ESG PERFORMANCE AND STOCK PRICE RISK: A COMPARATIVE STUDY OF FIRMS IN THE EUROPEAN UNION AND THE UNITED STATES

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Abstract:

This study examines how corporate ESG (Environmental, Social, and Governance) performance influences stock price risk, focusing on differences between firms in the European Union (EU) and the United States (US). Using a propensity-score matched sample, the analysis explores the impact of overall and component ESG scores on volatility, systematic risk, and stock price crash risk. The findings reveal contrasting regional effects: higher ESG scores reduce systematic risk in US firms but increase it in EU firms. ESG performance mitigates crash risk in both markets, while its effect on volatility varies - reducing it in US firms with strong environmental performance but increasing it among EU counterparts. Governance also yields opposing impacts on systematic risk across regions. These results underscore the importance of regulatory and market context in shaping ESG's financial implications, offering valuable guidance for investors, policymakers, and corporate leaders.

***Keywords*:** ESG performance, ESG score, idiosyncratic risk, systematic risk, downside risk

INTRODUCTION

Considering the global challenges of climate change, social inequality, and corporate accountability, firms' environmental, social, and governance (ESG) characteristics have received increasing attention from investors and regulators. ESG integration is now widely regarded as a key component of sustainable corporate strategy and long-term financial performance. However, whether strong ESG performance consistently reduces stock price risk, or under certain conditions increases it, remains a subject of empirical uncertainty.

The relationship between ESG and financial risk is far from conclusive. Some studies suggest that ESG enhances resilience and reduces risk exposure (Albuquerque et al., 2019; Kim et al., 2014; Lee & Koh, 2024), while others argue that ESG initiatives may raise risk, particularly when they impose constraints on managerial flexibility or are introduced under uncertain regulatory conditions (Becchetti et al., 2015; Breuer et al., 2018). Additionally, Sorensen et al. (2022) emphasize that ESG scores play a relatively minor role in explaining stock returns compared to traditional financial fundamentals such as earnings potential, suggesting that the financial impact of ESG is highly context-dependent.

This paper addresses these issues by investigating the relationship between ESG performance and various forms of stock price risk, including volatility, systematic risk, idiosyncratic risk, and downside risk, through a cross-regional comparison of EU and US firms over the period 2002–2023. Using disaggregated ESG scores (environmental, social, governance), the study identifies distinct regional differences in how ESG factors influence market risk, shaped by institutional and regulatory environments.

METHODOLOGY

This study investigates how ESG performance affects firm-level stock price risk and whether these effects differ between European and US firms. The research framework is grounded in stakeholder theory and corporate risk management perspectives, treating ESG as a strategic factor that can moderate financial exposure. A matched-sample design is implemented using propensity-score matching to reduce selection bias and ensure comparability between the two regional groups. The final sample includes 1,181 firms from 23 European countries and 1,003 firms listed on the NYSE, matched on characteristics such as size, leverage, analyst coverage, and fiscal year.

The empirical analysis is based on fixed-effects panel regression models applied to an unbalanced panel of 14,510 firm-year observations spanning from 2002 to 2023. Six risk measures are analyzed: volatility (standard deviation of returns), systematic risk (CAPM beta), idiosyncratic risk (CAPM residuals), downside risk (semi-deviation), and two proxies for downside tail risk (negative skewness measured by NCSKEW and down-to-up volatility, DUVOL). ESG scores and controversy data are obtained from LSEG/Refinitiv, while financial and market data are sourced from Bloomberg and Compustat.

The models include lagged ESG scores, both overall and disaggregated into environmental, social, and governance components, as key explanatory variables. An ESG Controversies score is used to capture reputational risk, and a regional interaction term (EU Firm) is included to test for differential effects between markets. Control variables consist of firm size, return on assets, market-to-book ratio, leverage, stock return, analyst coverage and dispersion, and lagged risk values. Robustness checks are conducted using alternative model specifications, exclusion of financial firms, and replacement of CAPM residuals with Fama-French residuals.

FINDINGS

The results indicate significant differences in the relationship between ESG performance and stock price risk across regions and ESG components. For the combined ESG score, we find that ESG performance is negatively associated with systematic risk in US firms, supporting the idea that ESG can serve as a tool for risk mitigation. However, for EU firms, the interaction term is positive and significant, indicating that higher ESG performance is associated with greater systematic risk. No statistically significant relationship is observed for total or idiosyncratic risk, but ESG scores are negatively related to downside risk, as measured by both NCSKEW and DUVOL, in both regions.

Looking at individual ESG pillars, environmental scores are associated with lower volatility and downside risk in the US, whereas in the EU they correspond with increased risk. This divergence suggests that environmental initiatives may be interpreted differently by investors depending on regional expectations and regulatory context. Social scores are negatively related to systematic risk overall. For EU firms, stronger social performance is additionally linked to reductions in total and downside risk, indicating that social responsibility plays a particularly relevant role in the European investment landscape. Governance scores show a regionally asymmetric effect: in the US, better governance is associated with reduced systematic risk, while in the EU the opposite relationship is observed. This may reflect differences in governance regulation, compliance expectations, or institutional investor behavior.

Finally, the ESG Controversies score shows a significant negative relationship with downside risk, suggesting that firms managing ESG controversies effectively may limit the occurrence of extreme negative returns. These findings are consistent with prior literature, including Lee and Koh (2024), who report negative associations between ESG scores and firm risk, particularly for the social and governance dimensions. Robustness tests confirm that these patterns hold across different specifications and sub-samples, reinforcing the validity of the results.

CONCLUSIONS

This study contributes to the ESG-finance literature by demonstrating that the relationship between ESG performance and stock price risk is highly context-dependent and varies across markets and ESG dimensions. ESG performance reduces systematic and downside risk in US firms, while in EU firms it is associated with increased systematic risk. This asymmetry underscores the influence of regional regulation, investor expectations, and institutional frameworks on the perceived risk-mitigating role of ESG.

Disaggregating ESG into its environmental, social, and governance components reveals that each pillar interacts differently with financial risk, and that these interactions are not uniform across regions. Environmental and governance performance, in particular, contribute variably to volatility and systematic risk depending on market setting. These findings support stakeholder theory by illustrating how investor reactions to ESG depend on the surrounding regulatory and social context.

Given these insights, investors should not assume that ESG uniformly reduces risk. Instead, they should assess ESG strategies in light of region-specific factors and market sentiment. Policymakers must be aware that overregulation or misalignment between ESG policies and investor expectations could inadvertently increase perceived risk. For firms, ESG should be strategically implemented not just for compliance or reputation, but with a clear understanding of how each component may affect financial outcomes and investor risk assessments.

Limitations of this study include reliance on annual ESG ratings and the lack of intra-year event-level data, which may obscure short-term effects of ESG developments. Future research could build on this by incorporating real-time ESG events, exploring sector-specific patterns, and extending the analysis to emerging markets and evolving regulatory environments.

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