $p < 0.01$), underscoring the essential function of governance frameworks in promoting non-financial reporting. The strength of these relationships suggests that institutional monitoring bodies are vital for advancing CSR programs, particularly in a regulatory environment like Egypt, where external enforcement remains nascent.

Regarding the control variables, (FSIZE) shows a positive and significant association with CSR ($r = 0.246$, $p < 0.01$), which aligns with the notion that larger firms are subject to greater public scrutiny and therefore have stronger incentives to disclose social and environmental information. Similarly, profitability measures, including (ROA) ($r = 0.299$, $p < 0.01$) and (ROE) ($r = 0.335$, $p < 0.01$), are positively correlated with CSR. This finding indicates that financially stronger firms are more capable of allocating resources to CSR reporting. In contrast, (LEV) is negatively correlated with CSR ($r = -0.158$, $p < 0.01$), suggesting that highly indebted firms may prioritize meeting financial obligations over engaging in discretionary social activities, a pattern that reflects the financing constraints often observed in emerging markets. (BSIZE) ($r = 0.458$, $p < 0.01$) and (MTB) ($r = 0.250$, $p < 0.01$) also exhibit positive relationships with CSR, implying that larger boards and firms with higher market valuations are associated with stronger disclosure practices. Moreover, the strong positive association between the existence of CSR committees (CSRC) and CSR disclosure ($r = 0.799$, $p < 0.01$) underscores the pivotal role of such committees in driving sustainability reporting in Egypt, particularly in light of recent FRA requirements. Taken together, these results highlight that, beyond firm-level controls, both ownership structures and (ACE) play a considerable role in shaping CSR disclosure practices in the Egyptian context.

Table.3 Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) INSOWEN	1.000												
(2) MANOWEN	-0.018 (0.743)	1.000											
(3) FOROWEN	0.005 (0.926)	0.049 (0.371)	1.000										
(4) GOVOWEN	-0.020 (0.717)	0.012 (0.820)	-0.022 (0.692)	1.000									
(5) ACE	0.055 (0.311)	-0.009 (0.865)	-0.100 (0.066)	0.008 (0.889)	1.000								
(6) CSR_	0.547 (0.000)	0.345 (0.000)	0.235 (0.000)	0.161 (0.003)	0.688 (0.000)	1.000							
(7) FSIZE	0.102 (0.061)	0.097 (0.074)	0.138 (0.011)	0.109 (0.045)	0.132 (0.015)	0.246 (0.000)	1.000						
(8) ROA	0.149 (0.006)	0.120 (0.027)	0.030 (0.586)	0.034 (0.527)	0.240 (0.000)	0.299 (0.000)	-0.033 (0.543)	1.000					
(9) ROE	0.115 (0.035)	0.098 (0.070)	0.066 (0.224)	0.063 (0.247)	0.264 (0.000)	0.335 (0.000)	-0.042 (0.436)	0.116 (0.033)	1.000				

(10) LEV	-0.064	-0.132	-0.115	-0.022	-0.041	-0.158	-0.027	-0.027	-0.097	1.000			
	(0.241)	(0.015)	(0.034)	(0.684)	(0.456)	(0.003)	(0.620)	(0.617)	(0.075)				
(11) BSIZE	0.256	0.182	0.098	0.041	0.308	0.458	0.068	0.236	0.086	-0.118	1.000		
	(0.000)	(0.001)	(0.072)	(0.447)	(0.000)	(0.000)	(0.213)	(0.000)	(0.114)	(0.029)			
(12) MTB	0.125	0.081	0.113	0.101	0.117	0.250	0.103	0.093	0.140	-0.113	0.058	1.000	
	(0.021)	(0.134)	(0.037)	(0.062)	(0.031)	(0.000)	(0.059)	(0.088)	(0.010)	(0.037)	(0.283)		
(13) CSRC	0.451	0.225	0.178	0.091	0.606	0.799	0.191	0.179	0.246	-0.096	0.303	0.138	1.000
	(0.000)	(0.000)	(0.001)	(0.093)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.076)	(0.000)	(0.011)	

The variance inflation factor (VIF) results reported in Table (4) demonstrate that multicollinearity does not represent a serious econometric concern in the estimated models. The mean VIF is 1.49, which falls substantially below the conventional diagnostic thresholds of 10 and even the more conservative cut-off of 5.The highest observed values pertain to CSRC (3.01) and ACE (2.60), yet both remain well within acceptable bounds. Ownership structure variables, namely institutional, managerial, foreign, and government ownership, display relatively low VIFs, all below 1.80. In the same vein, the firm-level control variables (ROA , ROE), (FSIZE), (MTB), (LEV), and (BSIZE) all display VIF values that are very close to unity. This result confirms that distinct aspects of firm performance, structure, and valuation are properly captured. Such evidence further reinforces the reliability of the regression specification, as it rules out concerns of inflated standard errors or biased coefficient estimates arising from multicollinearity.

Table.4 Variance Inflation Factor

Variable	VIF	1/VIF
CSRC	3.01	0.332311
ACE	2.60	0.384679
INSOWEN	1.76	0.567872
BSIZE	1.30	0.767934
MANOWEN	1.29	0.773081
FOROWEN	1.28	0.781871
ROE	1.15	0.870822
ROA	1.15	0.870930
FSIZE	1.11	0.899866
MTB	1.09	0.918368
GOVOWEN	1.07	0.933408
LEV	1.05	0.949913
Mean VIF	1.49	

5.3 Baseline regression results

The regression results in Table (5) furnish comprehensive data on the determinants affecting CSR disclosure. INSOWEN (Coef. = 0.004, $p < 0.01$) exhibits a statistically significant beneficial impact on CSR reporting in relation to ownership. This suggests that institutional investors act as monitoring agents who encourage greater corporate transparency, thereby lending support to *H1*. Prior studies have similarly demonstrated that institutional investors enhance CSR disclosure in both developed and emerging markets (Qaderi et al., 2023, Velte, 2024). Likewise, MANOWEN (Coef. = 0.003, $p < 0.01$) demonstrates a substantial positive correlation, suggesting that stock holdings by managers facilitate the alignment of their incentives with long term value generation and the interests of a wider range of stakeholders, this verifies *H2*. This finding aligns with empirical evidence indicating that managerial ownership enhances enterprises' commitment to sustainability disclosure (Arslan et al., 2024, Meqbel et al., 2025).

Additionally, FOROWEN (Coef. = 0.002, p < 0.01) has a beneficial influence, underscoring the contribution of international investors in integrating global disclosure requirements into the Egyptian market. This provides evidence in support of *H3* and accords with studies showing that foreign shareholders exert pressure for higher-quality CSR reporting to match international practices (Aziz and Haron, 2021, Farah Freihat and Al-Hiyari, 2025). Finally, GOVOWEN (Coef. = 0.003, p < 0.01) is significantly related to CSR, reflecting the continuing influence of state shareholdings in strategic sectors, which validates *H4*. This is in line with previous findings that government controlled firms are more inclined to disclose CSR information to reinforce legitimacy and comply with regulatory expectations(Desoky, 2025, El-Deeb et al., 2023) .

The control variables reported in Table (5) provide additional support to the model, (FSIZE) (Coef. = 0.007, p < 0.01) demonstrates a significant positive linkage with CSR, indicating that larger companies are subject to greater public visibility and thus have stronger incentives to disclose non-financial information, This observation is consistent with evidence from Egypt and other Arab markets (Meqbel et al., 2025). Profitability, proxied by (ROA) (Coef. = 0.165, p < 0.01) and (ROE) (Coef. = 0.137, p < 0.01), is also positively related to CSR, suggesting that financially successful firms can dedicate more resources to sustainability initiatives. Such results mirror prior research on the profitability and CSR nexus in emerging markets(Khan et al., 2022, Farah Freihat and Al-Hiyari, 2025). Moreover, (BSIZE) (Coef. = 0.010, p < 0.01) emerges as an influential factor, as larger boards tend to improve oversight and promote broader disclosure practices, which is in line with governance literature (Dwekat et al., 2020, Velte, 2024). Likewise, the (MTB) (Coef. = 0.028, p < 0.01) exerts a positive effect, implying that firms with greater growth prospects and market value are more inclined to legitimize themselves through CSR reporting(Qaderi et al., 2023). Conversely, (LEV) (Coef. = -0.017) carries a negative but statistically insignificant coefficient, suggesting that financial obligations do not impose systematic restrictions on disclosure in the Egyptian context, a finding that echoes the evidence of (Khan et al., 2022).

Moreover, (CSRC) has the strongest positive impact of all predictors, showing that firms with dedicated committees for sustainability matters are far more likely to integrate CSR into their reporting practices. This finding directly supports the hypothesis concerning CSR committee presence and aligns with recent FRA governance reforms as well as empirical studies. Table (5) exhibits substantial explanatory power ($R^2 = 0.808$; F-statistic = 105.88, $p < 0.001$). These results empirically validate *H1–H4* regarding ownership traits, while also confirming the expected role of firm characteristics and governance structures in shaping CSR disclosure. The evidence indicates that ownership concentration and robust monitoring procedures are essential factors in enhancing transparency within Egyptian listed companies.

Table 5. OLS regression results for owner structure and CSR disclosure

CSR_pct	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
INSOWEN	.004	0	8.40	0	.003	.005	***
MANOWEN	.003	.001	6.06	0	.002	.005	***
FOROWEN	.002	0	3.76	0	.001	.003	***
GOVOWEN	.003	.001	3.51	.001	.001	.004	***
FSIZE	.007	.002	2.88	.004	.002	.011	***
ROA	.165	.046	3.62	0	.075	.255	***
ROE	.137	.029	4.74	0	.08	.194	***
LEV	-.017	.024	-0.74	.462	-.064	.029	
BSIZE	.01	.002	6.06	0	.007	.014	***
MTB	.028	.009	3.03	.003	.01	.046	***
CSRC	.197	.01	20.47	0	.178	.216	***
Constant	-.265	.058	-4.58	0	-.379	-.152	***

Mean dependent var	0.388	SD dependent var	0.192
R-squared	0.808	Number of obs	340

F-test	105.877	Prob > F	0.000
Akaike crit. (AIC)	-694.447	Bayesian crit. (BIC)	-648.499

*** p<.01, ** p<.05, * p<.1

The regression outcomes reported in Table (6) evaluate the moderating influence of (ACE) on the relationship between ownership structure and CSR disclosure. The estimates reveal that institutional ownership (INSOWN) (Coef. = 0.001, p < 0.01), managerial ownership (MANOWN) (Coef. = 0.001, p < 0.01), and foreign ownership (FOROWN) (Coef. = 0.001, p < 0.05) remain significant determinants of CSR disclosure, while government ownership (GOVOWN) (Coef. = 0.000, p > 0.05) appears statistically insignificant. More importantly, the interaction effects between ownership variables and ACE are consistently positive and highly significant. For example, the interaction between INSOWN and ACE (Coef. = 0.012, p < 0.01) indicates that ACE reinforce the beneficial influence of institutional shareholders on CSR engagement. This evidence is consistent with prior studies emphasizing the role of institutional investors in strengthening transparency through active AC involvement (Qaderi et al., 2020, Qaderi et al., 2023, Velte, 2025). Similarly, the interaction MANOWN × ACE (Coef. = 0.011, p < 0.01) suggests that audit committee effectiveness boosts the willingness of managers with equity stakes to engage in CSR initiatives, confirming the proposed moderating role of ACE in this relationship(Arslan et al., 2024) . Moreover, the interaction of FOROWN and ACE (Coef. = 0.009, p < 0.01) is also positive and significant, showing that foreign investors' influence on CSR disclosure is magnified when robust AC are present, this finding resonates with prior evidence (Aziz and Haron, 2021), which underscores the governance mechanisms that convert foreign ownership into stronger sustainability practices.

Furthermore, (GOVOWEN_ACE) has a notable moderating effect (Coef. = 0.009, p < 0.01), even if the direct influence of (GOVOWEN) is statistically insignificant. The presence of an ACE facilitates state owned enterprises in adhering to CSR disclosure more stringently. This research corroborates results in Arab markets indicating that state ownership, along with robust governance frameworks, enhances legitimacy and sustainability reporting (El-Deeb et al., 2023, Desoky, 2025). The control variable FSIZE is positively significant (Coef. = 0.001, $p < 0.05$), indicating that larger firms are more inclined to share CSR information due to their visibility and susceptibility to stakeholder pressures. Also, (MTB) is both positive and significant (Coef. = 0.003, $p < 0.01$), suggesting that enterprises with elevated market valuations are more likely to participate in CSR reporting to maintain legitimacy.

Conversely, (ROA) is negative and statistically insignificant (Coef. = –0.004, $p > 0.05$), indicating that accounting-based profitability does not inherently lead to enhanced (CSR) participation. ROE exhibits a slight negative correlation (Coef = –0.009, $p < 0.1$), suggesting that companies prioritizing shareholder profits may neglect social activities. Additional controls, such as (LEV), (BSIZE), and the existence of CSRC, are statistically insignificant, suggesting that these factors do not significantly influence disclosure in this model. The findings strongly corroborate H5, indicating that (ACE) considerably moderates the connection between ownership and CSR. The model exhibits remarkable explanatory power (R^2 = 0.996; F-statistic = 5327.69, $p < 0.001$), highlighting the significant influence of ACs on improving CSR disclosure within the Egyptian corporate framework.

Table 6. OLS regression results for moderating effect of ACE on CSR disclosure

CSR_pct	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
INSOWEN	.001	0	5.26	0	.001	.002	***
MANOWEN	.001	0	4.24	0	.001	.002	***
FOROWEN	.001	0	2.05	.042	0	.001	**
GOVOWEN	0	.001	-0.49	.623	-.001	.001	
ACE	.032	.023	1.38	.168	-.013	.077	

INSOWN_ACE	.012	0	26.55	0	.011	.013	***
MANOWN_ACE	.011	.001	20.78	0	.01	.012	***
FOROWN_ACE	.009	0	19.20	0	.008	.01	***
GOVOWN_ACE	.009	.001	10.49	0	.008	.011	***
FSIZE	.001	0	2.42	.016	0	.002	**
ROA	-.004	.007	-0.57	.566	-.018	.01	
ROE	.009	.005	1.94	.054	0	.019	*
LEV	-.004	.004	-0.98	.33	-.011	.004	
BSIZE	0	0	0.38	.704	0	.001	
MTB	.004	.002	2.51	.013	.001	.007	**
CSRC	.003	.003	1.04	.297	-.002	.008	
Constant	-.207	.016	-13.00	0	-.239	-.176	***

Mean dependent var	0.388	SD dependent var	0.192
R-squared	0.996	Number of obs	340
F-test	5327.685	Prob > F	0.000
Akaike crit. (AIC)	-1962.804	Bayesian crit. (BIC)	-1897.712

**** p<.01, ** p<.05, * p<.1*

Figure (1), illustrates the structural model estimated through SmartPLS.4, connecting ownership variables, ACE, and CSR disclosure, together with firm-level controls, the illustration indicates that ownership structure directly affect CSR disclosure, whereas ACE serves as a significant moderating factor that enhances these impacts. This visual representation corroborates the regression findings, affirming that institutional, management, foreign, and government ownership favorably influences CSR disclosure, with their effect amplified by the presence ACE.

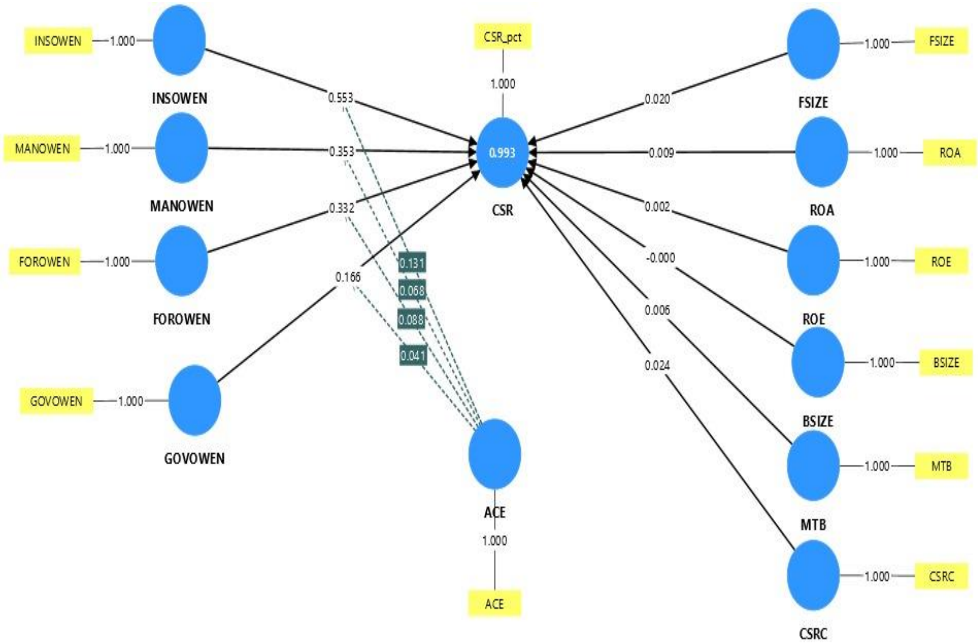

Figure (1): Structural Model of Ownership, ACE, and CSR Disclosure (SmartPLS Output)

5.4 Instrumental variable (2SLS) analysis

The method of (2SLS) provides more reliable and consistent estimates than Ordinary Least Squares (OLS), ensuring that the reported associations are not driven by biased specifications. Such, the effective sample used in the 2SLS regressions 272 due to the use of lagged ownership variables as instruments, which naturally removes the first year of each firm's data. The results of (2SLS) reported in Table (7) confirm that ownership structures have a positive and statistically significant effect on CSR disclosure. In Model (1), all ownership variables are positive and significant, (INSOWN_hat = 0.0101**), (MANOWN_hat = 0.0225**), (FOROWN_hat = 0.0185**), and (GOVOWN_hat = 0.0242**). Among the firm-level controls, ROA (0.256**) and ROE (0.180***) show significant positive associations with CSR disclosure, while leverage (LEV = −0.0125) is statistically insignificant, the explanatory power of this model is high (R^2 = 0.751; F = 32.61), indicating a well specified estimation. In Model (2), which incorporates (ACE), the results become stronger. ACE itself exerts a strong positive effect on CSR disclosure (0.740***). Also, the interaction terms further demonstrate that ACE magnifies the role of ownership structures,(ACE × INSOWN_hat (0.305***), ACE × FOROWN_hat (0.210**), and ACE × GOVOWN_hat (0.203**) are all positive and significant, while ACE × MANOWN_hat remains positive though weaker. Regarding the controls, ROE (0.0949**) and the CSR committee variable (CSRC = 0.163***) continue to be significant. The explanatory power of this model improves markedly, with $R^2 = 0.798$ and the F-statistic rising to 61.12, Instrument validity tests (KP LM = 1.460; Shea's $R^2 = 0.4721$) confirm the robustness of the estimation.

Table 7. 2SLS Regression Results: With and Without ACE Interaction.

	(1) Without ACE Interaction	(2) With ACE Interaction
INSOWN_hat	0.0101**	0.0008**
	(0.00511)	(0.0015)
MANOWN_hat	0.0225**	0.0016**
	(0.0112)	(0.0042)
FOROWN_hat	0.0185**	0.0125**
	(0.00934)	(0.0048)
GOVOWN_hat	0.0242**	0.0080**
	(0.010)	(0.0020)
FSIZE	0.0158	0.00886*
	(0.0101)	(0.00456)
ROA	0.256**	0.156**
	(0.127)	(0.0702)
ROE	0.180***	0.0949***
	(0.0591)	(0.0362)
LEV	-0.0125	-0.0426
	(0.0957)	(0.0421)
BSIZE	0.0115*	0.00856**
	(0.00591)	(0.00332)
MTB	0.0572**	0.0366**
	(0.0263)	(0.0162)
CSRC	0.226***	0.163***

	(0.0648)	(0.0391)
ACE		0.740*
		(0.385)
ACE_INSOWN_hat		0.305***
		(0.0780)
ACE_MANOWN_hat		0.0342**
		(0.0128)
ACE_FOROWN_hat		0.210**
		(0.0199)
ACE_GOVOWN_hat		0.0238**
		(0.0331)
Constant	0.0570	0.328
	(0.214)	(2.45)
Year FE	Included	Included
Industry FE	Included	Included
Instruments	Lagged ownership	Lagged ownership
Observations	272	272
R-squared	0.751	0.793
F-statistic	32.61	61.12
Instrument F-test	11.95	11.95
p-value, F-test	0.053	0.053
KP LM	1.460	1.460
p-value, KP LM	0.027	0.027
Shea's R^2	0.3512	0.4721

, Fitted values used for ownership variables.

CSR_pct is the dependent variable.

* p<0.10, ** p<0.05, *** p<0.01

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

5.5 Robustness Checks

The random effects GLS regression results presented in Table (8) validate the consistency of the baseline OLS estimates. Ownership variables, INSOWN (Coef. = 0.004, $p < 0.01$), MANOWN (Coef. = 0.003, $p < 0.01$), FOROWN (Coef. = 0.002, $p < 0.01$), and GOVOWN (Coef. = 0.003, $p < 0.01$) remain significant and positively associated with CSR, thus reinforcing support for hypotheses H1 through H4. With respect to control variables, (FSIZE) (Coef. = 0.007, $p < 0.01$), return on assets (ROA) (Coef. = 0.170, $p < 0.01$), and return on equity (ROE) (Coef. = 0.131, $p < 0.01$) indicate that larger and more profitable firms tend to provide higher levels of CSR disclosure. Similarly, (BSIZE) (Coef. = 0.010, $p < 0.01$), (MTB) (Coef. = 0.028, $p < 0.01$), and the existence of CSRC (Coef. = 0.198, $p < 0.01$) demonstrate strong and significant effects, underscoring the role of governance mechanisms and market valuation in advancing transparency. In contrast, (LEV) is negative yet statistically insignificant, implying that financial risk does not systematically restrict CSR engagement in the Egyptian context. The explanatory power of the GLS model is also substantial ($R^2 = 0.808$; Chi-square = 1391.50, $p < 0.001$), with both within firm variation ($R^2 = 0.818$) and between-firm variation ($R^2 = 0.768$) being well accounted for. Collectively, these findings affirm the reliability of the OLS outcomes and provide further evidence of the stability of the ownership and CSR linkage under the RE GLS framework.

Table 8. RE GLS regression with O/ AR (1

CSR_pct	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
INSOWEN	.004	0	8.25	0	.003	.005	***
MANOWEN	.003	.001	6.36	0	.002	.005	***
FOROWEN	.002	0	3.64	0	.001	.003	***
GOVOWEN	.003	.001	3.25	.001	.001	.004	***
FSIZE	.007	.002	3.00	.003	.002	.011	***
ROA	.17	.046	3.70	0	.08	.26	***
ROE	.131	.028	4.63	0	.075	.186	***
LEV	-.023	.025	-0.93	.35	-.071	.025	

BSIZE	.01	.002	5.93	0	.007	.013	***
MTB	.028	.009	2.97	.003	.01	.047	***
CSRC	.198	.011	17.28	0	.176	.221	***
Constant	-.256	.055	-4.66	0	-.364	-.148	***

Mean dependent var	0.388	SD dependent var	0.192
Overall r-squared	0.808	Number of obs	340
Chi-square	1391.496	Prob > chi2	0.000
R-squared within	0.818	R-squared between	0.768

**** p<.01, ** p<.05, * p<.1*

The results presented in Table (9) examine the moderating role of (ACE) under the AR(2) specification. The interaction terms between OWNE_STRUC and ACE are consistently positive and highly significant: (INSOWN_ACE) (Coef. = 0.015, $p < 0.01$), (MANOWN_ACE) (Coef. = 0.013, $p < 0.01$), (FOROWN_ACE) (Coef. = 0.010, $p < 0.01$), and (GOVOWN_ACE) (Coef. = 0.009, $p < 0.01$). These findings offer substantial evidence for H5, affirming that ACE considerably enhances the correlation between ownership structures and CSR disclosure. The direct effect of ACE is negative (Coef. = –0.100, $p < 0.01$), indicating that its main role is as a moderator rather than an independent factor in CSR reporting. Among the control variables, (FSIZE) (Coef. = 0.001, $p < 0.05$), (MTB) (Coef. = 0.003, $p < 0.05$), and (CSRC) (Coef. = 0.006, $p < 0.05$) are positive and significant, while (ROA), (ROE), (LEV), and (BSIZE) remain statistically insignificant. The explanatory power of the model is remarkably strong, overall $R^2 = 0.995$; Chi-square = 62,653.61, $p < 0.001$), indicating that the AR(2) corrected specification accounts for nearly all the variation in CSR disclosure. Collectively, these findings highlight the critical role of ACE in reinforcing the ownership and CSR nexus within Egyptian listed firms.

Table 9.RE GLS regression with AR(2

CSR_pct	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
INSOWN_ACE	.015	0	97.51	0	.014	.015	***
MANOWN_ACE	.013	0	75.20	0	.012	.013	***
FOROWN_ACE	.01	0	65.15	0	.01	.01	***
GOVOWN_ACE	.009	0	36.96	0	.008	.009	***
ACE	-.1	.008	-12.66	0	-.115	-.084	***
FSIZE	.001	0	2.42	.015	0	.002	**
ROA	-.001	.008	-0.12	.907	-.016	.014	
ROE	.006	.005	1.19	.236	-.004	.015	
LEV	-.004	.004	-0.99	.323	-.012	.004	
BSIZE	0	0	0.26	.795	-.001	.001	
MTB	.003	.002	2.06	.039	0	.006	**
CSRC	.006	.003	2.33	.02	.001	.011	**
Constant	-.127	.009	-13.84	0	-.145	-.109	***

Mean dependent var	0.388	SD dependent var	0.192
Overall r-squared	0.995	Number of obs	340
Chi-square	62653.608	Prob > chi2	0.000
R-squared within	0.995	R-squared between	0.995

**** p<.01, ** p<.05, * p<.1*

To further assess the robustness of the findings, the sample was divided into three groups based on CSR disclosure levels, Low CSR firms (N = 114), Medium CSR firms (N = 113), and High CSR firms (N = 113) in Tables (10-12) . The quintile regression results across the three groups consistently demonstrate that (ACE) significantly moderates the relationship between ownership structure and CSR disclosure. All subsample variables (INSOWN_ACE, MANOWN_ACE, FOROWN_ACE, and GOVOWN_ACE) are positive and statistically significant, offering robust empirical support for H5. The direct effect of (ACE) is consistently negative across models, underscoring the conclusion that the ACs principal function is to moderate ownership driven incentives rather than to exert an independent influence on CSR disclosure. Concerning the control variables, the majority lose statistical significance within subsamples, however weak positive impacts are noted for (ROE) and (MTB) in specific groups. Also, (CSRC) is a significant factor in organizations with high disclosure, highlighting the importance of specialized committees in maintaining advanced CSR disclosure.

Table 10. Linear regression results for Low CSR group

CSR	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
INSOWN_ACE	.015	0	33.51	0	.014	.016	***
MANOWN_ACE	.013	0	30.47	0	.012	.014	***
FOROWN_ACE	.01	0	24.82	0	.009	.011	***
GOVOWN_ACE	.009	.001	17.76	0	.008	.01	***
ACE	-.075	.013	-5.77	0	-.101	-.049	***
FSIZE	.001	.001	1.25	.216	0	.002	
ROA	-.002	.014	-0.13	.897	-.029	.025	
ROE	.015	.009	1.67	.097	-.003	.033	*
LEV	.002	.007	0.31	.756	-.012	.017	
BSIZE	0	.001	0.11	.911	-.001	.001	
MTB	.005	.003	1.72	.088	-.001	.01	*
CSRC	0	0	0	0	0	0	
Constant	-.15	.016	-9.33	0	-.182	-.118	***

Mean dependent var	0.190	SD dependent var	0.062
R-squared	0.956	Number of obs	114
F-test	202.155	Prob > F	0.000
Akaike crit. (AIC)	-645.568	Bayesian crit. (BIC)	-612.734

**** p<.01, ** p<.05, * p<.1*

Table 11: Linear regression results for Medium CSR disclosure group

CSR_pct	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
INSOWN_ACE	.014	0	56.54	0	.014	.015	***
MANOWN_ACE	.012	0	47.81	0	.012	.013	***
FOROWN_ACE	.01	0	43.58	0	.009	.01	***
GOVOWN_ACE	.009	0	24.78	0	.008	.009	***
ACE	-.126	.017	-7.60	0	-.159	-.093	***
FSIZE	.001	.001	1.61	.11	0	.002	
ROA	.012	.014	0.87	.386	-.015	.039	
ROE	.014	.008	1.70	.093	-.002	.029	*
LEV	-.007	.007	-1.03	.306	-.021	.007	
BSIZE	0	.001	0.37	.71	-.001	.001	
MTB	.003	.003	1.12	.266	-.002	.008	
CSRC	0	0	0	0	.	0	
Constant	-.092	.018	-5.09	0	-.128	-.056	***

Mean dependent var	0.608	SD dependent var	0.128
R-squared	0.990	Number of obs	113
F-test	867.916	Prob > F	0.000
Akaike crit. (AIC)	-635.421	Bayesian crit. (BIC)	-602.693

*** *p<.01*, ** *p<.05*, * *p<.1*

Table 12: Linear regression results for high CSR disclosure group

CSR_pct	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
INSOWN_ACE	.011	.001	16.35	0	.01	.013	***
MANOWN_ACE	.01	.001	15.31	0	.009	.011	***
FOROWN_ACE	.008	.001	15.04	0	.007	.009	***
GOVOWN_ACE	.006	.001	12.39	0	.005	.007	***
ACE	-.082	.013	-6.53	0	-.107	-.057	***
FSIZE	.001	.001	1.22	.225	0	.002	
ROA	.005	.012	0.44	.663	-.018	.029	
ROE	-.013	.008	-1.64	.103	-.029	.003	

LEV	-.003	.006	-0.48	.629	-.016	.01	
BSIZE	0	0	0.37	.712	-.001	.001	
MTB	.003	.003	1.25	.216	-.002	.008	
CSRC	.019	.004	4.28	0	.01	.028	***
Constant	-.013	.025	-0.54	.591	-.062	.035	

Mean dependent var	0.367	SD dependent var	0.048
R-squared	0.944	Number of obs	113
F-test	140.945	Prob > F	0.000
Akaike crit. (AIC)	-666.480	Bayesian crit. (BIC)	-631.024

**** p<.01, ** p<.05, * p<.1*

To augment the regression analysis, three figures are provided to depict the ownership and CSR relationship across the disclosure subsamples of enterprises with low, medium, and high CSR engagement. Figure (2), depicting the average ownership structure across CSR levels, illustrates a distinct upward trajectory in INSOWN, progressively rising from enterprises with low to high CSR engagement. This affirms the crucial influence of institutional investors in promoting disclosure. MANOWN and FOROWN also rise moderately across the groups, whereas GOVOWN remains the smallest but consistently present, reflecting a more limited yet stable role. In addition to, Figure (3), which depicts the distribution of CSR disclosure (Boxplot), validates the decision to classify the sample into three subsamples. Companies in the low group cluster around extremely low CSR scores with minimal variance, the medium group has modest disclosure with restricted dispersion, and the high group displays both elevated medians and broader variation, including outliers nearing complete disclosure, this heterogeneity justifies the use of quintile regression instead of exclusively depending on mean based estimations. Also, Figure (4), visually encapsulates the model outcomes through the coefficient plot of ownership, ACE, and control variables among quintiles. The interaction terms (INSOWN_ACE, MANOWN_ACE, FOROWN_ACE, and GOVOWN_AC), are consistently positive and robust across all subsamples, lending strong support to H5.

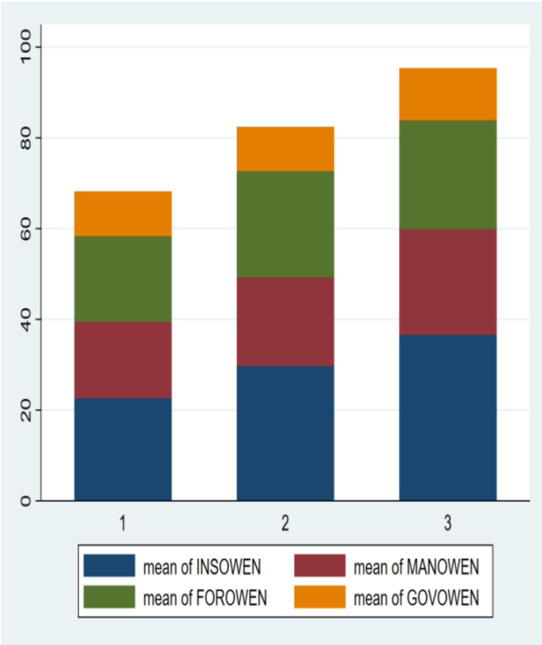

Figure (2): Mean ownership structure across CSR disclosure

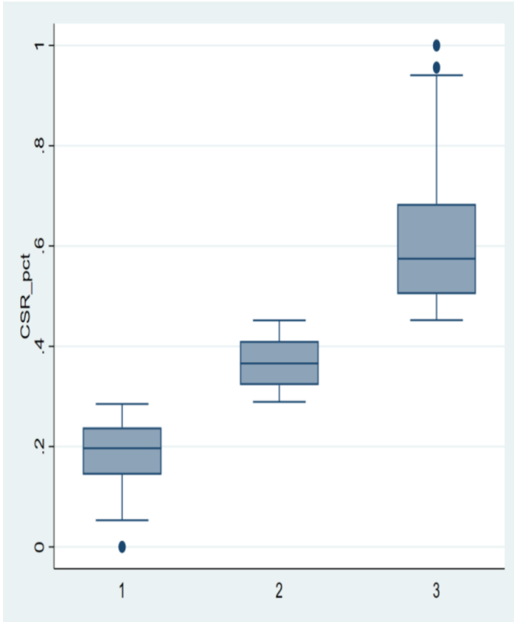

Figure (3):Distribution of CSR disclosure across groups

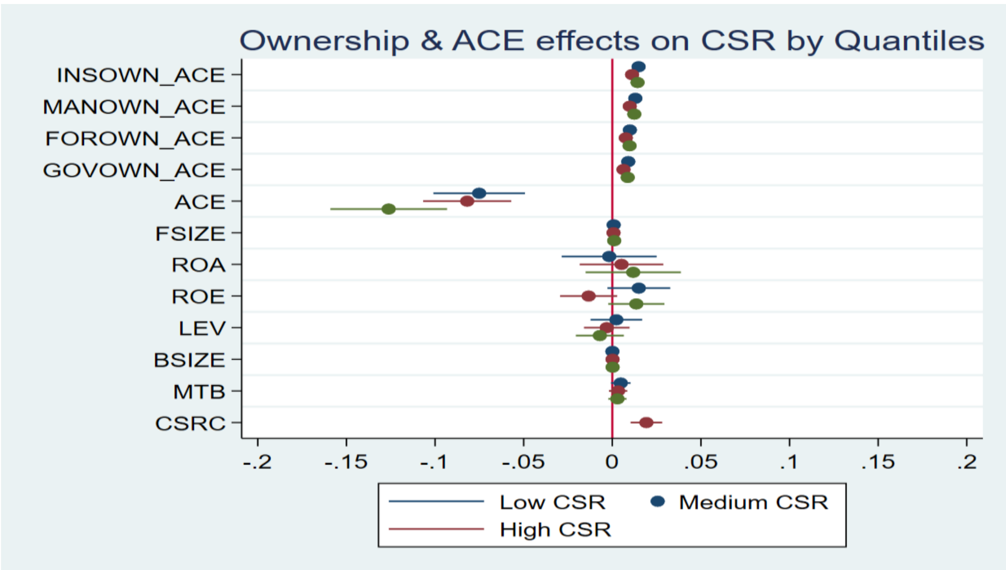

Figure (4):Coefficient plot of ownership, ACE, and control variables across quintiles

1. Conclusion and Limitations

This research examined how different forms of ownership (managerial, institutional, foreign, and governmental) patterns corporate social responsibility (CSR) disclosure among non-financial companies listed in Egypt. The analysis began with Ordinary Least Squares (OLS) regression to evaluate the direct effects of ownership types on CSR disclosure, to assess whether audit committee effectiveness (ACE) influences these relationships, interaction terms were introduced in subsequent models. To ensure the validity of the results and address concerns related to endogeneity and reverse causality, Two-Stage Least Squares (2SLS) estimation was employed. In addition, the study categorized firms into (high, medium, and low) CSR disclosure groups, allowing for more nuanced analysis of how ownership structure operates within different CSR performance contexts.

The results confirmed that ownership structure has a significant influence on CSR disclosure, institutional and foreign ownership were both linked to higher levels of disclosure, particularly in relation to environmental and governance information. These findings are in line with earlier studies (Khan et al., 2022, Qaderi et al., 2023), which argue that such investors usually adopt a long-term perspective and are more attentive to reputational risks, thereby pressing firms to be more transparent. In contrast, managerial ownership was negatively associated with CSR; this suggests that managers may deliberately limit disclosure, most likely as a way to reduce external oversight. Such behavior is consistent with the predictions of agency theory. Government ownership showed a more complex picture: while it had a positive influence on social disclosure, its overall effect on CSR was weak and statistically insignificant, particularly in models that accounted for ACE, this may reflect the influence of political or non-strategic objectives in state-affiliated entities.

The interaction results provide a clearer understanding of how ACs influences CSR disclosure, firms with more ACEs showed a weaker negative impact of managerial ownership and a stronger positive impact of institutional and foreign ownership. This indicates that audit committees can act as a key governance mechanism, helping to improve transparency and guide firms toward practices that meet stakeholder expectations. These findings are consistent with stakeholder theory and resource dependence theory, which both emphasize the role of board sub-committees in strengthening governance and enhancing disclosure quality(Velte, 2024, Velte, 2025).

The 2SLS estimations confirmed the robustness of the results, providing stronger evidence for the causal links and reducing concerns about endogeneity, the chosen instruments lagged ownership and industry averages performed well, as indicated by high first-stage F-statistics and acceptable values of Shea's R^2, hence, instruments were both relevant and reliable. The subgroup analysis showed that ownership effects were not uniform across CSR dimensions, foreign ownership had the clearest impact on environmental reporting, while institutional ownership was more relevant for governance disclosure. When firms were compared by their overall CSR performance, further differences became clear. High disclosure firms benefited most from institutional and foreign investors, suggesting that external governance pressure is strongest when firms are already committed to sustainability and Low disclosure firms, on the other hand, showed a stronger negative link with managerial ownership, pointing to resistance against greater transparency.so, the role of ACE appeared most important in medium level firms, where ACE helped support the transition toward stronger CSR practices. From a statistical perspective, the models explained results reasonably well, with adjusted R^2 values between 0.41 and 0.56, adding interaction terms improved the fit of the models (ΔF significant at $p < 0.01$), furthermore, multicollinearity was not an issue (VIF < 5), and tests of residuals showed no evidence of heteroscedasticity or violations of normality.

The findings of current study have several implications, for policymakers, a stronger regulatory focus on AC independence and composition could enhance the monitoring role of listed firms, particularly in markets with concentrated ownership and weaker investor protection. For corporate boards, the results highlight the value of involving institutional and foreign investors in governance, especially in firms where CSR reporting is under scrutiny. Also, investors in turn should also take into account ownership structure and board oversight when assessing transparency and alignment with CSR standards.

The research also has its limitations. First, the data covers only non-financial firms on the Egyptian Exchange, which means the results cannot be generalized to banks or financial institutions. Second, although 2SLS estimation was used to address endogeneity, unobserved heterogeneity and omitted variables remain possible. Third, the CSR index relied on publicly disclosed information, which may suffer from bias or selective reporting. Finally, the five years (2020–2024) reflect a specific regulatory period. As a result, findings may differ in other economic contexts, such as the post-COVID recovery phase. Future studies could build on these findings by examining additional governance features, such as gender diversity, board tenure, or the role of sustainability committees in the CSR and ownership relationship. Also, cross-country comparisons within the MENA region would help to clarify institutional differences. In addition, qualitative work, for example, through interviews with AC members, could offer a deeper understanding of how governance bodies influence CSR disclosure in practice.

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