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The interplay of sustainability, corporate green accounting and firm financial performance: a meta-analytical investigation

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Abstract

Purpose – This study uses a meta-analysis approach to analyse the impact of applying corporate green accounting practices as vital sustainable development tools on firm performance. This study aims to examine the moderating effects of country-specific variables and characteristics on the association between corporate green accounting and firm performance.

Design/methodology/approach – Three databases were used for a meta-analysis of 68 independent studies involving 19,625 subjects conducted over 25 years from 1996 to 2020.

Findings – The results show that corporate green accounting positively affects firm performance, but country-specific variables do not moderate this association. The positive association between corporate green accounting and firm performance was enhanced when it was measured in terms of environmental costs. Subgroup analyses revealed that study characteristics are significant source of heterogeneity in the corporate green accounting indicators-firm performance association.

Practical implications – The findings suggest that firms should strategise to integrate environmental costs into their respective financial accounting frameworks, which would help managers justify the contribution of their firms towards environmental protection.

Social implications – Accessing accurate and timely information on corporate environmental functioning can assist national policymakers in framing appropriate legislation on environmental protection and sustainable development.

Originality/value – Although meta-analysis has been used previously in accounting research (Guthrie and Murthy, 2009; Alcouffe *et al.*, 2019), to the best of the authors' knowledge, this is the first study to use a meta-analytical technique to examine the impact of corporate green accounting on firm performance.

Keywords Corporate green accounting, Environmental accounting, Sustainable development, Meta-analysis, Corporate environmental performance

Paper type Research paper

1. Introduction

The growing problems of pollution, environmental damage and the mismanagement of natural resources across countries have prompted businesses to adopt sustainable development methods for operations and production (Tregidga and Laine, 2022; Nicholls, 2020). The sustainable development growth model is grounded in theory, postulating a strong association

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between economic and environmental development (Bebbington and Rubin, 2022; Asiaei *et al.*, 2022). Environmental economics (based on the theory of externalities) assumes that corporate economic operations considerably affect the environment. Thus, firms must engage in environmental protection and management. Corporate commitment to sustainable development that goes beyond short-term profitability towards a holistic approach, including social, environmental and economic sustainability, has become an essential strategic management tool for entrepreneurial orientation (Ihenyen and Ikegima, 2022; Maama and Appiah, 2019; Appannan *et al.*, 2022; Liu and Liu, 2021; Cho *et al.*, 2022).

Corporate sustainability refers to the "[adoption of] business strategies and activities that meet the needs of the enterprise and its stakeholders today while protecting, sustaining, and enhancing the human and natural resources that will be needed in the future" (Caldera *et al.*, 2018; Phan *et al.*, 2020). The concept of a "triple bottom line", which emphasises a company's performance regarding social and environmental concerns, is central to corporate sustainability (Cho *et al.*, 2020; Scarpellini *et al.*, 2020; Taïbi *et al.*, 2020; Tregidga and Laine, 2022). It adheres to the three overarching principles of ecological sustainability, social justice and economic growth. Green accounting is an innovative concept associated with the operationalisation of corporate sustainability (Huseno, 2018; Li *et al.*, 2021; Lin *et al.*, 2021; Liu and Liu, 2021; Schaltegger and Burritt, 2010). Green accounting is also known as environmental and resource accounting (Adegbie *et al.*, 2020). According to the definition provided by the Institute of Management Accountants, USA:

> Environmental (green) accounting is the identification, measurement, and allocation of environmental costs, the integration of these environmental costs into business decisions, and the subsequent communication of the information to a company's stakeholders' (Jahamani, 2003).

Green accounting entails identifying and measuring environmental costs and liabilities and documenting them in financial statements (Ahmad *et al.*, 2018; Asiaei *et al.*, 2022; Bebbington *et al.*, 2021; Chavez and Romi, 2021; Cho *et al.*, 2022; Gunarathne *et al.*, 2021; Larrinaga, 2021; Thomson, 2021) [1]. In conjunction with other environmental management measures (e.g. ISO 14000 and integrated environmental management systems [EMSs]), green accounting defines environmental management structures that can successfully quantify, monitor and improve the environmental aspects of their operations. The focus of a green accounting system is to enhance the association between financial and environmental performance, including environmental consistency, in the organisation's culture and performance. It provides decision makers with the necessary information to minimise commercial costs and risks, thereby creating value (Appannan *et al.*, 2022; Deb *et al.*, 2022; Tregidga and Laine, 2022; Cavalletti and Corsi, 2022; Bebbington and Rubin, 2022; Cho *et al.*, 2022).

Most studies on green accounting in corporations focus on environmental disclosures, with content analysis being the most frequently used method (Prieto, 2020). However, the literature on the causal relationship between firm performance and green accounting remains equivocal. Numerous studies (Festus and Akinselure, 2017; Nguyen and Tran, 2019; Bassey *et al.*, 2013; Homan, 2016; Mgbame and Ilaboya, 2013; Che-Ahmad *et al.*, 2015) have suggested that this association is positive (resource-based views [RBVs]) (Lu and Taylor, 2016; Rakiv *et al.*, 2016). However, other studies indicate that green accounting has a detrimental effect on a company's overall financial health (Adediran and Alade, 2013; Huseno, 2018; Omnamasivaya and Prasad, 2017). Nonetheless, some studies find that a link between green accounting and corporate performance cannot be established because environmental costs are difficult to quantify (Cormier and Magnan, 2007). As green accounting studies evolve, scholars have used several proxies for assessment (Homan, 2016;

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Scarpellini *et al.*, 2020). Most studies (Che-Ahmad *et al.*, 2015; Mgbame and Ilaboya, 2013; Carandang and Ferrer, 2020) use an environmental disclosure index, whereas others use environmental expenditure (Bhattarai, 2014; Makori and Jagongo, 2013), rankings (Kadyan and Aggarwal, 2014; Aggarwal, 2013) or performance indicators (Burritt and Saka, 2006; Omnamasivaya and Prasad, 2017). These proxies are geared towards specific objectives such as securing legitimacy, adhering to environmental regulations and enhancing environmental performance. Thus, conducting a thorough analysis of academic findings is necessary to advance our understanding of this field. The Appendix (Table A1) shows the studies incorporated in this meta-analysis.

Concerning these earlier studies, this study contributes to the literature in several ways. Firstly, no study has focused on providing conclusive evidence of the association between corporate green accounting and firm performance. Secondly, this study considers various moderators affecting the relationship between green accounting and firm performance, such as characteristics and country-specific variables. Thirdly, this study adopted a meta-analytical approach by analysing 68 primary studies spanning 25 years. Meta-analysis provides far greater precision than other review studies because it statistically aggregates the results from individual studies and corrects for statistical artefacts, such as sampling and measurement errors (Song *et al.*, 2002; Sterne *et al.*, 2000). In addition, this research approach responds to calls made by Schaltegger and Burritt (2010), who have urged research to examine the relationship between various metrics of corporate green accounting as a tool of sustainability accounting and a firm's industry-relevant performance.

The remainder of this paper is structured as follows. Section 1 introduces the topics of green accounting, corporate sustainability and meta-analysis and outlines the insights gained from this study. Section 2 presents the theoretical background and formulates the hypotheses. Section 3 describes the sample selection process, screening procedure, variables used in the study and heterogeneity in the meta-regression analysis. Section 4 presents the meta-analysis results. Finally, Section 5 presents the study's conclusions, implications, limitations and scope for future research.

2. Theory and hypotheses

2.1 Relationship between corporate green accounting and firms' performance

Corporate sustainability is an umbrella term that includes diverse environmental management indicators, such as green accounting and EMS. Several theories describe the association between corporate sustainable development practices and financial performance (Alshehhi *et al.*, 2018; Caldera *et al.*, 2018; Phan *et al.*, 2020; Yu and Zhao, 2015). These theories are based on the concepts of value creation and destruction. The value-creation approach postulates that firms engaged in sustainability practices can benefit in several ways, such as by improving operational efficiency and reducing risk (Caldera *et al.*, 2018; Jayarathna *et al.*, 2022). The value destruction theory highlights the negative impact of sustainable practices on firm performance (Alshehhi *et al.*, 2018).

Similarly, the trade-off theory postulates an inverse relationship between sustainable development practices and firms' financial performance (Abban and Hasan, 2021; Durak Uşar and Soytas, 2022). This is grounded in the justification that resources are directed towards non-profitable sustainability practices that impact corporate working capital requirements. The shift in focus from the wealth-maximisation principle to environmental stewardship may benefit stakeholders at the expense of shareholders. However, the RBV proposes a positive relationship between corporate sustainability practices and firm performance (Phan *et al.*, 2020). This theory views a firm as an inventory of resources and capabilities which, when strategically used, may provide a competitive advantage to the

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firm, leading to superior financial performance. In contrast, the slack resource theory suggests inverse causality, stating that better-performing firms possess slack resources to perform sustainable practices (Avci and Sungu-Esen, 2022). However, these theories have led to a recurring cycle with mixed results regarding the association between corporate sustainability practices and firm performance.

The RBV is often used in the existing literature on green accounting (Hong and Hardy, 2022; Khanra *et al.*, 2022; Phan *et al.*, 2020). The importance of examining firms from the resource side rather than the product side is promoted by the RBV (Singh *et al.*, 2020). A greater focus on firm resources helps explain how resources may contribute to competitive advantages and reduce overemphasis on product-side prospects and challenges. Barney (1991) argued for the RBV by noting that prior research implicitly embraces two significant simplifying assumptions. Firstly, the firms operating in an industry have homogeneous resources and corporate strategies. Secondly, the firm's resources are mobile. However, a resource-based perspective replaces this assumption. Firstly, firms in an industry may have different resources and be heterogeneous. Secondly, this model assumes that these resources may not be entirely transferable among firms, resulting in long-term heterogeneity (Barney, 1991). These RBV assumptions reflect reality more accurately than those made by environment-focused models.

The RBV considers the compatibility between a firm's capabilities and opportunities. It categorises resources as tangible, intangible or personnel-based (Dubey *et al.*, 2019; Singh *et al.*, 2020; Yong *et al.*, 2020). Tangible assets include cash reserves and physical assets such as plants, machinery and raw material supplies. Intangible resources include brands, technology and human resources. Personnel resources include workers' culture, training, competencies and loyalty. As these combinations of resources are not fruitful on their own, research must also consider the organisation's ability to collect, integrate and govern them (Demirel and Kesidou, 2019). In applying the RBV, we consider the interplay between resources (in this instance, those of human resources, intangible and tangible) and capabilities.

Human resources and organisational capabilities. Incorporating a green accounting system increases the complexity of the manufacturing, administrative and accounting processes and calls for higher skill levels from employees across different departments of the firm (Cavalletti and Corsi, 2022). Adopting a sophisticated corporate sustainability strategy, such as implementing a green accounting system, builds within a firm a learning and commitment environment, cross-functional collaboration and coordination and increases employees' skills (Schaltegger and Burritt, 2010). Green accounting plays a crucial role in bringing environmental costs to the attention of corporate stakeholders, who may be able and motivated to find methods to reduce or eliminate such costs while also enhancing environmental quality and profitability.

Intangible resources. Firms can use green accounting and reporting to create environmentally friendly industries (Gunarathne *et al.*, 2021). This enhances a company's legitimacy, credibility and market share by creating capital-intensive projects, generating revenue and gaining access to the market. This approach also boosts the loyalty and trust of various stakeholders sensitive to environmental issues. In addition, a positive environmental reputation may be cultivated as a priceless and inimitable asset. Therefore, implementing well-planned corporate sustainability strategies can increase profits.

Physical assets and technology. The information generated by adopting corporate green accounting systems assists management in deciding on the restructuring of production or distribution processes, causing high environmental costs. This redesign would likely include the implementation of new technologies that promise to support the sustainability

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objective by reducing environmental costs (say, for instance, via reducing wasted raw materials and utilities, as well as promoting lower emissions). With this outline, the RBV of the firm provides a strong foundation for the hypothesis that accounting for the environment, as part of a corporate sustainability strategy, can enhance a firm's financial performance:

H1. Corporate green accounting significantly influences firms' financial performance.

Numerous factors could have contributed to the inconclusive findings regarding the relationship between corporate green accounting and firm performance. Patten (2002) provides several possibilities for this, including limited sample sizes, a lack of control for confounding variables, the use of multiple proxies to quantify corporate green accounting (discussed next) and company performance.

Corporate green accounting indicators. Based on the literature review, we categorise various corporate green accounting proxy measures into four groups:

(1) the environmental accounting disclosure index (EADI) (Abdullah *et al.*, 2020; Cho *et al.*, 2020; Majid *et al.*, 2022; Zeng *et al.*, 2020);

(2) environmental costs (Festus and Akinselure, 2017; Solovida and Latan, 2017);

(3) environmental performance ratings (Bassey *et al.*, 2013; Michelon *et al.*, 2016); and

(4) environmental performance indicators (Nguyen *et al.*, 2020; Yamasaki *et al.*, 2019).

Corporations' disclosure of financial and non-financial information regarding their environmental performance falls under the EADI (Dienes *et al.*, 2016; Prieto, 2020; Nguyen and Tran, 2019). The EADI is an essential tool for corporate green accounting as it helps maintain transparency between firms and stakeholders, whereby stakeholders are aware of the efforts made by firms towards ensuring sustainability (Scarpellini *et al.*, 2020). Most studies support the linear relationship between environmental accounting disclosures and firm performance (Solovida and Latan, 2017; Dienes *et al.*, 2016; Zeng *et al.*, 2020). For instance, stakeholders consider firms that disclose more environmental information as more responsible (Caldera *et al.*, 2018). In addition, investors have greater confidence and trust in firms that disclose their sustainability efforts and feel safer investing money in such firms (Cho *et al.*, 2020). By contrast, other firms disclose their environmental practices only because of the immense pressure exerted by regulatory authorities (Majid *et al.*, 2022; Khanra *et al.*, 2022). The quality and availability of information on various aspects of the environment also depend on the legislation prevalent within a particular country (Bebbington *et al.*, 2021). For instance, some countries have mandatory policies for environmental protection, whereas others encourage voluntary disclosure by firms (Correa and Larrinaga, 2015). Another factor that may affect a firm's decision to disclose more information about its environmentally impacting activities is the potential for subsidies or grants provided by the government.

Another corporate green accounting indicator is environmental costs and the additional costs firms incur in adopting environmental management practices. To make sound management decisions, it is crucial to acknowledge the environmental costs associated with a product, process, system or facility. It is also important to consider present and prospective environmental costs if management wants to achieve specific objectives, including lowering environmental costs, increasing cash inflows and improving environmental performance. How a firm determines environmental costs relies on how it strategises to use this information (e.g. via cost allocation, capital budgeting, process/product design and other management decisions) (Lin *et al.*, 2021; Alshehhi *et al.*, 2018). Furthermore, it is not

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always apparent whether a cost is "environmental" in nature or not; certain costs might be categorised as simultaneously partially "environmental" and partially "non-environmental" or as falling under a grey area. For instance, should the cost of manufacturing equipment be deemed "environmental" if it uses "clean technology"? Should measures to manage the shelf life of raw materials and supplies in a firm's inventory be regarded as "environmental" costs (if discarded, they are regarded as trash and result in environmental costs)? In addition, it can be difficult to distinguish certain environmental expenses from those associated with risk management, health and safety. It is not important to determine if a cost is "environmental"; the central aim is to ensure that relevant costs are properly considered (Bebbington *et al.*, 2021).

Profit is realised over a shorter period in the case of environmental costs (Michelon *et al.*, 2016; Cho *et al.*, 2020). For example, the costs associated with obtaining environmental certification are classified as environmental costs (Solovida and Latan, 2017; Durak Uşar and Soytas, 2022). The allocation of cash in line with mandatory environmental regulations saves firms from the huge penalties and taxes imposed by the authorities. These allocations could be derived from purchasing ISO certificates and spending some profits on environmental protection and restoration activities (Nicholls, 2020). Furthermore, investments in clean technology and other projects may attract green investors and international funding agencies (Festus and Akinselure, 2017).

Multiple agencies across numerous countries provide sustainability ratings by considering firms' environmental performance and adherence to environmental rules and regulations (Correa and Larrinaga, 2015; Bassey *et al.*, 2013). Hence, researchers consider environmental performance ratings as a potential indicator of corporate green accounting. Firms rated highly by environmental protection agencies such as KLD and ASSET4 can enjoy the perks derived from a positive image developed within the community, which in turn helps enhance their revenues, given that contemporary investors are known to invest in sustainable firms that exhibit concerns for society and the environment (Michelon *et al.*, 2016; Majid *et al.*, 2022).

Another measure of corporate green accounting analysed in this study is the environmental performance indicator, which entails using eco-efficiency and eco-intensity as environmental management tools for evaluating the environmental performance of firms (Nguyen *et al.*, 2020). Eco-efficiency is the ratio of a firm's environmental aspects to its financial aspects, such as the total emissions produced in a year divided by the total sales generated in the same year (Larrinaga, 2021; Jayarathna *et al.*, 2022). The reciprocal of eco-efficiency is called eco-intensity, which is the ratio of the total sales generated in a year to the total waste generated in the same year (Zeng *et al.*, 2020). Business entities use eco-efficiency at every step of production, beginning with the procurement of raw materials to produce finished products. Thus, this tool is valuable for mapping firm performance (Hussain and Dey, 2021; Gunarathne *et al.*, 2021). The proper utilisation of eco-efficiency and eco-intensity methods can generate greater awareness among management and imbue the latter with knowledge about the volume of resources consumed, the amount of waste generated and the usage of utilities such as water and electricity (Deb *et al.*, 2022; Cavalletti and Corsi, 2022). This information can also help entities reduce resource waste, thereby drastically decreasing overall production costs. Based on the above discussion, the following hypotheses are proposed:

H2. The EADI significantly influences the performance of firms.

H3. Firms' environmental protection costs significantly affect performance.

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H4. Environmental performance ratings significantly influence the performance of firms.

H5. The environmental performance indicator significantly influences the performance of firms.

H6. The association between corporate green accounting and firm performance is stronger and more positive when corporate green accounting is measured using environmental costs rather than environmental performance indicators, ratings or the EADI.

2.2 Moderators intervening in the relationship between corporate green accounting and firms' performance

Economic development. Firms operating in economically developed countries are more environmentally responsible than those in less developed countries. Because developed countries have stringent environmental policies, firms are regularly scrutinised to monitor their compliance with environmental laws (Adegbie *et al.*, 2020; Ahmad *et al.*, 2018). Due to the utmost priority given to sustainable development in countries with advanced economies, business entities must implement environmentally friendly production and operation methods (Tregidga and Laine, 2022). For instance, pressure from an environmentally conscious society, non-governmental organisations and various other stakeholders forces firms to substantially reduce their emissions and deploy eco-friendly processes in production. Based on this reasoning, the following hypothesis was proposed:

H7. The association between corporate green accounting and firm performance is stronger and more positive for firms in advanced economies.

Environmental degradation. The association between corporate green accounting and firm performance depends on the business environment in which the enterprise operates (Avci and Sungu-Esen, 2022; Bebbington *et al.*, 2021). Strict environmental regulations are common in nations plagued by severe pollution. Pollution may be considered an economic cost incurred as a consequence of inefficient technology or the failure of enterprises to adopt more advanced technologies (Lu and Taylor, 2016). In polluting countries, innovative firms understand the competitive benefits of enhancing industrial efficiency and minimising waste output (Che-Ahmad *et al.*, 2015). These firms seek financial and social advantages by implementing sustainability strategies (e.g. lowering material waste and improving inefficient systems). We predict that businesses operating in polluted nations will be better positioned to save costs and improve their performance by implementing environmental measures. Consequently, we propose the following hypothesis:

H8. The association between corporate green accounting and firm performance is stronger and more positive for firms operating in highly polluting countries.

Green accounting often emphasises the need to expand organisational boundaries and take a broader systemic perspective concerning the consequences of all choices. This might include a more in-depth examination of the environmental effects of an organisation's choices across its extended supply chains, a subject generally omitted by traditional accounting owing to the entity principle (Ahmad *et al.*, 2018). Generally, a green accounting system attempts to elevate other types of capital to the same level as financial capital so that firms can make holistic decisions. Tregidga and Laine (2022) claim that there is a lag between implementing

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green accounting systems and recognising the advantages of a firm's bottom line. Environmental cost identification and quantification are time-consuming and capital-intensive processes that demand significant upfront investments in training and supply chain reconfiguration.

3. Methodology

Despite their distinct names and underlying rules, there are many different methods for producing literature reviews that share common features, notably collecting, analysing and structuring available research information. Meta-analyses are part of the literature review continuum, which includes systematic reviews, narrative reviews, research syntheses, rapid reviews and structured literature reviews (Massaro *et al.*, 2016). Meta-analyses combine statistical approaches to identify and quantify correlations in the existing literature (Dixon-Fowler *et al.*, 2013; Ferguson, 2018; Wolf, 1986). It is a quantitative technique that enables the meticulous integration of prior research outcomes on a specific subject to determine the overall influence of past studies and the effects of various data features on the results (Ferguson, 2018; Rosenthal, 1991; Wolf, 1986). In addition, the meta-analysis establishes whether discrepancies in the findings are primarily attributable to variances in the study environment, measurement scale or sampling error.

As such, this research method is appropriate for investigating the relationship between corporate green accounting and firm performance because it:

- calculates an estimate of the mean effect size for this hypothesised relationship based on all available previous research;
- calculates the confidence interval for the discovered mean effect size to determine its relevance and generalisability; and
- determines whether there is heterogeneity in the effect size distribution and, if so, examines and models this heterogeneity through moderator analyses (Horvathova, 2010; Dixon-Fowler *et al.*, 2013).

3.1 Sample and coding

Covering as much literature as possible is necessary for an effective meta-analysis (Lu and Taylor, 2016). Our meta-analysis search approach follows MAER-Net guidelines (Horvathova, 2010). We conducted a comprehensive search for articles published between 1996 and 2020. We searched EBSCO, JSTOR, Google Scholar and the websites of major academic journal publishers for previously published studies (e.g. Emerald, Wiley and Elsevier). Google Scholar was used for unpublished studies (such as working papers). We also used Google Scholar to back-trace all references provided in the publications and forward-trace all cited articles using the two-way "snowballing" approach. Utmost care was taken during keyword selection. Initially, 30 keywords were selected, which were reduced to nine after consulting two experts: an academic trainer and an independent academic trainer. The discussion pertained to the selection of appropriate keywords and their combinations to avoid redundancy and overlap. Using Boolean connectors, we compared all databases using the same combination of keywords: corporate green accounting (OR green accounting, environmental accounting, environmental disclosure, eco-efficiency, environmental cost, environmental rating, environmental ranking and environmental performance indicator) AND firm performance (OR financial performance and economic performance). For this meta-analysis, studies that satisfied specific criteria were selected. Firstly, it requires a statistical estimate of the association between corporate green accounting and firm

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performance. Secondly, meta-analysis requires statistically different samples (Rosenthal, 1991). Articles that used the same data sets were omitted from this meta-analysis to prevent over-representation bias. Thirdly, the stated effect size in the research may be obtained via a *t*-test statistic or effect size *d* (both *t* and *d* can be transformed to Pearson's product-moment correlation *r*; Rosenthal, 1991). Finally, studies conducted in a particular sector or organisation were not considered. These searches resulted in 68 independent studies from 1996 to 2020, exploring the association between corporate green accounting and firm performance. Sample and design aspects were considered in the data coding, such as country (developing 79.41%, developed 20.59%), industrial sector (multi-industrial sector), corporate green accounting measures with article count (EADI, 22 articles; environmental performance indicator, 14 articles; environmental costs and investments, 19 articles; and environmental rating, 13 articles) and firm performance (accounting-based measures). The geographical distribution of the 68 studies is shown in Figure 1 [2]. In the meta-analysis, the primary unit of analysis was the individual study (Lu and Taylor, 2016). Some studies reported many sub-relationships; hence, the total number of effect sizes surpassed that of studies. The two methods to tackle this challenge are:

(1) to use the entire set of measures and treat them independently; and

(2) to represent each study with one numerical value.

Monte Carlo simulations prove that meta-analytic techniques that include all measures from each study surpass single-value approaches (Wolf, 1986). Consequently, we retrieved data on effect sizes, sample sizes, statistical artefacts and moderator variables from 68 sample studies.

3.2 Meta-analytic procedures

This meta-analysis determines the standard measure of the effect size between corporate green accounting and firm performance using Hunter and Schmidt's (1990) statistical aggregation approach to obtain correlations and control for different research artefacts. The term "effect size" is used in the meta-analysis literature to refer to the magnitude of the relationship between the dependent variable (e.g. firm performance) and an independent variable (e.g. corporate green accounting measures) (Song *et al.*, 2002; Sterne *et al.*, 2000; Rosenthal, 1991). The *r*-statistic was used to calculate the effect size for every set of



Source: Authors' adaptation from Maptitude

Figure 1.
Geographic distribution of primary studies

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variables from each paper. When the *r*-statistic was not given, other statistics possible in the *r*-statistic were published, and the *t*-test and *Z*-test were transformed into an *r*-statistic using the methods provided by Rosenthal (1991) and Wolf (1986).

The weighted variance technique determined confidence intervals for the random-effects models (Horváthová, 2010). In addition, the Student's *t*-distribution was used to estimate the confidence intervals for the effect sizes of each study. Confidence intervals provide information on the reliability of the weighted mean coefficient correlation estimation given a self-selected confidence level (in our case, 95%). Thus, a 95% confidence interval that does not contain zero indicates an accurate association between the variables of interest (Hunter and Schmidt, 1990). Moderator analyses were performed by dividing the sample into relevant subgroups and performing meta-analyses on each subgroup. Hunter and Schmidt (1990) recommended a hierarchical subgroup technique to assess sample heterogeneity. This technique divides research into subgroups based on the predicted moderators. This hierarchical subgrouping enables moderators to "stack" within one another so that they may be considered together (Horváthová, 2010). Subgrouping was used to minimise heterogeneity and boost the predictive power. An effect size "file drawer analysis" was undertaken to address publication bias, wherein published studies reported larger and more positive effect sizes than unpublished literature. This problem is addressed using file drawer analysis, which calculates the additional studies required to extend the stated confidence interval to zero (Hunter and Schmidt, 1990; Rosenthal, 1991). Consequently, the file drawer can be considered an indicator of the relationship's stability.

3.3 Measurement of variables

Independent, dependent and moderating variables were used in this study. Corporate green accounting is deployed as an independent variable and firm performance is considered a dependent variable. In addition, moderating variables were included, producing variability among studies (Song *et al.*, 2002). Country-specific variables and study characteristics were used as potential moderating variables to check for heterogeneity in the association between corporate green accounting and firm performance. The human development index (HDI) (with current values for 2019) was considered over the gross domestic product (GDP) as a proxy for the economic development of a country (Tregidga and Laine, 2022; Hörisch, 2021), given that the HDI captures the social and economic development of a nation, whereas GDP measures only the nation's wealth. This study considered social elements because sustainability issues directly or indirectly affect the quality of life of communities. Moreover, the HDI measures people's educational levels and health parameters, which are essential for analysing the sustainable growth of a nation (Zeng *et al.*, 2020; Babajide *et al.*, 2021; Hussain and Dey, 2021).

Furthermore, carbon emissions per person were selected as proxies to determine a particular country's pollution level. The carbon emissions were selected based on the most recent survey conducted by the Global Carbon Atlas (2018). In addition, another group of moderating variables considered in this study are the study characteristics, which are as follows:

- the year of publication of the study, wherein 2012 was chosen as the base year (following the United Nations Conference on Sustainable Development in Brazil, which came up with promising sustainable development regulations);
- the type of data used in the studies is used as an additional moderating variable, as in the case of studies with pooled data and cross-sectional data;
- single industry or multiple industries;

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- stock exchange listing of the sample firms in the primary studies; and
- control variables used in the study. Figure 2 illustrates the theoretical framework used in this study.

3.4 Publication bias

A frequently-used statistical method for detecting the presence of publication bias is Egger's regression test (Egger *et al.*, 1997). It is the most potent tool among its counterparts, such as Begg's and Macaskill's tests (Hayashino *et al.*, 2005). This study used Egger's test to detect publication bias. Furthermore, false positives and negatives arise, mainly because of true heterogeneity and publication bias (Ferguson, 2018). Hence, addressing these issues in the collected samples may eliminate the possibility of Type I and II errors. The positive correlation between effect and sample size (Rosenthal, 1991) indicates the absence of publication bias. Moreover, in the absence of publication bias, the effect size of small samples is smaller than that of large samples (Ferguson and Heene, 2012). Table 1 shows the p-value for Egger's regression test (0.39) indicated no publication bias ($p > 0.05$). Moreover,

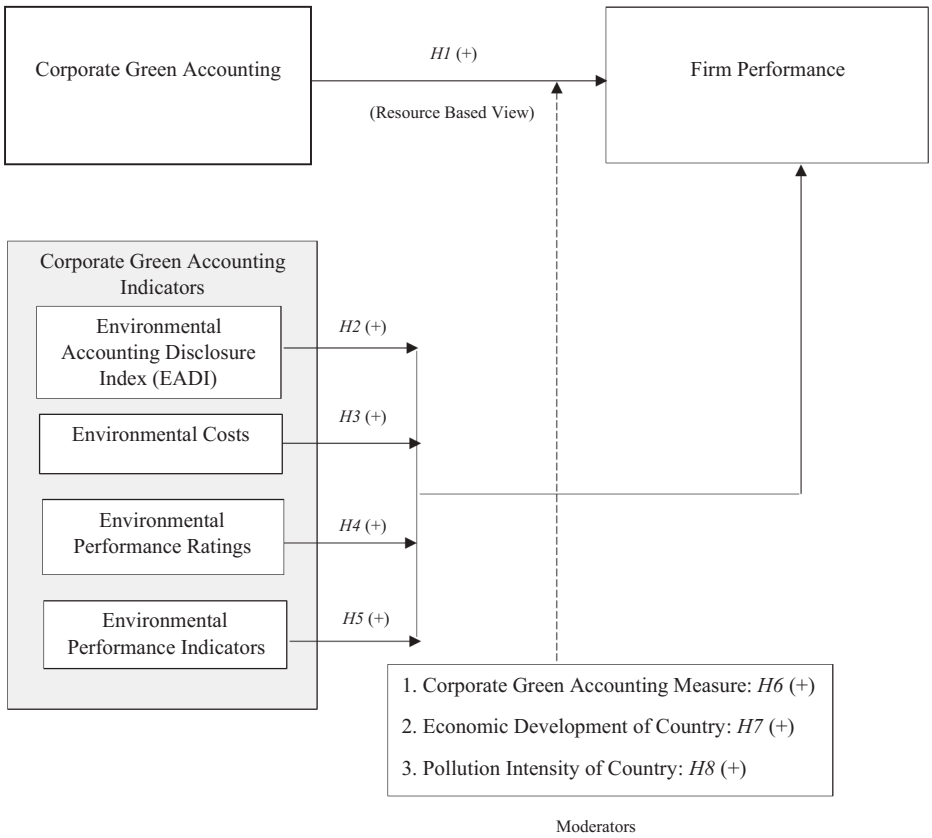


Figure 2.
Conceptual model of the meta-analysis

Source: Authors' own creation

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the lower and upper confidence interval values for the Egger's test obtained in this study were −0.59 and 1.03, respectively, with zero falling between these two values. This confirms the absence of publication bias in this study (Peters *et al.*, 2006).

4. Results

4.1 Corporate green accounting and firms' performance relationship

We studied the relationship between corporate green accounting and firm performance (Tables 2 and 3) using the meta-analytic approaches outlined above and the effects of moderators on this association (Tables 4 and 5).

Table 2 shows a significant and positive association between corporate green accounting and firm performance, as is also evident from the values of the combined effect size ($r = 0.67$, p-value $= 0.000 < 0.05$) and the lower and upper confidence intervals (0.65 and 0.70, respectively). Our findings corroborate those of a meta-analysis by Orlitzky *et al.* (2003), who concluded that corporate social performance is positively linked with financial performance across industries and research contexts, thus validating *H1*. Our findings are similar to those of Albertini (2013), who discovered a favourable relationship between corporate environmental performance and financial performance.

	Egger regression			
	Estimate	SE	CI LL	CI UL
Intercept	0.38	0.44	−0.50	1.26
Slope	0.75	0.08	0.60	0.90
t-test	0.87			
p-value	0.39			

Notes: CI LL and CI UL stand for lower and upper confidence intervals, respectively. SE is the standard error. A *p*-value more than 0.05 indicates an absence of publication bias
Source: Authors' own creation

Table 1. Egger regression test results to check publication bias in the study

Meta-analysis model: random effects model			
Confidence level: 95%			
Combined effect size		Heterogeneity	
Correlation (*r*)	0.67	*Q*	264.47
Confidence interval LL	0.65	p_Q	0
Confidence interval UL	0.7	I^2	74.67%
Prediction interval LL	0.52	T^2 (*z*)	0.01
Prediction interval UL	0.78	T (*z*)	0.11
Z-value	35.39		
One-tailed *p*-value	0		
Two-tailed *p*-value	0		
The number of incl. subjects	19,625		
The number of incl. studies	68		

Notes: p_Q is the overall *p*-value. *r* is the correlation coefficient which represents the overall effect size. LL is the lower limit and UL is the upper limit. *Q* is the Cochran's *Q* test, I^2 is the *I*-squared value and T^2 is the tau-squared value, where all three values measure the degree of heterogeneity
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Table 2. Meta-analysis results of the impact of corporate green accounting on a firm's performance

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Table 3.
Meta-analysis results of the association between corporate green accounting indicators and firm performance

Model	Corporate green accounting indicator	r	CI Lower limit	CI Upper limit	Q	p_Q	I^2	T^2
EADI – firm's performance	Environmental accounting disclosure index	0.65**	0.60	0.69	105.11	0.00	0.71	0.03
Environmental costs – firm's performance	Environmental costs	0.72**	0.67	0.77	67.28	0.00	0.73	0.02
Environmental performance indicator – firm's performance	Environmental performance indicator	0.67**	0.63	0.71	21.02	0.01	0.57	0.00
Environmental performance ratings – firm's performance	Environmental performance ratings	0.65*	0.57	0.72	13.29	0.07	0.47	0.01

Notes: p_Q is the p-value for the different models. r is the correlation coefficient that represents the respective effect sizes. CI lower limit and CI upper limit stand for lower and upper confidence intervals, respectively. EADI stands for environmental accounting disclosure index. Q is the Cochran's Q test, I^2 is the I-squared value and T^2 is the tau-squared value, where all the three values measure the degree of heterogeneity in the models. *Significant at 10% level; **significant at 5% level; ***significant at 1% level
Source: Authors' own creation

Table 4.
Moderator analysis results of the effect of country-specific variables on the association between corporate green accounting and firm performance

Moderator name		B	SE	CI LL	CI UL	β	Z-value	p-value
Economic development status (proxy HDI)	Intercept	0.93	0.14	0.65	1.20		6.75	0.000
	Moderator	−0.15	0.18	−0.51	0.21	−0.10	−0.84	0.403
Emission level (proxy tco_2 per person)								
	Intercept	0.82	0.03	0.75	0.89		23.69	0.000
	Moderator	0.00	0.00	−0.01	0.01	−0.02	−0.15	0.880

Note: Both the p-values of intercept and moderator should be less than 0.05 to have a significant effect
Source: Authors' own creation

As observed in this study ($I2 = 74.67\%$), the I-squared value for heterogeneity indicated a moderate degree of heterogeneity (Table 2). The Cochran's Q-test value for the association between corporate green accounting and firm performance was 264.47. Table 3 shows that the indicators chosen to measure corporate green accounting have various effects on firm performance. Corporate green accounting, as measured by EADI ($r = 0.65$, $p = 0.000 < 0.05$), environmental costs ($r = 0.72$, $p = 0.000 < 0.05$) and environmental performance indicators ($r = 0.67$, $p = 0.013 < 0.05$), positively impact a firm's performance. Hence, hypotheses *H2*, *H3* and *H5* were supported. However, the results for *H4* ($r = 0.65$, p-value $= 0.065 > 0.05$) reveal that the environmental performance rating has no significant influence on the performance of firms at the 5% significance level. However, the environmental performance rating positively impacted the performance of firms at the 10% significance level. This indicates that the ratings provided by various environmental agencies across countries, such as the KLD and ASSET4, do not affect firm performance. Hence, environmental performance ratings should not be considered a potential measure of corporate green accounting. The relationship between corporate green accounting and firm performance is significantly stronger when corporate green accounting is measured using

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Study characteristics		Model 1 (EADI-Firm performance)		Model 2 (environmental costs-firm performance)		Model 3 (environmental performance indicator-firm performance)		Model 4 (environmental performance ratings-firm performance)		Model 5 (corporate green accounting-firm performance)	
		(*r*)	*p*-value	(*r*)	*p*-value	(*r*)	*p*-value	(*r*)	*p*-value	(*r*)	*p*-value
Publication year	Publication during and after 2012	–	–	0.73**	0.00	0.63**	0.09	0.70*	0.36	–	–
	Publication before 2012	–	–	0.67**	0.00	0.69**	0.63	0.61*	0.10	–	–
Data type	Pooled	0.64**	0.00	0.71**	0.14	0.68**	0.50	–	–	0.66**	0.00
	Cross-sectional	0.66**	0.22	0.73**	0.00	0.63**	0.00	–	–	0.69**	0.00
Stock listing	Stock listed	0.64**	0.00	0.73**	0.00	–	–	0.70*	0.36	–	–
	Not listed	0.69**	0.05	0.71**	0.48	–	–	0.61*	0.10	–	–
Industry	Multiple industry	0.67**	0.00	0.71**	0.25	0.63**	0.01	0.64*	0.05	–	–
	Single industry	0.63**	0.33	0.73**	0.00	0.69**	0.65	0.66*	0.16	–	–
Control variable	Control variables used	0.65**	0.00	0.70**	0.00	–	–	0.66*	0.26	–	–
	No control variable used	0.64**	0.00	0.76**	0.09	–	–	0.38*	0.10	–	–

Notes: (*r*) is the correlation and "–" is used where the model shows error in the results. *Significant at 10% level; **significant at 5% level; ***significant at 1% level

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Table 5.
Subgroup analysis of influence of study characteristics

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environmental costs (0.72) than when measured using other indicators, thus supporting *H6*. Furthermore, the least effective measures of corporate green accounting are the EADI with $r = 0.65$ at a 5% significance level and the environmental performance rating with $r = 0.65$ at a 10% significance level (Table 3).

4.2 Moderator analysis

H7 and *H8* represent the effects of country-specific variables on the relationship between corporate green accounting and firm performance. Table 4 shows that economic status has no significant effect on the association between corporate green accounting and firm performance in a particular country (p-value $= 0.403 > 0.05$). The p-value of the moderator for *H8* reveals that the relationship between corporate green accounting and firm performance is not affected by the pollution levels prevalent in the country concerned. Table 4 presents detailed results of the moderator analyses.

Table 5 presents the results of subgroup analyses of the influence of study's characteristics on the relationship between corporate green accounting measures and firm performance. The relationship between EADI and firm performance showed statistically significant within-group variance with firms' stock exchange listings ($r = 0.64$, p-value $= 0.00 < 0.05$) and non-listings ($r = 0.69$, $p = 0.059$). However, studies considering non-listed firms find a positive relationship between corporate green accounting and firm performance. Hence, the difference in environmental accounting information disclosure between firms listed on stock exchanges and those that are not is minor. Furthermore, studies that deployed data from firms selected from multiple industries reported a significant within-group variance in the association between EADI and firm performance ($r = 0.67$, p-value $= 0.00 < 0.05$). Moreover, studies that used pooled data ($r = 0.64$, p-value $= 0.00 < 0.05$) significantly influenced the relationship between EADI and firm performance, whereas no effect was observed using cross-sectional data on the link between EADI and firm performance. Furthermore, the study's control variables affect the positive link between EADI and firm performance more intensely ($r = 0.65$, $p = 0.00$) than in studies where no control variables were used ($r = 0.64$, $p = 0.00$). Therefore, future studies should control other factors that can directly influence the relationship between EADI and firm performance. In addition, the results indicate no significant effect of publication year on the link between the EADI and firm performance.

Next, we considered the effect of the study's characteristics on the link between environmental costs and firm performance (Model 2). The first outcome of Model 2 delineates the moderating effect of firms listed on the stock exchange on the relationship between environmental costs and firm performance ($r = 0.73$, $p = 0.00$). Next, studies that used sample firms from a single industry ($r = 0.73$, $p = 0.00$) report a significant within-group variance in the association between firm performance and environmental costs. Therefore, it can be concluded that the costs incurred by firms in environmental activities vary across industries and that no single industry can be compared with another. For example, firms operating in the manufacturing industry must bear costs related to environmental restoration and remediation activities, whereas firms operating in the service industry do not incur such costs. Furthermore, studies using cross-sectional data find significant effects on the relationship between environmental costs and firm performance ($r = 0.73$, $p = 0.00$). In addition, using control variables has a significant positive influence on the link between environmental costs and firm performance ($r = 0.70$, $p = 0.00$). Hence, the association between firm performance and environmental costs is stronger in studies using control variables. Studies conducted during and after 2012 find larger effects

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($r = 0.73$, $p = 0.00$) on the link between environmental costs and firm performance than those conducted before 2012 ($r = 0.67, p = 0.00$).

Furthermore, the results of Model 3 (Table 5) show that only two subgroups of study characteristics – cross-sectional data ($r = 0.63$, $p = 0.003$) and the consideration of firms from multiple industries ($r = 0.63$, $p = 0.01$) – moderate the link between environmental performance indicators and firm performance. In contrast, publication year, stock listing and control variables do not influence the association between environmental and firm performance indicators. Hence, the results suggest that performance indicators can be used to compare the environmental performance of firms in different industries. Furthermore, according to these findings, these indicators cannot help to compare a firm's environmental performance over time. By contrast, the results of Model 4 show that only multiple industries used as study characteristics ($r = 0.64$, $p = 0.053$) moderate the association between environmental performance rating and firm performance. Finally, Model 5 reveals that cross-sectional and pooled data have a significant influence on the link between corporate green accounting and firm performance. However, this effect was more favourable for studies deploying cross-sectional data ($r = 0.69, p = 0.00$) than for pooled data ($r = 0.66$, $p = 0.00$).

5. Discussion and conclusion

This meta-analysis aims to critically evaluate the association between corporate green accounting and firm performance over a broad sample spanning 25 years.

Scholars throughout the literature acknowledge the importance of a firm's resources in the operationalisation of corporate sustainability strategies (Hong and Hardy, 2022; Khanra *et al.*, 2022; Phan *et al.*, 2020; Dubey *et al.*, 2019; Singh *et al.*, 2020; Yong *et al.*, 2020). In addition to the complex environmental capabilities of pollution prevention, continuous innovation and stakeholder integration, these resources include technology, managerial skills, attitudes and interpretation. Through the application of the firm's RBV, this aspect of environmentalism underpins our theory of how green accounting practices, as a measure of a corporate sustainability strategy, translate into internal competitive advantages and improve the firm's financial performance. In addition to concentrating on incorporating pollution control/prevention technologies and focusing on certain organisational capabilities, we contend that firms must identify, evaluate and enhance human resource skills at all levels, including accounting, management, production and research and development. This will accelerate the adoption of green accounting frameworks and the formulation of corporate sustainability strategies. Our findings support the resource-based theoretical framework by demonstrating a favourable association between corporate green accounting and firm performance. Moreover, this meta-analysis was performed to assess the considerable effect of moderators on the association between corporate green accounting and firm performance, which may account for the inconsistencies in the results. This study organises the different corporate green accounting indicators used in the literature into subgroups to understand their associations with firm performance. Thus, this study adds to the literature by resolving the inconclusive outcomes highlighted in previous studies that examine the interaction between corporate green accounting and firm performance using a meta-analytical approach.

The four corporate green accounting indicators explored and analysed individually and collectively in this study include EADI, environmental performance indicators, environmental performance ratings and environmental costs. The results reveal that, at the 5% significance level, the three indicators of corporate green accounting (environmental performance indicator, EADI and environmental costs) are positively linked to firm

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performance. However, environmental performance rating is the only measure of corporate green accounting that significantly influences firm performance at the 10% significance level.

The studies used in this meta-analysis were primarily linked to data collected from developing economies. The results show no significant influence of economic status and the quantity of emissions in a particular country on the association between corporate green accounting and firm performance. This may be due to the absence of a standard corporate green accounting framework across nations (Bebbington *et al.*, 2021; Carandang and Ferrer, 2020; Makori and Jagongo, 2013). Obtaining the necessary clearances and licences to implement sustainable business practices, such as installing eco-friendly technologies and the significant expenditures associated with the transition to sustainable development processes, may be other contributing factors (Hussain and Dey, 2021). Thus, country-specific variables do not moderate the relationship between firm performance and green accounting practices.

Interestingly, the study characteristics showed significant moderating effects. The study characteristics include publication year, a stock listing of the sample firms, use of control variables, type of industry (multiple/single) and temporal dimension of the study (longitudinal/non-longitudinal). The results further indicate that the overall impact of corporate green accounting on firm performance is significantly moderated by only one characteristic: the duration of the study (longitudinal/non-longitudinal). Moreover, the non-longitudinal data used in these studies led to larger effects. All research parameters except the publication year influence the association between firm performance and environmental disclosure policies.

Furthermore, the results suggest that the positive impact of the environmental disclosure index on firm performance can be more substantial and favourable for studies using non-longitudinal data and samples collected from multiple industries. Indifferences towards the absence or presence of control variables in the studies and the stock listing of firms have also been observed. All the study characteristics impact the association between firm performance and environmental costs. Furthermore, the link between environmental performance indicators and firm performance is moderated by selective study characteristics such as sample collection from multiple industries and cross-sectional data. Only multiple industries as a study characteristic affect the relationship between firm performance and environmental performance ratings.

5.1 Implications

The enactment of legislation on green accounting suffers from two significant shortcomings: firstly, the lack of awareness of the subject matter and inadequate knowledge regarding its implementation. Secondly, the lack of policies that would require companies to include information on green accounting in their respective annual reports, especially in developing nations, where the emission levels and availability of natural resources pose significant problems (Adams, 2020). In this context, this study contributes to the literature on corporate green accounting by enhancing our understanding of the factors that determine the level of green accountability attained, the complex nature of the interactions and relationships between firms and their environmental performance and how green accounting leads to organisational change by improving firms' sustainability.

We provide statistical evidence of the challenges academics face regarding the association between corporate green accounting and a firm's financial performance. Following this approach, we offer insights into the diverse corporate green accounting indicators used in the literature, which can assist future researchers in designing pioneering

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environmental constructs that encompass the interplay between environmental, economic and social dimensions. However, further investigations are required to integrate the corporate green accounting concept with other environmental management techniques to develop a comprehensive corporate EMS.

We offer insights for practitioners by shifting their focus from wealth maximisation to the understanding that success is contingent on environmental stewardship. The positive association of green accounting practice with the firm's financial performance and the significance of investing in environmentally responsible pursuits (for example, clean technology and eco-friendly projects) have been shown to be relevant for the implementation of green accounting frameworks. Thus, these findings can be applied to the decision-making process of adopting green accounting as a corporate sustainability initiative. Managers can use different green accounting indicators to perform trend analysis comparing a firm's environmental performance over time. This indicates the direction of change in performance (e.g. improvement, deterioration or constancy) over time. An inter-firm comparison that reflects a firm's performance concerning its competitors can be entertained. In summary, this methodological approach provides a strategic direction towards the operationalisation of corporate sustainable development practices through green accounting.

For policymakers, knowledge about the introduction of green accounting in businesses, green accounting metrics and the influence of various country-level factors on its implementation can help formulate policies to promote corporate green accounting deployment across nations. Understanding alternative measures of corporate green accounting can provide a nuanced source for assessing progress and more detailed information on corporate sustainability. The operationalisation of corporate sustainable development activities encompasses sustainable development goals as a by-product of corporate strategies supporting corporate sustainability objectives.

Firms are usually confronted with societal and government pressures to pursue policies that promote sustainable development. Thus, there is a need to create a global platform for listing environmental scores and firm ranks, as the findings show no effect of country-specific constructs on the link between green accounting practices and firm performance. This initiative will promote environmental protection by threatening the legitimacy of firms that fail to abide by environmental laws. Firms often ignore the need for a cleaner production process, which gives rise to higher production costs and threatens sustainable development for the organisation. For instance, the unused material discarded as waste may compound the organisation's overall cost and could, in turn, invite fines and penalties for pollution. Our findings show that environmental costs are the most critical construct in corporate green accounting. Hence, corporate managers must consider investing in environment-friendly processes, clean technology and less-polluting machinery to ensure firm sustainability. Strategists and policymakers should also invest in projects that contribute towards economic sustainability, as they would enable firms to project an image of being socially and environmentally responsible and attract ethical investors and customers.

In addition, firms should integrate external environmental costs into their financial accounting systems to justify their contributions to environmental protection. These external environmental costs include all costs incurred by the firm towards environmental protection activities conducted outside the premises, such as remediation, waste treatment and environmental restoration costs. Environmental departments must play a significant role in fostering a culture of environmental

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stewardship across firms to accomplish this. Ongoing training may assist personnel in complying with new legislation and addressing societal issues. Experienced employees can provide novel suggestions on pollution protection technologies and methods. This study also suggests that countries often adopt an approach based on a reward-based system, wherein corporations implementing proper EMS in their operations are granted tax benefits and financial assistance. However, because ensuring environmental protection and sustainable development is an issue of global concern, it is recommended that national authorities implement legislation requiring mandatory disclosure by corporations regarding their environmental protection policies.

5.2 Limitations and future scope of research

The findings of this research should be viewed cautiously, as they suffer from certain limitations. Firstly, the original works of all sample studies used in this meta-analysis were published in English. As studies in other languages were not considered in this analysis, there is a possibility of oversight of the literature on this subject in Latin American countries and other regions. Secondly, corporate green accounting is a meta-construct that can be measured in several ways. In a meta-analysis, the "estimate" depends on the researcher's selection of corporate green accounting indicators and their theoretical relevance. The heterogeneity present in meta-analyses is often questioned (Rosenthal, 1991). Despite these limitations and issues, meta-analysis is a well-established approach for aggregating test results in the social sciences, and the inclusion criteria used in this study are consistent with those in the literature.

Regarding the scope of further research, this study focuses solely on one aspect of green accounting: corporate green accounting. Thus, there is scope for further studies on other segments of green accounting at national and global levels. Furthermore, most of the independent studies considered for this meta-analysis belong to the South Asian region. Therefore, understanding the relationship between corporate green accounting and firm performance relies on in-depth studies from other developed nations with well-established corporate green accounting systems. Meaningful collaboration and regular communication between green accounting practitioners and researchers can also help enhance and accelerate the enactment of effective legislation on green accounting (Burritt and Tingey-Holyoak, 2011). Although this study can be extended to other measures of corporate green accounting, future studies could also analyse the impact of green accounting practices on national income, which would enhance economic growth and sustainable development in the country.

Notes

1. The green accounting approach generates environmental management accounting reports for internal use; these reports help management make decisions regarding pricing, fixed cost control and capital budgeting, whereas the external aspect is to divulge environmental information preferred by the investors, public and financial institutions.
2. The geographical distribution of 68 studies is based on the location of the sample (say, firms) collected for the analysis by individual studies. India (11 studies); Indonesia (8 studies); Nigeria (8 studies); China (6 studies); Malaysia (5 studies); Kenya (4 studies); USA (4 studies); Japan (3 studies); Vietnam (3 studies); Bangladesh (2 studies); UK (2 studies); Philippines (2 studies); Italy, Turkey, Australia, Tunisia, Romania, Taiwan, Canada, Singapore and Pakistan (1 study).

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References

Abban, A.R. and Hasan, M.Z. (2021), "The causality direction between environmental performance and financial performance in Australian mining companies-A panel data analysis", *Resources Policy*, Vol. 70, p. 101894.

Abdullah, M., Hamzah, N., Ali, M.H., Tseng, M.L. and Brander, M. (2020), "The southeast Asian haze: the quality of environmental disclosures and firm performance", *Journal of Cleaner Production*, Vol. 246, p. 118958.

Adams, C.A. (2020), "Sustainability reporting and value creation", *Social and Environmental Accountability Journal*, Vol. 40 No. 3, pp. 191-197.

Adediran, S.A. and Alade, S.O. (2013), "The impact of environmental accounting on corporate performance in Nigeria", *European Journal of Business and Management*, Vol. 5 No. 23, pp. 141-152.

Adegbie, F.F., Ogidan, A., Siyanbola, T. and Adebayo, A.S. (2020), "Environmental accounting practices and share value of food and beverages manufacturing companies quoted in Nigeria", *Journal of Critical Reviews*, Vol. 7 No. 13, pp. 2256-2264.

Aggarwal, P. (2013), "Relationship between environmental responsibility and financial performance of firm: a literature review", *IOSR Journal of Business and Management*, Vol. 13 No. 1, pp. 13-22.

Ahmad, M., Waseer, W.A., Hussain, S. and Ammara, U. (2018), "Relationship between environmental accounting and non-financial firms performance: an empirical analysis of selected firms listed in Pakistan stock exchange", *Social Sciences Research Journal*, Vol. 5 No. 1, pp. 197-209.

Albertini, E. (2013), "Does environmental management improve financial performance? A meta-analytical review", *Organization and Environment*, Vol. 26 No. 4, pp. 431-457.

Alshehhi, A., Nobanee, H. and Khare, N. (2018), "The impact of sustainability practices on corporate financial performance: literature trends and future research potential", *Sustainability*, Vol. 10 No. 2, p. 494.

Appannan, J.S., Mohd Said, R., Ong, T.S. and Senik, R. (2022), "Promoting sustainable development through strategies, environmental management accounting and environmental performance", *Business Strategy and the Environment*, Vol. 32 No. 4, pp. 1914-1930.

Asiaei, K., Bontis, N., Alizadeh, R. and Yaghoubi, M. (2022), "Green intellectual capital and environmental management accounting: natural resource orchestration in favor of environmental performance", *Business Strategy and the Environment*, Vol. 31 No. 1, pp. 76-93.

Avci, S.B. and Sungu-Esen, G. (2022), "Country-level sustainability and cross-border banking flows", *Sustainability Accounting, Management and Policy Journal*, Vol. 13 No. 3, pp. 626-652.

Babajide, A.A., Ishola, L.A., Adekunle, A.K., Achugamonu, B.U. and Bosede, A.V. (2021), "Financial sector reform and economic development in Nigeria", *Asian Economic and Financial Review*, Vol. 11 No. 2, pp. 160-172.

Barney, J. (1991), "Firm resources and sustained competitive advantage", *Journal of Management*, Vol. 17 No. 1, pp. 99-120.

Bassey, B.E., Effiok, S.O. and Eton, O.E. (2013), "The impact of environmental accounting and reporting on organisational performance of selected oil and gas companies in Niger Delta region of Nigeria", *Research Journal of Finance and Accounting*, Vol. 4 No. 3, pp. 57-73.

Bebbington, J., Larrinaga, C., O'Dwyer, B. and Thomson, I. (2021), *Routledge Handbook of Environmental Accounting*, Routledge, London.

Bebbington, J. and Rubin, A. (2022), "Accounting in the anthropocene: a roadmap for stewardship", *Accounting and Business Research*, Vol. 52 No. 5, pp. 582-596.

Belhaj, M. and Damak-Ayadi, S. (2011), "Financial performance, environmental performance and environmental disclosure: the case of Tunisian firms", *Afro-Asian Journal of Finance and Accounting*, Vol. 2 No. 3, pp. 248-269.

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Bhattarai, B.P. (2014), "The relationship between environmental accounting and firm performance: an empirical analysis of selected listed companies in Nepal stock exchange, Nepal", *International Journal of Engineering and Management Technology*, Vol. 2 No. 4, pp. 9-23.

Budiharjo, R. (2019), "Effect of environmental performance and financial performance on firm value", *International Journal of Academic Research in Accounting, Finance and Management Sciences*, Vol. 9 No. 2, pp. 65-73.

Burhan, A.H.N. and Rahmanti, W. (2012), "The impact of sustainability reporting on company performance", *Journal of Economics, Business, & Accountancy Ventura*, Vol. 15 No. 2, pp. 257-272.

Burritt, R.L. and Saka, C. (2006), "Environmental management accounting applications and eco-efficiency: case studies from Japan", *Journal of Cleaner Production*, Vol. 14 No. 14, pp. 1262-1275.

Burritt, R. and Tingey-Holyoak, J. (2011), "Sustainability accounting research and professional practice: mind the gap", in Evans, E., Burritt, R. and Guthrie, J. (Eds), *Bridging the Gap between Academic Accounting Research and Professional Practice*, The Institute of Chartered Accountants in Australia, Sydney, pp. 110-119.

Caldera, S., Desha, C. and Dawes, L. (2018), "Exploring the characteristics of sustainable business practice in small and medium-sized enterprises: experiences from the Australian manufacturing industry", *Journal of Cleaner Production*, Vol. 177, pp. 338-349.

Carandang, J.C. and Ferrer, R.C. (2020), "Effect of environmental accounting on financial performance and firm value of listed mining and oil companies in the Philippines", *Asia-Pacific Social Science Review*, Vol. 20 No. 1, pp. 117-134.

Cavalletti, B. and Corsi, M. (2022), "The system of environmental and economic accounting and the valuation problem: a review of the literature", *Journal of Environmental Planning and Management*, Vol. 65 No. 11, pp. 1999-2028.

Chavez, S.L. and Romi, A.M. (2021), "The North American environmental accounting research landscape", in Bebbington, J., Larrinaga, C., O'Dwyer, B. and Thomson, I. (Eds), *Routledge Handbook of Environmental Accounting*, Routledge, London, pp. 315-327.

Che-Ahmad, A., Osazuwa, N.P. and Mgbame, C.O. (2015), "Environmental accounting and firm profitability in Nigeria: do firm-specific effects matter?" *IUP Journal of Accounting Research and Audit Practices*, Vol. 14 No. 1, pp. 43-54.

Cho, C.H., Jérôme, T. and Maurice, J. (2022), "Assessing the impact of environmental accounting research: evidence from citation and journal data", *Sustainability Accounting, Management and Policy Journal*, Vol. 13 No. 5, pp. 989-1014.

Cho, C.H., Senn, J. and Sobkowiak, M. (2022), "Sustainability at stake during COVID-19: exploring the role of accounting in addressing environmental crises", *Critical Perspectives on Accounting*, Vol. 82, p. 102327.

Cho, C.H., Kim, A., Rodrigue, M. and Schneider, T. (2020), "Towards a better understanding of sustainability accounting and management research and teaching in North America: a look at the community", *Sustainability Accounting, Management and Policy Journal*, Vol. 11 No. 6, pp. 985-1007.

Clarkson, P.M., Li, Y., Richardson, G.D. and Vasvari, F.P. (2007), "Revisiting the relation between environmental performance and environmental disclosure: an empirical analysis", *Accounting, Organizations and Society*, Vol. 33 Nos 4/5, pp. 303-327.

Cormier, D. and Magnan, M. (2007), "The revisited contribution of environmental reporting to investors' valuation of a firm's earnings: an international perspective", *Ecological Economics*, Vol. 62 Nos 3/4, pp. 613-626.

Correa, C. and Larrinaga, C. (2015), "Engagement research in social and environmental accounting", *Sustainability Accounting, Management and Policy Journal*, Vol. 6 No. 1, pp. 5-28.

Downloaded from http://www.emerald.com/sampj/article-pdf/15/5/1038/9469436/sampj-01-2022-0016.pdf by Universiti Utara Malaysia user on 14 October 2025

Cortez, M.A.A. and Cudia, C.P. (2010), "The impact of environmental innovations on financial performance: the case of Japanese automotive and electronics companies", *Journal of International Business Research*, Vol. 9 No. 1, pp. 33-46.

Deb, B.C., Rahman, M.M. and Rahman, M.S. (2022), "The impact of environmental management accounting on environmental and financial performance: empirical evidence from Bangladesh", *Journal of Accounting and Organizational Change*, Vol. 19 No. 3, pp. 420-446.

Demirel, P. and Kesidou, E. (2019), "Sustainability-oriented capabilities for eco-innovation: meeting the regulatory, technology, and market demands", *Business Strategy and the Environment*, Vol. 28 No. 5, pp. 847-857.

Dienes, D., Sassen, R. and Fischer, J. (2016), "What are the drivers of sustainability reporting? A systematic review", *Sustainability Accounting, Management and Policy Journal*, Vol. 7 No. 2, pp. 154-189.

Dixon-Fowler, H.R., Slater, D.J., Johnson, J.L., Ellstrand, A.E. and Romi, A.M. (2013), "Beyond 'does it pay to be green?' a meta-analysis of moderators of the CEP-CFP relationship", *Journal of Business Ethics*, Vol. 112 No. 2, pp. 353-366.

Dubey, R., Gunasekaran, A., Childe, S.J., Blome, C. and Papadopoulos, T. (2019), "Big data and predictive analytics and manufacturing performance: integrating institutional theory, resource-based view and big data culture", *British Journal of Management*, Vol. 30 No. 2, pp. 341-361.

Durak Uşar, D. and Soytas, M.A. (2022), "Sustainability outcomes in multi-tier supply chains: an empirical study of Turkish manufacturing firms", *International Journal of Production Research*, Vol. 61 No. 14, pp. 4592-4602.

Egger, M., Smith, G.D., Schneider, M. and Minder, C. (1997), "Bias in meta-analysis detected by a simple, graphical test", *BMJ*, Vol. 315 No. 7109, pp. 629-634.

Ferguson, C.J. and Heene, M. (2012), "A vast graveyard of undead theories: publication bias and psychological science's aversion to the null", *Perspectives on Psychological Science*, Vol. 7 No. 6, pp. 555-561.

Ferguson, C.J. (2018), "The problem of false positives and false negatives in violent video game experiments", *International Journal of Law and Psychiatry*, Vol. 56, pp. 35-43.

Festus, O.S. and Akinselure, O.P. (2017), "Impact of environment accounting on financial performance of selected quoted companies", *International Research Journal of Management and Commerce*, Vol. 4 No. 11, pp. 337-348.

Gunarathne, A.N., Lee, K.H. and Hitigala Kaluarachchilage, P.K. (2021), "Institutional pressures, environmental management strategy, and organizational performance: the role of environmental management accounting", *Business Strategy and the Environment*, Vol. 30 No. 2, pp. 825-839.

Hayashino, Y., Noguchi, Y. and Fukui, T. (2005), "Systematic evaluation and comparison of statistical tests for publication bias", *Journal of Epidemiology*, Vol. 15 No. 6, pp. 235-243.

Homan, H.S. (2016), "Environmental accounting roles in improving the environmental performance and financial performance of the company", *South East Asia J Contemp Bus Econ Law*, Vol. 11, pp. 9-15.

Hong, M. and Hardy, I. (2022), "Sustainability and the Australian international higher education industry: towards a multidimensional model", *Sustainability Accounting, Management and Policy Journal*, Vol. 13 No. 5, pp. 1060-1081.

Hörisch, J. (2021), "The relation of COVID-19 to the UN sustainable development goals: implications for sustainability accounting, management and policy research", *Sustainability Accounting, Management and Policy Journal*, Vol. 12 No. 5, pp. 877-888.

Horváthová, E. (2010), "Does environmental performance affect financial performance? A meta-analysis: ecological economics", *Ecological Economics*, Vol. 70 No. 1, pp. 52-59.

Hunter, J.E. and Schmidt, F.L. (1990), "Dichotomisation of continuous variables: the implications for meta-analysis", *Journal of Applied Psychology*, Vol. 75 No. 3, p. 334.

Downloaded from http://www.emerald.com/sampj/article-pdf/15/5/1038/9469436/sampj-01-2022-0016.pdf by Universiti Utara Malaysia user on 14 October 2025

Huseno, T. (2018), "The environmental management accounting (EMA) perspective calculation of environmental management environment in Riau", *Journal of Applied Management*, Vol. 16 No. 4, pp. 714-721.

Hussain, A. and Dey, S. (2021), "Revisiting environmental Kuznets curve with HDI: new evidence from cross-country panel data", *Journal of Environmental Economics and Policy*, Vol. 10 No. 3, pp. 324-342.

Ibrami, H., Arroyo, P. and Hocine, M. (2015), "Environment and financial performance: the case of the Canadian oil industry", *British Journal of Applied Science & Technology*, Vol. 8 No. 5, pp. 437-447.

Ihenyen, J.C. and Ikegima, A.C. (2022), "Environmental accounting and organisational performance of listed industrial sector companies in Nigeria", *International Journal of Management & Entrepreneurship Research*, Vol. 4 No. 4, pp. 202-212.

Jahamani, Y.F. (2003), "Green accounting in developing countries: the case of UAE and Jordan", *Managerial Finance*, Vol. 29 No. 8, pp. 37-45.

Japee, G.P. (2018), "Environmental accounting: disclosure practices of selected Indian companies", *International Journal of Creative Research Thoughts*, Vol. 6 No. 1, pp. 651-661.

Jayarathna, C.P., Agdas, D. and Dawes, L. (2022), "Exploring sustainable logistics practices toward a circular economy: a value creation perspective", *Business Strategy and the Environment*, Vol. 32 No. 1, pp. 704-720.

John Udo, E. (2019), "Environmental accounting disclosure practices in annual reports of listed oil and gas companies in Nigeria", *International Journal of Accounting and Finance*, Vol. 8 No. 1, pp. 1-20.

Kadyan, A. and Aggarwal, P. (2014), "Does it pay to be environmentally conscious: a study of nifty companies", *Abhinav National Monthly Refereed Journal of Research in Commerce and Management*, Vol. 3 No. 3, pp. 5-14.

Kapoor, D. and Sharma, P. (2016), "Environmental accounting: pillar of corporate social responsibility and disclosure", *International Journal of Philosophy and Social-Psychological Sciences*, Vol. 2 No. 3, pp. 97-114.

Khanra, S., Kaur, P., Joseph, R.P., Malik, A. and Dhir, A. (2022), "A resource-based view of green innovation as a strategic firm resource: present status and future directions", *Business Strategy and the Environment*, Vol. 31 No. 4, pp. 1395-1413.

Kipngetich, T. (2020), "Effect of firm-specific attributes on environmental accounting disclosure. Evidence from firms listed in the Nairobi securities Exchange, Kenya", *African Journal of Education, Science and Technology*, Vol. 5 No. 4, pp. 1-15.

Larrinaga, C. (2021), "Environmental accounting and 21st-century sustainability governance", in Bebbington, J., Larrinaga, C., O'Dwyer, B. and Thomson, I. (Eds), *Routledge Handbook of Environmental Accounting*, Routledge, London, pp. 78-91.

Li, N., Shi, B. and Kang, R. (2021), "Information disclosure, coal withdrawal and carbon emissions reductions: a policy test based on China's environmental information disclosure", *Sustainability*, Vol. 13 No. 17, p. 9758.

Lin, Y., Huang, R. and Yao, X. (2021), "Air pollution and environmental information disclosure: an empirical study based on heavy polluting industries", *Journal of Cleaner Production*, Vol. 278, p. 124313.

Liu, Z. and Liu, M. (2021), "Quality evaluation of enterprise environmental accounting information disclosure based on projection pursuit model", *Journal of Cleaner Production*, Vol. 279, p. 123679.

Lu, W. and Taylor, M.E. (2016), "Which factors moderate the relationship between sustainability performance and financial performance? A meta-analysis study", *Journal of International Accounting Research*, Vol. 15 No. 1, pp. 1-15.

Downloaded from http://www.emerald.com/sampj/article-pdf/15/5/1038/9469436/sampj-01-2022-0016.pdf by Universiti Utara Malaysia user on 14 October 2025

Maama, H. and Appiah, K.O. (2019), "Green accounting practices: lesson from an emerging economy", *Qualitative Research in Financial Markets*, Vol. 11 No. 4, pp. 456-478.

Majid, M.F., Meraj, M. and Mubarik, M.S. (2022), "In the pursuit of environmental sustainability: the role of environmental accounting", *Sustainability*, Vol. 14 No. 11, p. 6526.

Makori, D.M. and Jagongo, A. (2013), "Environmental accounting and firm profitability: an empirical analysis of selected firms listed in Bombay stock exchange, India", *International Journal of Humanities and Social Science*, Vol. 3 No. 18, pp. 248-256.

Massaro, M., Dumay, J. and Guthrie, J. (2016), "On the shoulders of giants: undertaking a structured literature review in accounting", *Accounting, Auditing and Accountability Journal*, Vol. 29 No. 5, pp. 767-801.

Mgbame, C.O. and Ilaboya, O.J. (2013), "Environmental accounting audit decision and firm performance: an empirical investigation", *Journal of Modern Accounting and Auditing*, Vol. 9 No. 4, pp. 447-458.

Michelon, G., Pilonato, S., Ricceri, F. and Roberts, R.W. (2016), "Behind camouflaging: traditional and innovative theoretical perspectives in social and environmental accounting research", *Sustainability Accounting, Management and Policy Journal*, Vol. 7 No. 1, pp. 2-25.

Munshi, D. and Dutta, S. (2016), "Sustainability reporting quality of Indian and American manufacturing firms: a comparative analysis", *Serbian Journal of Management*, Vol. 11 No. 2, pp. 245-260.

Nguyen, L. and Tran, M. (2019), "Disclosure levels of environmental accounting information and financial performance: the case of Vietnam", *Management Science Letters*, Vol. 9 No. 4, pp. 557-570.

Nguyen, L., Tran, M. and Dang, T. (2020), "The relationship between level of environmental financial accounting practices and financial performance in Vietnam", *Accounting*, Vol. 6 No. 4, pp. 619-628.

Nicholls, J.A. (2020), "Integrating financial, social and environmental accounting", *Sustainability Accounting, Management and Policy Journal*, Vol. 11 No. 4, pp. 745-769.

Nwakaego, O.S., Uzoma, I.J. and Belonwu, A.J.U. (2020), "Environmental costs accounting and the earnings of oil firms in Nigeria", *International Journal of Economics and Business Management*, Vol. 6 No. 2, pp. 37-51.

Okafor, T.G. (2018), "Environmental costs accounting and reporting on firm financial performance: a survey of quoted Nigerian oil companies", *International Journal of Finance and Accounting*, Vol. 7 No. 1, pp. 1-6.

Omnamasivaya, B. and Prasad, M.S.V. (2017), "Does financial performance really improve the environmental accounting disclosure practices in India: an empirical evidence from nifty companies", *African J. of Economic and Sustainable Development*, Vol. 6 No. 1, pp. 1-52.

Orlitzky, M., Schmidt, F.L. and Rynes, S.L. (2003), "Corporate social and financial performance: a meta-analysis", *Organization Studies*, Vol. 24 No. 3, pp. 403-441.

Osemene, O.F., Kolawole, K.D. and Oyelakun, O. (2016), "Effects of environmental accounting practices and sustainable development on the performance of Nigerian listed manufacturing companies", *Journal of Sustainable Development in Africa*, Vol. 18 No. 2, pp. 128-143.

Patten, D.M. (2002), "The relation between environmental performance and environmental disclosure: a research note", *Accounting, Organisations and Society*, Vol. 27 No. 8, pp. 763-773.

Peters, J.L., Sutton, A.J., Jones, D.R., Abrams, K.R. and Rushton, L. (2006), "Comparison of two methods to detect publication bias in meta-analysis", *JAMA*, Vol. 295 No. 6, pp. 676-680.

Phan, T.T.H., Tran, H.X., Le, T.T., Nguyen, N., Pervan, S. and Tran, M.D. (2020), "The relationship between sustainable development practices and financial performance: a case study of textile firms in Vietnam", *Sustainability*, Vol. 12 No. 15, p. 5930.

Downloaded from http://www.emerald.com/sampj/article-pdf/15/5/1038/9469436/sampj-01-2022-0016.pdf by Universiti Utara Malaysia user on 14 October 2025

Prieto, M.M. (2020), "Legislation, regulations, and reflections on environmental accounting as a reflection of the incorporation of social responsibility in companies", *Laws*, Vol. 9 No. 13, pp. 1-19.

Rakiv, M., Islam, F. and Rahman, R. (2016), "Environmental accounting reporting disclosure and company profitability: a case study on listed manufacturing companies of Bangladesh", *International Journal of Ethics in Social Sciences*, Vol. 4 No. 2, pp. 21-30.

Rosenthal, R. (1991), "Meta-analysis: a review", *Psychosomatic Medicine*, Vol. 53 No. 3, pp. 247-271.

Satrio, D. and Kunto, S. (2019), "Relationship between eco-efficiency on firm value moderated with profitability and leverage", *EkBis: Jurnal Ekonomi Dan Bisnis*, Vol. 3 No. 1, pp. 242-251.

Sarumpaet, S. (2005), "The relationship between environmental performance and financial performance of Indonesian companies", *Jurnal Akuntansi dan Keuangan*, Vol. 7 No. 2, pp. 89-98.

Scarpellini, S., Marín-Vinuesa, L.M., Aranda-Usón, A. and Portillo-Tarragona, P. (2020), "Dynamic capabilities and environmental accounting for the circular economy in businesses", *Sustainability Accounting, Management and Policy Journal*, Vol. 11 No. 7, pp. 1129-1158.

Schaltegger, S. and Burritt, R.L. (2010), "Sustainability accounting for companies: catchphrase or decision support for business leaders?" *Journal of World Business*, Vol. 45 No. 4, pp. 375-384.

Singh, S.K., Del Giudice, M., Chierici, R. and Graziano, D. (2020), "Green innovation and environmental performance: the role of green transformational leadership and green human resource management", *Technological Forecasting and Social Change*, Vol. 150, p. 119762.

Solovida, G.T. and Latan, H. (2017), "Linking environmental strategy to environmental performance: mediation role of environmental management accounting", *Sustainability Accounting, Management and Policy Journal*, Vol. 8 No. 5, pp. 595-619.

Song, F., Khan, K.S., Dinnes, J. and Sutton, A.J. (2002), "Asymmetric funnel plots and publication bias in meta-analyses of diagnostic accuracy", *International Journal of Epidemiology*, Vol. 31 No. 1, pp. 88-95.

Sterne, J.A.C., Gavaghan, D. and Egger, M. (2000), "Publication and related bias in meta-analysis: power of statistical tests and prevalence in the literature", *Journal of Clinical Epidemiology*, Vol. 53 No. 11, pp. 1119-1129.

Sudha, S. (2020), "Corporate environmental performance–financial performance relationship in India using eco-efficiency metrics", *Management of Environmental Quality: An International Journal*, Vol. 31 No. 6, pp. 1497-1514.

Taïbi, S., Antheaume, N. and Gibassier, D. (2020), "Accounting for strong sustainability: an intervention-research based approach", *Sustainability Accounting, Management and Policy Journal*, Vol. 11 No. 7, pp. 1213-1243.

Thomson, I. (2021), "Before research methods comes 'methodising': implications for environmental accounting research", in Bebbington, J., Larrinaga, C., O'Dwyer, B. and Thomson, I. (Eds), *Routledge Handbook of Environmental Accounting*, Routledge, London, pp. 46-64.

Tregidga, H. and Laine, M. (2022), "On crisis and emergency: is it time to rethink long-term environmental accounting?" *Critical Perspectives on Accounting*, Vol. 82, p. 102311.

Wolf, F.M. (1986), *Meta-Analysis: Quantitative Methods for Research Synthesis*, Sage Publishing, Beverly Hills, CA.

Yamasaki, J., Ikaga, T. and Itsubo, N. (2019), "Eco-efficiency assessment of Japanese municipalities based on environmental impacts and gross regional product", *Sustainability*, Vol. 11 No. 15, p. 4045.

Yong, J.Y., Yusliza, M.Y., Ramayah, T., Chiappetta Jabbour, C.J., Sehnem, S. and Mani, V. (2020), "Pathways towards sustainability in manufacturing organisations: empirical evidence on the role of green human resource management", *Business Strategy and the Environment*, Vol. 29 No. 1, pp. 212-228.

Downloaded from http://www.emerald.com/sampj/article-pdf/15/5/1038/9469436/sampj-01-2022-0016.pdf by Universiti Utara Malaysia user on 14 October 2025

Yu, M. and Zhao, R. (2015), "Sustainability and firm valuation: an international investigation", *International Journal of Accounting and Information Management*, Vol. 23 No. 3, pp. 289-307.

Zeng, C., Zhang, L. and Li, J. (2020), "The impact of top management's environmental responsibility audit on corporate environmental investment: evidence from China", *Sustainability Accounting, Management and Policy Journal*, Vol. 11 No. 7, pp. 1271-1291.

Zhang, K.Q. and Chen, H.H. (2017), "Environmental performance and financing decisions impact on sustainable financial development of Chinese environmental protection enterprises", *Sustainability*, Vol. 9 No. 12, p. 2260.

Further reading

Powell, L. and McGuigan, N. (2022), "Responding to crises: rewilding accounting education for the anthropocene", *Meditari Accountancy Research*, Vol. 31 No. 1, pp. 101-120.

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Appendix

Table A1. Studies incorporated in meta-analysis

No.	Authors	Journals	Country
1	Omnamasivaya and Prasad (2017) (2017)	*African Journal of Economic and Sustainable Development*	India
2	Makori and Jagongo (2013)	*International Journal of Humanities and Social Science*	India
3	Burhan and Rahmanti (2012)	*Journal of Economics, Business, and Accountancy Ventura*	Indonesia
4	Aggarwal (2013)	*Global Journal of Management and Business Research Finance*	India
5	Munshia and Dutta (2016)	*Serbian Journal of Management*	India
6	Mikial *et al.* (2019)	*Archives of Business Research*	Indonesia
7	Sarumpaet (2005)	*Jurnal Akuntansi and Keuangan*	Indonesia
8	Al-Tuwaijri *et al.* (2003)	*Accounting, organizations and society*	USA
9	Wachira and Wang'ombe (2019)	*Environmental Reporting and Management in Africa (Advances in Environmental Accounting and Management*	Kenya
10	Nwakaego *et al.* (2020)	*IIARD International Journal of Economics and Business Management*	Nigeria
11	Khan (2019)	*Journal of Hamdard University Bangladesh*	Bangladesh
12	Cortez and Cudia (2010)	*Journal of International Business Research*	Philippines
13	Ibrami *et al.* (2015)	*British Journal of Applied Science and Technology*	Canada
14	Kapoor and Sharma (2016)	*International Journal of Philosophy and Social-Psychological Sciences*	India
15	Japee (2018)	*IJCRT*	India
16	Purnomo and Widianingsih (2012)	*Review of Integrative Business and Economic Research*	Indonesia
17	Nguyena *et al.* (2020)	*GrowingScience*	Vietnam
18	Romero *et al.* (2018)	*Business Strategy and the Environment-Wiley*	USA
19	John Udo (2019)	*International Journal of Accounting and Finance (IJAF)*	Nigeria
20	Ahmad *et al.* (2015)	*IUP Journal of Accounting Research and Audit Practices*	Nigeria
21	Zhang and Chen (2017)	*Sustainability (MDPI)*	China
22	Khaveh *et al.* (2012)	*Business Management Dynamics*	Singapore
23	Iwata *et al.* (2010)	*MPRA*	Japan
24	S. Sudha (2020)	*Management of Environmental Quality: An International Journal*	India
25	Nakao *et al.* (2007)	*Business Strategy and the Environment*	Japan
26	Tzouvanas *et al.* (2019)	*The British Accounting Review*	UK
27	Belhaj and Ayadi (2011)	*Afro-Asian Journal of Finance and Accounting*	Tunisia
28	Dragomir (2010)	*Journal of Accounting & Organizational Change*	Romania
29	Budiharjo (2019)	*International Journal of Academic Research in Accounting, Finance and Management Sciences*	Indonesia
30	Arafat *et al.* (2012)	*Journal of Organizational Management Studies*	Malaysia
31	Nor *et al.* (2016)	*7th International Economics and Business Management Conference*	Malaysia
32	Nguyen *et al.* (2020)	*Journal of Asian Finance, Economics and Business*	Vietnam
33	Adegbie *et al.* (2020)	*Journal of Critical Reviews*	Nigeria
34	Kipngetich (2020)	*African Journal of Education, Science and Technology*	Kenya
35	Satrio and Kunto (2019)	*EkBis: Jurnal Ekonomi dan Bisnis*	Indonesia
36	Ahmad *et al.* (2018)	*Advances in Social Sciences Research Journal*	Pakistan
37	Osemene *et al.* (2016)	*Journal of Sustainable Development in Africa*	Nigeria

(*continued*)

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No.	Authors	Journals	Country
38	Okafor (2018)	*International Journal of Finance and Accounting*	Nigeria
39	Clarkson *et al.* (2007)	*Accounting, Organizations and Society*	USA
40	Nguyena and Tran (2019)	*Management Science Letters*	Vietnam
41	Gatimbu andWabwire (2016)	*International Journal of Sustainability Management and Information Technologies*	Kenya
42	Carandang and Ferrer (2020)	*Asia-Pacific Social Science Review*	Philippines
43	Saeidi *et al.* (2018)	*International Journal of Business Performance Management*	Malaysia
44	Zhao and Zeng (2017)	*Journal of Cleaner Production*	China
45	Aminoritse (2017)	*SSRN*	Nigeria
46	Li and Ramanathan (2018)	*Sustainability(MDPI)*	China
47	Elsayed and Paton (2005)	*Structural Change and Economic Dynamics*	U K
48	Wang *et al.* (2014)	*Business Strategy and the Environment*	Australia
49	Nakamura (2011)	*Eurasian Business Review*	Japan
50	Rokhmawati *et al.* (2017)	*International Journal of Energy Economics and Policy*	Indonesia
51	Andriana and Anisykurlillah (2019)	*Accounting Analysis Journal*	Indonesia
52	Vincent and Yusuff (2020)	*The Journal of Developing Areas*	Nigeria
53	Sharma *et al.* (2019)	*International Journal of Business Governance and Ethics*	India
54	Fan *et al.* (2017)	*Journal of Cleaner Production*	China
55	Tang *et al.* (2018)	*Business Strategy and the Environment*	China
56	Pogutz and Russo (2009)	*Academy of Management Annual Conference Best Paper Proceedings*	Italy
57	Osazuwa and Ahmad (2016)	*Social Responsibility Journal*	Malaysia
58	Kumar *et al.* (2011)	*MPRA*	India
59	Sher and Yang (2003)	*Technovation*	Taiwan
60	Rakiv *et al.* (2016)	*International Journal of Ethics in Social Sciences*	Bangladesh
61	Chaklader and Gulati (2015)	*Global Business Review(Sage)*	India
62	Gitahi *et al.* (2018)	*European Scientific Journal*	Kenya
63	Meng *et al.* (2019)	*Proceedings of the 2019 2nd International Conference on E-Business, Information Management and Computer Science.*	Malaysia
64	Rajput *et al.* (2013)	*International Journal of Business and Management Invention*	India
65	Cek and Eyupoglu (2020)	*Journal of Business Economics and Management*	Turkey
66	Lannelongue *et al.* (2015)	*Business Strategy and the Environment*	Spain
67	Li *et al.* (2017)	*Human and Ecological Risk Assessment: An International Journal*	China
68	Filbeck and Gorman (2004)	*Environmental and Resource Economics*	USA

Source: Authors' own creation

Table A1.

About the authors

Shaizy Khan is a Research Scholar at the Amity College of Commerce and Finance, Amity University, Noida, India. She has also worked as a research assistant for the Indian Council of Social Science Research-funded project "Employment Generation through Women Entrepreneurship: Practical Approach" (ICSSR). She has well presented at many national and

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