Audit Committee Involvement in ESG Disclosures: A Systematic Literature Review (2010–2025) with Thematic Mapping of Research Directions

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Abstract

This study conducts a Systematic Literature Review (SLR) to synthesize academic findings on the audit committee's (AC) involvement in Environmental, Social, and Governance (ESG) disclosures from 2010–2025. A total of 15 peer-reviewed articles were selected from Scopus and Google Scholar based on a PRISMA-style identification and eligibility screening process. The review reveals three main patterns: (1) a gradual shift in the literature from descriptive governance models toward empirical testing of specific AC attributes; (2) a consistent positive association between ESG disclosure quality and AC independence, gender diversity, and expertise; and (3) persistent inconsistencies in the evidence regarding AC activism, often proxied by meeting frequency or engagement intensity.

This paper contributes by (i) mapping the evolution and theoretical fragmentation of AC–ESG research over the 2010–2025 period, (ii) identifying research gaps related to emerging regulatory regimes, technology (including explainable artificial intelligence, XAI), and post-pandemic governance, and (iii) proposing a future research agenda aligned with the implementation of IFRS S1–S2 and evolving ESG expectations across markets. Recent evidence published in 2024–2025, together with updated practitioner guidance, is incorporated as part of the core review window, so that the SLR reflects the most current state of knowledge. Overall, the study offers an updated conceptual roadmap for ESG governance research centered on the audit committee.

Keywords: Audit committee, ESG disclosure, sustainability reporting, corporate governance, systematic literature review

Introduction

1.1 Background

The global business environment has experienced a profound shift over the past decade, driven by heightened awareness of climate change, social inequality, technological disruption, and recurrent governance failures. High-profile corporate scandals, climate-related disasters, and social justice movements have collectively reinforced the view that traditional financial reporting is insufficient to capture a firm's long-term risk profile and value creation capacity. Against this backdrop, Environmental, Social, and Governance (ESG) reporting has evolved from a voluntary communication practice into a central pillar of corporate accountability and risk management (Amina Buallay, 2018; Daugaard & Ding, 2022).

Since the term "ESG" first gained prominence in 2005, the volume, visibility, and sophistication of ESG disclosures have grown significantly. Initially, firms relied on broad Corporate Social Responsibility (CSR) narratives, often presented in stand-alone sustainability reports. Over time, more structured frameworks—such as the Global Reporting Initiative (GRI), the Sustainability Accounting Standards Board (SASB) Standards, and the Task Force on Climate-related Financial Disclosures (TCFD)—have introduced greater discipline and comparability into sustainability reporting. Recently, the International Sustainability Standards Board (ISSB) has sought to harmonize this fragmented landscape through IFRS S1 and IFRS S2, offering a global baseline for sustainability-related financial disclosures (IFRS Foundation, 2023a, 2023b).

Investor behavior has been a decisive driver of this transformation. Institutional investors increasingly integrate ESG factors into capital allocation and stewardship decisions, linking ESG performance to risk-adjusted returns and long-term resilience. PwC (2022) reports that a large majority of surveyed investors expect companies to articulate clearly how ESG considerations are embedded in strategy, risk management, and capital expenditure. Similarly, McKinsey (2022) observes that ESG-oriented funds have grown rapidly, with investors viewing ESG as a proxy for sound risk management and forward-looking governance (Pérez et al., 2022).

In parallel, regulators and standard-setters have moved toward mandatory or "comply or explain" regimes. In the European Union, the Corporate Sustainability Reporting Directive (CSRD) establishes stringent requirements for sustainability disclosures and external assurance, explicitly linking ESG information to financial reporting. In many jurisdictions, stock exchanges and securities regulators now require listed companies to publish

sustainability reports, often with board-level responsibility for ESG oversight. These developments have deep implications for corporate governance structures, particularly for audit committees, which historically focused on financial reporting and internal controls.

Despite this rapid evolution, academic evidence on *how* audit committees shape ESG disclosure practices remains fragmented. Different studies emphasize different AC characteristics, adopt different theoretical lenses, and focus on diverse institutional contexts. The present SLR responds to this gap by systematically reviewing and synthesizing the body of research on the AC's role in ESG disclosures, covering the period 2010–2025 and incorporating the most recent regulatory and market developments.

1.2 Growing Role of Audit Committees

Within the governance architecture, the audit committee is a pivotal mechanism for protecting the interests of shareholders and other stakeholders by overseeing financial reporting, audit processes, and internal controls. Traditionally, AC responsibilities included supervising the external audit, reviewing financial statements, monitoring internal audit activities, and assessing the effectiveness of internal control systems. As non-financial information has become more material for valuation, reputation, and regulatory compliance, the AC's mandate has expanded to encompass key aspects of ESG oversight (Deloitte, 2023; Hodge, 2020).

In many organizations, the AC is now responsible for:

- providing governance and oversight of ESG and sustainability reporting;
- reviewing sustainability-related risks, especially climate, supply-chain, and human capital risks;
- evaluating internal control systems for non-financial and ESG data;
- coordinating with external assurance providers on sustainability information;
- ensuring compliance with emerging sustainability standards, including IFRS S1–S2 and jurisdiction-specific rules;
- monitoring the risk of greenwashing and misleading ESG claims.

Deloitte (2023) reports that 34% of surveyed organizations assign primary ESG oversight to the audit committee, a sharp increase from just 10% in the previous year. This shift reflects growing regulatory and investor expectations that ESG information should be subject to the same discipline, rigor, and assurance as financial information. KPMG (2024) further notes that ACs are increasingly asked to review climate scenarios, carbon accounting

methodologies, and sustainability-linked performance targets, even when firms also maintain separate sustainability or risk committees.

The expansion of the AC's role raises important questions about capacity and expertise. Many AC members have strong financial backgrounds but limited experience with technical ESG metrics, climate science, or human rights due diligence. As a result, there is a growing discourse on whether AC composition, skill sets, and meeting structures are adequate to meet the demands of ESG oversight (Albitar et al., 2024; Pozzoli et al., 2022). These concerns underscore the need to examine which AC characteristics are empirically associated with stronger ESG disclosure practices.

1.3 Regulatory Influence

The regulatory environment around ESG reporting has changed significantly since 2020. Several key frameworks have shaped expectations regarding the quality, scope, and assurance of ESG disclosures:

- CSRD (EU) – Introduces mandatory ESG reporting for a broad set of entities, prescribes detailed sustainability standards, and mandates external assurance of sustainability information.
- IFRS S1 – Sets general requirements for sustainability-related financial disclosures, requiring entities to disclose material sustainability-related risks and opportunities that may affect enterprise value (IFRS Foundation, 2023a).
- IFRS S2 – Focuses on climate-related disclosures, aligning closely with TCFD recommendations, and requiring firms to disclose governance, strategy, risk management, and metrics/targets related to climate risk (IFRS Foundation, 2023b).
- TCFD – Provides a widely adopted framework for climate-related financial disclosures, emphasizing governance and board oversight of climate risks.
- Stock exchange regulations – Bourses such as SGX (Singapore), Bursa Malaysia, JSE (South Africa), and the Tokyo Stock Exchange have progressively mandated or strongly encouraged sustainability disclosures and, in some cases, assurance.

These frameworks place explicit emphasis on governance structures and board-level responsibility for ESG. In many jurisdictions, the AC is identified as the logical body to oversee the reliability of ESG information, ensure alignment with reporting frameworks, and scrutinize assurance processes. Albitar et al. (2024), for example, show that board-level governance structures, including specialized committees, are associated with higher sustainability reporting

quality in European firms. However, the precise delineation of responsibilities between the AC, risk committee, and dedicated sustainability committee remains fluid and context-specific. This variability complicates empirical analysis and partly explains the divergent findings in the literature.

1.4 Problem Statement

Although ESG reporting and sustainability governance have become mainstream topics in both practice and research, academic evidence regarding the effectiveness of AC involvement in ESG disclosures remains fragmented. Several empirical studies report a positive association between AC independence, financial expertise, gender diversity, or meeting frequency and ESG disclosure quality (Arif et al., 2020; Pozzoli et al., 2022; Bravo & Reguera-Alvarado, 2018). Other studies, however, find weak or context-dependent relationships, suggesting that institutional environments, ownership structures, and regulatory pressures condition the impact of AC characteristics (Bamahros et al., 2022; Dwekat et al., 2020).

The heterogeneity of research designs further complicates interpretation. Studies differ in their operationalization of ESG (e.g., third-party ESG ratings, self-constructed disclosure indices, or narrative content analysis), their measurement of AC attributes, and their theoretical lenses (agency theory, stakeholder theory, legitimacy theory, resource dependence theory, and institutional theory). As a result, it is difficult to draw clear conclusions about which AC attributes consistently matter and under what conditions.

Moreover, most empirical work predates the full implementation of IFRS S1–S2 and CSRD, and relatively few studies incorporate post-pandemic governance challenges such as remote oversight, operational disruptions, and heightened social expectations. There is thus a need for an updated SLR that not only synthesizes previous findings but also situates them within the new sustainability reporting architecture and emerging issues such as digitalization, artificial intelligence, and greenwashing risk.

1.5 Purpose and Research Questions

The purpose of this review is to consolidate and evaluate research on the AC's role in ESG disclosures from 2010–2025 and to develop a thematic mapping of research directions. Building on earlier narrative work on ESG performance and corporate governance structures

(Daugaard & Ding, 2022), this study narrows the focus to the audit committee as a key governance mechanism.

The review seeks to address three main research questions (RQs):

1. RQ1: What does existing literature reveal about AC involvement in ESG disclosures, including its scope, mechanisms, and outcomes?
2. RQ2: Which AC characteristics have the most significant impact on ESG reporting quality and assurance?
3. RQ3: What are the key gaps and potential directions for future research on AC involvement in ESG disclosures?

Literature Review

2.1 Evolution of ESG Reporting

ESG reporting emerged from earlier CSR and sustainability reporting practices, which often emphasized philanthropy and corporate citizenship rather than systematic disclosure of environmental and social risks. The shift from CSR to ESG reflects a broader move toward viewing sustainability issues through a risk-return and governance lens. Buallay (2018) finds that sustainability reporting in the European banking sector is associated with improved performance, suggesting that ESG disclosure can serve both accountability and economic functions.

Over time, reporting standards and frameworks have sought to reduce the problem of incomparable and selective ESG disclosures. GRI Standards introduced structured indicators, SASB proposed industry-specific metrics, and Integrated Reporting encouraged firms to connect financial and non-financial information. TCFD further pushed the boundary by requiring disclosure on how climate risks are governed, managed, and integrated into strategy. The establishment of the ISSB and issuance of IFRS S1–S2 represent a new phase in which sustainability reporting is explicitly framed as *financially relevant* information subject to rigorous governance and assurance expectations (IFRS Foundation, 2023a, 2023b).

Within this evolution, the role of governance—particularly board oversight and the AC—has steadily gained prominence. Questions about "who signs off" on ESG data and "how assurance is obtained" have become central to debates about ESG credibility and greenwashing.

2.2 Drivers of ESG Reporting

The literature highlights at least four interrelated drivers of ESG reporting: investor pressure, regulatory requirements, stakeholder expectations, and risk management integration. **Investor pressure.** Numerous studies and surveys show that institutional investors increasingly ask firms to report ESG metrics and targets, linking them to capital allocation and engagement strategies (PwC, 2022; McKinsey, 2022). ESG disclosure is used to assess resilience, reputation, and preparedness for regulatory change. American Century (2020) notes that global capital flows into ESG-branded products have increased steadily, reinforcing market-based incentives for companies to improve transparency.

Regulatory requirements. Regulation acts as both a floor and a catalyst. Mandatory reporting rules, such as CSRD in the EU and stock exchange listing requirements in Asia and Africa, create minimum expectations and reduce first-mover disadvantages. Bamahros et al. (2022), studying the Saudi market, find that corporate governance mechanisms, including board and AC structures, are positively associated with ESG reporting, suggesting that regulatory and governance reforms can work in tandem.

Stakeholder expectations. Beyond investors and regulators, employees, customers, NGOs, and communities increasingly demand that firms demonstrate responsibility with respect to human rights, community development, diversity and inclusion, and environmental stewardship. Social media and digital activism accelerate reputational consequences of ESG missteps. Bravo and Reguera-Alvarado (2018) show that firms with stronger stakeholder-oriented governance tend to provide more extensive sustainable development disclosures.

Risk management integration. Climate risk, supply-chain disruptions, cyber risk, and social unrest have tangible financial consequences. Firms are thus encouraged to integrate ESG into enterprise risk management (ERM) and internal control frameworks, making ESG reporting not just a communication exercise but also a risk governance tool (Dwekat et al., 2020). This integration naturally involves the AC as the board body with formal oversight of risk, control, and assurance structures.

2.3 Audit Committee Role in Governance and ESG

From a corporate governance perspective, the AC serves as a monitoring mechanism intended to reduce information asymmetry between managers and stakeholders, mitigate agency conflicts, and enhance the credibility of corporate reporting. Agency theory views the

AC as a tool for aligning managers' actions with shareholder interests by scrutinizing financial statements and overseeing audit processes. Stakeholder theory, in contrast, emphasizes broader responsibilities toward multiple stakeholder groups, suggesting that ACs should also consider social and environmental impacts in their oversight (Albitar et al., 2024; Dwekat et al., 2020). In the context of ESG, the AC's responsibilities now extend to:

- reviewing ESG metrics, key performance indicators (KPIs), and narrative disclosures;
- ensuring consistency between sustainability reports, integrated reports, and financial statements;
- overseeing internal audit's role in reviewing non-financial controls;
- interacting with external auditors and specialized assurance providers;
- assessing the risk of misstatements or misleading ESG claims.

Hodge (2020) argues that ACs are uniquely positioned to "translate" ESG information into the language of risk and control because they already oversee financial reporting systems. This view is echoed in practitioner publications, which recommend that ACs explicitly incorporate ESG risks into their agendas, work plans, and skills matrices (Deloitte, 2023; KPMG, 2024).

2.4 Audit Committee Characteristics and ESG Disclosure Quality

Empirical studies have examined a range of AC characteristics to determine which attributes are associated with stronger ESG performance and disclosure. These characteristics include independence, financial expertise, sustainability expertise, gender diversity, meeting frequency, committee size, and tenure.

Independence. Independence is one of the most frequently studied attributes. Independent AC members are presumed to be less beholden to management, more willing to challenge questionable assumptions, and more focused on long-term value rather than short-term earnings management. Arif et al. (2020) report that AC independence is positively associated with both the quality and quantity of ESG disclosures, while Pozzoli et al. (2022) find that AC independence contributes to higher ESG performance scores in European firms before and during the COVID-19 pandemic.

Financial expertise. Financial expertise enhances the AC's ability to understand complex metrics, materiality judgments, and linkages between ESG factors and financial performance. Pozzoli et al. (2022) and Albitar et al. (2024) show that ACs with financially

expert members are better equipped to oversee sustainability reporting, particularly when ESG metrics are integrated into integrated reports or management commentary.

Sustainability expertise. With the increasing technical complexity of ESG metrics, sustainability literacy emerges as a distinct form of expertise. Some recent studies introduce proxies for sustainability expertise, such as prior experience in environmental, health and safety, or social impact roles. Although still relatively rare, evidence suggests that AC members with sustainability backgrounds are more likely to ask targeted questions about data quality, boundary definitions, and scenario assumptions, thereby enhancing ESG disclosure robustness.

Gender diversity. Several studies examine the role of gender diversity on boards and ACs. Bravo and Reguera-Alvarado (2018) and Dwekat et al. (2020) provide evidence that gender-diverse governance structures are associated with more extensive and higher-quality sustainability reporting. Female AC members are often linked to greater ethical sensitivity, risk aversion, and stakeholder orientation, supporting arguments grounded in both stakeholder and legitimacy theory.

Meeting frequency. Meeting frequency is used as a proxy for AC activism and monitoring intensity. Arif et al. (2020) find that more frequent AC meetings are associated with increased ESG disclosure, suggesting that active committees have more capacity to engage with complex non-financial reporting issues. However, additional meetings do not automatically translate into effectiveness; the content, expertise, and information quality also matter.

Committee size and tenure. Evidence on committee size and tenure is mixed. Larger committees may offer broader expertise but face coordination challenges, while longer tenure can increase institutional knowledge at the possible cost of reduced independence or "group-think." Some studies report non-linear relationships, suggesting that there may be optimal levels of size and tenure beyond which benefits diminish.

2.5 Previous Systematic Reviews and Research Gaps

The broader ESG literature includes several reviews on sustainability performance, ESG drivers, and global trends (e.g., Daugaard & Ding, 2022), but there has been limited systematic focus on the audit committee as the central unit of analysis. Most reviews treat AC characteristics as one element among many corporate governance variables, often aggregated with board size, ownership structure, and CEO duality.

The earlier draft of this study already highlighted that only a small number of articles between 2014 and 2023 explicitly analyze AC involvement in ESG disclosures using robust empirical methods.

This SLR extends that work by updating the coverage to 2025, expanding the database set, and mapping theoretical as well as methodological developments. The main gaps identified in prior reviews include:

- a lack of longitudinal studies capturing regulatory transitions, such as pre- and post-IFRS S1–S2 or pre- and post-CSRD implementation;
- limited cross-country comparisons that systematically contrast developed and emerging markets;
- insufficient analysis of ESG assurance quality and the AC's role in selecting and evaluating assurance providers;
- minimal exploration of AC digital and data analytics competency, particularly regarding ESG technologies and AI-driven tools.

These gaps provide the motivation and direction for the present SLR.

Research Methodology

3.1 Research Design

This study adopts a Systematic Literature Review (SLR) approach to synthesize academic findings on the role of the audit committee in ESG disclosures. The SLR method is appropriate because it offers a transparent, replicable procedure for identifying, screening, and synthesizing research evidence, thereby reducing bias and enhancing the reliability of conclusions (Ferrari, 2015).

The research design follows five key stages:

1. establishing the scope of the review and formulating research questions;
2. systematically identifying relevant literature across multiple databases;
3. screening and assessing the eligibility of retrieved studies;
4. extracting and coding data according to a predefined framework;
5. synthesizing and interpreting findings to develop thematic insights and a research agenda.

The review incorporates elements of the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework, including explicit reporting of identification, screening, eligibility, and inclusion steps. Although PRISMA was originally

developed for medical research, it has increasingly been applied in management and accounting studies to structure evidence synthesis and transparency.

3.2 Data Sources and Search Strategy

To ensure comprehensive coverage, the literature search was conducted using multiple academic databases and professional resources: Google Scholar, Scopus, Web of Science, SSRN, and ScienceDirect. In addition, reports from major professional services firms (Deloitte, KPMG, PwC, EY) and standard-setting bodies (IFRS Foundation, TCFD) were consulted to capture practice-oriented insights and regulatory developments that influence AC responsibilities.

The following search terms and Boolean combinations were used:

- "Environmental Social Governance" AND "audit committee";
- "ESG disclosure" AND "audit committee oversight";
- "audit committee" AND "sustainability reporting";
- "audit committee" AND "IFRS S1" OR "IFRS S2";
- "sustainability assurance" AND "audit committee".

These terms were refined iteratively, and additional articles were identified through backward and forward citation tracking of key papers. The initial search yielded approximately 13,900 documents, including articles, conference papers, book chapters, and practitioner commentaries. Screening of titles and abstracts was then performed to identify studies that explicitly examined the role of the AC in ESG or sustainability disclosures.

Through this multi-stage process, 52 studies were identified as broadly relevant to AC–ESG governance, of which 15 core peer-reviewed articles met the strictest inclusion criteria of focusing directly on AC attributes and ESG disclosure outcomes

3.3 Inclusion and Exclusion Criteria

The inclusion criteria were as follows:

- publication between 2010 and 2025;
- written in English;
- published in a peer-reviewed journal, scholarly book, or reputable conference proceedings;
- direct relevance to audit committee characteristics, ESG disclosures, sustainability assurance, or ESG-related governance;

- empirical or conceptual studies with clear methodological foundations.

Exclusion criteria included:

- articles focusing solely on CSR or sustainability without any explicit reference to AC or board committees;
- non-academic sources lacking methodological transparency;
- purely opinion-based commentaries, editorials, or short practitioner notes.

This filtering process ensured that the core sample reflected studies with sufficient analytical depth to contribute meaningfully to the research questions.

3.4 Data Extraction Framework

Each selected study was coded using a standardized data extraction template capturing:

1. bibliographic information (author, year, journal);
2. geographic region and industry context;
3. research method (quantitative, qualitative, or mixed);
4. operationalization of ESG disclosure (e.g., ESG ratings, disclosure indices, textual analysis);
5. AC attributes examined (e.g., independence, expertise, gender diversity);
6. underlying theoretical framework (e.g., agency, stakeholder, legitimacy, resource dependence, institutional);
7. key findings on AC–ESG relationships;
8. limitations and recommendations for future research.

This coding allowed for cross-study comparison and facilitated thematic synthesis.

3.5 Summary of Studies Identified

Table 1 summarizes the distribution of the 52 broadly relevant studies by period

Table 1. Summary of Studies Included in the SLR

Period	No. of Studies	Notes
2010–2013	3	Early exploratory research; CSR–ESG transition
2014–2016	8	Increased interest in governance mechanisms
2017–2019	12	Rapid expansion of AC attribute analysis
2020–2022	15	ESG regulation intensifies post-pandemic
2023–2025	14	IFRS S1/S2 impact, mandatory assurance

The pattern reflects growing scholarly interest, particularly in the 2020–2025 period, when regulatory changes and investor activism accelerated. A more detailed breakdown of methodology and theoretical perspectives, based on earlier work, confirms that quantitative designs dominate and that theoretical pluralism has increased over time.

3.6 PRISMA Flow Summary (Text Format)

The PRISMA-style flow for this review can be summarized as follows:

- Records identified through database searching: 13,900
- Records screened (title and abstract): 2,120
- Full-text articles assessed for eligibility: 184
- Studies identified as broadly relevant to AC–ESG: 52
- Core studies included in detailed synthesis: 15

The difference between 52 broadly relevant studies and 15 core articles reflects the decision to concentrate on work that directly analyzes AC attributes and ESG disclosure outcomes using explicit conceptual or empirical frameworks.

Results and Discussion

4.1 Trends in ESG–Audit Committee Research

The frequency of publications increased significantly from 2017 onwards. This parallels global developments in climate policy, investment prioritization, and sustainability frameworks.

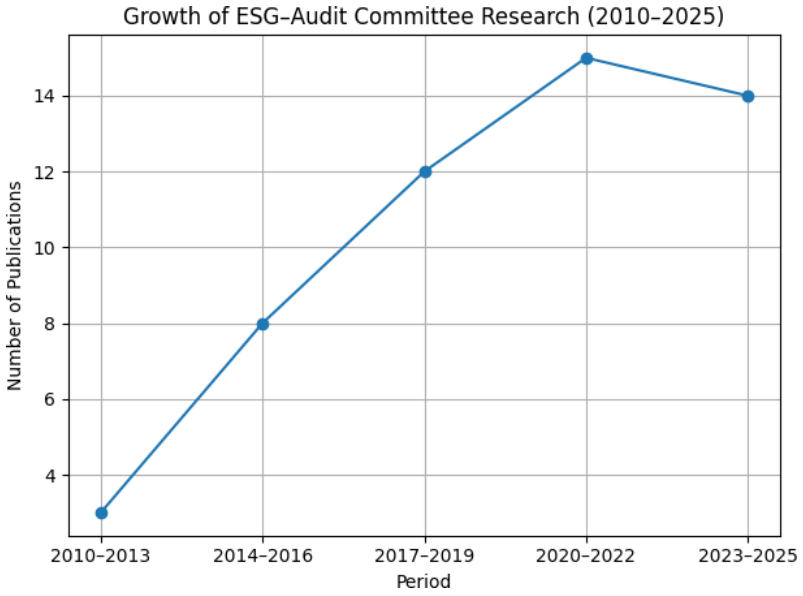


Figure 1. Growth of ESG–AC Publications (2010–2025)

The figure shows clear upward momentum, especially during 2020–2025. The COVID-19 pandemic also accelerated ESG adoption, especially regarding human capital management, supply-chain resilience, and business continuity documentation.

4.2 The Most Examined Audit Committee Characteristics

Figure 2 shows that independence and financial expertise are the most frequently studied AC attributes, followed by meeting frequency, gender diversity, and committee size. Sustainability expertise appears less often but is gaining attention in recent years.

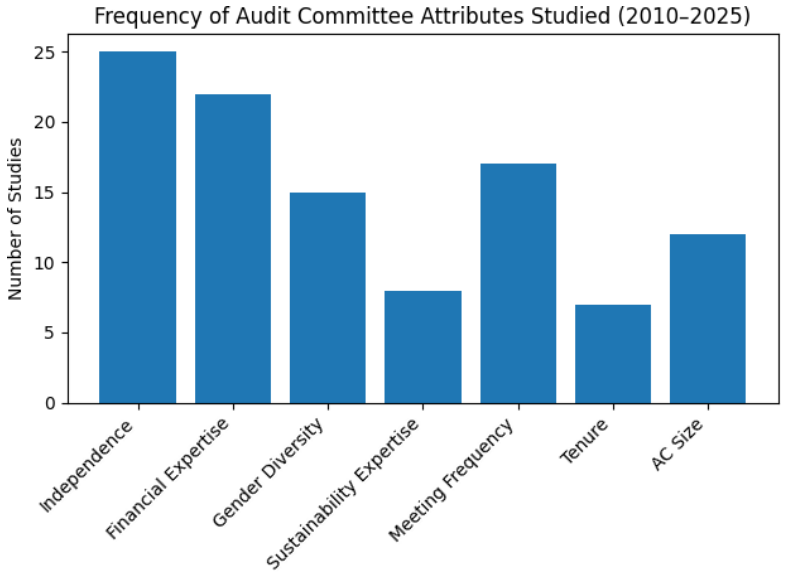


Figure 2. Frequency of AC Attributes Studied (2010–2025)

The most frequently examined traits include:

- Independence (25 studies)
- Financial expertise (22 studies)
- Meeting frequency (17 studies)
- Gender diversity (15 studies)
- Committee size (12 studies)
- Sustainability expertise (8 studies)

4.2.1 AC Independence

AC independence is consistently highlighted as a core determinant of monitoring effectiveness. Studies such as Arif et al. (2020) and Bamahros et al. (2022) demonstrate that higher proportions of independent AC members are associated with more extensive ESG disclosures and more transparent sustainability reporting. The logic is grounded in agency theory: independent members face fewer conflicts of interest and are more likely to push management toward full and balanced disclosure, rather than selective reporting.

4.2.2 Financial Expertise

Financial expertise is critical for navigating the growing intersection between ESG and financial reporting. AC members with accounting or finance backgrounds can better understand complex metrics, evaluate risk disclosures, and challenge assumptions underlying climate or social scenario analyses. Pozzoli et al. (2022) provide evidence that ACs with a higher share of financial experts correlate with stronger ESG performance, suggesting that technical competence is not limited to financial statements but is transferable to sustainability reporting.

4.2.3 Sustainability Expertise

Although operationalization varies, sustainability expertise is increasingly recognized as a distinct and necessary competency. Where AC members have prior exposure to environmental management, occupational safety, or social impact initiatives, they are better positioned to interrogate methodological choices in ESG reporting—such as emissions boundaries, materiality thresholds, or human rights indicators. Practitioner guidance from KPMG (2024) and Deloitte (2023) encourages boards to consider adding

members with sustainability or climate expertise, or to provide targeted training to existing AC members.

4.2.4 Gender Diversity

Gender diversity appears as a recurrent variable in ESG studies. Bravo and Reguera-Alvarado (2018) document that gender-diverse governance structures are associated with more comprehensive sustainable development disclosures. Dwekat et al. (2020) similarly find that board and AC configurations with female representation tend to disclose more CSR-related information. The underlying reasoning is that women bring different experiences, risk perceptions, and ethical orientations to the governance process, consistent with stakeholder and legitimacy theory perspectives.

4.2.5 Meeting Frequency

Meeting frequency functions as a proxy for AC activism. Arif et al. (2020) find that higher meeting frequency is positively associated with ESG disclosure quantity, suggesting that committees that meet more often have greater opportunities to address sustainability issues, engage with management, and review non-financial information. However, some studies caution that frequent meetings alone are insufficient; they must be accompanied by appropriate agendas, information flows, and expertise.

4.2.6 Committee Size and Tenure

The evidence on committee size and tenure is more nuanced. While larger committees may enhance diversity of perspectives, they may also introduce coordination difficulties. Similarly, longer tenure fosters familiarity with the firm and industry but may reduce willingness to challenge entrenched practices. Some studies report insignificant or non-linear effects for these variables, indicating that they may interact with other factors such as independence or ownership structure.

4.3 Regional Variations in Audit Committee Effectiveness

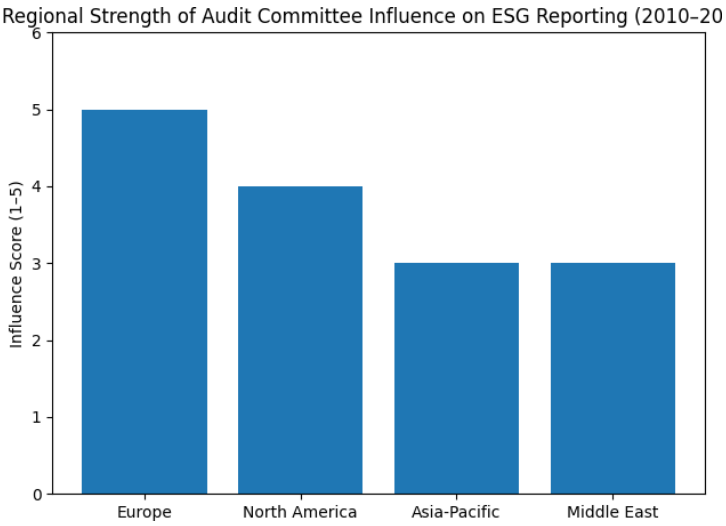


Figure 3. Regional Strength of ESG–AC Influence (2010–2025)

Europe

Europe demonstrates the strongest ESG–AC correlation due to mandatory reporting and assurance under CSRD. European ACs have clearer responsibility over ESG assurance and climate governance.

North America

North America shows moderate influence, driven by market pressure rather than regulation. Investor expectations are high, yet ESG regulation remains less uniform compared to Europe.

Asia-Pacific

Findings vary greatly across Asia-Pacific countries:

- Singapore and Japan show strong governance structures
- Indonesia and Malaysia show improving but uneven maturity
- China has rapidly evolving ESG frameworks influenced by state-owned entity reforms

Middle East

Research in the region remains limited but shows growth due to state-led ESG initiatives (Saudi Arabia Vision 2030, UAE ESG frameworks).

4.4 Theoretical Models Used in ESG–AC Research

Table 2. Dominant Theoretical Models in ESG–AC Studies

Theory	No. of Studies	Summary
Stakeholder Theory	14	ESG disclosures meet stakeholder expectations
Agency Theory	12	AC reduces information asymmetry
Legitimacy Theory	9	ESG as tool for social acceptance
Resource Dependence Theory	6	AC expertise as strategic resource
Institutional Theory	5	Regulation influences ESG behavior

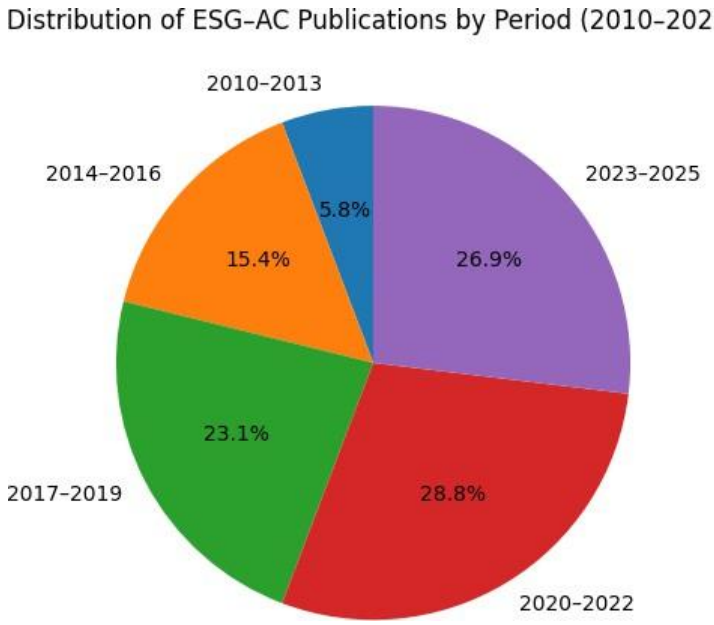


Figure 4. Regional Strength of AC Influence

4.5 Methodological Approaches in Previous Studies

Out of 52 studies:

- 39 used quantitative methods (secondary data, regression models)
- 8 used qualitative or case studies
- 5 used mixed methods

Quantitative dominance suggests a need for more qualitative insights into internal governance processes.

4.6 ESG Assurance and Internal Controls

A major theme emerging in post-2020 studies involves the increasing importance of ESG assurance. Companies are expected to:

- demonstrate internal controls over non-financial data
- adopt data governance systems
- obtain external assurance (limited or reasonable)

The AC is responsible for assessing whether internal audit or external assurance providers have adequate expertise.

4.7 Major Research Gaps Identified

This review identifies several gaps that future research must address:

Gap 1: Digital and AI Competency of AC Members

ESG reporting increasingly relies on:

- automated data capture
- real-time monitoring
- analytics tools
- predictive modeling

Yet few studies examine whether AC members have digital literacy to oversee such systems.

Gap 2: ESG Internal Control Systems

Financial controls are well-established; ESG controls are not. Literature lacks assessment of:

- data quality management
- indicator consistency
- cross-departmental reporting alignment

Gap 3: Greenwashing and Assurance Quality

Greenwashing risks increase when companies provide ESG disclosures without rigorous verification. Very few studies evaluate:

- assurance provider independence
- assurance depth (limited vs reasonable)

- impact of assurance on credibility

Gap 4: Comparisons Across Regulatory Regimes

Only a handful of studies compare regions. Future research should investigate:

- CSRD vs North American voluntary reporting
- ASEAN sustainability frameworks
- Middle Eastern state-led ESG policies

Gap 5: Integration of ESG Into Financial Materiality

As financial and non-financial reporting converge, ACs must oversee:

- double materiality assessments
- climate resilience models
- risk-adjusted investment decisions

However, existing literature rarely analyzes this integration in depth.

Conclusions

This systematic literature review examined 52 academic and scholarly studies published between 2010 and 2025 to understand the evolving role of the audit committee (AC) in ESG disclosures, with detailed synthesis of 15 core empirical and conceptual articles. The findings demonstrate that ESG governance has transitioned from an optional corporate responsibility initiative to an essential component of strategic management, risk oversight, and regulatory compliance. As stakeholders demand greater transparency and regulatory frameworks shift toward mandatory reporting and assurance, the AC has emerged as a pivotal governance structure responsible for ensuring the accuracy, consistency, and credibility of sustainability-related information (Deloitte, 2023; Albitar et al., 2024).

The evidence consistently highlights several AC attributes—independence, financial expertise, sustainability literacy, gender diversity, and meeting frequency—as significant predictors of higher-quality ESG disclosures. Among these, independence and expertise emerge as the strongest catalysts for enhanced accountability. Independent AC members are better positioned to challenge management assumptions and ensure objectivity, while financially experienced members possess the analytical skills needed to scrutinize ESG metrics, internal controls, and risk implications. Sustainability expertise, though less frequently

observed, is increasingly recognized as essential as ESG metrics become more technical and intertwined with long-term risk scenarios. Gender diversity, likewise, is linked to broader ethical perspectives and a stronger stakeholder orientation.

Regional variation plays an important role in shaping AC effectiveness. Europe demonstrates the strongest integration of AC responsibilities in ESG reporting due to mandatory assurance requirements and harmonized standards under CSRD and IFRS S1–S2. North America follows a more market-driven approach shaped by investor demands and voluntary frameworks, while Asia-Pacific and Middle Eastern practices vary widely depending on governance maturity, ownership structures, and state-led ESG agendas. These contextual differences highlight the need for more comparative research that accounts for regulatory, cultural, and economic heterogeneity.

Despite progress, significant gaps in the literature remain. Few studies explore internal control systems for ESG data, the digital and AI competencies of AC members, or the mechanisms through which ACs detect and mitigate greenwashing. Longitudinal studies that track the impact of new regulations and assurance requirements over time are also scarce. Additionally, limited attention has been paid to the interaction between ACs and internal audit or dedicated sustainability committees in shaping ESG assurance strategies.

Overall, this review provides a consolidated understanding of how AC characteristics and governance structures influence ESG disclosure quality and assurance. It reinforces the need for ACs to adapt to the expanding complexity of sustainability reporting and to develop competencies that support reliable, transparent, and decision-useful disclosures. For regulators and standard-setters, the findings highlight the importance of clarifying governance expectations and supporting capacity-building for AC members, particularly in emerging markets. For practitioners and boards, the review underscores that strengthening AC composition, expertise, and engagement is not merely a compliance exercise but a strategic investment in credibility, resilience, and sustainable value creation.

Authors' contributions

Tri Hapsari is the sole author of this article. She designed the research questions, developed the review protocol, conducted the database searches and screening, performed the data extraction and analysis, and drafted and revised the manuscript. The author has read and approved the final version of the paper.

Availability of data and material

This study is based on previously published academic articles and publicly available professional and regulatory documents cited in the reference list. No new primary data were collected. The underlying search strings, screening notes, and summary extraction tables used for the systematic review are available from the author upon reasonable request.

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