

Does Technology Make Sustainability Pay? ESG Performance, Digital Transformation, and Firm Financial Performance Across the Performance Distribution

Mohamed Basuony

Onsi Sawiris School of Business, American University in Cairo, New Cairo, Egypt

Omar Basuony

Onsi Sawiris School of Business, American University in Cairo, New Cairo, Egypt

Tarek Eldomiaty

Onsi Sawiris School of Business, American University in Cairo, New Cairo, Egypt

Abstract

Whether strong environmental, social, and governance (ESG) performance pays financially remains one of the most persistent open questions in corporate finance, with three decades of research producing positive, negative, and null findings in roughly comparable measure. We argue that part of this inconsistency reflects two forms of heterogeneity that the literature's reliance on mean-based estimation has concealed: the relationship may differ across the firm performance distribution, and it may depend on a conditioning capability that most studies omit, namely the firm's degree of digital transformation. Drawing on a strongly balanced panel of 503 S&P 500 constituents observed over 2010–2023 (up to 7,042 firm-year observations), we measure financial performance through return on assets, return on equity, and Tobin's Q; ESG performance through the Refinitiv composite score; and digital transformation through an original text-based index counting keyword occurrences across five technology dimensions in each firm's annual report. Simultaneous quantile regressions estimated at the 25th, 50th, and 75th percentiles of each conditional performance distribution yield three findings. First, ESG performance is positively and significantly associated with financial performance in all twelve quantile-model combinations, and the association strengthens markedly toward the upper tail. Second, digital transformation is positively associated with firm value across the entire distribution, but its association with accounting profitability is absent among the least profitable firms and emerges only from the median upward. Third, digital transformation positively moderates the ESG–performance relationship, and for accounting-based measures that moderation reveals a double-edged sword: digital transformation is associated with lower profitability among firms weak on ESG, with the penalty mitigated and ultimately reversed among firms strong on both dimensions. Sustainability and digital strategy emerge as complementary rather than competing investments.

Keywords

ESG performance, digital transformation, firm financial performance, Tobin's Q, quantile regression, moderation, sustainability strategy.