

Impact of Green Finance on Firm Performance: A Systematic Review Following PRISMA Guidelines

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Abstract:

Research on green finance, ESG, and firm performance has grown quickly, but findings remain split across streams that treat green bonds, ESG ratings, and CSR disclosure as separate topics, each with its own outcome measures. Large-scale meta-analyses have already established that ESG is broadly associated with favorable financial outcomes. What remains unresolved is how, when, and under which institutional conditions this relationship holds. This review addresses that question through a PRISMA 2020 compliant systematic review of peer-reviewed empirical studies indexed in Scopus and Web of Science between January 2015 and May 2025. From 860 records identified, 81 studies met the inclusion criteria and were coded for ESG/CSR instruments, financial outcomes, contextual variables, and study characteristics. A co-occurrence analysis of extracted variables, conducted in RStudio, mapped the structural relationships between ESG dimensions, control variables, and performance indicators. 49% of studies report a positive ESG-performance relationship, 38% report conditional or context-dependent effects, and the remainder report neutral, mixed, or negative results. Three mechanisms recur across the corpus: innovation and productivity gains, improved financing conditions, and risk reduction through transparency. China accounts for the largest share of the corpus (17 studies), followed by Indonesia and South Africa (7 each); effects are not uniformly stronger in these settings, and institutional strength itself acts as a key moderator, with weaker enforcement environments sometimes associated with limited or reversed ESG-performance relationships. By tracing these mechanisms rather than testing a single average effect, the review moves the debate from whether ESG pays to how and under what conditions it does, giving managers, investors, and regulators a basis for setting priorities as sustainability disclosure requirements expand.

Keywords: Green finance; ESG; Firm performance; Systematic review; PRISMA; Corporate sustainability.

Classification JEL : Q56, G23, M14, G32, O16

Paper type: systematic literature review

Résumé :

La recherche sur la finance verte, l'ESG et la performance des entreprises s'est développée rapidement, mais les résultats restent dispersés entre plusieurs courants qui traitent séparément les obligations vertes, les notations ESG et la divulgation RSE, chacun avec ses propres indicateurs de résultat. Des méta-analyses de grande ampleur ont déjà établi que l'ESG est globalement associé à des résultats financiers favorables. Ce qui reste non résolu, c'est comment, quand et dans quelles conditions institutionnelles cette relation se vérifie. Cette revue répond à cette question par une revue systématique conforme à PRISMA 2020, portant sur des études empiriques évaluées par les pairs et indexées dans Scopus et Web of Science entre janvier 2015 et mai 2025. Sur 860 références identifiées, 81 études ont satisfait aux critères d'inclusion et ont été codées selon les instruments ESG/RSE, les résultats financiers, les variables contextuelles et les caractéristiques des études. Une analyse de co-occurrence des variables extraites, réalisée sous RStudio, a permis de cartographier les relations structurelles entre les dimensions ESG, les variables de contrôle et les indicateurs de performance. 49 % des études rapportent une relation ESG-performance positive, 38 % rapportent des effets conditionnels ou dépendants du contexte, et le reste rapporte des résultats neutres, mixtes ou négatifs. Trois mécanismes reviennent de façon récurrente dans le corpus : les gains d'innovation et de productivité, l'amélioration des conditions de financement, et la réduction du risque par la transparence. La Chine représente la part la plus importante du corpus (17 études), suivie de l'Indonésie et de l'Afrique du Sud (7 chacune) ; les effets n'y sont pas uniformément plus forts, et la solidité institutionnelle agit elle-même comme un modérateur clé, des environnements d'application plus faibles étant parfois associés à des relations ESG-performance limitées, voire inversées. En retraçant ces mécanismes plutôt qu'en testant un effet moyen unique, la revue déplace le débat de « l'ESG paie-t-il ? » vers celle de savoir comment et dans quelles conditions il paie, donnant aux gestionnaires, investisseurs et régulateurs une base pour définir leurs priorités à mesure que les exigences de divulgation en matière de durabilité s'étendent.

Mots-clés : Finance verte ; ESG ; Performance des entreprises ; Revue systématique ; PRISMA ; Durabilité des entreprises.

Classification JEL : Q56, G23, M14, G32, O16

Type d'article : Revue de littérature systématique

1. Introduction

Sustainability has moved from a voluntary corporate narrative to a central concern in finance and management. Investors, regulators, and stakeholders increasingly treat environmental and social issues as economically material because they can affect firms through regulatory exposure, supply-chain disruption, litigation risk, reputation, and the cost of capital. This shift is visible in the mainstreaming of responsible investment principles, notably through the UN-supported Principles for Responsible Investment (PRI), launched in 2006 and rapidly adopted by institutional investors as a framework for integrating ESG considerations into investment analysis and ownership practices. In parallel, sustainable finance has expanded from a niche segment into a major feature of global markets. Industry mapping exercises document the scale of sustainable investment activities across major regions and highlight how definitions and measurement practices have evolved over time, partly in response to concerns about consistency and greenwashing (Giroud & Azémar, 2023). This market transformation has been reinforced by international climate policy. The Paris Agreement, adopted in December 2015 and entering into force in November 2016, strengthened global commitments to climate action and intensified expectations that firms and financial institutions align strategies and capital allocation with sustainability objectives (Falkner, 2016).

A further driver has been the rapid institutionalization of climate and sustainability disclosure. The Task Force on Climate-related Financial Disclosures (TCFD) published its recommendations in 2017, providing a widely used framework for consistent climate-related financial disclosures and helping embed climate risk into mainstream reporting and risk governance (Eccles & Krzus, 2019). In Europe, regulatory initiatives have accelerated standardization and increased demand for decision-useful ESG information. The EU Taxonomy Regulation entered into force in July 2020, establishing a classification system for environmentally sustainable activities, while the Sustainable Finance Disclosure Regulation (SFDR) has been in application since March 2021, strengthening sustainability related disclosure requirements for financial market participants. More recently, the Corporate Sustainability Reporting Directive (CSRD) has expanded the scope and depth of corporate sustainability reporting, with the first wave of companies applying the new rules for the 2024 financial year (reports published in 2025) (Hummel & Jobst, 2024).

Against this backdrop, academic research on green finance and ESG has grown sharply, yet the empirical evidence remains fragmented. Some studies report performance benefits (e.g., higher profitability, improved firm value, reduced downside risk, or stronger environmental outcomes), while others find weak, mixed, or conditional effects. Divergence often reflects differences in ESG proxies (ratings vs disclosure vs self-constructed indices), outcome definitions (accounting vs market vs risk vs non-financial metrics), time horizons, sectors, and institutional settings. This heterogeneity has practical implications: managers need clearer guidance on which sustainability actions create measurable value, investors require more reliable signals to allocate capital, and regulators seek evidence on whether disclosure and sustainable finance frameworks translate into better corporate behavior and outcomes.

This fragmentation is not new, and it is not for lack of trying to settle it. Two large-scale meta-analyses have already aggregated the field at scale: Friede, Busch and Bassen (2015) pooled more than 2,000 empirical studies and found a broadly positive ESG-financial performance relationship, and Whelan et al. (2021) reached a similar conclusion pooling over 1,000 more recent studies. Both confirm that ESG is, on average, associated with favorable financial outcomes. Neither explains how that relationship comes about, which mechanisms carry it, or why so many individual studies still report weak, mixed, or negative results underneath a positive average. Averaging across a heterogeneous literature can hide exactly the boundary conditions that managers, investors, and regulators need to act on. This review does not attempt

another aggregate estimate. It asks under what conditions and through what channels ESG and green finance translate into firm performance, and treats the divergence between individual studies as something to explain rather than average away.

To do so, this paper asks: how, and under what conditions, do green finance instruments and ESG practices influence the financial and non-financial performance of firms? Three sub-questions structure the analysis. (i) asks where the empirical literature converges on a consistent direction of effect, and where it does not. (ii) asks which mechanisms most consistently explain how ESG and green finance translate into performance: innovation and productivity, financing conditions, information and risk channels. (iii) asks under which boundary conditions (institutional environment, sector exposure, governance and credibility) these effects strengthen, weaken, or reverse.

We answer these questions through a systematic review of peer-reviewed studies published between January 2015 and May 2025, following the transparent screening and extraction protocol described in Section 3.

This review makes three contributions, each tied to one of the theoretical perspectives developed in Section 2. Building on the Resource-Based View, it clarifies when ESG functions as a genuine strategic capability rather than symbolic disclosure, and shows that this distinction, not the mere presence of ESG activity, is what drives the innovation and productivity gains reported in the literature. Drawing on Signaling Theory, it identifies the conditions (disclosure quality, credibility, governance oversight) under which ESG signals actually lower financing costs, rather than treating disclosure as uniformly informative. Informed by Institutional Theory, it maps how institutional strength moderates whether ESG is rewarded, bypassed, or penalized across the 81 reviewed studies, offering a more conditional account than the "ESG pays" framing common in earlier aggregate syntheses.

The remainder of the paper details the methodology, presents descriptive and thematic results, and discusses implications, limitations, and future research directions.

2. Theoretical Background

This review is grounded in three complementary theoretical frameworks that collectively explain when, how, and for whom green finance and ESG practices translate into firm-level performance outcomes.

The Resource-Based View (RBV) provides the foundational lens. Within the RBV framework, ESG capabilities, comprising environmental management systems, governance structures, and social engagement practices, constitute firm-specific, difficult-to-imitate resources that can generate sustained competitive advantages (Barney et al., 2001). Firms that develop strong ESG capabilities are better positioned to reduce operational risks, attract talent, foster innovation, and access preferential financing, all of which are expected to improve both short-term profitability and long-term firm value. This perspective predicts that ESG effects are stronger when ESG is treated as a genuine strategic resource rather than a symbolic compliance exercise. Signaling Theory complements the RBV by explaining how ESG and green finance instruments communicate quality and credibility to external stakeholders. Under information asymmetry, a pervasive condition in capital markets, firms with genuine sustainability commitments use ESG disclosure, green bond issuance, and sustainability reporting as credible signals to investors, lenders, and regulators (Spence, 1973). Credible signaling is expected to reduce the cost of capital, attract long-term institutional investors, and improve market valuations. This framework also explains why the effects of ESG are conditional on disclosure quality and reporting credibility: when signals are noisy or suspected of greenwashing, the signaling mechanism breaks down and performance benefits diminish.

Institutional Theory provides the third pillar, explaining cross-country and cross-sector heterogeneity in ESG-performance relationships. Firms operate within institutional

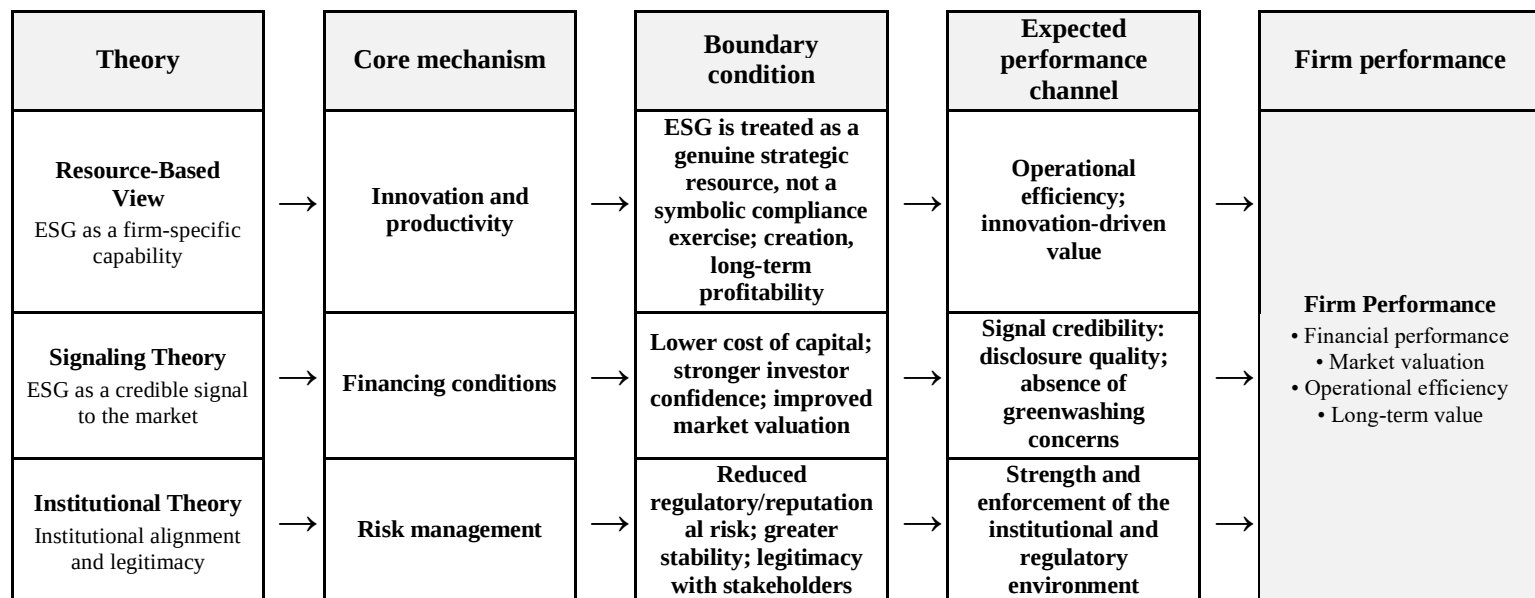
environments that shape their incentives and constraints, including regulatory frameworks, enforcement quality, investor expectations, and cultural norms regarding sustainability (DiMaggio & Powell, 1983; Greenwood & Meyer, 2008). Countries and sectors with stronger institutional environments, where sustainability disclosure is mandatory, enforcement is credible, and ESG data are comparable are expected to exhibit stronger and more consistent ESG-performance relationships. Conversely, weaker institutional settings may allow low-ESG firms to maintain short-term performance advantages, or may reduce the value relevance of ESG signals due to measurement inconsistency. This framework directly informs this review's analysis of boundary conditions and moderating factors.

Together, these three theories generate a coherent set of predictions: ESG and green finance create value through capability building (RBV), credible signaling (Signaling Theory), and institutional alignment (Institutional Theory). They also explain why effects are conditional, context-dependent, and sometimes mixed, providing the interpretive scaffold for the thematic synthesis presented in Section 4.

• Integrative conceptual framework

Rather than treating the Resource-Based View, Signaling Theory, and Institutional Theory as three independent explanations, this review connects each theory to one of the three empirical mechanisms that recur throughout the synthesis in Section 4 and the Discussion in Section 5: innovation and productivity, financing conditions, and risk management. Table 1 summarizes this mapping, together with the boundary condition under which each theoretical mechanism is expected to hold and the performance channel it predicts. This integrative structure is used explicitly in Section 5.2 to confront each theoretical prediction with the empirical evidence.

Figure 1. Integrative conceptual framework linking theory, mechanism, boundary condition and expected performance channel.



Source: Authors' elaboration.

3. Materials and Methods

3.1. Research design

This study adopts a systematic literature review methodology to examine how green finance instruments and ESG practices influence firms' financial and non-financial performance. The review follows a transparent and replicable process consistent with the PRISMA (Preferred

Reporting Items for Systematic Reviews and Meta-Analyses) guidelines (Page et al., 2021), ensuring maximum transparency, methodological rigor in study from identification, screening, eligibility assessment, and synthesis.

To position this research within the international literature, a systematic search was conducted using two major academic data-bases: Scopus (www.scopus.com) and Web of Science (WoS) (www.webofscience.com). These were two good databases, as they cover a wide spectrum of peer-reviewed literature of high quality, selected for their extensive coverage of peer-reviewed research in finance, management, and sustainability. The search strategy combined keywords related to green and sustainable finance, ESG and corporate sustainability practices, and firm-level performance outcomes. The search query was structured as follows: TITLE-ABS-KEY (“green finance” OR “sustainable finance” OR “responsible investment” OR “green bond*” OR “impact investing” OR “socially responsible investment” OR “SRI”) AND (“ESG” OR “sustainability” OR “corporate sustainability” OR “CSR” OR “environmental social governance”) AND (“financial performance” OR “firm performance” OR “corporate performance” OR “non-financial performance” OR “profitability” OR “firm value”)

The starting year 2015, it’s a meaningful turning point because several global milestones made ESG and green finance much more “researchable” and financially relevant. In 2015, the UN adopted the 2030 Agenda/SDGs, giving firms and investors a common sustainability framework (Lee et al., 2016). The same year, the Paris Agreement was adopted (December 2015), putting climate transition at the center of corporate strategy and capital allocation. Also, in December 2015, the Financial Stability Board created the TCFD, signaling that climate risk should be treated as a financial reporting and risk-management issue, not only an ethical concern (Nisanci, 2021). Finally, the green bond market had just gained clearer rules through the Green Bond Principles (2014), which strengthened transparency and credibility and supported rapid market growth encouraging more firm-level empirical studies. In total, 860 records were identified, including 520 articles from Scopus and 340 articles from Web of Science.

3.2. Inclusion and exclusion criteria

Clear inclusion and exclusion criteria (Table 1) were established to ensure the relevance, quality, and consistency of the selected studies. These criteria guided the screening and eligibility assessment processes.

Table 1: inclusion and exclusion criteria

Inclusion Criteria	Exclusion Criteria
Peer-reviewed journal articles or conference papers	Non-peer-reviewed publications (book chapters, editorials, dissertations, grey literature)
Published between January 2015 and May 2025	Articles published before 2015
Articles that examine the relationship between green finance, sustainable finance, ESG, CSR, or corporate sustainability and financial or non-financial performance	Studies not focused on both (finance/ESG/sustainability) and (performance outcomes)
Studies with empirical evidence, systematic reviews, meta-analyses, or strong theoretical/conceptual frameworks	Opinion papers, commentaries, or studies lacking methodological rigor
Articles accessible in full-text via institutional access, open access, or databases (WOS/Scopus)	Articles behind a paywall or not retrievable in full-text
Studies focusing on corporate/firm-level analysis (including listed companies, financial institutions, or corporate sectors)	Studies focused only on macroeconomic/policy-level analysis without firm-level implications

Source: authors.

Briefly, included studies were required to be peer-reviewed, written in English or French, published between 2015 and 2025, and to examine the relationship between green finance

and/or ESG practices and firm-level financial or non-financial performance. Studies that were non-peer-reviewed, lacked empirical or robust theoretical foundations, focused exclusively on macro-level analyses, or were not accessible in full text were excluded.

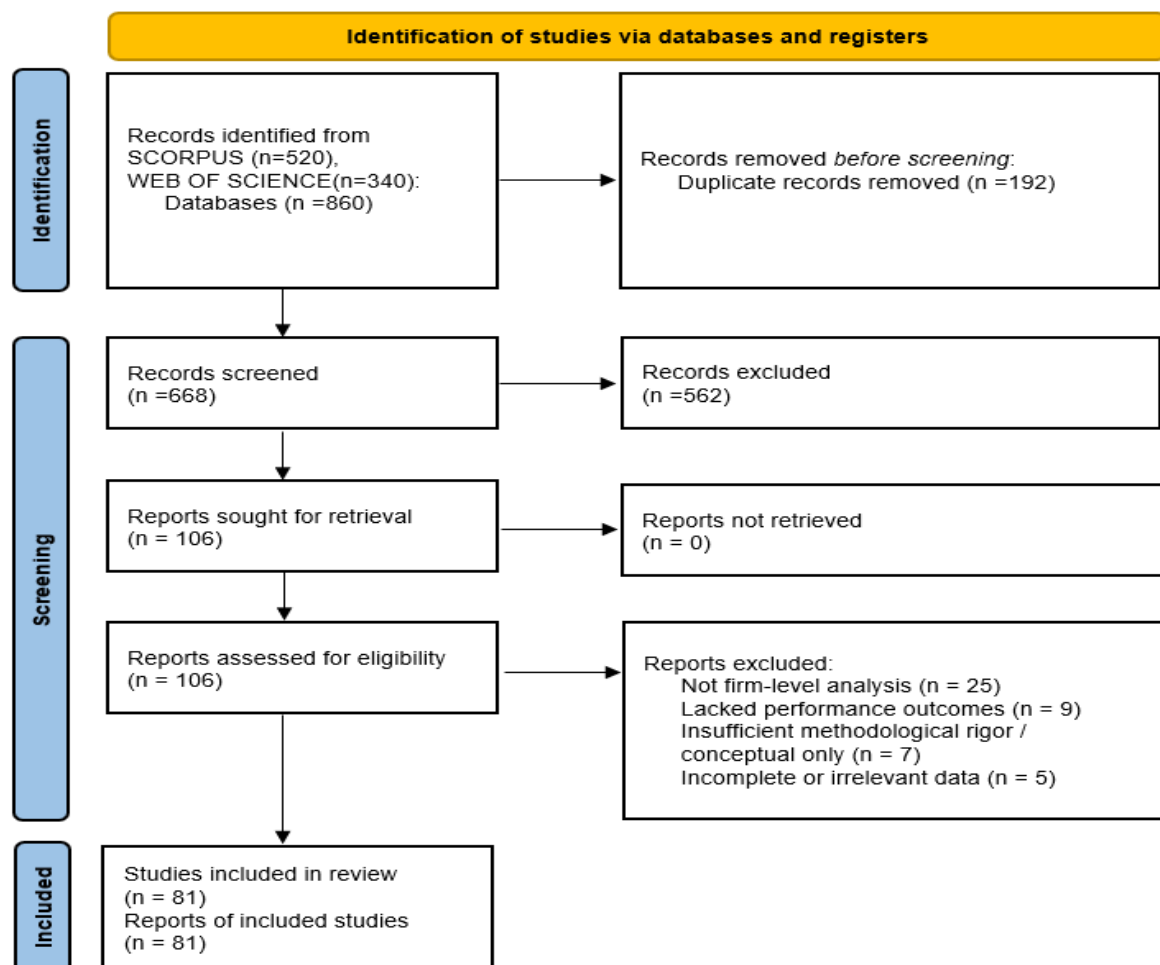
3.3. Study selection and screening process

All retrieved records were exported to reference management software, where duplicate entries were identified and removed prior to screening. A total of 192 duplicate records were excluded, resulting in 668 unique studies eligible for title and abstract screening.

The screening process was conducted by two reviewers using **Rayyan** (<https://www.rayyan.ai/>), a web-based systematic review platform that facilitates transparent and efficient screening. Titles and abstracts were assessed against predefined inclusion and exclusion criteria (Figure 1). Following this stage, 562 records were excluded due to lack of relevance, methodological inadequacy, or misalignment with the study's scope.

The full texts of the remaining 106 articles were sought and assessed for eligibility. All potentially eligible studies were successfully retrieved and evaluated in full. During the eligibility assessment, 25 articles were excluded for specific reasons, including the absence of firm-level analysis, lack of performance-related outcomes, insufficient methodological rigor, or incomplete data. The final sample consisted of 81 studies retained for final analysis, as illustrated in Figure 1.

Figure 1: PRISMA 2020 Flow Diagram of study selection process



Source: authors.

3.4. Methodological Quality Appraisal

Because the included studies vary substantially in design, from large panel regressions to survey-based and case-study approaches, quality was appraised through a five-criterion grid built directly from the data-extraction table rather than a general statement of adherence to best practice. Each study was scored on: (1) identification of the geographic/institutional context; (2) reporting of sample size and study period; (3) specification of the methodological design and analytical technique; (4) definition of the ESG or green-finance instrument together with the financial outcome variable; and (5) explicit disclosure of limitations by the original authors. Each criterion was scored 0, 0.5, or 1 depending on whether the corresponding information was fully, partially, or not reported in the extraction table, giving a total score out of 5. Studies were then grouped into three bands: high quality (score ≥ 4), moderate quality (2.5–3.5), and low quality (< 2.5). This procedure evaluates the completeness and transparency of methodological reporting as captured during data extraction. It is a narrower exercise than a full risk-of-bias appraisal under a validated instrument such as the Mixed Methods Appraisal Tool (Hong et al., 2018), which would require re-reading each article in full text; this narrower scope is acknowledged as a limitation in Section 6.

Table 2: Quality-appraisal criteria and decision rules

Criterion	Operational test	Scoring
Geographic / institutional context	Country or institutional setting of the sample is identified	0 = absent; 0.5 = partial; 1 = clear
Sample and period	Sample size and study period are both reported	0 = absent; 0.5 = one only; 1 = both
Methodological design	Method and analytical technique are both specified	0 = absent; 0.5 = one only; 1 = both
ESG / outcome variables	ESG or green-finance instrument and financial outcome are both defined	0 = absent; 0.5 = one only; 1 = both
Limitations	Authors explicitly discuss limitations of the study	0 = absent; 1 = present

Source: authors' appraisal matrix adapted to heterogeneous systematic-review evidence.

No study was excluded solely on the basis of this appraisal, since the review also aims to map technologies, instruments, and implementation contexts rather than restrict the synthesis to the highest-quality subset alone; however, low-quality studies are not used as the sole basis for strong claims in Section 5. The resulting distribution of studies across quality bands is reported in Section 4.7 (Table 8).

3.5. Data extraction and analysis

For each included study, a structured data extraction process was implemented. Extracted variables included publication year, journal, authorship, country, sector, methodological approach, sample size, study period, ESG or green finance instruments, performance outcomes, theoretical frameworks, and key findings. The three theories introduced in Section 2 were not used as an a priori coding grid to sort studies into fixed categories; rather, each study was coded on the empirical variables, mechanisms, and outcomes it reported, and the resulting evidence base was subsequently read through the integrative framework in Table 1 to identify which theoretical mechanism it illustrates most directly. This distinction is stated explicitly here to avoid overstating the role of theory in the coding procedure itself. Descriptive and statistical analyses were performed using RStudio to examine publication trends, leading journals and authors, geographic distribution of studies, study periods, and sample size characteristics. In parallel, a variable co-occurrence network was built in RStudio using the *igraph* package (Csardi & Nepusz, 2006). Each node represents a variable identified across the included studies, and each edge represents the co-occurrence of two variables within the same study; edge weight

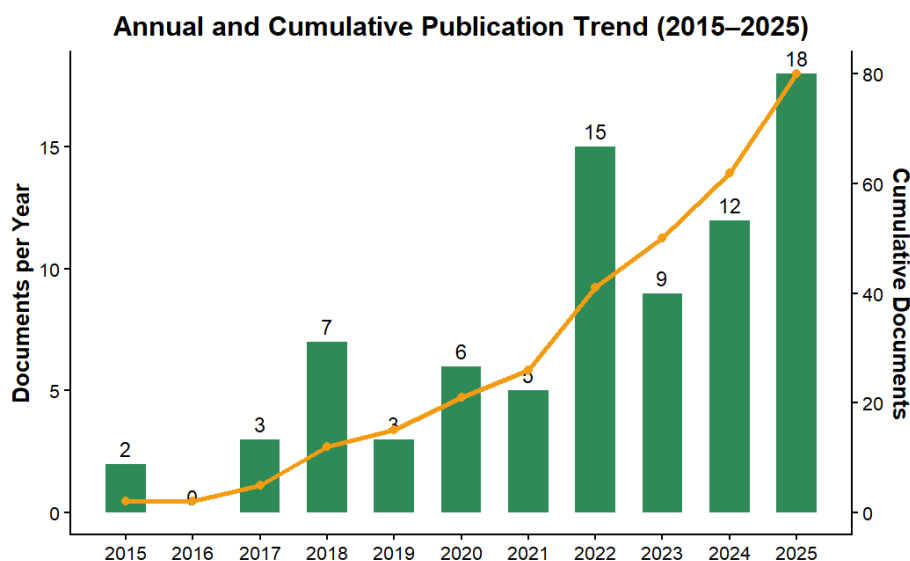
corresponds to the frequency of that co-occurrence across the corpus. Variables were grouped into three categories prior to network construction: ESG/green-finance variables, financial performance variables, and control/contextual variables. Node centrality was assessed using degree centrality, which identifies the variables with the highest number of direct connections within the network and therefore the most structurally central to the empirical architecture of the field. The resulting network is presented in Figure 4 and interpreted in Section 4.5.

4. Results

4.1. Temporal Distribution of Publications

The temporal distribution of publications over the period 2015–2025 reveals a clear and accelerating growth pattern in research examining the relationship between green finance, ESG practices, and firm-level performance. During the initial phase (2015–2017) (Chetty et al., 2015; de Zwaan et al., 2015; Dzingai & Fakoya, 2017; Kobo & Ngwakwe, 2017; Lo & Kwan, 2017), scholarly output remained limited and sporadic, with fewer than three publications per year on average. This early stage reflects the relatively emergent status of firm-level empirical investigations into ESG and green finance within the broader finance and management literature. A gradual increase in publication activity is observed between 2018 and 2020 (figure 2), during which the number of studies rose modestly, indicating a growing but still developing academic interest in sustainability oriented financial practices. This period corresponds to the early institutionalization of ESG reporting standards and the initial expansion of green financial instruments across global markets, as shown in Figure 2.

Figure 2: Publication by year



Source: authors.

A clear turning point emerges from 2021 onward, marked by a sharp and sustained rise in annual publications, with most studies concentrated in the 2021–2025 period. This acceleration aligns with a convergence of policy standardization, disclosure regulation, and market expansion that increased both the availability and comparability of ESG/green finance data and the urgency of performance-related inquiry. In the EU, the Sustainable Finance Disclosure Regulation (SFDR) began applying in March 2021, requiring sustainability-related disclosures for in-scope financial products and thereby intensifying demand for empirical evidence on how ESG considerations relate to risk and returns.(van Oostrum, 2021) In parallel, the EU Taxonomy Regulation entered into force in July 2020, providing a shared classification system for

environmentally sustainable activities and strengthening the conceptual and measurement infrastructure for “green” finance research.(Tonnarello et al., 2025) The regulatory momentum was reinforced by the Corporate Sustainability Reporting Directive (CSRD) which expands sustainability reporting requirements and anchors reporting in European Sustainability Reporting Standards (ESRS) further improving corporate ESG disclosure coverage and data consistency for firm-level analysis.(Hummel & Jobst, 2024) On the market side, sustainable investing continued to scale globally, with reports documenting substantial sustainable AUM in major regions and continued growth in non-US markets between 2020 and 2022, helping to place ESG and green finance at the center of investment practice and scholarly attention. Finally, the period also coincides with the mainstreaming of climate-related financial risk within supervisory and stability agendas supported by initiatives and guidance from central-bank and supervisor networks and by increasing use of climate risk monitoring and stress-testing approaches further motivating rigorous empirical work on ESG/green finance and performance outcomes.

4.2. Leading Journals and Publication Outlets

The distribution of publications across academic journals indicates a concentration of research output within a limited number of high-impact outlets, reflecting the disciplinary positioning and thematic orientation of the literature on green finance, ESG practices, and firm performance. The reviewed studies are predominantly published in journals specializing in sustainability, environmental management, business ethics, and strategic management, rather than in traditional finance-only outlets, as shown in Table 3.

Table 3:Top 10 journals

Journal	Publisher	Max Quartil (scimago SJR 2025)	Documents
Sustainability (Switzerland)	MDPI	Q1	13
Business Strategy and the Environment	Wiley	Q1	4
Corporate Social Responsibility and Environmental Management	Wiley	Q1	3
Administrative Sciences	MDPI	Q2	2
Discover Sustainability	Springer Nature	Q2	2
Energies	MDPI	Q1	2
International Journal of Disclosure and Governance	Palgrave Macmillan (Springer)	Q2	2
International Journal of Energy Economics and Policy	Econjournals	Q2	2
International Journal of Environmental Research and Public Health	MDPI	Q1	2
Investment Management and Financial Innovations	Business Perspectives	Q2	2
Journal of Business Ethics	Springer nature	Q1	2

Source: authors, based on Scimago Journal Rank (SJR) 2025 quartile classifications.

Among the leading sources, Sustainability emerges as the most prolific journal, accounting for the highest number of publications within the sample. This prominence confirms the journal's role as a key platform for interdisciplinary research addressing the intersection of sustainability, corporate practices, and performance outcomes. Other influential journals include Business Strategy and the Environment and Corporate Social Responsibility and Environmental Management, both of which contribute multiple studies and are ranked in the first quartile (Q1) according to Scimago Journal Rankings 2025.

Overall, a substantial share of the reviewed articles is published in Q1-ranked journals, indicating that research on ESG and green finance performance has gained recognition within

high-quality academic outlets. At the same time, several contributions appear in Q2 journals, such as Administrative Sciences, Discover Sustainability, reflecting the expanding diffusion of the topic across a broader range of sustainability- and policy-oriented publications.

The diversity of publishers including MDPI, Wiley, Springer Nature, and Palgrave Macmillan further highlights the multidisciplinary nature of the field and its relevance across management, sustainability, governance, and applied economics domains. Collectively, these patterns suggest that the literature is anchored in sustainability-driven and strategy-focused journals, providing a structured yet varied set of publication outlets for research on the performance implications of ESG and green finance.

4.3. Leading Authors and Research Contributions

The analysis of authorship patterns indicates a dispersed distribution of scholarly contributions within the literature on green finance, ESG practices, and firm performance (Table 4). No single author dominates the field; instead, a small group of researchers appears repeatedly, each contributing a limited number of studies. The most frequently appearing authors Muhammad Usman Khurram (Khurram et al., 2023), Obey Dzomonda (Dzomonda, 2021), Nurmala Ahmar (Astuti & Ahmar, 2025; Nurlatifah et al., 2025), Sungjin Son (Kim et al., 2022), and Edina Éva Kulcsár each produced two publications in the reviewed sample, appearing across different co-authorship configurations, as presented in Table 4.

Table 4: Top 5 authors

Rank Author	No. of Articles	Evidence in Study	Affiliation country
1. Muhammad Usman Khurram	2	Appears in two different author groups with Wenwu Xie, Sultan Sikandar Mirza, Hao Tong	China (institutional affiliation stated in the byline; co-authors also China-affiliated)
2. Obey Dzomonda	2	Appears once alone, once with Olawale Fatoki	South Africa
3. Nurmala Ahmar	2	Appears in two papers: Nurlatifah et al. and Tri Astuti & Nurmala Ahmar	Indonesia
4. Sungjin Son	2	Appears twice with Jootae Kim (order reversed once)	South Korea
5. Edina Éva Kulcsár	2	Appears twice with Edit Veres & Monika Garai-Fodor	Hungary

Source: authors.

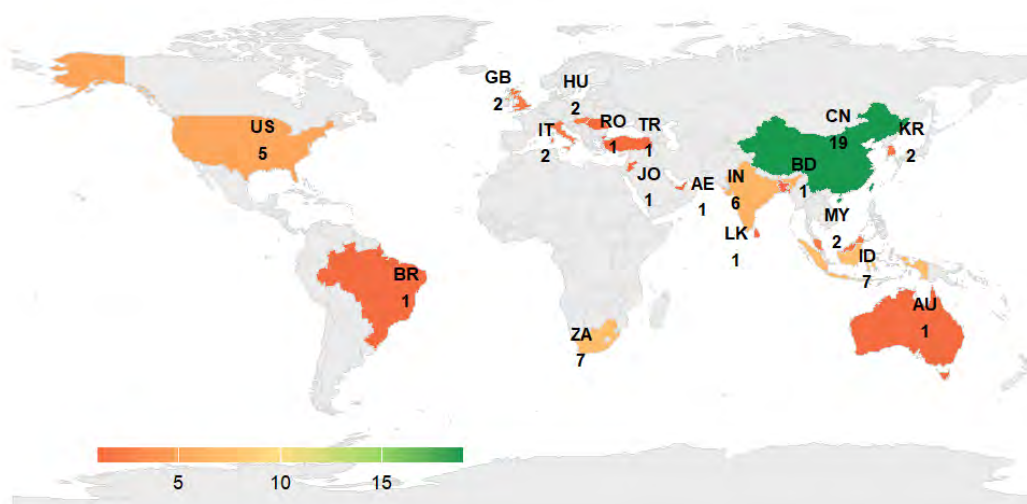
configurations, reflecting a collaborative and internationally connected research environment, including Asia, Africa, and Europe, reflecting the global nature of research activity in this domain.

Overall, the limited recurrence of individual authors suggests that the literature remains fragmented and evolving, with research efforts distributed across a wide range of scholars rather than concentrated within a well-established core group.

4.4. Geographic Distribution of Studies

The geographic distribution of the reviewed studies reveals a highly uneven and heterogeneous spatial pattern of empirical evidence, as depicted in **Figure 3**. While a substantial share of the literature relies on single-country analyses, a non-negligible proportion of studies adopts multi-country or non-country-specific research designs, contributing to a more complex geographic landscape.

Figure 3: Geographic Distribution of Studies



Source: authors.

Among country-specific studies, China represents the dominant empirical context, accounting for 17 studies, followed by Indonesia and South Africa with 7 studies each, and India with 6 studies. The United States emerges as the most frequently examined developed economy, contributing 5 studies, while European countries including the United Kingdom, Hungary, Italy, South Korea, Malaysia, and Hong Kong each contribute two studies. Additional single-country evidence is drawn from Brazil, Bangladesh, Romania, Jordan, Turkey, Sri Lanka, Australia, and the United Arab Emirates (Dubai), each represented by one study.

Beyond single-country analyses, several studies employ broader geographic scopes or aggregated country samples. Specifically, three studies focus on emerging countries without specifying individual national contexts (Garcia & Orsato, 2020; Jatmiko et al., 2025), while two studies examine developing countries (Banani & Sunarko, 2022; Kobo & Ngwakwe, 2017) as a general group. Furthermore, three studies analyze European countries collectively, and one study adopts a BRICS-country framework (Makeeva et al., 2024). Other multi-country configurations include studies covering Latin America, UK and European firms, U.S. multinational companies, and joint country samples such as Malaysia–Indonesia and Brazil–China–South Africa (Zou et al., 2020). Additionally, a small number of studies rely on large cross-country datasets, including analyses spanning 63 countries globally. One further study covers a 10-country MENA sample (Jordan, Kuwait, Oman, Lebanon, Qatar, Saudi Arabia, the United Arab Emirates, Egypt, Morocco, and Tunisia), adding a regional configuration not captured in the single-country counts above (Nouaili & Khemiri, 2025).

Taken together, these patterns indicate that although the empirical literature is dominated by country-specific evidence concentrated in a limited number of national contexts, a complementary strand of research employs regional, multinational, or global samples. This combination contributes to the breadth of the evidence base and also reflects the context dependent nature of findings related to ESG practices and green finance performance, as results are derived from both localized and highly aggregated geographic settings.

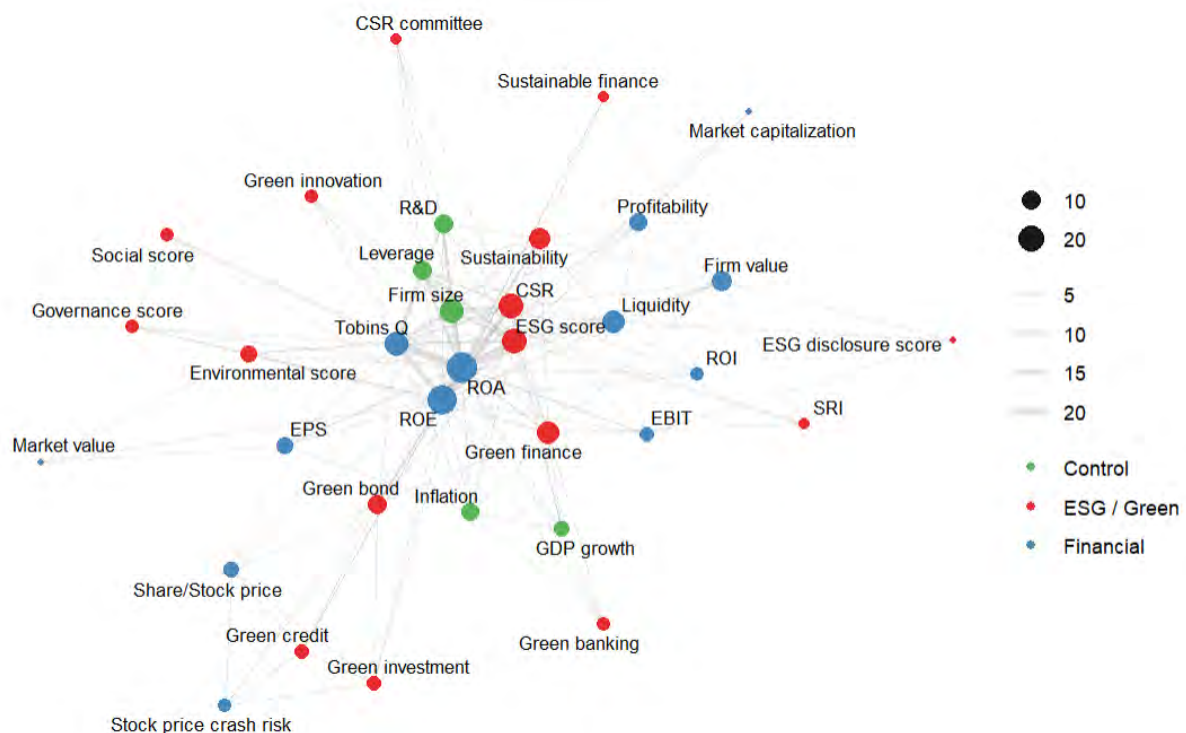
4.5. Variable Co-Occurrence Analysis and Interpretation of Empirical Patterns

This study employs a variable co-occurrence network analysis to examine how ESG, green finance, financial performance, and control-related variables are jointly operationalized in empirical research. Rather than limiting the analysis to the frequency of variable usage, this approach focuses on the structural relationships between variables by identifying patterns of co-occurrence within empirical models. By doing so, the analysis captures the implicit

empirical architecture of the literature, revealing dominant modeling practices, recurrent combinations of variables, and underlying assumptions that shape empirical investigations into the ESG–financial performance nexus.

In the constructed network, each node represents a variable used in the reviewed studies, while edges reflect the joint inclusion of variables within the same empirical specifications. Node size reflects the relative importance of variables in the literature, proxied by their frequency and degree of connectedness, whereas edge thickness indicates the strength of co-occurrence, as illustrated in **Figure 4**. Variables are grouped into three analytically distinct categories: ESG and green variables, financial performance variables, and control or contextual variables, allowing for a systematic interpretation of the empirical structure of the field.

Figure 4: Variable Co-Occurrence Network



Source: authors

The ESG and green variables form a dense and cohesive cluster, centered on composite indicators such as ESG score, ESG disclosure score, alongside green finance instruments including green bonds, green credit, green banking, and sustainable finance. The centrality of ESG scores reflects their widespread use as standardized proxies for firms' sustainability orientation, offering comparability across firms, industries, and institutional contexts. Their strong interconnections with green finance instruments indicate that the literature increasingly conceptualizes green finance as closely intertwined with ESG performance. Empirically, this co-occurrence suggests that green finance is often treated either as a mechanism through which ESG orientation materializes in firms' financing activities or as an observable outcome of prior ESG engagement. In the dataset, this structural proximity co-occurs consistently across the corpus rather than appearing in isolated cases; the theoretical implications of this pattern are developed in Section 5.1.

Financial performance variables constitute a second, clearly identifiable cluster dominated by accounting-based and market-based indicators. Return on Assets (ROA) emerges as the most central node, confirming its role as the primary benchmark for evaluating the financial consequences of ESG engagement. ROA's prominence reflects its ability to capture internal

operational efficiency while remaining relatively independent of market fluctuations. Its strong co-occurrence with Return on Equity (ROE) and Tobin's Q indicates that empirical studies commonly combine accounting measures with market-based valuation indicators in order to assess both short-term profitability and long-term value creation. This combination reflects an implicit recognition that ESG-related effects may manifest across multiple dimensions of firm performance, even when estimated within a single empirical framework. The inclusion of stock price crash risk, although less central, points to a growing stream of research that frames ESG engagement as a risk-mitigating mechanism, emphasizing its potential role in reducing information asymmetry, agency problems, and downside risk. The peripheral position of this variable suggests that risk-based perspectives, while emerging, remain secondary to performance-oriented approaches in the current literature.

The third cluster is composed of control and contextual variables, with firm size, leverage, and R&D expenditure occupying structurally central positions. Firm size appears as the most influential control variable, acting as a bridge between ESG constructs and financial outcomes. This reflects a widely shared assumption that firm scale conditions both the capacity to engage in ESG activities and the extent to which such activities translate into measurable financial effects. Larger firms typically possess greater financial and organizational resources, face higher stakeholder scrutiny, and exhibit greater visibility, all of which amplify the relevance of ESG engagement for performance outcomes. Leverage plays a similarly important role, indicating that capital structure is not treated merely as a technical control but as a fundamental determinant of firms' risk profiles and financial constraints. Its strong links to both ESG variables and performance measures suggest that many studies implicitly recognize leverage as a moderating factor shaping the ESG–performance relationship, even when moderation effects are not explicitly modeled. R&D expenditure occupies an intermediary position, connecting ESG variables with financial outcomes and suggesting that innovation-related activities may serve as a key transmission channel through which ESG engagement affects firm performance. Notably, while innovation is structurally central in the network, it is often introduced as a control variable rather than modeled as a mediator, revealing a gap between theoretical arguments emphasizing innovation-driven ESG effects and empirical practices that do not formally test these mechanisms.

In summary, the network shows the strongest links running from ESG and green finance variables, particularly ESG scores and green-finance instruments, to accounting-based performance measures, most notably ROA. ROA also co-occurs frequently with Tobin's Q. Firm size and leverage record the highest degree among control variables, and R&D is the most connected innovation-related control. Risk-based and macroeconomic variables (stock price crash risk, GDP growth) occupy peripheral positions in the network, with markedly lower degree than the variables above. Section 5.1 interprets what this structure implies for how ESG and green finance are theorized to affect performance.

Table 6: Top 10 variables by network centrality (degree)

Rank	Variable	Category	Degree (links)	Weighted degree
1	ROA	Financial	29	141
2	ROE	Financial	26	83
3	Firm Size	Control	16	71
4	Tobin's Q	Financial	16	70
5	ESG Score	ESG/Green	19	62
6	CSR	ESG/Green	18	54
7	Leverage	Control	10	47
8	R&D	Control	10	26
9	Green finance	ESG/Green	15	22
10	Sustainability	ESG/Green	13	20

Source: authors' co-occurrence network computed in RStudio (igraph).

Table 6 reports the ten most central variables in the co-occurrence network described in Section 3.5, ranked by weighted degree centrality (the total number of times a variable co-occurs with any other variable across the corpus). ROA is the single most central node, linked to 29 distinct variables (weighted degree = 141), confirming its role as the dominant financial outcome measure in the field. ROE follows as the second most central node (weighted degree = 83), reinforcing the same pattern from the profitability side. Firm size and Tobin's Q rank third and fourth (weighted degree = 71 and 70), supporting their identification above as bridging variables between the ESG/green-finance, financial-outcome, and control-variable groups. ESG score and CSR complete the top six (weighted degree = 62 and 54), consistent with the qualitative reading of the network above.

Taken together, the network maps the empirical architecture of the field rather than a simple frequency count: it shows which variables the literature treats as belonging together, and which remain structurally peripheral. Sections 5.1 and 5.2 interpret this architecture in relation to the theoretical predictions of Section 2.

4.6. Vote-Counting of Reported Effects

To complement the qualitative synthesis, each of the 81 included studies was coded according to the dominant direction of the ESG/green-finance–performance relationship reported by its authors, based on the extracted “principal findings” field. Three studies could not be classified because they did not directly report a firm-level financial-performance outcome (an algorithmic/methodological study, an investor-perception study, and an ESG-measurement construct-validity study); these were excluded from the percentages below, which are computed over the 78 classifiable studies, as shown in Table 7.

Table 7: Vote-counting of reported effect directions (n=78 classifiable studies)

Direction of effect	Number of studies	% (of 78 classifiable studies)
Positive	38	48.7%
Conditional / mixed	30	38.5%
Neutral / non-significant	7	9.0%
Negative	3	3.8%

Source: authors.

Roughly half of the classifiable corpus reports a straightforwardly positive relationship, while a further 38.5% reports effects that are conditional, mixed, or context-dependent rather than strictly positive or negative. Only 9.0% report a neutral or statistically non-significant relationship, and a small minority (3.8%) report a predominantly negative relationship. This distribution supports the review’s central argument: outright negative findings are rare, but a purely positive reading of the literature would also overstate the consensus, since almost four in ten classifiable studies qualify the ESG–performance link rather than confirming it unconditionally.

4.7. Quality of the Included Studies

Applying the five-criterion appraisal grid described in Section 3.4 to all 81 included studies, the mean quality score was 4.64 out of 5. The large majority of studies, 78 (96.3%), were rated high quality; 2 studies (2.5%) were rated moderate; and 1 study (1.2%) was rated low quality, chiefly because sample size, methodological detail, or the authors’ own stated limitations were not fully captured in the extraction table (Table 7). Compliance was highest for geographic identification (97.5%) and for defining the ESG or green-finance instrument together with the outcome variable (96.9%), and lowest for specifying the analytical technique (88.3%) and for the disclosure of limitations (87.7%). The one remaining low-quality study is flagged for re-verification against the original full text before final submission, rather than excluded outright,

since the review's objective includes mapping the full range of technologies and contexts rather than restricting the synthesis to the highest-quality subset alone.

Table 5: Distribution of studies by methodological quality band (n=81)

Quality band	Score range	Number of studies	%
High	≥ 4.0	78	96.3%
Moderate	2.5 – 3.5	2	2.5%
Low	< 2.5	1	1.2%

Source: authors.

5. Discussion

5.1. Synthesis of Robust Mechanisms

This systematic review examined how green finance instruments and ESG practices influence firms' financial and non-financial performance, with the aim of moving beyond fragmented conclusions toward a clearer field-level interpretation. Across the 81 reviewed studies, the evidence does not support a single universal effect; rather, it suggests a structured pattern in which ESG and green finance can generate value through identifiable channels, but the magnitude and even direction of observed effects depend on measurement choices, empirical design, time horizon, and institutional context. A first robust insight is that when ESG is treated as a structured, measurable strategic capability often captured through established ESG ratings or consistent ESG management approaches its association with long-term financial performance is frequently positive. Evidence from China, for example, reports that ESG ratings improve firm financial outcomes and remains robust across multiple tests, while also documenting mechanisms such as reduced agency problems, increased R&D investment, and productivity improvements (Jiang et al., 2025). Similarly, studies focusing on ESG management strategies emphasize that firms with stable and well-structured ESG approaches tend to achieve stronger long-term performance and resilience compared to firms with weak or inconsistent ESG engagement (Liu & Fill, 2025). Complementary evidence from South Africa indicates positive links between ESG activities and performance measures such as ROE and Tobin's Q, with environmental initiatives often emerging as the primary driver, while social and governance pillars can be weaker or statistically insignificant in some specifications (Chininga et al., 2024), supporting the view that ESG value creation is most visible when ESG is operationalized as more than symbolic disclosure and when performance is evaluated over a sufficiently long horizon.

A second area of relatively consistent evidence concerns green finance instruments particularly green bonds and green finance development and their role in shaping both value creation and sustainability outcomes. Several studies find that green bond issuance is associated with increases in corporate value and innovation performance, and that innovation functions as a reinforcing pathway amplifying the value effect of green bonds (Khurram et al., 2023). Related work suggests that green bond issuance can improve stock prices, profitability, operational performance, innovation capacity, and CSR engagement, with effects that strengthen over time as green finance instruments mature (Zhou & Cui, 2019). Beyond firm value, green finance development has also been linked to risk-related outcomes, including reduced stock price crash risk via mechanisms centered on improved information environments and reduced information asymmetry (Zhang & Ding, 2023). Where the outcome focus is explicitly environmental, evidence shows that green bonds and green financing portfolios can contribute to CO₂ emissions reduction in sector-specific contexts, indicating that performance effects may be simultaneously financial and environmental, though sometimes uneven in scale or dependent on broader ecosystem support (Muhtar & Putra, 2023). Overall, these findings collectively reinforce a core message: green finance often matters not only through immediate profitability changes, but

through innovation, financing access, monitoring, and information channels that reshape firm trajectories.

5.2. Boundary Conditions and Sources of Heterogeneity

At the same time, the literature's heterogeneity is not noise; it is a signal that ESG and green finance effects are conditional and sometimes involve short-run trade-offs. The vote-counting synthesis reported in Table 7 makes this explicit: only 3.8% of classifiable studies report a predominantly negative relationship, but 38.5% report conditional or mixed effects, so a simple positive/negative dichotomy would understate how often the relationship is qualified rather than confirmed or rejected outright.

Several studies report mixed or partially negative effects depending on the indicator used, the implementation costs, and the maturity of sustainability practices. For listed firms in the London Stock Exchange context, sustainable finance-related initiatives can have positive associations with financial performance, yet certain environmental investment initiatives may exert negative effects consistent with cost burdens and timing mismatches between upfront investment and delayed benefits (Elarabi & Khalifa, 2025). In Romania, sustainability-linked energy goals show differentiated impacts: renewable energy promotion is associated with improved financial performance, whereas affordability/access measures can correlate negatively with profitability, and other sub-dimensions may remain insignificant (Curea et al., 2025). Evidence from Malaysia indicates that ESG disclosure and profitability or firm value can appear statistically weak, even as ESG begins to matter through financing conditions such as the cost of capital suggesting that markets may price ESG first via risk/financing channels rather than immediate valuation premiums (Atan et al., 2018). In Indonesia, results explicitly warn that weak regulatory enforcement can allow low-ESG firms to maintain higher short-term profitability, implying that institutional environments shape whether ESG is rewarded or bypassed (Hermansyah et al., 2025). These mixed patterns are not contradictions so much as reflections of different time horizons, different definitions of “ESG performance,” and different institutional conditions that determine whether ESG functions as a real capability, a credible signal, or a compliance cost.

A further integrative insight from the synthesis is that empirical design and variable construction systematically shape observed conclusions. Studies that rely on stronger identification logic and robust measurement approaches tend to report clearer performance associations and offer more credible mechanism explanations. For example, work documenting ESG effects through robustness exercises and mechanism testing provides a more coherent account of how ESG translates into financial performance via agency reduction, productivity, and innovation investment (Jiang et al., 2025). By contrast, when research models explicitly include mediators and moderators, the literature often reveals that ESG impacts are frequently indirect rather than purely linear. Evidence shows that ESG disclosure and sustainability performance may not directly raise firm value, but become value-relevant through corporate reputation, while sustainability reporting quality strengthens key relationships supporting the interpretation that credibility and information quality are critical for translating ESG activity into market outcomes (Nurlatifah et al., 2025). Similarly, governance structures can condition ESG effects: board independence can strengthen environmental and governance impacts on performance, while social effects may become negative in certain configurations, illustrating the importance of governance architecture in shaping ESG-performance linkages (Biju et al., 2025). In practical terms, this means that “ESG works” is often an incomplete statement; the more accurate conclusion is that ESG works through particular mechanisms (reputation, innovation, financing conditions, information quality) and under particular governance configurations.

5.3. Confronting Theoretical Predictions with the Evidence

Across the reviewed studies, the most coherent interpretation is that ESG and green finance create performance benefits when three conditions are simultaneously met: capability, credibility, and institutional support. First, the resource-based view aligns with evidence showing that ESG is more likely to improve long-term performance when it is treated as a strategic capability supported by consistent ESG strategies and investments in innovation and productivity (Jiang et al., 2025; Liu & Fill, 2025). This is also reflected in banking evidence where technology and Fintech adoption interact with CSR and green finance in complex ways, shaping both sustainability and financial outcomes through indirect channels rather than a simple direct effect (Yuan, 2025). Second, signaling mechanisms appear repeatedly: disclosure alone is often insufficient, but ESG becomes financially meaningful when it is credible, supported by strong reporting quality, and reinforced by internal governance structures. In that sense, CSR governance mechanisms can “restore” or strengthen the value relevance of reporting standards (such as GRI), because they reduce the risk that disclosure is merely symbolic (Nandy et al., 2023). Third, institutional theory helps explain why results differ across countries: ESG is more likely to translate into performance gains under stronger institutional environments, whereas weaker enforcement and lower comparability can limit ESG effectiveness and reduce the reliability of disclosure-based signals (Garcia & Orsato, 2020). Therefore, we can say that ESG and green finance are most likely to enhance performance when firms have real internal capabilities, when ESG signals are credible, and when the institutional environment makes sustainability efforts measurable and rewarded.

Taken together, none of the three predictions is rejected outright, but none holds unconditionally either. The Resource-Based View prediction is confirmed with a boundary condition: the innovation/productivity channel is visible mainly when ESG is operationalized as a structured capability rather than disclosed symbolically. The Signaling Theory prediction is confirmed but contingent on credibility: financing-related benefits appear consistently only where disclosure quality is high and greenwashing risk is low. The Institutional Theory prediction receives the most qualified support: risk-management and legitimacy benefits are concentrated in the stronger institutional settings identified in Section 4.2, and are markedly weaker or absent in the weaker-institution subsample. This pattern is consistent with a conditional rather than a universal reading of all three theoretical frameworks.

Large scale meta-analyses, including one aggregating more than 2,000 studies and a later synthesis of over 1,000 studies, established that ESG is broadly associated with favorable financial outcomes (Friede et al., 2015; Whelan et al., 2021). This review shifts the debate from “Does ESG pay?” to “**When, how, and for whom do ESG and green finance create value?**” Overall, the evidence suggests that performance effects are mainly **mechanism-based**: (i) ESG and green finance can strengthen **innovation and productivity**, helping firms improve efficiency and build long-term competitiveness; (ii) they can improve **financing conditions**, by easing constraints, enhancing financing efficiency, and supporting access to capital; and (iii) they can support **risk management**, notably by reducing information asymmetry, improving transparency, and strengthening monitoring. The mixed results reported in the literature are often explained by differences in ESG measurement, short versus long time horizons, and the credibility of ESG engagement in contexts with weaker enforcement.

5.4. Publication Bias and Evidentiary Limits

This review is also exposed to publication bias. The search covered Scopus and Web of Science, which index peer-reviewed journals almost exclusively; working papers, theses, policy reports, and other grey literature were not systematically searched, and studies with null or negative findings are, on average, less likely to be submitted, accepted, or published in the first place, a pattern well documented in the broader ESG-performance meta-analytic literature (Friede et

al., 2015; Whelan et al., 2021). The vote-counting results in Table 7 should be read with this in mind: the 49% share of positive findings may overstate the true prevalence of positive ESG-performance relationships in the underlying population of studies, published and unpublished alike. This does not undermine the review's central claim that effects are conditional rather than uniform; a corpus skewed toward positive results that still reports close to half of its findings as conditional, neutral, or negative arguably reinforces that conclusion. It does mean, however, that the review cannot rule out a more pessimistic reading of the literature than the one presented here.

5.5. Implications for Future Research

Looking forward, research should prioritize stronger **causal designs** and clearer mechanism testing, deeper analysis of **E, S, and G separately** (since they do not behave the same way), and **longer horizons**, because many sustainability benefits take time to materialize. From a practical perspective, firms are more likely to see gains when ESG and green finance are embedded into **strategy, governance, innovation, and risk management**, rather than treated as isolated reporting initiatives. For investors and regulators, improving **data quality, disclosure comparability, and credibility safeguards** remains essential to make ESG information reliable and decision useful.

6. Conclusion

This systematic review synthesizes evidence from 81 peer-reviewed studies to clarify how green finance instruments and ESG practices influence firms' financial and non-financial performance. Overall, the literature supports a nuanced conclusion: ESG and green finance are not automatic performance enhancers, but they can create measurable value when they are embedded in strategy and supported by credible implementation. The most consistent pathways link sustainability practices to performance through improved innovation and productivity, better financing conditions (including easier access to capital and reduced constraints), and stronger risk management via enhanced transparency and monitoring. At the same time, results remain context-dependent. Effects vary across ESG dimensions, sectors, time horizons, and institutional environments, which explains why several studies report mixed, weak, or short-term negative associations when costs are high or when sustainability efforts are perceived as symbolic.

This review contributes to each of the three theoretical perspectives introduced in Section 2, rather than treating them only as background framing. For the Resource-Based View, the synthesis shows that ESG functions as a genuine source of competitive advantage mainly when firms build it into a structured, measurable capability; the innovation and productivity channel is visible in the evidence, but only under that condition, which sharpens the RBV account of when intangible ESG capabilities translate into value rather than assuming they always do. For Signaling Theory, the review adds that the financing benefits of ESG disclosure are conditional on credibility: signals unsupported by reporting quality or governance oversight do not reliably lower the cost of capital, which extends signaling theory beyond whether a firm discloses ESG information to whether that disclosure is trusted. For Institutional Theory, the geographic and sectoral heterogeneity documented in Section 4 shows that institutional strength is not a background variable but an active moderator of whether ESG is rewarded, bypassed, or even penalized in the short term. Read together, these three refinements support the review's central architecture: ESG and green finance create value through mechanisms, capability, credibility, and institutional alignment, that are individually theorized but empirically interdependent.

For managers, the evidence favors treating ESG as an operating capability rather than a reporting exercise: the clearest performance gains are tied to embedding ESG into innovation,

governance, and risk management, not to the act of disclosure itself. For investors, the review suggests weighting ESG signals by credibility indicators, disclosure quality, third-party assurance, and consistency over time, rather than taking them at face value, since the financing benefits documented here are conditional on exactly these factors. For regulators and standard-setters, the persistent role of institutional context points to disclosure comparability and enforcement quality as levers that determine whether ESG functions as a genuine performance driver or as a compliance cost with no measurable return; harmonizing reporting standards and strengthening verification requirements would likely do more to close the gap between symbolic and substantive ESG engagement than expanding disclosure requirements alone.

Several limitations qualify these conclusions. The evidence base is geographically concentrated, and studies rely on heterogeneous ESG proxies and performance measures, limiting direct comparability across the corpus. Most designs are observational, so causal claims should be interpreted cautiously. Some authors appear across multiple included studies, which introduces a risk of overlapping perspectives or samples rather than fully independent evidence; this was not formally corrected for in the synthesis. Finally, as discussed in Section 5.4, the search was restricted to Scopus and Web of Science, excluding grey literature and non-indexed sources, which introduces a selection-bias risk toward published, and disproportionately positive, findings.

Future research should prioritize stronger causal designs, explicit correction for overlapping authorship or samples across studies, deeper analysis of ESG sub-dimensions and non-linear effects, and broader coverage of under-represented regions to improve the generalizability of the conclusions reached here.

References

- (1). Astuti, T. M. P., & Ahmar, N. (2025). Effects of green intellectual capital, green accounting, and green innovation on firm value: The moderating role of return on assets. *Environmental Economics*, 16(1), 1–12. [https://doi.org/10.21511/ee.16\(1\).2025.01](https://doi.org/10.21511/ee.16(1).2025.01)
- (2). Atan, R., Alam, M. M., Said, J. B., & Zamri, M. (2018). The impacts of environmental, social, and governance factors on firm performance: Panel study of Malaysian companies. *Management of Environmental Quality*, 29(2), 182–194. <https://doi.org/10.1108/MEQ-03-2017-0033>
- (3). Azémar, C., & Giroud, A. (2023). World Investment Report 2022: International tax reforms and sustainable investment. *Journal of International Business Policy*, 6(2), 235–239. <https://doi.org/10.1057/s42214-023-00148-1>
- (4). Banani, A., & Sunarko, B. (2022). Nexus between Green Finance, Creativity, Energy Accounting and Financial Performance: Banks Sustainability Analysis from Developing Country. *International Journal of Energy Economics and Policy*, 12(6), 447–455. <https://doi.org/10.32479/ijeep.13806>
- (5). Barney, J., Wright, M., & Ketchen, D. J. (2001). The resource-based view of the firm: Ten years after 1991. *Journal of Management*, 27(6), 625–641. <https://doi.org/10.1177/014920630102700601>
- (6). Biju, A. V. N., Geetha, S., Prasad, S., Sasidharan, A., & Jayachandran, A. (2025). ESG-Firm Performance Nexus: Evidence From an Emerging Economy. *Business Strategy and the Environment*, 34(3), 3469–3496. <https://doi.org/10.1002/bse.4152>
- (7). Chetty, S., Naidoo, R., & Seetharam, Y. (2015). The impact of corporate social responsibility on firms' financial performance in South Africa. *Contemporary Economics*, 9(2), 193–214. <https://doi.org/10.5709/ce.1897-9254.167>

- (8). Chininga, E., Alhassan, A. L., & Zeka, B. (2024). ESG ratings and corporate financial performance in South Africa. *Journal of Accounting in Emerging Economies*, 14(3), 692–713. <https://doi.org/10.1108/JAEE-03-2023-0072>
- (9). Curea, M., Huian, M. C., Zecca, F., Bălu, F. O., & Mironiuc, M. (2025). Green Goals, Financial Gains: SDG 7 “Affordable and Clean Energy” and Bank Profitability in Romania. *Energies*, 18(13). <https://doi.org/10.3390/en18133252>
- (10). de Zwaan, L., Brimble, M., & Stewart, J. (2015). Member perceptions of ESG investing through superannuation. *SUSTAINABILITY ACCOUNTING MANAGEMENT AND POLICY JOURNAL*, 6(1), 79–102. <https://doi.org/10.1108/SAMPJ-03-2014-0017>
- (11). Dzingai, I., & Fakoya, M. B. (2017). Effect of corporate governance structure on the financial performance of johannesburg stock exchange (JSE)-listed mining firms. *Sustainability (Switzerland)*, 9(6). <https://doi.org/10.3390/su9060867>
- (12). Dzomonda, O. (2021). The Green Products Strategy And Financial Performance: A Case Of Firms Listed On The Johannesburg Stock Exchange. *Academy of Accounting and Financial Studies Journal*, 25(5), 1–12.
- (13). DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147–160. Doi: <https://doi.org/10.2307/2095101>
- (14). Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, 5(4), 210–233. <https://doi.org/10.1080/20430795.2015.1118917>
- (15). Whelan, T., Atz, U., Van Holt, T., & Clark, C. (2021). *ESG and financial performance: uncovering the relationship by aggregating evidence from 1,000 plus studies*. NYU Stern Center for Sustainable Business.
- (16). Eccles, R. G., & Krzus, M. P. (2019). Implementing the Task Force on Climate-related Financial Disclosures Recommendations: An Assessment of Corporate Readiness. *Schmalenbach Business Review*, 71(2), 287–293. DOI: <https://doi.org/10.1007/s41464-018-0060-4>.
- (17). Elarabi, H. A. O., & Khalifa, W. M. S. (2025). Impact of Sustainable Finance on Business Financial Performance: Insight from London Stock Exchange Firms. *Sustainability (Switzerland)*, 17(11). <https://doi.org/10.3390/su17114898>
- (18). Falkner, R. (2016). The Paris Agreement and the new logic of international climate politics. *International Affairs*, 92(5), 1107–1125. <https://doi.org/10.1111/1468-2346.12708>.
- (19). Garcia, A. S., & Orsato, R. J. (2020). Testing the institutional difference hypothesis: A study about environmental, social, governance, and financial performance. *Business Strategy and the Environment*, 29(8), 3261–3272. <https://doi.org/10.1002/bse.2570>
- (20). Greenwood, R., & Meyer, R. E. (2008). Influencing Ideas: A Celebration of DiMaggio and Powell (1983). *Journal of Management Inquiry*, 17(4), 258–264. <https://doi.org/10.1177/1056492608326693>
- (21). Hermansyah, F. I., Anwar, A. I., Aksah, N. M., Ulumuddin, I., Jannah, R. T., Amaliah, N. R., & Arifin, A. H. (2025). DOES POOR ESG PERFORMANCE STILL DRIVE PROFITABILITY? NEW EVIDENCE FROM INDONESIA’S SRI-KEHATI LISTED FIRMS. *Investment Management and Financial Innovations*, 22(3), 14–26. [https://doi.org/10.21511/imfi.22\(3\).2025.02](https://doi.org/10.21511/imfi.22(3).2025.02)
- (22). Hong, Q. N., Pluye, P., Fàbregues, S., Bartlett, G., Boardman, F., Cargo, M., Dagenais, P., Gagnon, M. P., Griffiths, F., Nicolau, B., O’Cathain, A., Rousseau, M. C., & Vedel, I. (2019). Improving the content validity of the mixed methods appraisal tool: a modified e-Delphi study. *Journal of clinical epidemiology*, 111, 49–59.e1. <https://doi.org/10.1016/j.jclinepi.2019.03.008>

- (23). Hummel, K., & Jobst, D. (2024). An Overview of Corporate Sustainability Reporting Legislation in the European Union. *Accounting in Europe*, 21(3), 320–355. <https://doi.org/10.1080/17449480.2024.2312145>
- (24). Jatmiko, W., Smaoui, H. E., & Hendranastiti, N. D. (2025). Competing Institutional Logics in Corporate ESG: Evidence From Developing Countries. *Business Strategy and the Environment*, 34(5), 6184–6209. <https://doi.org/10.1002/bse.4283>
- (25). Jiang, W., Wang, X., Liang, L., Leng, M., & Fang, X. (2025). ESG Ratings as a Strategic Imperative: Unraveling Their Influence on Corporate Financial Performance in China. *Journal of the Knowledge Economy*, 16(2), 9313–9337. <https://doi.org/10.1007/s13132-024-02303-2>
- (26). Khurram, M. U., Xie, W., Mirza, S. S., & Tong, H. (2023). Green bonds issuance, innovation performance, and corporate value: Empirical evidence from China. *Heliyon*, 9(4). <https://doi.org/10.1016/j.heliyon.2023.e14895>
- (27). Kim, J., Son, S., & Jin, I. (2022). The Effects of Shareholding of the National Pension Fund on Environmental, Social, Governance, and Financial Performance: Evidence from the Korean Manufacturing Industry. *Sustainability (Switzerland)*, 14(18). <https://doi.org/10.3390/su141811788>
- (28). Kobo, K. L., & Ngwakwe, C. C. (2017). Relating corporate social investment with financial performance. *Investment Management and Financial Innovations*, 14(2), 367–375.. [https://doi.org/10.21511/imfi.14\(2-2\).2017.08](https://doi.org/10.21511/imfi.14(2-2).2017.08)
- (29). Lee, B. X., Kjaerulf, F., Turner, S., Cohen, L., Donnelly, P. D., Muggah, R., Davis, R., Realini, A., Kieselbach, B., MacGregor, L. S., Waller, I., Gordon, R., Moloney-Kitts, M., Lee, G., & Gilligan, J. (2016). Transforming Our World: Implementing the 2030 Agenda Through Sustainable Development Goal Indicators. *Journal of Public Health Policy*, 37(S1), 13–31. <https://doi.org/10.1057/s41271-016-0002-7>
- (30). Liu, D., & Fill, H. D. (2025). An Empirical Analysis of the Impact of ESG Management Strategies on the Long-Term Financial Performance of Listed Companies in the Context of China Capital Market. *Sustainability (Switzerland)*, 17(13). <https://doi.org/10.3390/su17135778>
- (31). Lo, K., & Kwan, C. L. (2017). The Effect of Environmental, Social, Governance and Sustainability Initiatives on Stock Value – Examining Market Response to Initiatives Undertaken by Listed Companies. *Corporate Social Responsibility and Environmental Management*, 24(6), 606–619. <https://doi.org/10.1002/csr.1431>
- (32). Makeeva, E. Y., Popov, K. A., & Teplova, O. (2024). Patenting for profitability: Green energy innovations and firm performance in BRICS countries. *Frontiers in Environmental Science*, 12. <https://doi.org/10.3389/fenvs.2024.1332792>
- (33). Muhtar, M., & Putra, A. H. P. K. (2023). Causality of Bank Financial Performance, Green Bond, CSR, Green Financing Portfolio and CO2 Emissions in Transportation: Evidence from Indonesia. *International Journal of Energy Economics and Policy*, 13(6), 511–522. <https://doi.org/10.32479/ijeeep.14936>
- (34). Nandy, M., Kuzey, C., Uyar, A., Lodh, S., & Karaman, A. S. (2023). Can CSR mechanisms spur GRI adoption and restore its lost value relevance? *Journal of Applied Accounting Research*, 24(4), 609–634. <https://doi.org/10.1108/JAAR-03-2022-0068>
- (35). Nouaili, M., & Khemiri, M. A. (2025). Green growth, corporate social responsibility, and bank profitability: Synergies for sustainable finance in the Middle East and North Africa region. *International Journal of Economics and Financial Issues*, 15(4), 393–404. <https://doi.org/10.32479/ijefi.19149>
- (36). Nisanci, D. A. (2021). *FSB Task Force on Climate-related Financial Disclosures* (pp. 3–8). https://doi.org/10.1142/9789811213960_0001

- (37). Nurlatifah, S., Widyastuti, T., & Ahmar, N. (2025). nexus of esg disclosure, sustainability performance and financial performance on firm value: the role of corporate reputation and sustainability reporting quality. *Financial and Credit Activity: Problems of Theory and Practice*, 3(62), 589–602. <https://doi.org/10.55643/fcaptp.3.62.2025.4704>
- (38). Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, 372, n71. <https://doi.org/10.1136/bmj.n71>
- (39). Siew, R. Y. (2015). A review of corporate sustainability reporting tools (SRTs). *Journal of Environmental Management*, 164, 180–195, DOI: 10.1016/j.jenvman.2015.09.010.
- (40). Spence, M. (1973). Job market signaling. *Quarterly Journal of Economics*, 87(3), 355-374. <https://doi.org/10.2307/1882010>
- (41). Tonnarello, F., Vermiglio, C., Migliardo, C., & Naciti, V. (2025). The Impact of EU Taxonomy for Sustainable Activities on European Utilities' Performance. *Business Strategy and the Environment*, 34(3), 2848–2862. <https://doi.org/10.1002/bse.4128>
- (42). van Oostrum, C. (2021). Sustainability through transparency and definitions: A few thoughts on Regulation (EU) 2019/2088 and Regulation (EU) 2020/852. *European Company Law*, 18(1). <https://doi.org/10.54648/eucl2021003>
- (43). Yuan, X. (2025). Integrating Fintech, CSR, and green finance: Impacts on financial and environmental performance in China. *Humanities and Social Sciences Communications*, 12(1). <https://doi.org/10.1057/s41599-025-05064-8>
- (44). Zhang, Z., & Ding, Y. (2023). The impact of green financial development on stock price crash risk from the perspective of information asymmetry in Chinese listed companies. *Environmental Science and Pollution Research*, 30(37), 87199–87214. <https://doi.org/10.1007/s11356-023-27771-y>
- (45). Zhou, X., & Cui, Y. (2019). Green bonds, corporate performance, and corporate social responsibility. *Sustainability (Switzerland)*, 11(23). <https://doi.org/10.3390/su11236881>
- (46). Zou, P., Wang, Q., Xie, J., & Zhou, C. (2020). Does doing good lead to doing better in emerging markets? Stock market responses to the SRI index announcements in Brazil, China, and South Africa. *JOURNAL OF THE ACADEMY OF MARKETING SCIENCE*, 48(5), 966–986. <https://doi.org/10.1007/s11747-019-00651-z>

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The authors declare no competing interests.

Data availability

All data generated or analyzed during this study are included in the published article.

Data Availability Statement

The dataset supporting the conclusions of this article are included within the article and its additional files

Appendix A: Characteristics of the 81 Included Studies

The matrix below reports the study-level evidence used in the synthesis. Direction reflects the vote-counting classification of Section 4.6 (Positive / Mixed / Neutral / Negative / N/A for studies that could not be classified), and Quality reflects the five-criterion appraisal of Section 3.4 (Table 8).

Table A1: Study-level evidence matrix

ID	Year	Author(s)	Country of study	ESG/green- finance instrument	Primary outcome	Direction	Quality
1	2025	Yuan Xianghua	China	green finance, CSR practices	Positive on FA-ESP-CSR-GF-FINP but CSR->FINP non-significant direct; mediated effects	Mixed	High
2	2025	Lalon et al.	Bangladesh	Green finance ratio, Digital Banking Indicators	Green banking positive on performance but risk-mgmt/training costs reduce profitability	Mixed	High
3	2025	Curea et al.	Romania	Clean Energy Access & Technology	SDG7.1 negative, SDG7.2 positive, SDG7.a n.s., EnInt negative on profitability	Mixed	High
4	2025	Liu, Dongxue and Fill, Heinz	China	Scores ESG multi-sources	Consistent ESG strategies -> significantly better long-term financial performance	Positive	Moderate
5	2025	Wahyu Jatmiko et al.	19 Emerging Countries Across Africa, Asia, Europe, And South America	ESG pillar scores (E, S, G)	Market initially penalizes ESG; long-run ESG does not harm and can improve performance	Mixed	High
6	2025	Nurlatifah, Siti et al.	Indonesia	ESG Disclosure	ESG disclosure does not directly raise firm value; positive only via reputation mediation	Mixed	High
7	2025	Wei Jiang et al.	China	ESG ratings (binary)	ESG ratings significant positive impact on ROA, robust across tests	Positive	High
8	2025	Paulo A. Lozano et al.	Brazil	overall score received by a company in ...	No causal relationship between sustainability and value distribution	Neutral	High
9	2025	OmranElarabi and Khalifa	United Kingdom	Green financing initiatives	Green financing/emission policies positive; environmental investment initiatives negative	Mixed	High
10	2025	Hector Martin et al.	China and United Kingdom	ESG Disclosure Score	ESG can stabilize or amplify financial risk depending on institutional context	Mixed	Moderate
11	2025	Biju et al.	India	ESG pilar scores	ESG scores no direct effect on Tobin's Q; governance moderates positively, social negatively	Mixed	High
12	2025	Yadav and Asongu	India	ESG score	High ESG strengthens resilience in financial distress above a threshold; effect stronger at high quantiles; sector-dependent (IT/health/FMCG benefit, energy does not)	Mixed	Low
13	2025	Li et al.	China	ESG rating,	Strong ESG -> better financing efficiency, lower cost of capital, financial stability	Positive	High
14	2025	Astuti and Ahmar	Indonesia	Green accounting (GA), Green innovation	Green intellectual capital/accounting positive on value; green innovation no direct effect	Mixed	High
15	2025	Khurrama et al.	China	Green Bonds issuance; R&D Investment	Green bond issuance boosts innovation and corporate value	Positive	High
16	2025	Mohameda et al.	Dubai	Green financing indicators	Financial inclusion, green finance, CSR jointly enhance ESG and indirectly financial performance	Positive	High
17	2025	Hermansyah et al.	Indonesia	ESG Risk Rating (Sustainalytics)	Weak ESG firms achieve higher short-term profitability under weak institutional enforcement	Negative	High
18	2024	Alqudah et al.	Jordan	ESG factors	Strong ESG improves fintech firm performance, amplified by sustainable fintech practices	Positive	High
19	2024	Subramanyam et al.	India	ESG Performance Score	Higher ESG positively influences investment decisions, capital allocation, financing access	Positive	High
20	2024	Mohd Merajuddin Inamdar	India	ESG pilar; Disclosure scores	Environmental, governance and social disclosure all positively affect value/cost of capital	Positive	High

ID	Year	Author(s)	Country of study	ESG/green- finance instrument	Primary outcome	Direction	Quality
21	2024	Li Guo et al.	China	ESG performance; green finance development	Green finance significantly improves economic, social, environmental, innovative performance	Positive	High
22	2024	Ruixin Su and NaLi	China	ESG Performance Score,	ESG (esp. S&G) improves ROA but effect varies by platform size/type	Mixed	High
23	2024	Chininga, Emmerson et al.	South Africa	ESG SCORE	Environmental initiatives improve ROE/Tobin's Q; social and governance pillars no effect	Mixed	High
24	2024	Ashfaq Habib et al.	China	ESG Compliance ; Environmental Score ; Green Finance	High-ESG firms access external funds more cheaply, better liquidity management	Positive	High
25	2024	Elena Makeeva et al.	Brics Countries	Green Patents (Renewable & Mitigation Tech)	Sustainable energy investment pays off long-term, not short-term	Mixed	High
26	2024	Edina Éva Kulcsar et al.	Hungary	ESG risk score	Higher ESG risk (i.e., poorer ESG) reduces operational performance and firm value	Positive	High
27	2023	Muhtar Sapiri, Aditya Halim Putra	Indonesia	Green Bond; CSR; Green Financing	Green bonds/financing reduce CO2 emissions; financial performance link not directly reported	Mixed	High
28	2023	Perdana et al.	ASEAN : Indonésie, Malaisie, Philippines, Singapour, Thaïlande	sustainable finance, sustainable financing ratio	Sustainable finance adoption enhances firm value; CAR and institutional ownership reinforce this	Positive	High
29	2023	Zhibin Zhang and Youqiang Ding	China	Green Credit, Investment, Bond & Insurance	Green financial development reduces stock price crash risk	Positive	High
30	2023	Monomita Nandy et al.	63 Countries	GRI Reporting; Executive CSR	GRI adoption raises value only when backed by credible CSR governance	Mixed	High
31	2023	Cemal Zehir et al.	Turkey	Governance Indicators (Board Composition)	Strong corporate governance positively affects financial performance	Positive	High
32	2025	Nouaili, Makram and Khemiri	MENA region (10 countries)	Green Growth Index; Composite ESG Score	CSR and its interaction with GGI significantly raise ROA and ROE; GGI alone is significant only via ROE	Positive	High
33	2023	EduardoCGarrido-Merchán et al.	Spain	ESG Score	Methodological/algorithmic study: Bayesian optimization outperforms other heuristics for ESG portfolio construction, not a firm-performance outcome test	N/A	High
34	2023	Muhammad Usman Khurrama et al.	China	Green Bond Issuance; R&D Investment	Green bond issuance boosts innovation performance and sustained increase in corporate value	Positive	High
35	2023	Gimede Gigante et al.	United Kingdom	Social criterias	Impact investing does not eliminate profit incentives; impact and traditional firms respond similarly to shareholder control	Neutral	High
36	2022	Ade Banani and Bambang Sunarko	Developing Countries	Green Investment ; Green Credit	Green investments/credits positively impact ROE via goodwill and efficiency	Positive	High
37	2022	Zhao Chen et al.	China	Environmental Certification ; Audit Green Opinion	Green Finance Pilot Zone policy improves ESG performance and creates a performance premium	Positive	High
38	2022	Julia Wanday and Samer Ajour El Zein	Europe	ESG Risk Score	Positive relationship between ESG activities and investor returns, though results vary sharply across individual companies	Positive	High
39	2022	Tamas Barko et al.	International	Score ESG	Target-firm ESG scores improve post-engagement and excess stock returns are positive, but no significant effect on ROA	Mixed	High
40	2022	Jootae Kim et al.	Korea	ESG performance	Institutional ownership + high ESG jointly enhance financial performance long-term	Positive	High
41	2022	Andrade et al.	European countries	Environmental Pillar Sub-Scores	Green energy stocks perform comparably to traditional ones, no under/over-performance	Neutral	High
42	2022	Xin Changa et al.	China	ESG ; SRI ; Green Finance	ESG creates internal economic value but no extra stock market returns for investors	Mixed	High
43	2022	Shanshan Wang and Derek Wang	China	Green Bond; ESG Score	Investors reward ESG/green bonds via signaling even without strong short-term financial gains	Mixed	High

ID	Year	Author(s)	Country of study	ESG/green- finance instrument	Primary outcome	Direction	Quality
44	2022	Sungjin Son and Jootae Kim	Korea	ESG performance	Reverse-causality nuance: financially strong firms invest more in ESG; NPF favors high-ESG firms	Mixed	High
45	2022	Nermain Al-Issa et al.	Us Companies	CSR; ESG Score	CSR/ESG engagement increases firm and brand value via marketing efficiency	Positive	High
46	2022	norashikin ismail et al.	Malaysia & Indonesia	ESG SCORE	ESG positively associated with ROE overall; E and S n.s., governance negative	Mixed	High
47	2022	Anastasia Giakoumelou et al.	Italy	ESG SCORE	ESG acted as risk-mitigation/resilience signal during financial crises	Positive	High
48	2021	Christopher Jerry Thomas et al.	Malaysia	ESG SCORE	Sustainability practices not directly linked to short-term financial performance	Neutral	High
49	2021	Gandang Ardi KURNIATAMA et al.	Indonesia	CSR	CSR does not significantly affect corporate value or profitability	Neutral	High
50	2021	Obey Dzomonda	South Africa	Green products Strategy	Significant positive relationship between green strategy and EPS	Positive	High
51	2020	Alexandre Sanches Garcia and Renato J.Orsato	Emerging Countries	ESG score	ESG improves ROA mainly in developed countries; limited in emerging economies	Mixed	High
52	2020	Obey Dzomonda and Olawale Fatoki	South Africa	Carbon Emission Reduction ; Environmental Compliance	Environmental investments significantly improve financial performance (EPS, share price)	Positive	High
53	2020	Caterina De Lucia et al.	Europe (UK, Allemagne, France, Suède, Suisse and other countries)	ESG & CSR Composite Scores	ML models confirm strong relationship between ESG factors and financial performance	Positive	High
54	2020	RMNCS warnapali et al.	Sri Lanka	Sustainability Reporting	Sustainability responsibility significantly increases firm market value (Tobin's Q)	Positive	High
55	2019	Xiaoguang Zhou and YadiCui	China	Green bond	Green bond issuance positively affects stock price, profitability, operational performance	Positive	High
56	2018	Simone Pizzi	Italy	Environmental risk	Sustainability reporting positive on long-term income; environmental risk negative on performance	Mixed	High
57	2018	Xing Chen and Bert Scholtens	United States	SRI & Environmentally Responsible Funds	Active (higher-fee) SRI funds do not outperform passive SRI funds	Neutral	High
58	2018	Francesco Gangi and Nicola Varrone	European countries	CSP score,ESG score	SRFs underperform financially; mainstreaming of SRI weakens ESG screening and performance	Negative	High
59	2018	S. Wahyudi et al.	Indonesia	Good corporate governance,CSR	Governance and performance linked to executive comp; CSR disclosure supports legitimacy/performance	Positive	High
60	2018	Riana Horn et al.	South Africa	CSR reporting,	CSR disclosure has no significant impact on firm value; CSR assurance negatively associated	Negative	High
61	2018	Liliana Eva Donath et al.	United States	SRI FUND	Non-SRI outperform SRI short-term; SRI funds show long-term potential	Mixed	High
62	2018	Ruhaya Atan et al.	Malaysia	ESG score	No significant ESG-ROE/Tobin's Q relationship; ESG positively affects cost of capital	Mixed	High
63	2017	Kar Yee Lo and Calvin Lee Kwan	Hong Kong	ESG initiatives,	Investors react weakly to sustainability initiatives; unclear financial benefits	Neutral	High
64	2017	Kgabo L. Kobo and Collins C. Ngwakwe	Developing Country	Corporate Social Investment (CSI)	CSI positively related to share price/sales turnover; no relationship with ROE	Mixed	High
65	2017	Isaih Dzingai and Michael Bamide Fakoya	South Africa	corporate governance	Board independence positively associated with ROE; larger boards reduce performance	Positive	High
66	2015	Sukanya Chetty et al.	South Africa	Corporate Social Performance (CSP)	No consistent positive market reaction to SRI Index entry; mixed by industry	Mixed	High
67	2024	Edina Éva Kulcsar et al.	Hungary	ESG risk score	ESG matters for value/operational performance but profitability effects are mixed	Mixed	High
68	2020	Peng Zou et al.	Brazil,China,South Africa	CSR initiatives	CSR/SRI inclusion does not automatically produce positive stock reactions; context-dependent	Mixed	High
69	2024	Sholpan Shalbayeva et al.	Latin America	CSR initiatives	ESG/CSR can improve financial performance and competitiveness, though evidence still fragile	Positive	High
70	2019	Pablo Durán-Santomil et al.	UK & Europe	ESG score, SRI strategie	Higher sustainability scores associated with better performance and lower risk	Positive	High

ID	Year	Author(s)	Country of study	ESG/green- finance instrument	Primary outcome	Direction	Quality
71	2019	Francisco Javier Forcadell et al.	Hong Kong	corporate sustainability	Positive relationship between service innovation and ESG ratings in banking	Positive	High
72	2021	Kyumin Cho et al.	United States	CSR performance	CSR is value-enhancing in M&A when applied strategically	Positive	High
73	2021	Jian Xu et al.	China	ESG rating,	ESG performance positively influences green innovation and strengthens R&D effects	Positive	High
74	2025	Tim Heubeck and Annina Ahrens	United States	CSR committee	Moderate resource slack helps ESG performance; excess slack becomes wasteful	Mixed	High
75	2015	Laura de Zwaan et al.	Australia	ESG investing	Investor-perception study: investors believe ESG (especially governance) supports performance, but this is not a direct measure of firm outcomes	N/A	High
76	2020	Rajesh Rajagopal and Chandrasekha Rajendran	International/mondial countries	CSR & ESG Composite Scores	Measurement/construct-validity study: ESG dimensions show diminishing marginal returns when over-weighted, not a firm-performance outcome test	N/A	High
77	2024	S.M.R.K. Samarakoon, Manju and Jayakumar	India	ESG Score	Strong governance improves ESG disclosure credibility, signaling firm value indirectly	Positive	High
78	2022	Yamina Chouaibi and Ghazi Zouari	European countries	CSR Score ; Ethics Score	CSR reduces earnings management; ESG integration improves information quality/performance	Positive	High
79	2022	Enci Wang et al.	China	Corporate sustainability	Carbon trading improved profitability for many firms but reduced it for monopoly firms	Mixed	High
80	2023	Chunlian Zhang and Danni Chen	China	ESG Score; Green Innovation	High ESG scores enhance green innovation via investment efficiency and stakeholder trust	Positive	High
81	2022	Chengying Yang and Tajul Ariffin Masron	China	Green Finance; Green Banking; Carbon Finance	Digital and green finance significantly improve productivity, efficiency, and innovation	Positive	High

Source: authors' systematic review matrix.