

Beyond Traditional Assurance: Internal Audit, Green Auditing Capability and the Pursuit of Environmental Performance

Nurul Fatimah Ilias^{1*}; Roshidah Safeei²; Marzlin Marzuki³; Siti Sakinah Azizan⁴; Zulyanti Abd Karim⁵

Faculty of Accountancy, Universiti Teknologi MARA Cawangan Kedah, Kampus Sungai Petani 08400
Merbok, Kedah, Malaysia

* Corresponding Author

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ABSTRACT

The increasing environmental and sustainability challenges faced by organisations have expanded the role of internal audit beyond traditional financial controls, compliance, and operational assurance towards environmental governance and risk management. However, existing literature provides limited understanding of how internal audit effectiveness can be translated into improved environmental performance, particularly through specialised green auditing capability. This study aims to develop a conceptual framework explaining the relationships among internal audit effectiveness, green auditing capability, and environmental performance. A structured narrative literature review was conducted using the Scopus database to identify and synthesise relevant literature across internal auditing, environmental auditing, sustainability, governance, and environmental performance. Integrative thematic analysis was employed to identify recurring concepts, relationships, and theoretical perspectives. The findings indicate that internal audit effectiveness provides an important organisational foundation through independence, professional competence, adequate resources, risk-based methodologies, governance access, and organisational support. However, these capabilities alone may not be sufficient to generate meaningful environmental improvements. Green auditing capability emerges as a key mechanism that enables organisations to apply specialised environmental knowledge, resources, methodologies, and audit processes to environmental risks, controls, compliance, and performance. Accordingly, the study proposes that green auditing capability mediates the relationship between internal audit effectiveness and environmental performance. Theoretically, the study extends Institutional Theory by explaining how organisations develop specialised internal audit capabilities in response to increasing environmental expectations. Practically, the framework highlights the importance of developing environmental competencies, appropriate resources, specialised audit methodologies, and organisational support to strengthen internal audit's contribution to environmental sustainability. The proposed framework provides a foundation for future empirical research to validate the relationships and examine how green auditing capability contributes to environmental performance across different organisational and institutional contexts.

Keywords: internal audit effectiveness; green auditing capability; environmental performance; institutional theory; environmental auditing

INTRODUCTION

The escalating consequences of climate change, environmental degradation, resource scarcity, and sustainability-related risks have increasingly embedded environmental sustainability within organisational governance, risk management, strategic decision-making, and long-term value creation (Sailesh & Reddy, 2024). In this changing environment, internal audit (IA) is expected to extend beyond its conventional emphasis on financial controls, compliance, and operational assurance towards emerging environmental, social, and governance (ESG) risks. Accordingly, internal audit has the potential to function not only as a mechanism for identifying control weaknesses but also as a strategic governance instrument for identifying environmental risks, evaluating sustainability related controls, and supporting environmental improvement (Kassim et al., 2024). This evolving role has increased scholarly interest in the relationship between internal audit and environmental

performance. In particular, green or environmental auditing involves the systematic assessment of environmental policies, practices, controls, regulatory compliance, resource consumption, pollution prevention, waste management, and environmental management systems (Stanescu et al., 2020). Through such activities, internal audit can provide assurance over environmental risks and controls while supporting continuous improvement and the integration of environmental objectives into organisational strategies (Attaf & Bensbahou, 2023; Soh & Martinov-Bennie, 2018; Vo Van et al., 2026). Recent literature similarly indicates that internal audit is increasingly evolving towards a strategic role in environmental, social and governance (ESG) implementation, organisational resilience, and sustainable development (Lampropoulos et al., 2025; Rismawati et al., 2026)

Despite this growing recognition, the transition of internal audit from traditional assurance towards environmental performance is neither automatic nor sufficiently understood. Although internal auditors possess competencies in governance, risk management, internal control, and assurance, these capabilities do not necessarily translate into the specialised knowledge and processes required to address environmental risks. Effective green auditing may require expertise in environmental regulations, emissions, resource efficiency, pollution prevention, waste management, environmental management systems, and sustainability metrics (Sobowale et al., 2024). Thus, the existence of an internal audit function alone may be insufficient to generate meaningful environmental outcomes without appropriate competencies, resources, methodologies, and organisational support. Existing research has largely examined internal audit involvement in sustainability, ESG reporting, environmental assurance, and green innovation as separate areas, providing limited explanation of the organisational capability through which internal audit effectiveness can be translated into environmental performance. For example, Soh and Martinov-Bennie (2018) demonstrate that internal audit involvement in environmental and social assurance is influenced by organisational conditions, while Liu et al. (2026) show that internal audit can contribute to corporate green innovation but focus on mechanisms such as environmental awareness, risk-taking, and resource allocation. Similarly, recent reviews highlight the growing relationship between internal audit and ESG without fully explaining the capability pathway connecting internal audit to environmental outcomes (Lampropoulos et al., 2025; Vo Van et al., 2026). Addressing this gap, this study proposes a conceptual framework that positions internal audit effectiveness as an antecedent of green auditing capability and green auditing capability as the mechanism through which internal audit contributes to environmental performance.

The proposed framework contributes to the literature by integrating internal audit and environmental sustainability through the concept of green auditing capability, thereby moving beyond the assumption that internal audit has a direct and automatic effect on environmental performance. The framework is primarily grounded in Institutional Theory, which explains how regulatory, professional, and societal pressures encourage organisations to strengthen environmental governance and accountability (DiMaggio & Powell, 1983). The study therefore shifts the discussion from whether internal audit participates in sustainability towards the more theoretically significant question of how internal audit effectiveness can be transformed into a specialised green auditing capability that contributes to environmental performance. Practically, the framework may assist chief audit executives, audit committees, boards, regulators, and senior management in identifying the competencies, resources, governance arrangements, and organisational support required for internal audit to contribute effectively to environmental objectives. The paper proceeds by reviewing the literature on internal audit effectiveness, green auditing capability, and environmental performance, followed by a discussion of the theoretical foundations and development of the conceptual framework and propositions. The final section discusses the theoretical and practical implications, limitations, and opportunities for future empirical research.

LITERATURE REVIEW

Internal audit has progressively evolved from a traditional assurance function focused on financial controls and compliance towards a broader governance, risk management, and advisory role addressing emerging organisational risks, including environmental and sustainability-related risks. An effective internal audit function is characterised by independence and objectivity, professional competence, adequate resources, risk-based methodologies, management support, and access to senior governance bodies, enabling it to identify risks, evaluate controls, assess compliance, and support organisational improvement. Recent literature reflects this expanding role, with internal audit increasingly associated with ESG practices, sustainability assurance,

environmental governance, and green innovation (Lampropoulos et al., 2025; Liu et al., 2026; Soh & Martinov-Bennie, 2018; Vo Van et al., 2026; Yoon et al., 2021). However, conventional internal audit effectiveness does not necessarily ensure meaningful environmental outcomes, as environmental auditing requires specialised knowledge, competencies, methodologies, and organisational resources. This highlights the importance of examining how internal audit capabilities can be extended and applied specifically to environmental objectives.

Against this background, green auditing capability is proposed as an important mechanism linking internal audit effectiveness to environmental performance. Green auditing encompasses the systematic evaluation of environmental risks, controls, compliance, environmental management systems, resource use, emissions, waste, and progress towards environmental objectives, while green auditing capability reflects the organisational capacity to consistently mobilise the knowledge, skills, resources, methodologies, and governance processes required to undertake these activities effectively (Lampropoulos et al., 2025). Existing studies indicate that environmental auditing can support compliance, risk management, continuous improvement, transparency, accountability, and green innovation (Bonsu et al., 2026; Mohd Jamil et al., 2023). Nevertheless, the literature has largely examined internal audit in relation to ESG, sustainability reporting, green innovation, or environmental performance as separate areas, with limited attention to green auditing capability as the mechanism through which internal audit effectiveness contributes to environmental outcomes. Accordingly, this literature review examines the relationships among internal audit effectiveness, green auditing capability, and environmental performance, providing the basis for the proposed framework in which internal audit effectiveness influences environmental performance through green auditing capability, positioning green auditing capability as the pathway through which internal audit can move beyond traditional assurance towards strategic environmental stewardship.

Internal Audit Effectiveness

Internal audit effectiveness refers to the extent to which the internal audit function successfully fulfils its assurance, advisory, governance, and risk-management responsibilities and contributes to organisational improvement (Tumwebaze et al., 2022). Traditionally focused on financial reporting, internal controls, compliance, and operational efficiency, internal audit has progressively expanded its role in response to emerging organisational risks, including environmental and sustainability-related risks. An effective internal audit function is generally characterised by independence and objectivity, professional competence, adequate resources, management and audit committee support, risk-based methodologies, and access to senior management and those charged with governance (Grima et al., 2023; Oladejo et al., 2021). These characteristics provide the foundation for identifying emerging environmental risks, evaluating environmental controls, assessing compliance, and recommending corrective actions. Empirical literature supports this expanding role. Soh and Martinov-Bennie (2018) found that internal audit involvement in environmental and social assurance and consulting is associated with management support, internal audit characteristics, and sustainability reporting practices. Similarly, it demonstrated that increasing internal auditor involvement in Green Information Technology (IT) and sustainability-related activities (Yoon et al., 2021), while, based on a systematic review of 34 Scopus-indexed studies, identify growing evidence linking internal audit functions with ESG practices, performance, and disclosure (Vo Van et al., 2026). Additionally, the position of internal audit is increasingly important strategic partner in ESG implementation and organisational resilience (Lampropoulos et al., 2025).

The expanding role of internal audit suggests that its effectiveness can extend beyond conventional assurance towards supporting environmental governance and sustainability objectives. Effective internal auditors can integrate environmental considerations into risk assessment, control evaluation, compliance monitoring, and governance processes, thereby providing management with independent insights into environmental risks and opportunities (Kassim et al., 2024). However, the existence of an effective conventional internal audit function does not necessarily ensure the achievement of environmental outcomes because environmental auditing requires specialised knowledge, competencies, methodologies, and information (Wehrhahn, 2026). This distinction is important because traditional internal audit expertise may provide the organisational foundation for addressing environmental matters without necessarily providing the specialised capability required to evaluate complex environmental risks. Accordingly, this study conceptualises internal audit effectiveness as the foundational organisational capability that provides the independence, competence, resources, governance access, risk orientation, and assurance processes necessary to develop green auditing capability. In this

framework, internal audit effectiveness is not viewed as sufficient on its own to improve environmental performance; rather, its environmental value is expected to be realised through the organisation's ability to translate these conventional internal audit strengths into specialised green auditing practices.

Green Auditing Capability

Green auditing capability refers to an organisation's ability to systematically mobilise auditing knowledge, specialised environmental expertise, resources, methodologies, information, and governance processes to identify, assess, monitor, and provide assurance over environmental risks and performance (Hazaea et al., 2022; Sintara et al., 2023). Green auditing, also described in related literature as environmental or sustainability auditing, encompasses the evaluation of environmental policies, environmental management systems, regulatory compliance, resource and energy consumption, emissions, pollution, waste management, and progress towards environmental objectives (Luciano et al., 2024; Rostami et al., 2024). The literature identifies several functions through which green auditing can create organisational value, including environmental assurance and compliance, risk identification and control, continuous improvement, strategic governance, transparency and accountability, and support for green innovation (Kassim et al., 2024; Vo Van et al., 2026). Importantly, however, this study distinguishes green auditing capability from the mere conduct of green audits. Capability reflects the organisation's capacity to consistently acquire and apply environmental knowledge, develop appropriate audit methodologies, analyse environmental information, evaluate environmental controls and compliance, communicate environmental findings, and support corrective and improvement actions (Sintara et al., 2023; Zheng et al., 2020). Likewise, the distinction is also highlighted by demonstrating different orientations among internal auditors towards environmental auditing, ranging from proactive problem-solving to a more limited checking role (Mohd Jamil et al., 2023). Yoon et al. (2021) similarly show that internal auditors' perceptions and involvement in Green IT represent an emerging dimension of their sustainability-related responsibilities.

From a capability perspective, green auditing develops when conventional internal audit competencies in risk assessment, internal control, assurance, evidence evaluation, monitoring, and governance are extended into the environmental domain through specialised knowledge, resources, methodologies, and organisational support. Soh and Martinov-Bennie (2018) demonstrate that internal audit involvement in environmental and social assurance is influenced not only by internal audit characteristics but also by management support and sustainability reporting practices, suggesting that the development of green auditing capability is embedded within the wider organisational environment. This capability therefore provides the link between what an effective internal audit function can do and how those capabilities are applied to environmental objectives. In the proposed framework, green auditing capability functions as the mediating mechanism through which internal audit effectiveness is translated into environmental performance. An effective internal audit function provides the foundational resources and governance conditions, while green auditing capability directs these resources towards environmental risk assessment, control evaluation, compliance monitoring, environmental assurance, and continuous improvement (Kassim et al., 2024; Sabauri, 2024). Recent evidence from Liu et al. (2026), which demonstrates that internal audit can enhance corporate green innovation through mechanisms including environmental awareness, risk-taking, and resource allocation, further supports the view that internal audit capabilities can be extended towards environmentally oriented organisational outcomes. Thus, green auditing capability represents the specialised pathway through which internal audit can move beyond traditional assurance towards environmental stewardship.

Environmental Performance

Environmental performance refers to the extent to which an organisation manages, controls, and improves its environmental impacts while achieving established environmental objectives (Akbar & Mahdi, 2023; Pramukti, 2024). It may be reflected through outcomes such as reductions in greenhouse gas emissions, energy and water consumption, pollution and waste, improvements in resource efficiency and environmental compliance, and the adoption of cleaner technologies and environmentally responsible practices (Awewomom et al., 2024; Gonenc & Scholtens, 2017; Papoutsis & Sodhi, 2020). Green auditing can contribute to these outcomes by establishing systematic monitoring and feedback processes through which environmental risks and deficiencies are identified, controls are evaluated, compliance gaps are detected, and corrective actions are recommended. The literature

suggests that environmental auditing can support environmental performance through several interconnected pathways, including objective evaluation of environmental practices, regulatory compliance, continuous improvement of environmental management systems, strategic alignment of environmental objectives, sustainability-related transparency and accountability, and support for green innovation (Barra et al., 2026; Furuncu, 2026; Javed et al., 2026). Through these functions, internal audit can contribute not only to identifying environmental weaknesses but also to strengthening the organisational processes through which environmental improvements are implemented, monitored, and sustained. Bonsu et al. (2026), based on evidence from 550 firms in Ghana and Nigeria, found that internal sustainability auditing significantly enhances environmental performance, regulatory compliance, corporate governance transparency, and accountability, with particularly strong environmental effects reported in high-impact industries such as mining.

Nevertheless, the relationship between internal audit and environmental performance should not be viewed simply as a direct consequence of having an internal audit function. Internal audit may identify environmental risks, assess controls, evaluate compliance, challenge management, and recommend corrective actions, but these activities require appropriate environmental expertise, information, methodologies, organisational resources, and management commitment to generate sustained environmental improvements. Liu et al. (2026) similarly demonstrate that internal audit can influence environmentally oriented outcomes through its contribution to corporate green innovation, reinforcing the potential for internal audit to extend beyond conventional financial and compliance concerns. Despite this emerging evidence, existing research has largely examined internal audit in relation to ESG, sustainability reporting, green innovation, environmental auditing, or environmental performance as separate areas, with comparatively limited attention to the specific capability that connects internal audit effectiveness with environmental outcomes (Alfify & Sharaf-Addin, 2026; Liu et al., 2026). This study addresses this conceptual gap by proposing that green auditing capability represents the mechanism through which internal audit effectiveness contributes to environmental performance. Specifically, internal audit effectiveness provides the foundation through independence, competence, resources, governance access, and risk-based assurance; green auditing capability applies these strengths to environmental assessment and assurance, contributing to environmental performance through compliance, risk control, corrective action, and continuous improvement. Accordingly, the proposed framework suggests that internal audit effectiveness influences environmental performance through green auditing capability, positioning green auditing capability as the key explanatory mechanism through which internal audit can move beyond traditional assurance towards strategic environmental stewardship.

METHODOLOGY

Research Design – Narrative Review Methodology

This study adopts a narrative literature review methodology to examine and synthesise existing knowledge concerning internal audit effectiveness, green auditing capability, and environmental performance, with the objective of developing a conceptual framework that explains how internal audit can contribute to environmental outcomes through green auditing capability. A narrative review is appropriate because the research area is emerging and draws upon literature from several interconnected domains, including internal auditing, environmental auditing, sustainability, corporate governance, risk management, environmental management, and ESG. Unlike a systematic review, which normally addresses a narrowly defined research question through a highly prescriptive search and selection process, a narrative review allows the researcher to integrate evidence from conceptually diverse and multidisciplinary studies and to identify relationships, theoretical perspectives, and emerging concepts across the literature (Snyder, 2019). The narrative or semi-systematic reviews are particularly suitable for topics that have been conceptualised differently and investigated by different research communities, while integrative approaches can facilitate the development of new theoretical frameworks and perspectives (Snyder, 2019).

The present study therefore employs a structured narrative review rather than an unrestricted traditional literature review. Although the study does not seek to estimate an aggregate effect size or exhaustively identify every publication on environmental auditing, the review follows a transparent search strategy using the Scopus database, explicit search terms, defined conceptual boundaries, screening procedures, and thematic synthesis. This approach enhances the transparency and reproducibility of the review while retaining the flexibility required

to integrate literature from accounting, auditing, sustainability, governance, and environmental-management disciplines. The review is specifically designed to answer the conceptual question of how internal audit effectiveness can enhance environmental performance through the development and deployment of green auditing capability. The methodology therefore supports the study's principal objective of synthesising fragmented literature and subsequently proposing a conceptual relationship among internal audit effectiveness, green auditing capability, and environmental performance.

Key Steps in Conducting a Narrative Review

As prescribed in Figure 1, the narrative review was conducted through a series of interconnected stages: (1) defining the research purpose and conceptual boundaries, (2) developing the search strategy, (3) identifying relevant literature, (4) screening and assessing retrieved publications, (5) extracting and organising relevant information, (6) conducting integrative thematic analysis, and (7) synthesising the findings into a conceptual framework. The first stage involved defining the central research objective and establishing the three principal constructs of the study: internal audit effectiveness, green auditing capability, and environmental performance. The second stage involved developing a comprehensive search string that incorporated alternative terminology for internal auditing, green auditing, capability, performance, and organisational governance. The search was conducted using Scopus, selected because it provides broad multidisciplinary coverage of peer-reviewed scholarly literature and is particularly suitable for identifying research across accounting, auditing, business, management, environmental studies, and sustainability. The third stage involved retrieving publications that matched the predetermined search terms. The fourth stage involved screening the retrieved literature based on relevance to the research objective, conceptual contribution, and substantive connection to at least one of the core constructs. Publications that were unrelated to internal audit, environmental/green auditing, organisational capability, or environmental performance were excluded from the conceptual synthesis.

In the fifth stage, information from the selected literature was organised around the study's core constructs, including definitions, dimensions, antecedents, mechanisms, outcomes, theoretical perspectives, and empirical findings. The sixth stage employed integrative thematic analysis to identify recurring concepts, relationships, theoretical explanations, and areas of convergence or disagreement across the literature. Thematic analysis is a flexible approach for identifying and interpreting patterns within qualitative material (Braun & Clarke, 2006), while integrative review methodology enables findings from diverse forms of literature to be critically synthesised to generate new conceptual insights (Whittemore & Knafl, 2005). Finally, the synthesised themes were integrated to develop the proposed conceptual framework. The framework was constructed by examining whether the literature supports a logical sequence in which internal audit effectiveness provides the organisational foundation for green auditing capability, green auditing capability functions as the mechanism through which environmental risks and controls are systematically evaluated, and these activities contribute to improved environmental performance. This process ensures that the proposed framework is grounded in existing scholarship rather than being derived solely from theoretical assumptions.

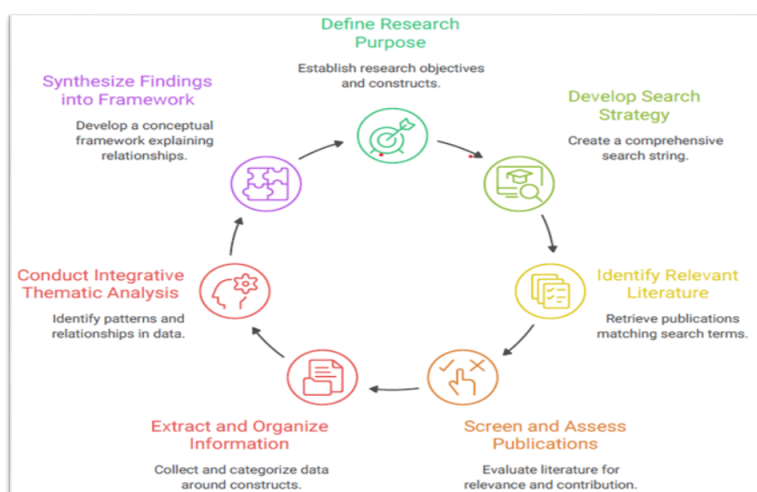


Figure 1. Key steps in conducting narrative review

Data Collection and Review Strategy

Data collection was conducted exclusively through the Scopus database, using a structured Boolean search string designed to capture the multidisciplinary terminology associated with internal audit, green auditing, organisational capability, environmental performance, risk management, and governance. The following search string was applied: ("internal audit" OR "audit" OR "assurance" OR "compliance") AND ("green auditing" OR "sustainability audit" OR "environmental audit" OR "eco-audit") AND ("capability" OR "competence" OR "capacity" OR "ability") AND ("performance" OR "effectiveness" OR "efficiency" OR "impact") AND ("risk management" OR "governance" OR "control" OR "regulation"). The search strategy was deliberately constructed using synonyms and related concepts to minimise the possibility of overlooking relevant studies that use different terminology to describe similar phenomena. The first group of terms captures the internal assurance and audit domain; the second identifies environmental and sustainability-oriented auditing; the third captures the capability dimension that forms the proposed mediating construct; the fourth identifies organisational outcomes; and the fifth incorporates the governance, risk, control, and regulatory context in which internal audit and environmental auditing operate. The use of Boolean operators OR within conceptual groups broadens the search by capturing alternative terminology, while AND between groups narrows the results to publications that address the intersection of the relevant concepts. The retrieved publications were subsequently examined for conceptual and substantive relevance. Particular attention was given to studies addressing internal audit involvement in environmental or sustainability assurance, environmental auditing practices, internal audit competencies, sustainability governance, environmental risk management, green innovation, environmental management systems, and environmental performance.

Nevertheless, the review did not treat all retrieved studies as equally informative; instead, greater analytical emphasis was placed on peer-reviewed studies that directly addressed the relationships among the core constructs or provided theoretical or empirical evidence relevant to the proposed framework. Following retrieval and screening, the selected literature was subjected to integrative thematic analysis. The analysis involved repeated reading of the selected publications, identification of recurring concepts and findings, coding of evidence according to the three principal constructs, comparison of similarities and differences across studies, and grouping of related concepts into higher-order themes. The themes were then interpreted in relation to the study's conceptual objective. In particular, the analysis examined evidence concerning (i) the characteristics and effectiveness of internal audit, (ii) the competencies, resources, processes, and organisational conditions required for green auditing, and (iii) the contribution of auditing and environmental governance to environmental performance. The synthesis subsequently examined the relationships between these themes to determine whether green auditing capability could plausibly function as an explanatory mechanism between internal audit effectiveness and environmental performance. This approach is consistent with Snyder (2019), which argued that literature reviews should employ an appropriate and transparent methodology rather than relying on an ad hoc selection of studies, and with Braun and Clarke (2006) view that thematic analysis provides a systematic yet flexible means of identifying patterns within qualitative material.

Key Findings

The narrative review identified several interconnected themes concerning the role of internal audit in enhancing environmental performance through green auditing. The findings demonstrate that internal audit is progressively moving beyond its traditional assurance and compliance orientation towards a broader strategic role involving environmental governance, risk management, sustainability assurance, and organisational improvement. At the same time, the literature indicates that the environmental contribution of internal audit is unlikely to arise solely from the existence of an internal audit function. Rather, organisations require appropriate environmental knowledge, competencies, audit processes, governance support, and resources to translate conventional internal audit capabilities into effective green auditing practices. The review therefore identifies green auditing capability as an important connecting mechanism between internal audit effectiveness and environmental performance. The principal findings emerging from the narrative synthesis are presented in Table 1.

Key findings	Description	References
1.Internal audit is evolving beyond traditional assurance	Internal audit is increasingly recognised as a strategic governance function that contributes to ESG implementation, sustainability risk management, environmental assurance, and organisational resilience rather than focusing exclusively on financial controls and compliance.	Lampropoulos et al. (2025); Soh and Martinov-Bennie (2018); Vo Van et al. (2026)
2.Environmental assurance is an emerging internal audit responsibility	Internal auditors increasingly evaluate environmental policies, controls, risks, compliance, environmental management systems, and sustainability-related information, extending the scope of conventional assurance activities into environmental matters.	Mohd Jamil et al. (2023); Yessenamanova et al. (2022); Yoon et al. (2021)
3.Green auditing requires specialised capability	Effective green auditing requires more than conventional auditing competence. It requires environmental knowledge, risk assessment skills, appropriate audit methodologies, environmental information, regulatory awareness, and organisational resources.	Mohd Jamil et al. (2023); Qu (2014); Soh and Martinov-Bennie (2018)
4.Internal audit contributes to environmental risk identification and control	Internal audit can identify environmental risks, assess the effectiveness of environmental controls, evaluate compliance, and communicate weaknesses and recommendations to management and governing bodies.	Attaf and Bensbahou (2023); Qu (2014); Yessenamanova et al. (2022)
5.Green auditing supports regulatory compliance	Systematic environmental auditing assists organisations in assessing compliance with environmental laws, regulations, internal policies, and environmental standards, thereby reducing exposure to environmental and regulatory risks.	Attaf and Bensbahou (2023); Yessenamanova et al. (2022)
6.Green auditing facilitates continuous environmental improvement	Periodic environmental audits provide feedback on environmental management systems, identify deficiencies, monitor corrective actions, and create a basis for continuous improvement in environmental management and performance.	Perry (2004); Prajogo et al. (2016)
7.Internal audit strengthens environmental governance	Internal audit can help integrate environmental objectives into organisational governance and strategic decision-making by providing independent assurance and information to management, audit committees, and boards.	Lampropoulos et al. (2025); Rismawati et al. (2026); Vo Van et al. (2026)
8.Green auditing enhances transparency and accountability	Environmental and sustainability-oriented assurance can improve the credibility, reliability, and accountability of environmental information and sustainability-related reporting.	Del Baldo et al. (2021); Rismawati et al. (2026); Vo Van et al. (2026)
9.Internal audit can support green innovation	By strengthening governance, environmental risk oversight, and accountability, internal audit can create conditions that encourage green innovation and environmentally responsible organisational practices.	Liu et al. (2026)

10.Environmental auditing is associated with improved environmental performance	Evidence indicates that sustainability and environmental auditing can contribute to environmental performance through compliance, improved controls, continuous improvement, and stronger environmental management.	Attaf and Bensbahou (2023); Bonsu et al. (2026); Perry (2004)
11.Internal audit involvement is context dependent	The extent to which internal audit participates in environmental assurance depends on management support, organisational governance, internal audit characteristics, sustainability priorities, and the broader institutional environment.	Mohd Jamil et al. (2023); Soh and Martinov-Bennie (2018)
12. Green auditing capability represents a potential explanatory mechanism	The literature suggests that internal audit effectiveness alone may not automatically generate environmental improvements; rather, internal audit competencies and resources must be transformed into specialised green auditing capability to influence environmental outcomes.	Liu et al. (2026); Mohd Jamil et al. (2023); Soh and Martinov-Bennie (2018); Vo Van et al. (2026)

Table 1. Key Findings from the Narrative Review

Development of Conceptual Framework

This study adopts Institutional Theory as the primary theoretical foundation for explaining the relationships among internal audit effectiveness, green auditing capability, and environmental performance. Institutional Theory suggests that organisations are influenced by regulations, professional expectations, societal norms, and established practices, leading them to develop structures and practices that support legitimacy and conformity (DiMaggio & Powell, 1983; Meyer & Rowan, 1977) . In the context of environmental sustainability, increasing institutional pressures from regulators, professional bodies, investors, and society encourage organisations to strengthen environmental governance, risk management, internal controls, and assurance practices. This provides a theoretical basis for understanding the expanding role of internal audit in addressing environmental and ESG-related risks. Recent literature further demonstrates the increasing relevance of internal audit to ESG governance, sustainability risk management, and organisational resilience (Lampropoulos et al., 2025; Vo Van et al., 2026).

Building on this perspective, the proposed framework suggests that internal audit effectiveness provides the foundation for developing green auditing capability, which subsequently contributes to environmental performance, as illustrated in Figure 2. An effective internal audit function provides independence, competence, resources, risk-based methodologies, and governance access, while green auditing capability extends these strengths through specialised environmental knowledge, skills, and processes. Green auditing capability therefore serves as the mediating mechanism through which internal audit effectiveness can be translated into environmental risk assessment, compliance monitoring, continuous improvement, and improved environmental performance. Consistent with Institutional Theory, the development of such capability reflects organisational responses to increasing expectations for environmental accountability and sustainability. Accordingly, Figure 2 presents the proposed relationship in which green auditing capability mediates the relationship between internal audit effectiveness and environmental performance.

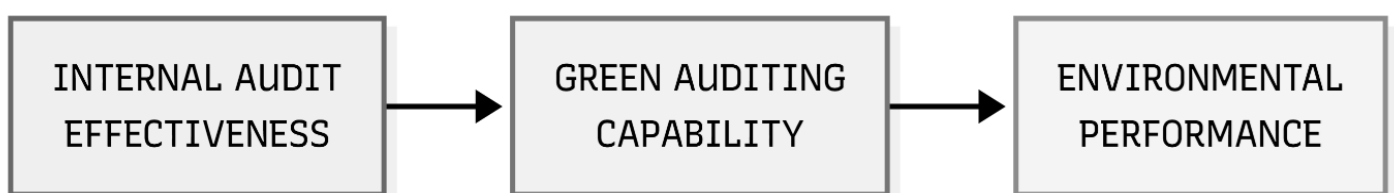


Figure 2: Proposed conceptual framework

Proposition Development: Internal Audit Effectiveness and Green Auditing Capability

Internal audit effectiveness provides an important organisational foundation for developing green auditing capability because an effective internal audit function possesses independence, professional competence, adequate resources, risk-based methodologies, governance access, and organisational support that can be extended to environmental and sustainability-related risks. Its established capabilities in risk assessment, internal control evaluation, compliance, assurance, and governance can be applied to environmental risks, controls, regulatory requirements, and sustainability information. Soh and Martinov-Bennie (2018) found that internal audit involvement in environmental and social assurance is associated with internal audit characteristics, management support, and organisational sustainability practices, while Vo Van et al. (2026) identify growing evidence of internal audit involvement in ESG practices, performance, and disclosure. Liu et al. (2026) further demonstrate that internal audit can contribute to environmentally oriented outcomes through its influence on corporate green innovation. From an Institutional Theory perspective, increasing regulatory, professional, and societal expectations for environmental accountability may further encourage internal audit functions to incorporate environmental considerations into their activities (DiMaggio & Powell, 1983). However, developing green auditing capability requires the additional mobilisation of specialised environmental knowledge, competencies, methodologies, and resources. Accordingly, internal audit effectiveness is expected to provide the organisational foundation for developing green auditing capability.

Proposition 1 (P1): Internal audit effectiveness positively influences green auditing capability.

Proposition Development: Green Auditing Capability and Environmental Performance

Green auditing capability is expected to positively influence environmental performance because it enables organisations to systematically assess environmental risks, controls, compliance, resource utilisation, pollution, waste, and environmental management practices and to translate audit findings into corrective and improvement actions. Environmental auditing can therefore provide an ongoing feedback mechanism that supports compliance, environmental risk management, continuous improvement, and environmental accountability (Perry, 2004; Prajogo et al., 2016; Yessenamanova et al., 2022). Empirical evidence further indicates that sustainability auditing can improve environmental performance, regulatory compliance, governance transparency, and accountability (Bonsu et al., 2026), while environmental auditing can strengthen environmental management through the evaluation of controls and identification of areas for improvement (Qu, 2014). Strong green auditing capability may consequently enable organisations to move beyond detecting environmental deficiencies towards proactive environmental management and continuous improvement. Accordingly, organisations with stronger green auditing capability are expected to achieve better environmental outcomes through improved environmental compliance, risk management, resource efficiency, and environmental improvement.

Proposition 2 (P2): Green auditing capability positively influences environmental performance.

Proposition Development: The Moderating Role of Green Auditing Capability

Green auditing capability is expected to strengthen the relationship between internal audit effectiveness and environmental performance because it enables the general assurance, risk-management, control, and governance capabilities of internal audit to be specifically applied to environmental matters. Although effective internal audit provides the organisational capacity to identify risks, evaluate controls, and monitor compliance (Soh & Martinov-Bennie, 2018; Vo Van et al., 2026), environmental issues require specialised knowledge, methodologies, information, and resources. Green auditing capability provides these specialised competencies, allowing internal audit findings to be translated more effectively into environmental corrective actions and improvements (Perry, 2004; Yessenamanova et al., 2022). This argument is consistent with the increasing role of internal audit in ESG and sustainability governance (Lampropoulos et al., 2025; Vo Van et al., 2026) and with evidence linking sustainability auditing and internal audit to environmental and green innovation outcomes (Bonsu et al., 2026; Liu et al., 2026). From an Institutional Theory perspective, strong green auditing capability also enables organisations to respond more effectively to institutional expectations for environmental

accountability and sustainability (DiMaggio & Powell, 1983). Thus, when green auditing capability is high, the environmental contribution of an effective internal audit function is expected to be stronger.

Proposition 3 (P3): Green auditing capability positively moderates the relationship between internal audit effectiveness and environmental performance, such that the positive effect of internal audit effectiveness on environmental performance is stronger when green auditing capability is high.

CONCLUSION

This study concludes that internal audit can play an increasingly important role in supporting environmental sustainability by extending its traditional assurance, governance, risk management, and control responsibilities towards environmental and sustainability-related matters. The narrative review indicates that internal audit effectiveness provides an important organisational foundation through independence, competence, resources, risk-based methodologies, governance access, and organisational support, while green auditing capability enables these strengths to be applied specifically to environmental risks, controls, compliance, and performance. The key finding is that green auditing capability represents an important mechanism through which internal audit effectiveness can contribute to environmental performance by supporting environmental risk identification, regulatory compliance, continuous improvement, accountability, and environmentally responsible practices. Theoretically, the study extends the application of Institutional Theory by explaining how organisations can develop specialised internal audit capabilities in response to increasing regulatory, professional, and societal expectations for environmental accountability, while also highlighting the organisational capability dimension underlying the relationship between internal audit and environmental performance. Practically, the proposed framework provides implications for chief audit executives, audit committees, boards, senior management, and regulators by emphasising the importance of developing environmental competencies, allocating appropriate resources, strengthening environmental audit methodologies, and integrating environmental risks into internal audit planning and governance processes.

Limitations

The study is subject to several limitations, particularly its reliance on a narrative review and secondary literature, the conceptual nature of the proposed relationships, and the absence of primary empirical evidence to validate the proposed framework and propositions.

Suggestions for future research

Future research should therefore empirically examine the relationships among internal audit effectiveness, green auditing capability, and environmental performance across different industries and institutional contexts, develop and validate reliable measures of green auditing capability, and investigate the conditions under which internal audit contributes most effectively to environmental outcomes. Longitudinal and mixed-method studies could further examine how green auditing capability develops over time and how internal audit practices translate into measurable environmental improvements, thereby providing stronger empirical evidence for the proposed framework and advancing understanding of the evolving role of internal audit in environmental sustainability.

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During the preparation of this work the author(s) used ChatGPT in order to brainstorm the idea and to assist in explaining the text clearly. After using this tool/service, the author(s) reviewed and edited the content as needed

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