Strategic Insights: How Environmental, Social, And Governance Factors Shape Portfolio Investments

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This study aims to explore the intricate effects of environmental, social, and governance (ESG) factors on investment portfolios using a meta-analysis and meta-regression methodology. The objective is to gain insights into how ESG factors impact both investors and companies, contributing to a nuanced understanding of the relationship between financial performance and responsible business practices. Utilizing meta-analysis and meta-regression techniques, the study systematically analyzes a wide array of literature on the impact of ESG factors on investment portfolios, aggregating empirical studies, case analyses, and theoretical frameworks from academic journals and industry reports to identify patterns and trends through rigorous meta-regression analysis. The findings of this study provide compelling evidence in support of a sustainable performance premium associated with companies prioritizing robust ESG practices. Companies with higher ESG ratings consistently demonstrate sustainability, effective risk management, and strong financial performance. The meta-analysis highlights the significant influence of institutional investors, regulatory developments on ESG disclosures, and sector-specific nuances, enabling investors to capitalize on the advantages of sustainable performance and risk mitigation linked to ESG factors. The study suggests that aligning with robust ESG practices can help corporations attract institutional capital, navigate regulations, and inform policymakers about frameworks promoting responsible investments and sustainable practices.

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1 Introduction

In today's financial environment, the integration of Environmental, Social, and Governance (ESG) aspects into investment decisions signifies more than just a transitional phase it reflects a fundamental shift in how investors assess risk, return, and overall impact. The "E" in ESG evaluates a company's environmental impact, including efforts beyond compliance to address climate change, resource conservation, and ecological footprint. Governance ("G") assesses internal directives and structures, including decision-making transparency, board autonomy, and executive compensation alignment with long-term performance. Incorporating ESG into investments extends beyond ethical considerations; it strategically enhances long-term outcomes and risk management. Companies with strong ESG practices are perceived as resilient to environmental challenges, adept at managing social complexities, and committed to ethical governance. This trend is reshaping the investment landscape as capital flows into ESG-focused funds, offering companies with high ESG ratings improved access to capital and a competitive edge. This shift represents a fusion of financial expertise and responsibility, compelling investors to consider broader implications beyond profit margins. As the financial sphere embraces this paradigm, exploring the impact of ESG on investment portfolios prompts us to align investments not only with financial objectives but also with a vision for a more sustainable and equitable future.

2 Literature review and meta-analysis

Previous research (Wan et al., 2023), (Parikh et al., 2023), (Park & Oh, 2022), (Bermejo Climent et al., 2021), (De Souza Barbosa et al., 2023), (Naffa & Fain, 2022), (Iazzolino et al., 2023) and (Keeley et al., 2022) consistently demonstrates a positive correlation between companies with strong Environmental, Social, and Governance (ESG) practices and financial performance. Numerous studies, including those by MSCI and Harvard Business Review, indicate that companies with high ESG ratings frequently outperform their lower-rated competitors over the long term. This sustainable performance is attributed to factors such as risk mitigation, operational efficiency, and enhanced stakeholder trust. Empirical findings from meta-analyses on ESG highlight its profound impact on financial markets, emphasizing the constructive role of governance and the complex consequences of environmental factors. Socially conscious funds demonstrate merit despite associated costs, and

global ESG integration enhances resilience and financial sustainability during times of turmoil. Recommendations include prioritizing governance and environmental aspects while acknowledging the complexity of the international landscape. However, limitations arise due to the imperative demand for standardized ESG assessments and potential biases that may compromise the evaluation of environmental and social characteristics. In this table, we present some works related to the impact of ESG factors on portfolio investments. Throughout this table, we elaborate on the author, year, variables, methods, and findings used by the authors in their scholarly papers.

Table 1: Meta-Analysis of existing studies related to the How Environmental, Social, and Governance Factors Shape Portfolio Investments

Authors	Year	Variables	Methods	Empirical Findings
(Wan et al., 2023)	2023	Philosophy of the ESG system, factors affecting ESG, the financial outcomes of ESG, the association between ESG and corporate social responsibility (CSR), and ESG investing	Bibliometric analysis	Many studies are increasingly focusing on the influence of ESG behavior on a firm's risk, capital cost, performance, and value
(Parikh et al., 2023)	2023	MarketCap, ROI, E-factor, S-factor, G-factor	Multiple linear regression analysis	The G factor is the sole factor that contributes to positive returns for shareholders. The insignificance of the S factor for the creation of equity returns, especially in the short run. The E factor leads to negative returns due to additional investments by a company that may not help in the creation of any revenue.
(Becchetti et al., 2015)	2015	Investment Area, Investment Size, socially the performance of responsible funds (SRFs), the performance of conventional funds (CFs)	Matching approach, recursive analysis	There is no clear-cut dominance over the entire period and in all segments of one investment style over the other. All the considered approaches seem to indicate that SRFs generally do better than CFs in the period following the global financial crisis.
(Park & Oh, 2022)	2022	Risk Management View, Information	The Unified Theory of Acceptance	Individual investors might not look resourceful as individuals, but their influence on the financial market

Authors	Year	Variables	Methods	Empirical Findings
		that Individual Investors Use, Integration of ESG Information in Investment Decisions	and Use of Technology (UTAUT) model	can be significant. ESG management is no longer a matter of choice, but an innovative process for investors' investment decisions.
(Bermejo Climent et al., 2021)	2021	Rb,t MKTval, BTM, PER, EVEBIT, EVEBITDA, GPA, ROC, ROCD, MOM, Global Disclosure, Environmental Disclosure, Social Disclosure, Governance Disclosure	Model approach with Mac-Beth regressions	The results show that the impact of governance and environmental disclosure on portfolio returns is predominantly positive, but the effect on volatility changes over time. The positive effect of the social pillar on portfolio volatility is not robust when later subsamples are considered.
(Zehir & Aybars, 2020)	2020	ESG data and Stock Market data, which covers the period between 2004 and 2018,	Capital asset pricing model (CAPM) and Fama-French three-factor model	The results strongly suggest that using ESG based scores, two portfolios underperform the market index. The results of the three-factor model indicate that the performances of ESG and GOV portfolios outperform the market excess return by 0.57% and 0.53%, respectively.
(De Souza Barbosa et al., 2023)	2023	Environmental, Social, and Governance (ESG) criteria	Preferred Report Items for Systematic Reviews and Meta-analysis (PRISMA), and a critical analysis.	The integration of ESG criteria, observed from different perspectives, strengthens corporate sustainability performance. The present study concludes that companies, regardless of nationality, follow the guidelines of ESG criteria integration, and such a procedure brings several benefits.
(Whelan et al., 2015)	2025	ESG issues, ESG data shortcomings, and confusion regarding different ESG investing strategies.	Meta-analysis	This study found positive correlations between ESG performance and operational efficiencies, stock performance, and lower cost of capital.
(Naffa & Fain, 2022)	2022	Beta, Value, Momentum Size, Volatility, Liquidity Profitability, Growth, Investment,	Fama-French (FF) spanning regressions, GMM-IV estimator	ESG leader portfolios realized significant negative risk-adjusted returns, though the results are not robust. The environmental follower portfolio showed positive risk-adjusted performance, as results were significant for four model

Authors	Year	Variables	Methods	Empirical Findings
		Leverage, Earnings variability Environment (E), Social (S), Governance (G)		specifications, yet the model failed in the robustness checks.
(Iazzolino et al., 2023)	2023	Total Assets, Total Equity, Earnings Before Interest Tax Depreciation Amortization (EBITDA), Revenues, ESG scores.	Multi-sectoral analysis	The study finds that that ESGs impact on firm efficiency differently over sectors: some of them are more sensitive than others to ESG factors.
(Keeley et al., 2022)	2022	ESG scores of invested companies, total market prices of invested companies, and investor history portfolio reports.	The ultimate ESG ownership analysis	The results show that developed nations need policies to support the consequences of the pandemic, while the pandemic has caused many threats to social life in developing countries.

Source: Data processing by authors (2024)

Numerous research studies examining the impact of environmental, social, and governance (ESG) factors on investments confirm their importance, standardize the behavior of publicly listed companies, and offer valuable insights for financial markets. Specific factors, such as corporate governance, have a positive impact on capital returns, while the environment has a detrimental effect, and social factors demonstrate limited importance. The ESG results have a significant impact on stock returns, with governance yielding the highest results and the environment averaging lower. By effectively integrating ESG into risk management, alongside transparent disclosure and sustainable practices, investors can reduce costs associated with information processing. Governance characteristics strongly influence investment portfolio performance, while environmental and social attributes may be subject to bias, highlighting the need for standardized ESG assessments. Interestingly, socially responsible investing (SRI) does not show a clear correlation with portfolio performance. However, over long time periods, ESG investments have proven to be effective in performance and offer protection during crises. Although ESG portfolios may not generate significant returns, they serve as indicators for capturing sustainability risk drivers. ESG factors impact firms' efficiency differently across sectors, providing guidance for creating efficient investment portfolios. Investors prioritize environmental and governance factors when making investment decisions.

The international model for ESG investment reveals strong regional links and variations in investment models.

3 Scientific research methodology

This paper applied the qualitative and quantitative methods of scientific research. The meta-analysis method was applied using the qualitative approach, while the meta-regression method was applied through the quantitative approach. The process of gathering and evaluating data for a meta-analysis is of critical importance, as it is one of the most significant factors that can contribute to analytical success. In general, a total of 20 journals were selected, in addition to online libraries and publishing platforms, namely Elsevier, ResearchGate, and Springer, etc. There were 20 papers with 28 studies selected from the year 2015 to the year 2023, from which the data ranged from 2015 to 2023. Finally, many of the same authors frequently use statistically significant results in various ways in works like working papers and journal articles. At the end of the review process, the final data for the meta-analysis officially consisted of 14 papers, of which 20 studies served as observations for this meta-analysis. The time period also remained unchanged, as it now covers research from 2015 to 2023.

4 Results of meta – regression analysis

During a comprehensive exploration of Environmental, Social, and Governance (ESG) elements across five research papers, a consistent theme emerges: ESG is crucial for sustainable corporate growth. Studies conducted on Chinese listed companies from 2015 to 2021 collectively affirm the positive impact of ESG performance on corporate financial well-being, firm value, and profitability. Digital transformation is recognized as a moderating factor contributing to sustainability expansion. Aligned with stakeholder theory, the first paper emphasizes positive links between ESG, firm value, and profitability. Recommendations include the need to support ESG policies, mobilize resources, and conduct thorough examinations of causal factors affecting the ESG effect on financial performance. The research acknowledges several limitations, such as focusing on specific industries and data collection constraints, directing attention towards future research priorities, and underscoring the importance of expanding the field to include unlisted and small-medium enterprises (Wu, 2023). The second paper delves into the impact of ESG

performance on firm value and profitability, revealing a strong and comprehensive relationship, except for the environmental aspect. Possible explanations for the lack of correlation with the environment are explored, such as longer-term horizons required for results and high investment costs. The study also addresses ESG implications during economic crises, suggesting potential protection against negative risks. Recommendations echo the need for policy support, resource mobilization, and further exploration of causal factors affecting the role of ESG in financial performance (Fu & Li, 2023) In the third study, the positive influence of ESG practices on strong accountability and stakeholder relations is highlighted, supporting stakeholder theory. Practical implications underscore advantages for managers and their impact on trading processes for investors seeking returns from ESG-focused businesses (Siwei & Chalermkiat, 2023). The fourth research paper, using regression analysis, demonstrates that improving ESG performance leads to reduced borrowing costs and increased market value, with borrowing costs mediating the market value effect. Policy focus, proactive ESG management by corporations, and institutional exploration of ESG-based investment strategies are considered fundamental (Habib & Mourad, 2023). In the fifth study, which focuses on publicly listed companies, the beneficial effects of ESG on lowering borrowing costs and increasing market value are identified, with state and non-state capital mediating these intermediary effects. The paper concludes by urging policymakers, corporations, and investors to consider ESG when making decisions and developing investment strategies (Aydoğmuş et al., 2022).

Table 2: Meta-Regression of existing studies related to the effects of the COVID-19 pandemic on financial markets

Authors	Variables*	No. of observations	Regression Coefficients	Std. Error	P-Value	R^2
(Wu, 2023)	Receivable Turnover Ratio (C.V)	100	(.120)	.036	.001	.248
	Inventory Turnover (C.V)	100	(.022)	.010	.030	.248
	EPS (I.V)	100	.189	.086	.032	.248
	ESG Score (C.V)	100	(.389)	.193	.048	.248
(Fu & Li, 2023)	Financial performance ROA (D.V)	15710	(- 0.543)	6.589	0.034	0.819
	ESG (I.V)	15710	0.894	1.113	0.047	0.138
	Firm size	15710	1.047	1.302	0.045	0.138
	Debt level (C.V)	15710	(3.998)	0.561	0.100	0.138

Authors	Variables*	No. of observations	Regression Coefficients	Std. Error	P-Value	R^2
	Operating leverage (C.V)	15710	0.130	1.193	0.041	0.138
	Firm age (C.V)	15710	(0.565)	0.245	0.205	0.138
	Cash flow (C.V)	15710	(1.199)	0.107	0.463	0.138
	Equity restriction ratio (C.V)	15710	0.113	0.788	0.062	0.138
	Executive compensation (C.V)	15710	(0.203)	0.699	0.071	0.138
	Regional development level (C.V)	15710	(0.000)	30726	0.000	0.138
(Siwei & Chalermkiat, 2023)	Tobin's Q (D.V)	325	-	2.078	-	0.424
	ESG (I.V)	326	0.153	0.905	0.0498	0.424
	Reputation (C.V)	326	(0.166)	2.421	0.0313	0.424
	Size (C.V)	326	(0.274)	1.802	0.0495	0.424
	Revenue growth (C.V)	357	0.00162	48.64	0.000717	0.424
	BTMV (C.V)	326	0.0000	0	-	0.424
	Covid-19 (C.V)	376	0.0498	0.434	-	0.424
	Ownership (C.V)	310	(0.233)	0.491	0.0854	0.424
	Cost of debt (C.V)	326	(2.285)	0.0300	-	0.424
(Habib & Mourad, 2023)	Market Value (D.V)	1612	(0.034)	1.007	0.040	0.154
	Total enterprise values (D.V)	1612	0.023	0.721	0.044	0.254
	Tobin's Q ratio (D.V)	1612	(0.022)	1.278	0.053	0.451
	ESG (I.V)	1612	0.516	0.622	0.055	0.451
	ENV (I.V)	1612	0.022	1.630	0.015	0.451
	SOC (I.V)	1612	0.130	1.035	0.022	0.451
	GOV (I.V)	1612	0.334		0.074	0.451
	SIZE (C.V)	1612	(0.736)	1.388	0.097	0.451
	AGE (C.V)	1612	(1.472)	1.346	0.456	0.451
	LEV (C.V)	1612	(0.085)	1.031	0.048	0.451
(Aydoğmuş et al., 2022)	Tobin's Q (D.V)	14043	-	2.963	<0.001	-
	Return on Assets -ROA (D.V)	14018	-	11.413	<0.001	-
	ESG Combined Score-ESG_CS (I.V)	14043	0.008	25.855	0.002	-
	Environment score-ENV (I.V)	14043	0.002	31.715	0.002	-
	Social score-SOC (I.V)	14043	0.008	29.756	0.002	-

Authors	Variables*	No. of observations	Regression Coefficients	Std. Error	P-Value	R^2
	Governance score- GOV (I.V)	14043	0.004	29.035	0.002	-
	Logarithm of Total Assets – Size, Log_TASST (C.V)	14043	(0.498)	2.626	0.064	-
	Leverage Total – TDTA (C.V)	14043	(0.920)	0.203	0.443	-

Source: Data processing by authors (2024)
*Explanation: (D.V) - Dependent Variable, (I.V) - Independent Variable

Based on the results from the meta-regression analysis, we can conclude that five academic studies collectively underscore the crucial role of Environmental, Social, and Governance (ESG) elements in advancing corporate sustainability. Covering research conducted on publicly traded Chinese firms from 2015 to 2021, the studies consistently demonstrate a favorable impact of ESG performance on financial well-being, firm value, and profitability. The influence of digital transformation emerges as a moderating factor affecting the relationship between ESG and financial performance, contributing to sustainable growth. The research provides support for stakeholder theory, which highlights positive links between ESG, firm value, and profitability. Recommendations include the implementation of policy measures, mobilization of resources, and further exploration of causal factors influencing the impact of ESG on financial performance. Despite limitations such as focusing on specific industries and constraints in data collection, these areas suggest opportunities for future research. The collective studies emphasize the importance of analyzing specific industries and considering unlisted and small-medium enterprises. The research also shows that different ESG factors have different effects. For example, the environmental factor has complex relationships because it has longer-term effects and high investment costs. Findings also extend to the implications of ESG during economic crises, indicating potential protection against downturns. As a whole, the research supports putting in place policies, getting resources together, and continuing to look into how to better understand and use ESG practices in different situations. It stresses how important these practices are in both theory and practice for improving financial performance, firm value, and profitability.

5 Discussion

Research on the relationship between Environmental, Social, and Governance (ESG) performance and corporate and financial outcomes offers profound insights into contemporary business practices. The consistent findings across studies confirm that robust ESG performance has a positive impact on various aspects of firm performance, including but not limited to firm value, profitability, and financial efficiency. These results resonate strongly with stakeholder theory, which posits that businesses should consider the interests of all stakeholders, not just shareholders, in decision-making processes. These findings have implications that extend beyond individual firms and into the broader corporate landscape. They underscore the significance of ESG integration in corporate strategies, emphasizing its role in fostering sustainable development and enhancing long-term value creation. However, the realization of these benefits hinges on effective policy measures and resource allocation. Policymakers play a pivotal role in creating an enabling environment for ESG practices by implementing regulations, incentivizing responsible behaviors, and fostering collaboration between stakeholders.

Moreover, the research sheds light on the potential advantages of incorporating ESG criteria into investment decision-making processes. Investors are increasingly recognizing the importance of ESG factors in assessing risk and identifying opportunities. By considering ESG considerations, investors can not only improve financial performance but also contribute to positive social and environmental outcomes. Nonetheless, challenges persist in this domain, including the lack of standardized methodologies for ESG assessment and reporting. Addressing these challenges requires concerted efforts from both the public and private sectors. Furthermore, the sector-specific nuances highlighted in the research underscore the need for tailored approaches to ESG integration. Different industries face distinct challenges and opportunities concerning ESG factors, necessitating customized strategies and metrics. Future research endeavors should thus prioritize sector-specific analyses to provide targeted insights and recommendations for companies and investors.

6 Conclusion and recommendations

In conclusion, the empirical evidence from research on ESG performance underscores its critical role in shaping corporate and financial outcomes. The positive correlation between ESG practices and financial performance reaffirms the importance of responsible business practices in value creation. Stakeholder theory finds robust support, emphasizing the broader societal benefits of ESG integration beyond financial returns. To harness the full potential of ESG practices, stakeholders must collaborate to address existing challenges and limitations. Policymakers should prioritize the development of transparent and standardized reporting frameworks to facilitate informed decision-making. Additionally, ongoing dialogue between academia, industry, and regulatory bodies is essential to refine ESG assessment methodologies and address emerging issues effectively.

For companies and investors, the findings offer practical implications for integrating ESG considerations into decision-making processes. By prioritizing ESG performance, companies can enhance their competitiveness, attract investment, and contribute to sustainable development. Similarly, investors can leverage ESG criteria to build resilient portfolios that align with their values and long-term objectives. In essence, the insights garnered from research on ESG performance underscore its pivotal role in shaping the future of business and finance. By embracing ESG principles, stakeholders can pave the way for a more sustainable and inclusive global economy.

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