

# The Effects of Environmental, Social and Governance Orientation: An International Empirical Literature Review

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## Abstract

In recent years, the ESG (Environmental, Social and Governance) criteria have become a central component in companies' and investors' economic-financial analysis and decision-making processes. This article provides a systematic and critical review of the scientific literature on this topic, exploring six main directions: (1) the relationship between ESG and financial performance; (2) the role of ESG factors in risk management; (3) the impact of ESG aspects on financial markets; (4) the interaction between corporate governance and ESG strategies; (5) the evolution of sustainability regulation; and (6) ESG measurement and rating issues. The literature results reveal a complex scenario: although much research documents a positive relationship between ESG practices and financial performance, numerous heterogeneities emerge related to the sectoral context, time horizon, data quality and materiality of the ESG factors considered. The increasing role of institutional investors and the regulatory framework in promoting transparency and accountability is also emphasized. Finally, the main open challenges in terms of methodological consistency, standardization of ESG ratings and combating greenwashing are identified. The paper concludes by highlighting the most promising future research perspectives, to support a more effective and informed integration of ESG factors into economic and financial decisions.

**Keywords:** financial markets, risk, capital markets, regulation, corporate governance, disclosure, performance, ESG, CSR

## 1. Introduction

In recent years, ESG (Environmental, Social and Governance) criteria have become a central component of economic and financial analysis, acquiring a strategic role both in the assessment of corporate sustainability and in investors' decision-making processes. Originally linked to ethical investment, ESG criteria have gradually taken on systemic significance. ESG criteria have progressively been established as fundamental tools for assessing the sustainability of companies and the impact of economic activities on the environment and society. Growing attention to environmental challenges, social responsibility and the quality of corporate governance has prompted investors, regulators and companies to integrate these factors into their decision-making processes, with a view to long-term and shared value creation. The adoption of ESG practices is now considered not only an ethical choice but also a relevant strategy for improving competitiveness, reducing risks and gaining easier access to financial capital. In this context, there has been an explosion of empirical studies and theoretical analyses aimed at understanding the economic and financial implications of integrating ESG into business models and financial markets.

The scientific literature is vast and articulate, and the ESG topic has been approached from different and complementary perspectives.

The first stream of research has focused on the relationship between ESG integration and financial performance, asking whether the adoption of sustainable practices is associated with economic value creation. The studies conducted in this area offer heterogeneous results: some studies document a positive correlation between high ESG scores and long-term financial performance, while others highlight possible short-term trade-offs due to implementation costs. A second field of investigation concerns the link between ESG and risk management. Empirical evidence suggests that companies with robust ESG policies tend to be less exposed to regulatory, reputational and operational risks, as well as to show greater resilience in contexts of financial stress. In parallel, there has been a growing interest in the interaction between ESG and financial markets, with a focus on the impact

of ESG ratings, disclosure practices and investor preferences on capital flows and stock valuation. The literature has also investigated the role of corporate governance as a driver for the integration of ESG strategies, highlighting the importance of board composition, ownership structure and incentive mechanisms in the definition of corporate sustainability policies. In addition, there is an analysis of the regulatory framework, which, although still heterogeneous in the different jurisdictions, contributes to enhancing the transparency and comparability of ESG information. Finally, the topic of ESG measurement and rating represents a critical area in the literature, characterized by strong methodological divergences among rating agencies and by relevant implications in terms of information reliability and greenwashing risk.

This contribution aims to systematically and critically analyze the main strands of study developed in the economic and financial field on the ESG topic. The aim is to offer an organic overview of the existing literature, highlighting the main empirical evidence, areas of convergence and methodological differences, as well as the prospects for research development. The article focuses on six key strands: the relationship between ESG and financial performance; the relationship between ESG and risk management; the influence of ESG factors on financial markets; the role of corporate governance in ESG integration; regulatory developments in sustainability; and, finally, issues related to ESG measurement and ratings. The contribution thus intends to provide a solid basis for further theoretical and empirical insights, offering useful insights for both the academic community and corporate decision-makers and stakeholders.

The article is structured as follows. Section 2 contains a description of the methodology with the steps for carrying out the systematic review. Section 3 contains the literature review discriminated against according to the strands described above. Section 4 attempts to give an overall picture and provides a starting point for future research perspectives. The Appendix A contains a table that provides a synoptic overview of the studies reviewed, the attempt is to highlight similarities and differences.

## 2. Methodology

To navigate the vast and often fragmented landscape of studies on the effects of ESG orientation, we chose to carry out a scoping review. This type of review aims to clarify how much literature exists on the topic, what themes are most frequently addressed, what methodological approaches are adopted, and, most importantly, where significant knowledge gaps remain. In a field such as ESG, which is rapidly expanding and marked by strong conceptual heterogeneity, this kind of mapping represents an essential step before conducting empirical analyses or undertaking meta-analyses.

The review was structured around six key steps.

*Definition of the objective and research questions.* The starting point was to translate a general research interest into three concrete questions: how many and what kinds of empirical studies have been published; what topics they investigate (e.g., financial performance, risk management, markets, governance, regulation, ratings); and which areas are still under-explored. The formulation of these questions guided all subsequent decisions, from source selection to the narrative structure of the synthesis.

*Selection criteria.* We chose to include only empirical research, quantitative, qualitative, or mixed-methods, in which ESG is treated as either an independent or dependent variable. Eligible studies were those published between 2000 and 2024 in peer-reviewed journals, academic monographs, or conference proceedings, in either English or Italian. Purely theoretical essays and studies where “sustainability” was equated solely with compliance with environmental regulations, without reference to ESG or CSR frameworks, were excluded.

*Search strategy.* The literature search involved the use of terms such as ESG, CSR, and sustainable finance, combined with keywords referring to financial and economic outcomes. Searches were conducted in the following databases: Scopus, Web of Science, EconLit, Business Source Complete, ScienceDirect, and SSRN. To avoid missing non-indexed studies, we also performed a manual search of the contents of leading finance and management journals from the last five years, as well as the proceedings of the PRI and European Finance Association conferences. This search resulted in the selection of 49 relevant papers.

*Data organization.* For each article, we recorded the reference period, country and sectoral focus, sample size, source of ESG data (e.g., ratings, proprietary indices, self-reporting), methodology used, main findings, and, crucially, the thematic strand to which the study contributed. All information was entered into an Excel spreadsheet structured with drop-down menus to ensure consistency in coding.

*Synthesis and interpretation.* Once the database was complete, we proceeded with a thematic synthesis that grouped the results according to the six strands identified in the review. This allowed us to highlight both convergences and divergences across the literature.

Naturally, the process is not without its limitations. Restricting the review to works in English and Italian may lead to the under-representation of research produced in Asia and Latin America. The absence of a formal quality appraisal means that methodologically weaker evidence is granted the same visibility as more robust studies. Finally, since the literature search was concluded in December 2024, any regulatory or analytical developments that occurred in 2025 fall outside the scope of this review.

### 3. Literature Review

#### 3.1 *The Relationship Between ESG and Financial Performance*

Several studies in this section have examined the link between ESG performance and corporate financial performance. The literature mainly suggests a positive or zero relationship, pointing out that companies with high ESG scores tend to have lower capital costs and better returns in the long run; however, there is some evidence of negative effects, especially in specific contexts. Some work indicates that the costs of implementing ESG strategies may reduce profitability in the short term. In conclusion, the prevalence of positive empirical results supports the idea that ESG practices can improve corporate financial performance or at least not damage it. Divergences in individual studies are often attributable to methodological differences (time horizon, performance measures adopted, quality of ESG data) and the materiality of the ESG factors considered.

Friede, Busch and Bassen (2015), through an extensive meta-analysis of over 2,000 studies conducted over several decades, show that most of the empirical research does not identify a negative impact of sustainability on financial performance, and indeed often documents a favorable relationship between it.

Almost half of the studies reviewed report a statistically significant positive association, compared to only 11% of negative evidence. The authors thus point to clear evidence supporting the idea that investing in sustainability can generate financial value. Interestingly positive effects tend to emerge more strongly in studies on the individual company level than in analyses on the investment portfolio level: Friede et al. observe that the stock performance shows more positive correlations, while studies on ESG portfolios (e.g. funds or indices) find more mitigated benefits, probably due to transaction costs and market imperfections that may reduce expected extra returns. This extensive evidence suggests that ESG practices are generally compatible with the creation of financial value for shareholders.

Longitudinal tests provide further support for the positive link between corporate sustainability and economic performance.

Eccles, Ioannou and Serafeim (2014) conducted a longitudinal study of a sample of US companies, comparing 90 'High Sustainability companies' (companies that had already voluntarily adopted numerous ESG policies in the early 1990s) with 90 'Low Sustainability companies' that were similar in terms of sector and size. Over 18 years of observation, the results show that high sustainability companies significantly outperformed their low sustainability comparable in terms of both share value and accounting indicators (e.g. ROA and ROE). In practice, the portfolio of sustainable companies would have generated significantly higher cumulative stock returns: for example, \$1 invested in a High Sustainability firm in 1993 would have grown to approximately \$22.6 by 2010, compared to \$14.3 from investing in an equivalent low-sustainability firm. These differences, also considering control variables such as sector and size, indicate that a sustainability-oriented corporate culture may translate into competitive advantages in the long run, perhaps due to better risk management, stronger stakeholder relations and greater innovation capacity. A limit of this study is that, although it is based on a comparison of similar companies, it cannot establish an unequivocal causal link with absolute certainty, ESG 'virtuous' companies may also have benefited from other managerial qualities that are difficult to observe. However, the evidence of Eccles et al. (2014) remains indicative: proactive ESG policies appear to be correlated with superior long-term performance, supporting the idea that 'doing well (financially) by doing good' is a realistic goal for the firm.

Other contributions have pointed out that the financial impact of ESG investments depends on which ESG aspects are pursued and how relevant they are to the company's core business. Khan, Serafeim and Yoon (2016) introduce the concept of the financial materiality of ESG factors, arguing that only 'material' ESG issues (i.e. relevant to the industry and with potential impact on financial results) generate actual financial benefits, while initiatives on 'immaterial' aspects have little added value for investors. In their study, the authors use the Sustainability Accounting Standards Board (SASB) classification to distinguish, sector by sector, materially significant ESG indicators. Analyzing the stock performance of companies with high ESG scores, it emerges that high scores on material ESG factors alone are associated with a positive extra return: portfolios of companies that are virtuous on material ESG issues achieve up to 6 percent higher returns than comparable ones. In contrast, companies with high scores on non-material ESG dimensions (i.e. aspects disclosed in sustainability reports but not considered crucial to the industry) do not, on average, perform better than those with low ESG scores on the same aspects. In some

cases, an excessive focus on immaterial ESG criteria may even lead to inefficiencies, so much so that Khan et al. document how such companies do not gain any market advantage and may even register slight relative underperformance. This study, therefore, provides the cue for a critical interpretation of the results: heterogeneity in ESG performance may depend on the quality of ESG efforts undertaken. Focusing on strategic sustainable initiatives (e.g. emissions management for an energy company, product safety for a food company) tends to pay off in financial terms, while ESG practices that are not aligned with business priorities are likely to have an insignificant impact. From a methodological point of view, the contribution of Khan et al. (2016) also helps to explain the differences between studies: aggregate measures of sustainability that do not distinguish between material and immaterial factors might dilute the positive effect, while focusing on material factors alone shows a stronger correlation with financial performance.

Some studies have analyzed, by event studies, the reaction of financial markets to ESG news, the perspective here being short-term. Here, Krüger (2015) conducts a study of more than 2,000 Corporate Social Responsibility (CSR) events, distinguishing between positive news (e.g. awards, award-winning initiatives) and negative news (e.g. scandals, environmental incidents, social controversies) and measuring the immediate impact on share prices. The results reveal a marked asymmetry in market reactions: negative ESG news tends to generate significantly negative abnormal returns, while positive news generally does not produce a similar favorable effect and, indeed, often does not register any market premium. In other words, investors quickly and decisively punish companies when negative ESG information emerges (destroying share value in the short term) but show more cautious when confronted with positive news, which on average does not generate extra returns for shareholders. The same study even notes that some favorable ESG/CSR announcements are met with weak negative reactions (a slight drop in the share price), especially in cases where the company has already enjoyed a strong ESG reputation in the past. Conversely, when a company with a poor ESG reputation announces unexpected positive initiatives, the market reacts moderately positively, an indication that investors differentiate their reaction according to the context and perceived credibility of the news. The general implication of these results is that in the short term the financial market views negative ESG news as indicators of concrete risks (costs, penalties, reputational damage) to be immediately discounted in the price, while positive ESG news is often judged as information that is already expected or difficult to monetize and therefore does not confer an immediate gain. This dynamic partly explains why some sustainable strategies mainly benefit in terms of reducing the risk of drawdown (avoiding severe losses in case of adverse events) rather than in terms of immediate extra-profits. Furthermore, the discrepancy between the strong long-term outperformance observed for sustainable companies (Eccles et al., 2014) and the neutral short-term reaction to much good ESG news (Krüger, 2015) highlights how the benefits of ESG can manifest over long time horizons, while in the short-term investors maintain a certain skepticism. This suggests that the time horizon of the analysis profoundly affects the conclusions: the positive effects of ESG tend to emerge gradually, with the implementation of better management practices and the avoidance of adverse events, rather than through unexpected market rises.

A more recent synthesis contribution is offered by Atz, Van Holt, Liu and Bruno (2023), who updated their quantitative analysis of the ESG-financial-performance relationship by incorporating studies published in the last decade. Atz et al. review 1,141 empirical studies between 2015 and 2020, in addition to 27 previous meta-analyses. Unlike Friede et al. (2015), which also included older studies and industry reports, this updated meta-analysis reaches more nuanced conclusions. On average, the authors find that the financial performance of sustainable investments is statistically significant like that of comparable traditional investments. In other words, considering the large aggregate sample, there is on average neither a significant premium nor penalty associated with ESG criteria, ESG companies/portfolios tend to perform in line with the market. This neutral average result contrasts with the prevailing narrative in much management literature and several industry reports, which have often emphasized the positive impact of ESG on performance. Atz et al. note, however, a strong heterogeneity of results: about one third of the reviewed studies still indicate an outperformance of ESG portfolios or companies, while the remaining two thirds report neutral or negative results. This implies that outcomes depend on various conditions: the period, geographic area, sector and, above all, the sustainable investment style adopted are relevant. A key aspect is the ESG integration approach, i.e. actively incorporating the analysis of material ESG factors into investment processes seems to offer better financial performance than mere exclusion or divestment strategies. In addition, the benefits of ESG investments appear to be asymmetrical: they tend to manifest themselves mainly in the ability to mitigate downturns during crisis phases or market shocks (e.g. financial crises, systemic events), rather than in generating extra-returns in ordinary phases. This result coincides with the observation that sustainable portfolios have shown relatively better resilience during recent turmoil (e.g. resilience during the 2008 crisis or the early phase of the Covid-19 pandemic, as reported by industry studies). The conclusions of Atz et al. thus confirm that investing according to ESG criteria does not entail a cost in terms of expected performance but

point out that any benefits depend on how and where these criteria are applied. Looking forward, the authors also suggest that strategies focused on decarbonization, and climate risk mitigation could capture extra-return opportunities related to the emerging climate risk premium in financial markets. From the perspective of academic research, this study signals an evolution: as analyses become more rigorous and the ESG phenomenon more mature, the 'generalized' positive effect appears less pronounced, leaving room for a more contingent assessment of ESG benefits. In sum, the academic literature on the relationship between ESG and financial performance predominantly indicates that the adoption of sustainable practices does not deteriorate corporate economic performance and may even help to improve it under certain circumstances. The available surveys refute the idea of a certain trade-off between social responsibility and profit, showing, if anything, that sustainability and value creation objectives can align.

At the same time, important methodological distinctions and limitations emerge to be considered when interpreting these studies.

Firstly, most studies attempt to identify relationships with ESG factors: although several works include control variables, it remains difficult to establish the ESG-performance correlation with certainty, companies with high ESG performance might make better profits simply because more profitable companies have more resources to invest in sustainability. Therefore, caution is needed in inferring causal links from ESG-performance correlations. Second, there is wide heterogeneity in the ESG measures used: different definitions of 'sustainability' and not always consistent ESG ratings make it difficult to compare studies directly. Until a few years ago, there was no shared standardization, which explains part of the divergence in results. Thirdly, the different time horizons of analysis lead to different conclusions: short-term studies (event studies) mainly capture immediate effects on market sentiment, whereas long-term analyses capture the structural impacts of ESG on profitability, risk and company value over time, two complementary but not overlapping perspectives. Finally, it should be recognized that ESG effects may vary by sector and geography: some sectors that are environmentally intensive or subject to strong regulation may reap more tangible benefits from a focus on sustainability, while in other contexts the impact may be less evident.

Considering these elements, the consensus emerging from the literature is that integrating ESG aspects into business management and investment decisions is, in most cases, compatible with maximizing financial value, and often associated with better risk management. However, the degree of financial benefit derived from ESG is not uniform: it depends on how it is implemented (choice of material factors, strategic integration vs. passive approaches), on market dynamics (e.g. the phase of the business cycle) and on the relevant competitive environment. The work analyzed thus contributes to a more mature understanding of the ESG-performance relationship: not a simple universally valid 'good ESG = superior performance', but a framework in which sustainability is an increasingly relevant factor for business success, whose concrete impact must be assessed on a case-by-case basis in the light of the drivers and with rigorous data analysis. Ultimately, the research conducted so far offers a strong argument against the pessimistic view that investing in ESG means sacrificing financial returns.

### *3.2 The Role of ESG Factors in Risk Management*

A significant part of the literature focuses on the capacity of ESG practices to act as risk mitigation tools, especially in contexts characterized by uncertainty or crisis. Furthermore, the strategic role of ESG integration in the resilience of companies in the long run is increasingly explored.

A particularly influential study in this area is that of Oikonomou, Brooks and Pavelin (2012), who analyze the impact of corporate social performance (CSP) on financial risk and cost of capital. Using a large US sample, the authors show that companies with high ESG performance have lower return volatility and a lower cost of capital. The inverse relationship between CSP and risk suggests that responsible companies are perceived by the market as more stable and resilient over the long term. This effect manifests itself in terms of both systemic risk and idiosyncratic risk reduction. The work contributes to consolidating the view of ESG as a relevant element in assessing the risk profile of companies, confirming the importance of sustainability as a determining factor for investor confidence and stable cash flows.

In the context of the global financial crisis, Bouslah, Kryzanowski and M'Zali (2018) analyze how social performance affects corporate risk during periods of systemic stress. The study focuses on specific components of ESG, with a focus on human rights, employee relations and working conditions. The results indicate that companies with high levels of social performance experienced smaller increases in risk during the crisis, highlighting a protective effect of social practices in times of financial turmoil. Moreover, the mitigating effect seems more pronounced for companies belonging to sectors with high social sensitivity, reinforcing the idea that social responsibility is a strategic factor for risk management. These results contribute to redefining the role of the

social dimensions of ESG not only as an ethical element, but also as a lever for economic-financial sustainability in uncertain contexts.

Another relevant contribution is made by Hoepner, Oikonomou, Sautner, Starks and Zhou (2016), who introduce an innovative perspective by focusing on investor engagement on ESG issues. The authors explore the relationship between active shareholder engagement and downside risk, i.e. the risk of extreme losses in stock returns. Through an empirical analysis of large-scale engagement campaigns, the work shows that companies subject to investor engagement exhibit a significant reduction in downside risk, suggesting that proactive interaction between investors and management on ESG issues can improve latent risk management and promote more responsible and forward-looking corporate behavior. Moreover, this type of interaction can represent a form of external governance that helps to bridge the information gap between companies and investors, improving transparency and mutual trust.

The topic of environmental risks is systematically explored by Ilhan, Sautne and Vilkov (2021), who introduce the concept of 'carbon tail risk'. The study measures the impact of carbon intensity on the left tail of the distribution of stock returns, using a tail risk analysis framework. The results reveal that companies with higher carbon exposure show a significantly higher probability of suffering extreme losses. This environmental risk is reflected in the premiums required by investors to hold 'brown' stocks and poses a real challenge for the financial management of carbon-intensive companies. The authors' contribution reinforces the importance of integrating climate risk into financial asset valuation and pricing models. The policy implications are significant: the results support the adoption of climate risk regulatory tools, such as environmental stress tests and carbon footprint disclosure requirements.

From a behavioral perspective, Li, Minor, Wang and Yu (2019) propose an evolutionary reading of the relationship between ESG and performance. The authors hypothesize the existence of a learning process on the part of the market, according to which investors initially underestimate the performance of socially responsible companies, but then gradually recognize their intrinsic value. Empirical analysis confirms that companies with high ESG credentials tend to generate extra returns in the long run, suggesting the existence of information inefficiencies that are only corrected over time. This phenomenon, described as a market learning curve, underlines the importance of ESG disclosure and strategic sustainability communication by companies. The study also offers implications for active portfolio management, highlighting that a strategy based on the early identification of companies with a high ESG profile can produce positive alpha over an extended time horizon.

Overall, the literature reviewed confirms that ESG performance is a crucial element in assessing corporate risk and market dynamics. Empirical evidence suggests that companies engaged in sustainable practices tend to enjoy greater financial stability, better access to capital, lower cost of capital and better responsiveness to market conditions, especially in adverse scenarios. These findings reinforce the strategic relevance of integrating ESG criteria into investors' decision-making processes and corporate policies, offering a potential alignment between financial objectives and environmental and social impacts. ESG, therefore, emerges as a key lever not only for corporate competitiveness, but also for the overall stability and sustainability of global financial markets.

### *3.3 The Impact of ESG Aspects on Financial Markets*

In general, the literature indicates that ESG aspects can have significant effects on investors' decisions and market variables (company values, liquidity, cost of capital, volatility). In addition to what has already been said about the effects of ESG factors on performance and risk, attention has also been focused on: (a) capital allocation choices by institutional and retail investors in relation to ESG criteria, price consequences; (b) the role of ESG disclosure in reducing information asymmetries.

Regarding capital allocation and investor preferences, an increasing number of investors are integrating ESG factors into their investment processes. For example, already in 2014, more than 1,200 institutional investors, managing \$45 trillion in assets, had signed up to the United Nations Principles for Responsible Investment, committing to recognizing the weight of ESG factors in portfolio decisions. On the retail side, interest in sustainable funds has increased exponentially in recent years. Hartzmark and Sussman (2019) provide evidence of how sustainability preferences influence capital flows: the introduction of ESG ratings for US mutual funds showed that the redesignation of a fund as 'low sustainability score' caused net outflows of more than USD 12 billion, while funds labelled high sustainability received inflows of about USD 24 billion. This shift occurred even though the authors find no significant differences in short-term financial performance between high and low ESG funds, suggesting that investors attach intrinsic value to sustainability. Consistently, a survey to an international sample of asset managers (Amel-Zadeh & Serafeim, 2018) finds that the main motivation for considering ESG information in investment choices is its financial relevance: investors consider it useful mainly for assessing

business risks and long-term prospects. In this survey, more than 80 per cent of the professionals interviewed stated that they use ESG criteria at least in part of their decision-making process, citing the lack of comparability of ESG data provided by companies (due to heterogeneous reporting standards) as the main obstacle. Overall, therefore, capital allocation choices, by both large institutional and individual investors, are evolving to incorporate ESG considerations, influencing the allocation of cash flows in favor of companies and instruments with high sustainability profiles.

Several studies also focus on the effect of ESG factors on the market liquidity and the cost of capital (Roy, Ghosh, & Dey, 2022; Pástor, Stambaugh, & Taylor, 2021). The hypothesis is that companies with strong ESG credentials can benefit from a wider investor base and greater disclosure transparency, elements that tend to improve liquidity (reducing bid-ask spreads and the impact on trading prices) and reduce the cost of equity and debt capital. Empirical evidence supports this hypothesis: for example, a study of European companies during the 2020s shows that stocks of companies with high ESG ratings had on average, lower bid-ask spreads (assuming the same pandemic shock), indicating greater market liquidity. This means that ESG-friendly stocks were more easily tradable and had lower transaction costs, plausibly due to investors being more confident in the information quality and long-term perspective of such companies. Another relevant evidence comes from the analysis of regulatory reforms: in India, the law that has made CSR spending mandatory for large corporations since 2014, in this context Roy, Ghosh and Dey (2022) document, through difference-in-differences models, that in the post-introduction period of the regulation, companies subject to the CSR obligation experienced a marked increase in shareholder liquidity compared to similarly controlled companies not subject to it. In quantitative terms, companies obliged to CSR show a significant reduction in illiquidity indicators: for example, the average bid-ask spread is approximately 10–33% lower than in other companies after the implementation of the law. This improvement in liquidity, which is attributable to greater transparency on CSR activities and a signal of social commitment appreciated by investors, is accompanied, in the long run, by higher market valuations for the companies involved (through a lower cost of equity capital). These results confirm that the consideration of ESG factors can directly influence the market conditions of a company's shares, facilitating their trading and reducing the expected returns demanded by investors (yield spread), with positive implications for company value.

A general equilibrium approach suggests that as ESG becomes an integral part of investors' decisions, markets adjust by incorporating these preferences into prices. Pástor, Stambaugh and Taylor (2021) develop a theoretical model of sustainable investment in equilibrium that explicitly considers the role of investor preferences in terms of ESG criteria. In the model, firms differ in the degree of sustainability of their activities (from 'green' firms with positive externalities to 'brown' firms with negative externalities), while investors differ in the degree of ESG preference. ESG-oriented investors obtain satisfaction not only from financial wealth, but also from owning securities of sustainable companies (deriving intrinsic satisfaction from 'doing good') and experience dissatisfaction in holding securities of unethical companies; furthermore, some investors also consider climate risk in their portfolios. Other financial investors, on the other hand, only care about returns. In this context, Pástor et al. show that ESG preferences have predictable effects on market prices: ethical investors are willing to pay a premium for 'green' securities, consciously accepting a lower expected financial return in return for the extra-financial benefit they gain.

As a result, in equilibrium, stocks of sustainable companies exhibit higher valuations and a lower cost of capital, while unpopular 'brown' companies have to offer higher expected returns to attract investors, incurring a higher cost of capital. From the point of view of expected returns, the model implies that ESG stocks will tend to have negative alphas compared to traditional asset pricing models, while non-ESG (brown) stocks will exhibit positive alphas, precisely because the former incorporate additional 'demand' from sustainable investors into the price. In other words, the concept of 'greenium' emerges: a price premium for green securities that entails a lower expected return for those who hold them, offset, however, by the satisfaction derived from aligning with their values (or hedging against climate risks). In addition to the implications in terms of returns, the model of Pástor et al. (2021) suggests an important practical effect: investors' ESG preferences can have a real impact by allocating financial resources differentially. In particular, the lower cost of capital for firms with high ESG performance makes it easier for them to access finance and investment to grow, while firms with unsustainable practices find it more difficult and costly to raise capital. This mechanism provides a market incentive for companies to adopt more responsible behavior, as sustainability becomes economically advantageous in terms of financial structure. Thus, there is a convergence between financial and social/environmental objectives: investors, by accepting slightly lower returns on 'green' securities, help to direct capital towards activities with a greater positive impact, influencing corporate decisions for the benefit of sustainable growth (Pástor et al., 2021). This theoretical result gives a strategic value to ESG, showing how the integration of ethical criteria into portfolio choices can be seen not only as a value choice

but also as an economic policy instrument, capable of rewarding or penalizing companies depending on their externalities.

A further crucial aspect is the role of ESG disclosure, i.e. the voluntary or mandatory disclosure of sustainability information by companies. Transparency on ESG metrics can affect investors' expectations and information asymmetry in the markets. In recent years, several states have introduced regulations to make ESG reporting mandatory (e.g. EU Directive 2014/95 on the disclosure of non-financial information). The effects of such regulatory measures have been studied empirically. Grewal, Riedl and Serafeim (2018) examine the market reaction to the legislative process of the EU Directive, finding heterogeneous results depending on the previous ESG profile of companies. On average, the announcement of the introduction of the non-financial reporting requirement generated a slight negative reaction (about -0.8% abnormal) on the share prices of the affected companies, an indication that investors were discounting potential compliance and disclosure costs. However, the penalization was concentrated in companies with low pre-reform ESG performance (the least sustainable, which suffered declines of up to -1.5 per cent), while companies already characterized by high transparency and ESG performance experienced no or even slightly positive reactions (+0.5 per cent on average). This suggests that the market perceives mandatory disclosure as a net cost for less virtuous companies (which will have to fill an information gap and perhaps improve internal practices), while it interprets it as a benefit or competitive advantage for already sustainable companies, which see their standards recognized and can further differentiate themselves. In other words, ESG regulation tends to 'reward' ex post those who had voluntarily invested in transparency and sustainability. Several cross-sectional surveys confirm that greater voluntary ESG disclosure is associated with a better information environment: for instance, the coverage and accuracy of financial analysts' estimate increase and investors' information costs decrease (Cahan, Chen, Chen, & Nguyen, 2015; Barth, Cahan, Chen, & Venter, 2017). Consequently, quality ESG disclosure can foster a better appreciation of company fundamentals by the market, contributing to more efficient price formation.

### *3.4 The Interaction Between Corporate Governance and ESG Strategies*

One of the main areas of investigation concerns the effect of board composition and activity on ESG performance. In this respect, the study by Birindelli, Dell'Atti, Iannuzzi, and Savioli (2018) makes a significant contribution by analyzing a sample of European banks. The authors show that greater board diversity and independence, along with more frequent meetings, is positively associated with ESG performance. In particular, the presence of members with heterogeneous backgrounds and the active participation of the board are crucial for a more sustainable management of banking activities. This study shows how the board of directors is not only a control body but can become an active driver of sustainability-oriented change.

Another key study, conducted by Garcia-Sanchez, Cuadrado-Ballesteros and Frias-Aceituno (2021) through a meta-analysis of empirical studies, confirms the importance of governance in CSR reporting. The results show that independent boards with a strong presence of external members and a transparency-oriented culture tend to provide more detailed and reliable CSR reports. The quality of reporting, in turn, influences the external perception of the company and can contribute to consolidating its reputation. This aspect is further explored by García-Sánchez, Hussain, Khan and Martínez-Ferrero (2020), who analyze the phenomenon of CSR decoupling, i.e. the discrepancy between CSR communication and the actual implementation of responsible practices. Their study shows that the market reacts negatively when it perceives a discrepancy between words and deeds, penalizing companies that limit themselves to a symbolic approach.

The topic of board independence is also central in the study by Hossain, Sobhan and Yasmin. (2022), which focuses on the context of emerging economies. The authors show that the presence of independent board members is associated with a reduction in environmental risk. In countries where institutional control mechanisms are often less effective, the role of the board becomes even more strategic in ensuring sustainable risk management. This reinforces the idea that governance does not have a merely formal role but is a substantial element in the definition of ESG strategies.

In addition to the role of internal governance, recent literature has paid increasing attention to the change in perspective on the part of institutional investors. Eccles et al. (2020) describe this phenomenon as a real 'investor revolution', in which financial actors no longer limit themselves to maximizing short-term returns but systematically integrate ESG criteria into their decision-making processes. Climate risk emerges as one of the priorities. This is confirmed by the study by Krueger, Sautner and Starks (2020), which documents through an extensive survey the increasing attention of investors to the financial implications of climate change. Climate risk is no longer perceived as exogenous, but as a structural factor affecting corporate valuations and portfolio choices.

In parallel, several studies have explored the relationships between sustainability practices and financial

performance. One of the best-known studies in this area is that of Eccles et al. (2014), which compares companies with high and low sustainability orientation. The results show that firms with a strong commitment to ESG tend to perform better in the long run, both in terms of operational efficiency and shareholder returns. Similarly, Ferrell, Liang, and Renneboog (2016) find that socially responsible firms are characterized by a lower cost of capital and greater attractiveness to investors, suggesting that CSR not only enhances corporate reputation but can generate tangible economic benefits.

However, the literature is not unanimous in considering the stakeholder-oriented approach as the optimal solution. On the contrary, Bebchuk and Tallarita (2022) warn against the limitations and potential distortions of the stakeholder-oriented governance model. The authors argue that governance that is too focused on diffuse interests can be inefficient. This study, critical and theoretical, helps to balance a debate often dominated by a generalized enthusiasm for ESG practices.

The need to contextualize ESG analyses is another emerging issue. Larcker and Tayan (2020) emphasize that ESG indicators should not be interpreted in only one direction, but their interpretation should change depending on the sector, size and operating context of the company. The effectiveness of ESG policies can vary significantly depending on company specificities, and the absence of common standards can generate interpretative ambiguities.

From the theoretical perspective, Gillan, Koch, and Starks (2021) provide a systematic review of the ESG and CSR literature in corporate finance. They note an exponential growth in the number of studies, but also some methodological and theoretical heterogeneity. The lack of consistency in results and measurements makes it difficult to draw generalizable conclusions. For this reason, the authors call for more standardization efforts and alignment between theories, metrics and empirical practices.

Finally, studies such as those by Ortas, Moneva, Salvador, and Álvarez (2017) and Wang and Sarkis (2017) confirm that ESG performance can be a positive driver of corporate value. In particular, the first study shows that the integration of environmental, social and governance dimensions is associated with an increase in the market value of companies. The second study, on the other hand, highlights how structured and strategic CSR governance can also improve financial performance by reducing risks and strengthening corporate resilience.

The literature reviewed clearly shows that corporate governance plays a crucial role in the definition and implementation of ESG and CSR strategies. An independent, competent and committed board of directors can foster a corporate culture oriented towards sustainability and transparency. Moreover, the integration of ESG criteria into corporate strategies is not only an ethical or regulatory response, but also a competitive factor that can positively influence a company's financial performance and reputation. However, theoretical and practical challenges remain, related to standardizing ESG metrics, assessing the real impact of sustainability policies and balancing stakeholder interests. To address these challenges, there is a need for greater methodological consistency in research and a deeper understanding of the context in which ESG practices are applied.

This synopsis highlights the central role of corporate governance in the integration of ESG strategies, showing how the quality of corporate governance, board composition and managerial incentives can influence sustainability practices.

### *3.5 The Evolution of Sustainability Regulation*

The integration of ESG criteria into corporate strategy and disclosure has also attracted the interest of policymakers and market practitioners, as a particularly fertile area is that which investigates the interaction between ESG practices and regulation, with reference to disclosure obligations and policy effects on transparency, corporate behavior and investor response. The literature analyzed contributes to delineating a rich and articulated landscape, moving between theoretical and empirical approaches, with different but interconnected methodologies and areas of investigation.

Christensen, Serafeim, and Sikochi (2021) make a fundamental contribution from a theoretical perspective. Through a critical reworking of the existing literature and the application of economic models of regulation and disclosure, with a normative approach, they aim to understand when and why public intervention may be desirable. The focus is on environmental and social externalities that firms may not internalize, as well as disclosure failures that may hinder the proper functioning of markets. The main conclusion is that mandatory disclosure may be justified when it improves the information efficiency of the market and incentivizes socially responsible behavior. However, the authors warn against risks of over-standardization and the possibility that regulation generates disproportionate costs or counterproductive effects.

A similar approach, but with a different perspective, is that proposed by Hertig (2017). His contribution is also theoretical but focuses on the legal and competitive dimensions of ESG regulation. Hertig introduces the concept

of regulatory competition, exploring how different jurisdictions may favor (or avoid) ESG regulation as binding in terms of jurisdictional power. While Christensen et al. focus on allocative efficiency and the legitimacy of government intervention, Hertig emphasizes the importance of strategic dynamics between countries, suggesting that excessive regulatory competition may lead to a race to the bottom or, alternatively, stimulate regulatory innovations.

De Franco, Hope, Vyas, and Zhou (2021) and Li and Zhou (2022) empirically measure the effects of specific ESG regulations, but differ in geographical context, analysis target, and outcome dimensions. De Franco et al. focus on the impact of mandatory ESG disclosure on the cost of capital, adopting a quantitative methodology based on multivariate regressions and difference-in-differences models. Analyzing the introduction of ESG regulations in different countries, the authors find that companies subject to disclosure requirements experience a significant reduction in the cost of capital, due to increased transparency and reduced uncertainty perceived by investors. The target of the analysis is therefore financial and investor response oriented, while the conclusion is optimistic about the effects of regulation. Li and Zhou (2022), on the other hand, focus on the behavioral effect of the EU Sustainable Finance Disclosure Regulation (SFDR), exploring how the regulation influences firms' ESG strategies. Using European data and similar econometric approaches (event studies and panel regressions), they show that firms react to regulation by changing their behavior in a more sustainable direction. In contrast to De Franco et al., the analysis focuses not so much on market effects, but on corporate choices, showing that the effect of regulation can go beyond disclosure, also stimulating real transformations. This distinction between disclosure and behavioral effects of regulation is an important point in the comparison between the two studies, both of which are pro-regulation but with different emphases.

A further key element in the debate on ESG regulation is the demand for transparency on the part of investors. In this direction, the contribution of Krueger et al. (2020) is crucial. The authors analyze, through surveys and empirical data, how institutional investors perceive climate risks and to what extent they are incorporated into investment decisions. The approach is mixed, combining quantitative data with qualitative methods. Unlike other studies, the focus here is not on the effect of regulation, but on the need for ESG disclosure expressed by the market. The authors find that investors attribute great importance to climate risks and complain about a lack of robust and standardized information, implicitly supporting the idea of regulatory intervention. This work complements previous work well, providing an information demand base on which the effects of regulation can be grafted. Zerbib (2020) also explores the demand side, but from a different angle: the pricing of green bonds. Through an empirical analysis of green bonds, he shows that bonds associated with sustainable projects enjoy a price premium, suggesting that there is an environmental preference among investors. Although the paper does not deal directly with regulation, it implies that regulatory instruments that certify or label sustainable bonds can improve market efficiency by facilitating the matching of supply and demand for green capital.

Finally, the chapter by Sullivan and Mackenzie (2017) places the topic of ESG regulation in a historical-institutional perspective. The authors trace the evolution of voluntary ESG standards, with a focus on the role of the PRI (Principles for Responsible Investment) promoted by the United Nations. The analysis is qualitative and based on documentary sources and interviews. Unlike other studies, the effectiveness of mandatory standards is not discussed here, but the potential of bottom-up initiatives in building an ecosystem of ESG standards is highlighted. The contribution is useful to understand how formal regulation can be reinforced, complemented or even anticipated by mechanisms of self-regulation and co-creation of standards.

### *3.6 ESG Measurement and Rating Issues*

The increasing focus on ESG has generated a strong development of systems for assessing and rating companies' ESG performance, however, the ESG rating process is far from straightforward or universally agreed upon. The methodologies adopted by different rating agencies, divergences in the results obtained, limitations in the quality and transparency of data, and the growing risk of greenwashing raise relevant questions about the validity and usefulness of ESG ratings. These issues represent a further strand of academic research on these topics, following the main highlights.

The first major issue addressed in the literature concerns how ESG performance is measured. ESG measurement is typically based on a set of indicators covering the three dimensions, environmental, social and governance, each of which includes qualitative and quantitative variables. However, as pointed out by Kotsantonis and Serafeim (2019), there are no binding and universally adopted international standards, which leads to considerable heterogeneity in the criteria used by different ESG data providers. The consequences of this lack of uniformity are many: inconsistency in ratings, poor comparability between companies and arbitrariness in the selection of relevant indicators, and discordant empirical test results.

Christensen et al. (2022) elaborate further on this topic, showing how the perception of ‘corporate virtue’ is largely subjective. The selection and weighting of ESG indicators vary significantly between agencies, reflecting regulatory preferences, cultural differences and methodological biases. This subjectivity undermines the ability to use ESG ratings as reliable tools to guide investment decisions or define corporate strategies. Moreover, companies may tailor their ESG communication to maximize their score with certain raters, thus contributing to a sophisticated form of greenwashing.

One of the most relevant empirical results in the literature concerns the lack of convergence between ESG ratings issued by different agencies. Berg, Koelbel, and Rigobon (2022) systematically analyze the divergence between ESG ratings, identifying three main sources of disagreement: (i) divergence in the definition of ESG dimensions, (ii) differences in measurement methods, and (iii) variations in the weighting of indicators. The results show that a company’s ESG ratings can vary significantly depending on the source, with potentially distorting impacts on investors’ decisions. Chatterji, Levine and Toffel (2016) also address the issue of consistency of ESG ratings and confirm the absence of substantial convergence between ratings, despite the apparent overlap between some providers. These divergences pose problems both for investors, who risk receiving mixed signals, and for managers, who face inconsistent expectations from different stakeholders. The uncertainty generated by such discrepancies can reduce the effectiveness of responsible investment policies and limit the overall credibility of the ESG system. Billio, Costola, Hristova, and Pelizzon (2021), analyzing the disagreement between ESG rating agencies and the relationship with corporate performance, find that greater divergence between ratings may be associated with lower predictive ability of the scores themselves. The authors also point out that ESG metrics do not always correlate with financial or real performance,

The increased interest in sustainability has also generated opportunistic behavior on the part of companies. Greenwashing, i.e. misleading or deceptive communication about environmental initiatives, is one of the main threats to the credibility of ESG practices. Huang and Shi (2025), in a systematic review of the literature on the topic, point out that greenwashing is facilitated precisely by the absence of uniform standards and lack of transparency in ESG assessment processes. When criteria are unclear and methodologies are not public, companies can ‘cherry-pick’ what to show the market, giving a partial or embellished view of their sustainable commitment. Ziolo, Spoz, Filipiak, and Gorzeń-Mitka (2023) add that the proliferation of voluntary standards and the multiplication of rating agencies contribute to an environment in which companies can select which metrics to highlight and which to omit, generating misleading signals to the market. This informational selectivity is particularly dangerous because it can undermine investor confidence, reduce the effectiveness of engagement and generate reactions.

Overall, the literature highlights the need to improve the quality, consistency and transparency of ESG data. Although ESG ratings are potentially useful tools for promoting sustainable behavior and informing investor decisions, they present numerous methodological limitations, discrepancies in interpretation and vulnerabilities to greenwashing. The future of ESG measurement necessarily lies in greater international harmonization of standards, more transparent regulation and a more rigorous reporting culture.

#### 4. Conclusion

This paper has systematically examined the main strands of the economic-financial literature on ESG criteria, highlighting an articulated and constantly evolving landscape. The available empirical evidence indicates that the integration of environmental, social and governance factors into corporate strategies and investment decision-making processes is, in most cases, not at odds with the creation of economic value. On the contrary, in many circumstances, sound ESG practices appear to be associated with superior financial performance, lower systemic and idiosyncratic risk, and greater resilience in crisis contexts.

However, the ESG-performance relationship is strongly influenced by contextual variables such as the materiality of ESG factors, industry sector, time horizon of analysis, and regulatory environment. Recent studies show an increasing degree of methodological sophistication, which tends to move away from generalizing approaches towards more focused and differentiated analytical frameworks.

The literature reviewed has also clarified the growing role of investors in the spread of ESG practices, in a context of a ‘fiduciary revolution’ that redefines the very objectives of finance: from mere maximization of return to the creation of sustainable value in the long term. The role of corporate governance also emerges as crucial, both in terms of its ability to promote responsible behavior and as a tool to mitigate the risk of decoupling between disclosure and concrete action.

The regulatory dimension, while still fragmented internationally, appears increasingly relevant in determining incentives, standards and disclosure constraints. The introduction of ESG disclosure regulations has produced

measurable effects on both corporate behavior and investor reaction, highlighting the transformative potential of public policies. However, large criticalities in ESG performance measurement remain, due to the lack of shared standards, the methodological discretion of rating providers, and the risk of greenwashing.

Despite the breadth of available literature, there remain numerous areas that require further investigation.

- It is essential to develop more robust empirical models to isolate the causal effect of ESG practices on economic performance, distinguishing true sustainability impacts from endogeneity or selection phenomena.
- Comparative research analyzing ESG rating agency methodologies should be promoted, assessing the implications of divergences for market pricing quality, investor confidence and information arbitrage risk.
- The analysis of ESG disclosure strategies and their reputational impact deserves more attention, with particular emphasis on identifying objective indicators of credibility and consistency between disclosure and action.
- The literature needs to expand towards cross-country comparative analysis to assess the effectiveness of ESG policies in heterogeneous legal and financial systems.
- Future studies should investigate how investors' ESG preferences evolve over time and to what extent they persistently influence the cost of capital, volatility and liquidity of securities.
- An emerging theme is the link between ESG performance and firms' innovativeness: further investigations could clarify whether and how sustainable engagement translates into lasting competitive advantages in terms of product, process and business model innovation.

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## Appendix A

Study	Objective	Methodology	Results	Conclusions
<b>ESG and financial performance</b>				
Albuquerque, Koskinen & Zhang (2019)	ESG and corporate value in times of crisis	Theoretical models and empirical analysis	ESG-friendly companies show greater resilience during financial crises	ESG can act as a protective factor against economic shocks
Atz et al. (2022)	Quantitative meta-analysis of 1,141 primary studies + 27 meta-studies (2015–2020)	Meta-analysis of recent empirical research	58% of corporate-level studies find a positive effect of ESG on financial performance, only 8% report a negative effect (the rest are neutral or mixed). Similarly, about 59% of investment-level studies show returns that are the same or better than traditional strategies (~14% negative).	Overall, recent evidence indicates that integrating ESG factors is compatible with equal or better financial performance. ESG generally does not entail performance penalties, with neutral or positive average effects for companies and investors.
Clark, Feiner & Viehs (2015)	Relationship between corporate sustainability and firm value	Review of empirical literature	Strong evidence of a positive link between ESG and financial performance.	Sustainable companies benefit from lower capital costs and greater financial stability
Eccles, Ioannou & Serafeim (2014)	Longitudinal study (matched sample of 180 US companies, 1993–2010)	Comparison between “High Sustainability” and “Low Sustainability” firms	“High Sustainability” firms (i.e., those with strong ESG integration) significantly outperformed “Low Sustainability” firms in terms of long-run stock returns and accounting indicators.	Adopting sustainability policies provides long-term competitive advantages, resulting in better financial outcomes than companies with low ESG commitment
Edmans (2011)	Impact of corporate social responsibility (CSR) on stock returns	Longitudinal data analysis on “100 Best Companies to Work For”	Companies with better ESG policies generate superior stock returns over the long term	ESG practices attract talent and improve long-term performance
Friede, Busch & Bassen (2015)	Analysis of the literature on the ESG–financial performance relationship	Meta-analysis of 2,200 empirical studies (1970–2014)	90% of studies report a non-negative relationship between ESG practices and financial performance, with most showing a positive correlation.	ESG integration is generally beneficial or neutral for investors
Giese et al. (2019)	ESG and market risk	Quantitative models based on MSCI ESG indices	Companies with high ESG ratings exhibit lower volatility and more contained drawdowns	ESG factors enhance corporate resilience in financial markets
Khan, Serafeim & Yoon (2016)	Effect of ESG materiality on financial performance	US corporate ESG data, regression analysis	Companies scoring high on “material” ESG aspects (relevant to their industry) achieved superior stock returns compared to those with low scores, while performance on “immaterial” ESG aspects did not generate extra returns.	Sustainability investments create value only if they concern ESG factors material to the core business; initiatives on non-material issues have negligible impact on financial performance
Krüger (2015)	ESG and stock market reaction	Event study on market reactions to CSR/ESG news (USA)	Negative ESG incidents (e.g., scandals) trigger significant adverse market reactions, whereas positive CSR news generally draws weak or inconsistent responses.	Financial markets punish ESG shortcomings more than they reward moderate sustainable initiatives. This suggests an informational asymmetry or perception that poor ESG increases expected risk, while good ESG is considered “business as usual.”
<b>ESG and risk</b>				
Albuquerque, Koskinen & Zhang (2019)	ESG and firm risk in crisis contexts	Theoretical models and empirical market data analysis	Companies with high ESG performance show greater financial stability during crises	ESG acts as a buffer against macroeconomic shocks
Bouslah, Kryzanowski & M’Tali (2018)	ESG and firms’ systematic risk	Regressions on US market data	Companies with advanced ESG strategies have a lower market beta	ESG can reduce exposure to systemic risk
Giese et al. (2019)	Analyzing the impact of ESG on stock volatility and drawdown risk	Quantitative models based on MSCI ESG indices	Companies with high ESG ratings exhibit lower volatility and shallower drawdowns	ESG factors improve firms’ resilience in financial markets
Hoepner et al. (2016)	ESG and idiosyncratic firm risk	Econometric analysis of global ESG data	ESG-friendly firms show lower idiosyncratic risk	ESG strategies reduce firm-specific risk

Ilhan, Sautner & Vilkov (2021)	ESG and tail risk in the stock market	Analysis of options and pricing models	Companies with low ESG scores display higher exposure to tail risk	ESG can function as a tool to mitigate extreme risk
Li, Minor, Wang & Yu (2019)	ESG and the risk of legal disputes	Empirical analysis of corporate legal events	Companies with poor ESG ratings are more likely to face legal disputes	High ESG performance lowers legal and reputational risks
Oikonomou et al. (2012)	Impact of CSR on corporate risk	Regressions on US firms' ESG data	Negative relationship between CSR and both credit and market risk	Adopting ESG practices can reduce financial risk
<b>ESG and financial market</b>				
Amel-Zadeh & Serafeim (2018)	Understanding how and why investors use ESG information	Global survey of institutional investors	Investors use ESG data mainly for risk management and long-term performance assessment	ESG information is considered relevant but is often not standardized; better data quality is needed
Barth et al. (2017)	Examining the economic effects of integrated reporting quality	Empirical analysis of IR quality, market performance, and corporate investment	High-quality IR is associated with higher market liquidity and investment	High-quality integrated reporting generates positive real and market outcomes
Cahan et al. (2015)	Analyzing the relationship between CSR disclosure and media coverage	Empirical study of Australian firms and media coverage	Greater CSR disclosure is linked to greater media coverage	CSR disclosure improves corporate visibility and potentially influences reputation
Grewal et al. (2018)	Studying market reaction to mandatory non-financial disclosure	Event study and regressions on EU NFI Directive data	Positive investor reaction to mandatory ESG disclosure	ESG regulation can reduce information asymmetry and create value
Hartzmark & Sussman (2019)	Assessing the impact of ESG ratings on fund inflows	Natural experiment based on changes in Morningstar rankings	Funds with higher ESG scores attract greater capital inflows	Investors value sustainability, though they may misunderstand ESG metrics
Pástor et al. (2021)	Analyzing equilibrium in financial markets with sustainable investors	Theoretical general equilibrium model with ESG preferences	Sustainable investing can yield lower returns but promote real change	ESG investor preferences influence prices, capital allocation, and corporate behavior
Roy et al. (2022)	Evaluating the effect of mandatory CSR disclosure on market liquidity in India	Empirical analysis following the introduction of mandatory CSR in India	Improved market liquidity after CSR regulation	Mandatory disclosure can enhance informational efficiency and market quality
<b>ESG and corporate governance</b>				
Bebchuk & Tallarita (2022)	Assessing the board of directors' role in ESG decisions	Theoretical analysis and board composition data	The presence of ESG-oriented directors improves ESG performance	ESG integration depends on board structure and incentive mechanisms
Birindelli et al. (2018)	Analyzing the impact of board composition and activity on ESG performance in the banking sector	Empirical analysis of European banks using linear regressions	Board composition (diversity, independence) is positively correlated with ESG performance in banking	A more diverse, active board improves ESG performance in the banking system
Eccles et al. (2020)	Examining the shift in investors' approach to sustainability	Qualitative analysis and case studies	Investors are increasingly focusing on ESG issues	ESG integration has become essential to attract capital
Eccles, Ioannou & Serafeim (2014)	Examining the impact of corporate sustainability on organizational processes and performance	Comparative empirical analysis between high- and low-sustainability companies	Firms with solid governance adopt ESG strategies more effectively	Governance is a key factor for integrating ESG into corporate strategies
Ferrell, Liang & Renneboog (2016)	Analyzing the characteristics of socially responsible firms	Global data regressions	High-quality corporate governance is positively correlated with ESG performance	Strong governance supports sustainable ESG investments
García-Sánchez et al. (2021)	Evaluating the board's influence on CSR reporting	Meta-analysis of empirical studies	Active, independent boards increase CSR transparency	Effective governance improves CSR reporting quality
García-Sánchez et al. (2020)	Studying the impact of corporate governance on ESG disclosure	Regression analysis of European companies	Independent boards improve ESG transparency	Governance positively affects the quality of ESG information
Gillan, Koch & Starks (2021)	Investigating the relationship between ESG and corporate governance mechanisms	Quantitative study of US market data	Companies with good governance have higher ESG scores	Corporate governance is a key determinant of ESG practices
Hossain et al. (2022)	Analyzing the impact of board independence on environmental risk	Empirical study of companies in an emerging economy	Independent boards reduce environmental risk	Board independence is crucial for responsible environmental management

Krueger et al. (2020)	Investigating the importance of climate risk for institutional investors	Survey and empirical analysis	Investors view climate risk as a growing priority	Climate risk is reshaping investment strategies
Larcker & Tayan (2020)	Examining the relationship between ESG, governance, and managerial incentives	Study of S&P 500 companies	ESG-linked incentives improve sustainable performance	Corporate governance can be leveraged to align ESG interests
Liang & Renneboog (2017)	Exploring the theoretical foundations of CSR	Theoretical analysis and literature review	CSR is influenced by cultural, legal, and governance factors	CSR is not universally interpreted; it varies with institutional context
Ortas et al. (2017)	Examining the relationship between governance, ESG, and financial performance	Meta-analysis of previous studies	Companies with strong governance achieve better ESG and financial outcomes	ESG integration is more effective in firms with transparent governance
Wang & Sarkis (2017)	Analyzing the board's role in ESG strategy	Empirical study of Chinese companies	A more diverse board improves ESG management	Inclusive governance is essential for ESG success
<b>ESG and regulation</b>				
Christensen, Hail & Leuz (2021)	Evaluating the pros and cons of ESG standardization	Critical literature review and policy analysis	Standardization increases comparability but can suffer from trade-offs between flexibility and precision	A balanced regulatory approach is essential for effective ESG rules
De Franco et al. (2021)	Examining the impact of ESG regulations on firms' cost of capital	Empirical study of listed European companies	Firms subject to ESG regulations have reduced debt costs	ESG regulations can improve investors' risk perception
Hertig (2017)	Analyzing the effectiveness of mandatory ESG disclosures	Comparative legal analysis (EU vs. US)	Mandatory disclosures increase the quality of ESG information	Effectiveness depends on enforcement and regulatory clarity
Krueger, Sautner & Starks (2020)	Investigating investors' perception of ESG regulation	Global survey of asset managers	Institutional investors demand greater regulatory clarity and common standards	Clear ESG rules encourage higher allocations to sustainable investments
Li & Zhou (2022)	Analyzing the effect of ESG regulations on corporate adoption in Europe	Empirical analysis post-introduction of the SFDR	European firms increased ESG disclosure following the regulation	Mandatory regulation fosters ESG transparency
Sullivan & Mackenzie (2017)	Evaluating the role of international financial institutions in promoting ESG	Case study on PRI and soft regulation	Non-binding initiatives positively influence investor behavior	Soft law can be effective when backed by reputational incentives
Zerbib (2020)	Investigating the effect of public policies on the green bond market	Econometric analysis on global green bond issuances	Public policies encourage growth in the green bond market	Regulatory support is crucial for the development of sustainable financial instruments
<b>Measuring and rating ESG</b>				
Berg et al. (2022)	Analyzing the causes of divergence in ESG ratings	Comparative empirical study of different rating providers	Divergences stem from definitions, measurement, and weighting	Methodological differences undermine the reliability of cross-provider ratings
Berg, Koelbel & Rigobon (2022)	Analyzing the divergences among ESG rating agencies	Empirical study of 6 international ESG agencies	The average correlation among ESG ratings is around 0.54. There are large discrepancies among agencies; methodological and weighting differences are the main causes.	Discrepancies in definitions, metrics, and weights compromise the comparative reliability of ESG ratings
Billio et al. (2021)	Analyzing the link between ESG ratings and market risk	Quantitative study on European stocks	Misaligned ESG ratings can create uncertainty in financial markets	Rating heterogeneity can negatively affect investor confidence
Chatterji et al. (2016)	Evaluating the convergence of ESG ratings from different agencies	Comparative analysis of multiple ratings on a set of companies	Lack of convergence in ratings across providers	Challenges investors and managers in strategic use of ESG ratings
Christensen et al. (2022)	Exploring subjectivity in ESG evaluation	Qualitative and quantitative analysis of ESG criteria	Corporate "virtue" is "negotiated" and reflects varying values	ESG ratings reflect subjective perspectives rather than purely objective measures
Dimson, Karakaş & Li (2015)	Examining the impact of ESG ratings on activist investors' decisions	Study of ESG engagement and stock performance	Engagement improves governance and long-term financial performance	ESG ratings are useful as initial signals but require further in-depth analysis
Huang & Shi (2025)	Reviewing the literature on greenwashing	Systematic review	Greenwashing is facilitated by low transparency in ESG criteria	Tools are needed to identify and reduce greenwashing

Kotsantonis & Serafeim (2019)	Evaluating the quality and usefulness of ESG ratings for investor information	Critical analysis and case studies	ESG metrics are often inconsistent and difficult to compare	Improvements in data quality and methodological convergence are needed
Lozano & Albareda (2021)	Comparing ESG metrics across countries and regulatory contexts	Study on ESG indicators and institutional environments	ESG metrics are strongly influenced by local context and data sources	International comparability is limited; global standards are necessary
Zioło et al. (2023)	Analyzing the state of research on greenwashing	Academic review of ESG publications	Lack of transparency leads to misleading signals	Standardization and clarity are crucial for reducing informational risks

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