

A Review of the Impact of ESG Performance on Investment Portfolio Performance

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Abstract. The relationship between ESG performance and investment portfolio performance has become a focal point of academic debate. This review systematically examines studies from 2009 to 2024 indexed in Web of Science, Scopus, and CNKI databases, organizing them around three interrelated questions: does ESG integration help or hurt returns, by what mechanisms does it operate, and why do empirical findings differ so sharply across studies? Three broad positions emerge. The positive school argues that ESG leadership builds intangible capital—stakeholder trust, and reputational resilience—that conventional financial metrics tend to miss. The negative school contends that ESG constraints narrow the investment universe and suppress expected returns. A third, more skeptical position holds that the divergence in findings is largely an artifact of inconsistent rating methodologies and sample choices rather than evidence for or against ESG per se. Empirical data from MSCI indices over 2016–2025 show ESG-screened portfolios performing on par with conventional benchmarks, with compound annual growth rates of 12.17% for both. The review finds that ESG integration is most reliably associated with reduced tail-risk exposure and lower financing costs, rather than with systematic outperformance. Whether it improves risk-adjusted returns depends heavily on which rating agency's scores are used, the market in question, and how the portfolio is constructed.

Keywords: ESG performance, portfolio performance, sustainable investment, ESG rating divergence, risk-adjusted returns

1. Introduction

The past two decades have seen ESG considerations move from a niche concern to a core element of portfolio construction. Initially rooted in exclusionary screens, ESG investing now manages trillions of dollars globally. According to the Global Sustainable Investment Alliance (GSIA), global sustainable investment assets reached \$35.3 trillion by 2022, accounting for more than one-third of all professionally managed assets worldwide [1]. As shown in Figure 1, the growth trajectory was particularly steep between 2016 and 2020, with assets increasing by over 50% in just four years. By 2024, the GSIA adopted a revised methodology based on Morningstar classifications that narrowed the reported figure to \$16.7 trillion, yet the underlying trend of capital allocation toward sustainability remains unmistakable.

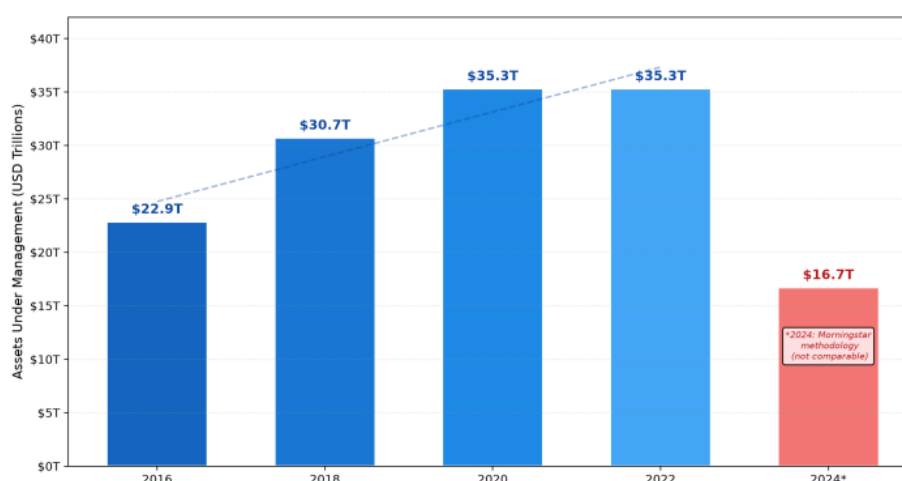


Figure 1. Global sustainable investment assets (2016-2024) [1]

The sheer scale of ESG-oriented capital has made the performance question both urgent and contested. Whether incorporating ESG factors improves, impairs, or simply leaves unchanged risk-adjusted returns remains genuinely unresolved. The literature spans hundreds of empirical studies and reaches conclusions that point in nearly every direction. Some find meaningful return premiums for high-ESG portfolios, others report performance penalties, many find no statistically significant difference either way. What makes this more than a minor academic puzzle is that the disagreements are not random noise—they tend to cluster around identifiable sources of variation: the rating provider used, the time period studied, the geographic scope, and the choice of performance benchmark. Understanding why studies disagree is arguably as important as knowing what the average study finds.

This review attempts to bring some order to that debate. It maps the main theoretical frameworks that generate competing predictions about ESG and returns, identifies the principal research schools and what distinguishes their findings, and traces the channels through which ESG factors actually affect portfolio outcomes. The goal is not to deliver a verdict—the evidence does not support one—but to clarify what conditions determine whether and how ESG integration matters for investors, regulators, and researchers.

2. Conceptual framework and theoretical foundations

2.1. Definition and measurement of ESG

Environmental, social, and governance (ESG) factors encompass a broad set of non-financial criteria that assess the sustainability and ethical impact of an investment. Environmental factors include carbon emissions, climate risk exposure, resource efficiency, and biodiversity impact. Social factors relate to labor practices, human rights, community relations, and product safety. Governance factors cover board independence, executive compensation, shareholder rights, and anti-corruption measures. The ESG framework thus extends beyond the narrower domain of traditional socially responsible investing (SRI), which primarily relied on negative screening to exclude controversial industries such as tobacco, weapons, and fossil fuels.

The conceptual shift from SRI to ESG is worth pausing on, because it changes what the performance debate is really about. SRI was values-driven: investors accepted potential financial costs in exchange for aligning their portfolios with ethical preferences. ESG integration, as it

developed following the 2006 UN Principles for Responsible Investment, rests on a different claim: that these non-financial factors carry material financial information that conventional analysis tends to overlook [2]. Under this framing, using ESG data is not a moral gesture but an information-gathering strategy. The distinction matters because it shapes how the performance evidence should be interpreted. If ESG is about values, then underperformance is expected and acceptable. If ESG is about information, then underperformance is a puzzle that needs explaining.

Measuring ESG performance, however, is far from straightforward. Commercial providers employ distinct rating frameworks that often yield divergent scores for the same firm [3]. This measurement problem is not peripheral to the performance debate, it sits at its center, and Section 3.4 returns to it in detail.

2.2. Measurement methods for portfolio performance

Assessing whether ESG integration affects portfolio outcomes depends critically on how performance is defined. Portfolio performance is commonly evaluated from two complementary perspectives: absolute returns and risk-adjusted returns. Different performance measures capture different dimensions of investment outcomes and therefore may lead to different empirical conclusions. The most widely used measures include risk-adjusted returns such as the Sharpe ratio, which measures excess return per unit of total risk, and Jensen's alpha, which captures abnormal returns after controlling for market risk exposure. For active ESG strategies that deviate from benchmark weights, the information ratio offers a useful gauge of tracking efficiency. For long-horizon investors, cumulative wealth indices and compound annual growth rates provide complementary perspectives on the compounding effects of ESG integration over extended periods.

The choice among these metrics is not neutral. Each emphasizes a different dimension of the risk-return trade-off, and studies that use different measures often reach different conclusions even when examining the same universe of stocks over the same period. This sensitivity to measurement choice is one of several reasons the literature has produced such varied results—a point the following sections revisit repeatedly.

2.3. Theories of ESG impact on portfolio performance

The literature generally distinguishes three competing theoretical perspectives regarding the relationship between ESG performance and portfolio performance. The trade-off hypothesis, formalized by Pástor, Stambaugh, and Taylor, holds that ESG constraints reduce the investment opportunity set and therefore impose a performance cost [4]. The value-enhancement hypothesis predicts instead that ESG integration improves financial outcomes by identifying firms with superior risk management and more durable business models. The risk-mitigation hypothesis takes a more modest position: ESG integration neither systematically adds nor subtracts from returns in normal market conditions, but it reduces the probability of severe losses from catastrophic ESG-related events. These competing perspectives provide alternative explanations for the mixed empirical findings reported in the literature.

Pedersen, Fitzgibbons, and Pomorski provide a unifying theoretical framework through their ESG-efficient frontier concept [5]. Building on classical mean-variance portfolio theory, they show that ESG considerations can be incorporated into the portfolio optimization problem without necessarily destroying the efficient frontier—it is modified rather than collapsed. Their ESG-efficient frontier traces portfolios that maximize financial return for a given level of ESG performance, and vice versa. This framework clarifies why the ESG-performance relationship is not

fixed: it depends on whether ESG risks are already priced into assets, which in turn depends on how widespread ESG preferences are among investors and how fully ESG information has been incorporated into market prices. In markets where ESG risks are underpriced, early movers may earn positive alphas. Once ESG factors are widely recognized and priced, the premium disappears.

3. Main research schools on ESG and portfolio performance

3.1. The positive school: ESG enhances portfolio returns

The positive school holds that ESG integration identifies firms with superior fundamental characteristics that translate into higher financial returns. The underlying logic is that ESG leadership reflects the accumulation of intangible assets—stakeholder trust, organizational resilience, innovation capacity, and reputational capital—which traditional financial metrics often fail to fully capture. Albuquerque, Koskinen, and Zhang formalize this argument by demonstrating that corporate social responsibility (CSR) reduces firm risk by building customer loyalty and stakeholder goodwill, which function as intangible capital that enhances the resilience of cash flows during economic downturns [6].

Crisis-period evidence provides some of the strongest support for this view. Lins, Servaes, and Tamayo examine the 2008-2009 financial crisis and find that companies with high social capital, measured by ESG-related indicators, earned significantly higher stock returns during the crisis period and experienced greater post-crisis recovery [7]. Their evidence suggests that social capital acts as a form of insurance, enabling high-ESG companies to weather negative shocks more effectively. Diaz and Garcia extend this finding to the COVID-19 pandemic, demonstrating that socially responsible investment (SRI) funds exhibited greater resilience during the pandemic-induced market crash of early 2020 [8].

The environmental dimension adds another layer, particularly the work of Bolton and Kacperczyk, who document a carbon premium in global equity markets [9]. Companies with higher carbon emissions earn higher stock returns, consistent with the hypothesis that investors demand compensation for exposure to climate transition risk. From the value-enhancement perspective, this carbon premium represents an opportunity: by underweighting carbon-intensive companies, ESG portfolios may be better positioned for the transition to a low-carbon economy, generating outperformance as carbon-intensive assets face increasing regulatory and market pressure. On the governance dimension, Gompers, Ishii, and Metrick provide early evidence that the market rewards sound corporate governance: firms with strong shareholder rights earn abnormal returns of approximately 8.5% per year relative to firms with weak governance, consistent with the view that governance quality—a core pillar of ESG—translates into measurable financial outperformance [10].

3.2. The negative school: ESG constraints and performance costs

The neoclassical school, grounded in the efficient market hypothesis and modern portfolio theory, argues that ESG constraints reduce portfolio efficiency by limiting the investment opportunity set. Pástor, Stambaugh, and Taylor formalize this position with a model in which investors derive non-pecuniary utility from holding green assets [4]. In their framework, green stocks earn lower expected returns because investors are willing to accept lower financial compensation for the satisfaction of holding socially responsible investments. This implies that ESG-screened portfolios, which

overweight green stocks, will underperform unconstrained portfolios in expected financial terms, even though they provide additional utility to ESG-preferring investors.

Empirical support comes from studies demonstrating that sin stocks, which are excluded by most ESG screens, have historically earned higher returns as compensation for their social unacceptability. Hong and Kacperczyk document that tobacco, alcohol, and gambling companies earn a return premium of approximately 2.5% annually relative to comparable companies, reflecting the cost of social stigma and litigation risk [11]. However, the neoclassical prediction of systematic underperformance has not been consistently confirmed empirically.

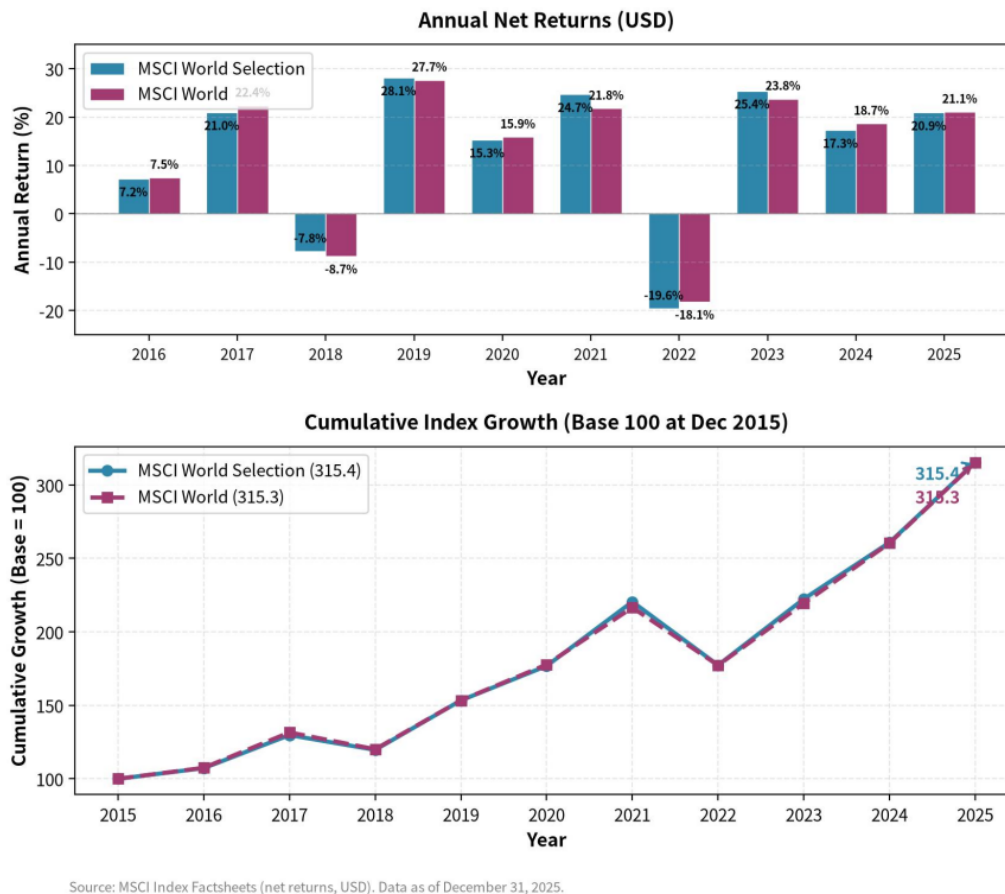


Figure 2. MSCI World Selection vs MSCI World: annual returns and cumulative growth (2016-2025) [12]

Recent market evidence, however, provides a more nuanced picture. As Figure 2 illustrates, the MSCI World Selection Index (the renamed successor to the MSCI World ESG Leaders Index) grew from a base of 100 to 315.4 over 2016-2025, compared to 315.3 for the MSCI World Index. The negligible annual gap (CAGR 12.17% for both indices) suggests that ESG constraints do not impose the severe performance penalties predicted by the neoclassical framework. This finding is consistent with the observation that ESG-screened portfolios maintain substantial diversification, with approximately 654 constituents compared to approximately 1,310 in the parent index, preserving most of the market risk premium while tilting toward companies with stronger ESG practices.

3.3. The neutral school: no significant relationship

A third strand of research takes a different view: rather than asking whether ESG matters, it asks whether the evidence is reliable enough to draw any conclusion at all. The neutral school attributes the mixed findings in the literature to methodological artifacts, including ESG rating disagreement, look-ahead bias, survivorship bias, and the choice of performance benchmarks. Berg, Kölbel, and Rigobon offer the most systematic treatment of the rating disagreement issue, documenting that the average correlation among ESG rating agencies is only about 0.54 [3]. They decompose ESG rating disagreement into three components: scope differences, measurement differences, and weight differences, finding that measurement differences account for the largest share of disagreement.

Bertelli and Torricelli contribute to this literature by examining the relationship between ESG screening and portfolio diversification, finding that the choice of screening methodology significantly affects the diversification properties and risk-return profile of the resulting portfolio [13]. Their analysis suggests that negative screening may inadvertently reduce diversification and increase portfolio risk, while positive screening may preserve diversification but not necessarily enhance returns [14]. Friede, Busch, and Bassen provide a comprehensive meta-analysis of over 2,000 individual studies, finding that approximately 90% report a non-negative ESG-performance relationship, with the majority showing neutral or slightly positive results [15]. However, the distribution is highly heterogeneous, with significant variation across regions, time periods, ESG dimensions, and methodological approaches, suggesting that the ESG-performance relationship is a complex function of contextual and methodological variables rather than a single stable parameter.

3.4. Sources of research divergence

Several methodological and contextual factors combine to make the ESG-performance literature as inconsistent as it is. The most fundamental is rating divergence: because different providers assess ESG differently, a study's conclusions depend in part on which scores it uses. A study using MSCI ratings may find different results than one using Sustainalytics, even with identical sample coverage and methods. The time horizon matters too: over short periods, the costs of ESG constraints tend to dominate, over longer periods, intangible assets may compound into measurable return advantages. Geographic context also shapes the results, since ESG factors are more fully priced in markets with stronger regulatory frameworks and greater investor awareness—the scope for information-based alpha is correspondingly narrower in those markets than in emerging ones. Finally, the benchmark against which ESG performance is evaluated can mechanically affect conclusions. A strategy that looks neutral against a broad market index may look attractive—or unattractive—against a sector-specific or style-adjusted benchmark.

Together, these sources of variation suggest that looking for a single, universal ESG-performance relationship may be the wrong question to ask. ESG performance should be understood as context-dependent, varying with rating methodology, market environment, investment horizon, and portfolio construction choices.

4. Mechanisms and heterogeneity analysis

4.1. Transmission mechanisms linking ESG performance to portfolio outcomes

Even where empirical findings diverge on the effect direction of ESG integration on portfolio performance effect, there is more agreement on the channels through which ESG factors reach

financial outcomes. Four pathways appear most consistently in the literature, though their relative importance differs across sectors, market conditions, and investment horizons.

The first and probably most robust channel is risk reduction. Firms with strong ESG records tend to face lower exposure to idiosyncratic risks: regulatory fines, environmental remediation liabilities, governance scandals, and reputational crises. Lower risk may translate into lower financing costs—creditors and equity investors both discount for uncertainty—and into more stable earnings over time. During periods of market stress, the difference between high- and low-ESG firms tends to widen, which is consistent with the crisis-period evidence reviewed in Section 3.1.

The second channel is operational efficiency. Environmental investments—in energy efficiency, waste reduction, cleaner production processes—can generate direct cost savings that show up in operating margins. Social investments in workforce quality and stability reduce turnover costs and improve productivity. These effects are harder to isolate empirically because they interact with other firm characteristics, but the direction is generally positive.

Third, and more contingent, is the asset pricing channel. As ESG-motivated capital grows, demand for high-ESG securities increases, bidding up their prices and compressing their prospective returns. This dynamic implies that early adopters of ESG integration may have earned positive abnormal returns during periods when ESG preferences were not fully priced in, while later entrants face a lower forward return environment precisely because those alphas have been competed away. The time-varying nature of this channel helps explain why studies using older data sometimes find stronger positive effects than those using more recent samples.

Fourth, regulatory exposure increasingly differentiates firms based on ESG characteristics. Carbon pricing, mandatory climate disclosure, supply chain due diligence requirements, and governance mandates all create differential costs and opportunities that affect cash flows and valuations. This channel is likely to grow in importance as regulatory frameworks become more demanding, and it is particularly relevant in jurisdictions where enforcement is credible.

These four mechanisms are not mutually exclusive, and in practice they operate simultaneously with varying intensities. Disentangling which channel drives observed outcomes in a given dataset remains one of the harder empirical challenges in this literature.

4.2. ESG rating divergence and heterogeneity analysis

Rating divergence is not merely an inconvenience for researchers—it has direct implications for portfolio outcomes. Tan and Pan examine this in the Chinese market, where ESG rating disagreement is especially pronounced [16]. Chinese providers tend to evaluate factors such as state ownership, labor standards, and environmental compliance differently from their international counterparts, so the same firm may receive high ESG ratings from a domestic agency and much lower scores from an international one. Their findings suggest that in the Chinese context, the choice of ESG rating provider is itself a material decision with measurable portfolio consequences, independent of any actual ESG strategy choice.

Geographic heterogeneity more broadly reflects differences in regulatory environment, information availability, and investor sophistication. In well-regulated developed markets, ESG information tends to be more thoroughly incorporated into prices already, which reduces the potential for ESG-based strategies to generate abnormal returns. In emerging markets, where regulatory enforcement is more variable and ESG data is patchier, the information-processing advantage of careful ESG analysis may be more pronounced—though the risks of measurement error are also higher.

Sectoral heterogeneity is equally significant. The materiality of specific ESG factors varies considerably by industry. For the energy sector, environmental factors such as carbon emissions and climate transition risk are highly material. For the financial sector, governance factors such as board independence and risk management practices are more relevant. For the technology sector, social factors such as data privacy and labor practices may be the most significant. This means that a uniform ESG scoring approach applied across all sectors is likely to obscure more than it reveals, and sector-specific analysis is probably more informative than aggregate ESG scores for portfolio construction purposes.

5. Conclusion

After two decades of research, the link between ESG performance and investment returns remains unresolved—and that ambiguity is itself meaningful. The literature reflects three main views: (1) the positive school, which treats ESG leadership as a source of intangible value, (2) the neoclassical school, which views ESG constraints as efficiency costs, and (3) a skeptical school, which attributes divergent findings largely to inconsistent measurement—not to real economic effects. Each view is empirically supported, confirming that the ESG-return relationship is context-dependent, not universal.

The 2016-2025 MSCI index comparison offers the clearest evidence: ESG-screened portfolios matched conventional benchmarks in cumulative returns and compound annual growth, both at 12.17%. This undermines extreme claims from both positive and negative camps and better reflects real-world ESG outcomes than crisis-driven studies, which overemphasize visible ESG effects. It also aligns with theory: as ESG becomes mainstream, the premium from early adoption erodes.

The more robust finding is risk-related. ESG integration consistently lowers tail-risk exposure: the probability of severe, sudden losses from governance failures, environmental liabilities, or social controversies. While translating this into improved risk-adjusted returns depends on metrics, time horizon, and market conditions, the risk-reduction effect is more consistent than any return effect.

For practitioners, ESG integration functions more reliably as risk mitigation than as an alpha generator. Investors treating it primarily as a return enhancer may be disappointed, those using it to avoid regulatory, reputational, or environmental risks have stronger empirical backing. For regulators, standardizing ESG ratings—improving consistency and comparability—is urgent: divergent scores for the same firm keep financial impact estimates noisy and contested. For researchers, priority next steps include sector-specific analysis, greater use of natural experiments and instrumental variables to tackle endogeneity, and tracking how the ESG-return relationship evolves with rising ESG capital flows.

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