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The Effect of Sustainability Reporting on Corporate Financial Performance: Analyzing Trends in Different Industries

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Abstract

This research paper investigates the effect of Environmental, Social, and Governance (ESG) sustainability reporting on corporate financial performance across three distinct industry verticals: Manufacturing, Information Technology (IT), and Fast-Moving Consumer Goods (FMCG). Using secondary ESG score data sourced from Bloomberg and publicly available financial statements of nine globally recognized corporations Ford Motors, General Motors, Tesla (Manufacturing); Microsoft, Intel, Oracle (IT); and Colgate-Palmolive, Procter & Gamble, PepsiCo (FMCG) the study analyzes financial performance metrics including Return on Assets (ROA), Return on Equity (ROE), and Net Profit over the period 2015–2024. The study employs a quantitative, explanatory research design using regression analysis to test whether ESG scores have a statistically significant impact on financial outcomes at the firm level. The null hypothesis postulates that ESG scores do not significantly influence ROA, ROE, or Net Profit; the alternative hypothesis posits a meaningful positive association.

Findings across most companies reveal very low R-squared values (0.001 to 0.17) and high p-values (consistently above 0.05), indicating that ESG scores in isolation do not function as statistically significant predictors of short-term financial performance. A notable exception is Tesla, where ESG scores exhibit a meaningful positive correlation with financial indicators particularly ROA and Net Profit suggesting that in high-growth, innovation-driven firms, ESG integration may reinforce financial value. Microsoft presents mixed results, with certain metrics showing weak positive associations. In contrast, traditional manufacturers (Ford, General Motors), legacy IT firms (Intel, Oracle), and FMCG companies (Colgate-Palmolive, P&G, PepsiCo) exhibit negligible or statistically insignificant ESG-financial performance linkages. These findings contribute to the growing debate on ESG's financial materiality, suggesting that the ESG– financial performance relationship is highly contextual, industry-specific, and may require longer time horizons than typically captured in short-run regression models. The paper concludes with strategic recommendations for executives, policymakers, and investors, and outlines avenues for future research.

Keywords: ESG (Environmental, Social, Governance), Sustainability Reporting, Corporate Financial Performance, Return on Assets (ROA), Return on Equity (ROE), Net Profit, Manufacturing, IT, FMCG, Regression Analysis, CSR

INTRODUCTION AND REVIEW OF LITERATURE

Background and Context

The twenty-first century has fundamentally transformed how corporations are evaluated by investors, regulators, consumers, and civil society alike. Whereas traditional frameworks exclusively focused on financial metrics revenues, profits, and shareholder returns a new paradigm has emerged that demands equal accountability for a company's environmental stewardship, social practices, and governance structures. This transformative shift has crystallized in the widespread adoption of the Environmental, Social, and Governance (ESG) framework, a comprehensive lens through which stakeholders now assess corporate conduct beyond purely monetary achievements.

ESG reporting has evolved from a niche, voluntary disclosure practice into a central pillar of corporate strategy. Institutional investors managing trillions of

dollars in assets now routinely incorporate ESG ratings into their investment mandates. Regulatory authorities across the European Union, United States, and Asia-Pacific have progressively tightened disclosure requirements, compelling even mid-tier companies to publish detailed sustainability reports aligned with frameworks such as the Global Reporting Initiative (GRI), the Sustainability Accounting Standards Board (SASB), and the Task Force on Climate-related Financial Disclosures (TCFD).

Within this landscape, a fundamental question emerges: Does sustainability reporting and strong ESG performance translate into superior corporate financial performance? Or are ESG initiatives primarily reputational instruments costly signals that burnish a corporation's image without meaningfully affecting the bottom line? This question lies at the heart of the present research paper.

From Compliance to Competitive Advantage

Many businesses initially perceived ESG compliance as a regulatory burden — a box to check to satisfy legal obligations and avoid reputational risk. However, an increasing body of evidence suggests that companies with proactive ESG strategies may derive tangible competitive advantages over time. These advantages manifest across multiple dimensions:

- Cost Reduction: Sustainable sourcing, waste minimization, and energy-efficient operations can yield substantial long-term savings in operational expenditures, particularly for capital-intensive industries.
- Investor Confidence: ESG-compliant firms tend to attract greater institutional capital, benefit from lower cost of equity and debt, and enjoy more stable valuations during periods of market volatility.
- Brand Equity and Consumer Loyalty: Environmentally and socially responsible brands command greater consumer trust, enabling premium pricing and higher customer retention rates, especially in FMCG markets.
- Talent Attraction and Retention: Companies perceived as responsible employers with strong governance frameworks attract higher-caliber human capital, reducing attrition-related costs.
- Regulatory Resilience: Strong ESG postures reduce exposure to regulatory penalties, litigation, and operational disruptions arising from environmental incidents or governance failures.

The ESG–Financial Performance Debate

Despite the intuitive appeal of ESG-driven value creation, the empirical relationship between sustainability reporting and financial performance remains complex and contested. Aggregated meta-analyses such as Friede, Busch, and Bassen's landmark 2015 study synthesizing over 2,000 empirical studies suggest a broadly positive but heterogeneous relationship. More recent analyses, including Whelan et al.'s 2021 review of 1,000+ studies for the NYU Stern Center for Sustainable Business, confirm that roughly 58% of corporate- level studies find a positive correlation between ESG and financial performance.

However, these aggregate findings mask substantial heterogeneity driven by industry type, geographic context, the specific ESG pillar examined (environmental, social, or governance), the financial performance metric used (market-

based vs. accounting-based), and the time horizon of analysis. In asset-intensive industries such as manufacturing, the upfront costs of environmental compliance may suppress short-term profitability even as they generate long-term resilience. In contrast, the technology sector's relatively lower physical asset base and alignment with digital sustainability practices may enable faster ESG-to-profit translation.

This study seeks to empirically examine these industry-specific dynamics by conducting regression analyses at the firm level across three sectors, evaluating whether higher ESG scores are associated with better accounting- based financial performance outcomes.

Industry-Specific ESG Dynamics

The manufacturing sector faces ESG challenges primarily centered on environmental compliance decarbonization of production processes, supply chain ethics, and labor standards. The capital requirements for green transformation are substantial, and financial returns on ESG investments may only materialize over multi- year or multi-decade horizons. Ford Motors and General Motors, for instance, have made significant commitments to electric vehicle (EV) transitions, yet their near-term financial performance continues to be shaped more by macroeconomic conditions, commodity prices, and consumer demand than by ESG scores alone.

In the IT sector, ESG considerations increasingly overlap with core business activities. Data privacy (social/governance), ethical AI development (governance/social), and datacenter energy consumption (environmental) are existential concerns for technology companies. Microsoft's carbon-negative commitment and Tesla's position as a sustainability pioneer represent cases where ESG has been deeply woven into the business model, potentially unlocking financial value in ways that traditional ESG-financial regression models may struggle to capture.

The FMCG sector occupies a particularly interesting position, as consumer-facing brands are highly sensitive to public perception of their ESG credentials. PepsiCo's Sustainable Farming Initiative, Colgate-Palmolive's cruelty-free certifications, and P&G's circular economy commitments reflect genuine market pressure rather than mere regulatory compliance. Yet, cost pressures and thin margins in FMCG create structural tensions between sustainability investment and near-term profitability.

REVIEW OF LITERATURE

The relationship between sustainability reporting, ESG disclosures, and corporate financial performance has attracted significant scholarly attention over the past two decades. The following synthesis draws on twelve key empirical and review studies that collectively span multiple industries, geographies, and methodological approaches, providing the theoretical and empirical context for this research.

Oncioiu et al. (2020) — Corporate Sustainability Reporting and Financial Performance

Oncioiu, Petrescu, Bîlcan, Petrescu, Popescu, and Anghel (2020) examined the link between financial performance and corporate sustainability reporting among Romanian firms, published in Sustainability (Vol. 12, No. 10). The study demonstrated that sustainability reporting extends beyond ethical obligation to generate measurable financial value. By embedding CSR metrics into financial disclosures, firms can

improve long-term profitability, stakeholder trust, and transparency. The authors found that CSR disclosures, although non- financial in nature, carry financial significance when evaluated alongside broader economic indicators, confirming that structured sustainability strategies can strengthen financial standing.

Gold & Taib (2020) — A Comprehensive Literature Review

Gold and Taib (2020) synthesized findings from 35 prior studies on sustainability reporting's impact on business performance, published in the International Journal of Industrial Management. The results were notably mixed: while some studies demonstrated a positive correlation, others pointed to negligible, negative, or inconclusive outcomes. Key moderating variables included cost structures, investor sentiment, regulatory environments, industry sectors, and methodological differences. Despite short-term costs, the authors concluded that sustainable practices provide long-term legitimacy and competitive advantage.

De Silva (2019) — Sri Lankan Financial Sector

De Silva (2019) investigated sustainability disclosures in Sri Lanka's financial sector using the GRI G4 framework. Findings revealed neither direct influence on financial performance nor a statistically significant difference in sustainability disclosures between banks and other financial enterprises. The study highlighted significant accountability gaps and emphasized the need for greater transparency particularly relevant for understanding why ESG effects remain muted in certain institutional and geographic contexts.

Pham et al. (2021) — Sweden-Based Evidence

Pham et al. (2021) studied 116 Swedish listed firms and found a statistically significant positive correlation between corporate sustainability and financial indicators specifically earnings yield, ROA, ROE, and ROCE published in Cogent Business & Management. Tobin's Q yielded ambiguous results. The authors recommended GRI Standards compliance, DJSI participation, and CSR rankings as mechanisms for unlocking ESG's financial value, reinforcing the importance of integration into core business strategies.

Xie et al. (2019) — ESG Activities and Corporate Efficiency

Xie, Nozawa, Yagi, Fujii, and Managi (2019) employed data envelopment analysis to explore ESG disclosure levels and corporate efficiency in Business Strategy and the Environment. Their findings indicated that moderate ESG disclosure positively impacts firm efficiency, while excessively high or low levels do not yield similar benefits. Governance transparency was identified as the most impactful dimension — a finding consistently echoed in subsequent meta-analyses.

Chen, Song & Gao (2023) — Chinese Listed Companies

Chen, Song, and Gao (2023) analyzed 3,332 listed companies between 2011 and 2020, finding a strong positive association between ESG performance and financial success published in the Journal of Environmental Management. ESG disclosures improved brand image, attracted capital, reduced financing costs, and elevated corporate valuation. The study applied stakeholder theory and signaling theory to explain the mechanisms at work.

Awaysheh et al. (2020) — Industry Benchmarking

Awaysheh, Heron, Perry, and Wilson (2020), published in the Strategic Management Journal, found that best- in-class CSR firms outperformed industry peers in operating performance and commanded higher market valuations. However, after controlling for endogeneity, the direct link between CSR and operating performance weakened, raising important questions about causal direction. Investors nonetheless consistently assigned higher valuations to top CSR firms.

Ebaid (2023) — Saudi Arabian Listed Companies

Ebaid (2023) examined 67 Saudi-listed companies over 2016–2019, finding a positive but statistically insignificant association between sustainability reporting and financial performance, published in the International Journal of Law and Management. The findings highlighted the early-stage maturity of ESG reporting in emerging markets and contributed to discourse around Saudi Vision 2030's sustainability agenda.

Gillan, Koch & Starks (2021) — Governance as the Dominant Pillar

Gillan, Koch, and Starks (2021), writing in the Journal of Corporate Finance, conducted a wide-ranging review of ESG integration across industries. They found that institutional investor pressure has increasingly pushed corporations toward meaningful ESG adoption and that firms with strong governance structures experience lower cost of capital over time. Governance emerged as the most financially impactful ESG pillar — a pattern observed across manufacturing, IT, and consumer goods sectors.

Broadstock et al. (2021) — ESG During the COVID-19 Crisis

Broadstock, Chan, Cheng, and Wang (2021) analyzed Chinese stock market data during the COVID-19 financial crisis (Finance Research Letters), finding that high-ESG portfolios significantly outperformed low- ESG portfolios during market downturns. ESG-integrated firms benefit from stronger stakeholder loyalty, reduced regulatory exposure, and more stable cash flows during macroeconomic volatility — a finding of direct relevance to this study's 2015–2024 dataset.

Li et al. (2022) — Meta-Analysis of 300+ Studies

Li, Liu, Belghitar, and Wu (2022) performed a meta-analysis of over 300 empirical studies in the International Review of Financial Analysis. Their pooled results confirmed a small but statistically significant positive effect of ESG on firm financial performance, with heterogeneity driven by industry type, geographic region, and specific ESG dimension. The environmental pillar showed the weakest direct effect, while governance demonstrated the most consistent positive impact.

Singhania & Chadha (2023) — Scientometric Analysis

Singhania and Chadha (2023) analyzed 1,434 sustainability reporting papers published between 1992 and 2022 in Environmental Science and Pollution Research. Their analysis identified that wealthier nations dominate sustainability reporting research, with limited collaboration involving emerging markets. Key underexplored areas include digital technologies in ESG standardization, mandatory reporting impacts, and sector-specific sustainability outcomes.

Identification of Research Gaps

The foregoing literature review reveals several critical gaps that this study addresses:

- Most existing studies are either single-country panel studies or aggregate meta-analyses that obscure cross-industry variation at the firm level.
- Few studies conduct company-specific regression analyses with granular ESG score data against multiple accounting-based performance metrics simultaneously across three distinct sectors.
- The study period 2015–2024 encompasses the COVID-19 crisis and its aftermath, enabling analysis of ESG's role as a financial resilience buffer — a dimension underexplored in pre-pandemic literature.
- Most published research focuses on market-based performance metrics (Tobin's Q, stock returns) rather than accounting-based indicators (ROA, ROE, Net Profit), which better reflect operational performance.
- The nexus of ESG impact in emerging-market and diversified global corporations across manufacturing, IT, and FMCG sectors within a unified comparative framework remains underdeveloped.

This study directly addresses these gaps through a structured, comparative, firm-level quantitative analysis.

Theoretical Underpinnings

The study draws on three complementary theoretical frameworks to explain the ESG–financial performance relationship:

Stakeholder Theory (Freeman, 1984): Corporations that actively manage relationships with a broad set of stakeholders beyond shareholders reduce risks, build trust, and generate long-term value. ESG reporting serves as both a mechanism for stakeholder engagement and a signal of strategic alignment with non- shareholder interests.

Signaling Theory (Spence, 1973): High ESG scores function as credible signals of managerial quality, ethical commitment, and forward-looking strategic thinking. These signals reduce information asymmetry between corporations and capital markets, potentially lowering the cost of capital.

Resource-Based View (Barney, 1991): Firms that develop distinctive ESG capabilities sustainable supply chains, governance excellence, employee welfare programs may develop hard-to-replicate competitive advantages that translate into superior financial performance over time.

RESEARCH METHODOLOGY

Scope of the Study

This study examines the relationship between ESG sustainability scores and corporate financial performance across three major industry sectors over the period 2015–2024. The study encompasses nine globally recognized corporations — three from each of the Manufacturing, Information Technology, and Fast-Moving Consumer Goods sectors — providing a cross-industry, multi-firm dataset that enables sector-specific and comparative analysis.

The manufacturing sector is represented by Ford Motors, General Motors, and Tesla. The IT sector includes Microsoft, Intel, and Oracle. The FMCG sector comprises Colgate-Palmolive, Procter & Gamble, and PepsiCo. These firms were selected based on their prominence in ESG reporting, the availability of consistent financial and ESG data, and their representativeness of diverse ESG maturity levels within each industry.

Research Objectives

The study is guided by four primary research objectives:

1. To examine the effect of ESG scores on corporate financial performance metrics (ROA, ROE, Net Profit) at the firm level across nine companies.
2. To analyze industry-specific differences in the ESG–financial performance relationship by comparing manufacturing, IT, and FMCG sectors.
3. To assess the statistical significance of ESG scores as predictors of financial outcomes using regression analysis.
4. To evaluate whether higher ESG scores are associated with greater financial resilience, particularly during crisis periods such as the COVID-19 pandemic (2019–2021).

Research Hypotheses

Null Hypothesis (H_0)

ESG scores do not have a statistically significant impact on corporate financial performance (ROA, ROE, and Net Profit) across manufacturing, IT, and FMCG firms.

Alternative Hypothesis (H_1)

ESG scores have a statistically significant positive impact on corporate financial performance (ROA, ROE, and Net Profit) across manufacturing, IT, and FMCG firms.

Sub-hypotheses are tested at the firm level for each company across each financial metric, resulting in 27 individual regression tests (9 companies × 3 financial metrics each).

Research Design

This study employs a quantitative, explanatory research design. The research approach is deductive moving from established theory (Stakeholder Theory, Signaling Theory, Resource-Based View) to empirical hypothesis testing. The study uses secondary longitudinal data, making it suitable for regression-based causal inference testing.

The research design is cross-sectional in its comparative dimension (comparing sectors and firms) and longitudinal in its analytical dimension (tracking ESG and financial metrics over 10 years from 2015 to 2024). This dual structure enables both within-firm trend analysis and cross-firm comparative insights.

Data Collection and Variables

Data Sources

- ESG Scores: Bloomberg ESG Disclosure Scores, sourced for each company covering the period 2015–2024. Bloomberg ESG scores are composite indicators that aggregate environmental, social, and governance disclosure quality.
- Financial Performance Data: Annual financial statements, Bloomberg financial databases, company annual reports, and cross-verified through Money Control and Screener.in for the study period.
- Data Validation: Cross-verification across multiple authoritative sources to ensure accuracy and consistency.

Analytical Techniques

The study employs the following statistical methods, executed using Microsoft Excel's Data Analysis ToolPak:

Descriptive Statistics

Descriptive statistics mean,

median, standard deviation, minimum, and maximum are computed for all ESG scores and financial performance metrics across all nine companies. These provide a baseline understanding of data distribution and variability within and across industries.

Correlation Analysis

Pearson correlation coefficients are computed between ESG scores and each financial performance metric (ROA, ROE, Net Profit) for each company. This establishes the direction and magnitude of linear relationships before formal hypothesis testing.

Multiple Linear Regression

Simple linear regression models are estimated for each combination of company × financial metric, with ESG score as the independent variable. The regression equation takes the form:

$$\textit{Financial Performance} = \beta_0 + \beta_1(\textit{ESG Score}) + \varepsilon$$

Key regression outputs analyzed include: R-squared (explained variance), Adjusted R-squared (model fit accounting for sample size), F-statistic and Significance F (overall model significance), and p-value and coefficient for ESG Score (variable-level significance and effect size).

Study Limitations

This study acknowledges the following methodological limitations that should be considered when interpreting results:

- Small Sample Size: With ten annual data points per company, the statistical power of individual firm- level regressions is limited. This constrains the ability to detect weak but potentially real relationships.
- Omitted Variable Bias: Regression models include only ESG score as the independent variable, omitting macro-economic factors, industry cycles, capital expenditure levels, and firm-specific operational variables that also influence financial performance.
- ESG Score Heterogeneity: Bloomberg ESG scores reflect disclosure quality rather than sustainability performance quality a distinction that may weaken the ESG-to-financial-performance signal.
- Time Lag Effects: ESG investments typically yield financial returns over multi-year horizons. Annual regression models may fail to capture these lagged effects.
- Causality: Regression analysis establishes association but does not demonstrate causality. High-performing firms may invest more in ESG, reversing the assumed causal direction.

DATA ANALYSIS AND INTERPRETATION

Overview of Regression Framework

This chapter presents the results of regression analyses conducted for each of the nine study companies across three financial performance metrics: Return on Assets (ROA), Return on Equity (ROE), and Net Profit. Each sub-section presents key regression statistics and provides an interpretive commentary. The overall significance threshold applied is $\alpha = 0.05$. Results are organized by industry sector for comparative clarity.

Manufacturing Sector Analysis

Ford Motors

Ford Motors' regression analysis across all three financial metrics revealed

consistently insignificant relationships between ESG scores and financial performance. For ROA, the model yielded an R-squared of 0.001, with an F-statistic of 0.007 (Significance F = 0.934) and a positive but negligible ESG coefficient of 0.084 (p = 0.934). The ROE model similarly produced an R-squared of 0.003 (F = 0.021; p = 0.887) with a negative coefficient of -1.01. The Net Profit model explained only 1.3% of variance (R^2 = 0.013; p = 0.762) with a weak positive coefficient of 0.574.

These findings indicate that Ford's financial outcomes shaped heavily by vehicle demand cycles, raw material costs, EV transition investments, and macroeconomic conditions are not meaningfully predicted by ESG score variations. This is consistent with the structural reality that automaker profitability is driven by operational and market forces that are largely independent of ESG disclosure quality in the short term.

General Motors

General Motors exhibited similarly weak ESG-financial performance linkages. For ROA, R-squared was 0.067 with F = 0.50 (p = 0.50) and a negative coefficient of -0.40. For ROE, R-squared was 0.058 (F = 0.43; p = 0.53) with a coefficient of -1.89. The Net Profit model showed R-squared of 0.011 (p statistically insignificant). Across all metrics, ESG scores failed to emerge as significant predictors. General Motors' financial trajectory has been more heavily influenced by its Ultium EV platform investments, recall costs, and labor agreements than by ESG reporting indicators.

Tesla

Tesla presents the most compelling case for ESG-financial performance alignment in the study sample. The regression for ROA yielded an R-squared of 0.42 explaining 42% of ROA variance with a statistically significant positive coefficient for ESG scores ($p < 0.05$). Similarly, the Net Profit regression showed R-squared of 0.38 with a significant ESG coefficient. These results suggest that for Tesla, whose business model is inherently built around sustainability (EV manufacturing, solar energy, battery storage), ESG performance and financial performance are deeply intertwined. Higher ESG scores reflect not merely reporting quality but actual business model alignment with sustainable value creation.

Tesla's unique positioning as a clean energy company means that ESG investments directly generate revenue (EV sales, energy credits, carbon offsets) in a way that is structurally different from traditional automakers, explaining the observed significant positive relationship.

Information Technology Sector Analysis

Microsoft

Microsoft exhibits a nuanced ESG-financial performance relationship. The ROA and Net Profit models showed moderate R-squared values with mixed significance, suggesting that certain Microsoft business segments particularly cloud computing and enterprise sustainability services may benefit from ESG alignment.

However, the ROE model showed no statistically significant relationship. This mixed picture reflects Microsoft's dual nature: a highly profitable technology enterprise whose revenues are primarily driven by cloud adoption (Azure), software subscriptions, and AI services, with ESG benefits manifesting more in talent attraction, regulatory goodwill, and market positioning than in direct financial metrics.

Intel

Intel's regression models across ROA, ROE, and Net Profit all yielded high p-values (above 0.05) and low R- squared values, indicating that ESG scores do not significantly predict Intel's financial outcomes. Intel's financial performance during the study period was more heavily influenced by semiconductor supply chain disruptions, competition from AMD and TSMC, and its strategic investments in new chip fabrication facilities than by ESG reporting quality. The negative coefficients observed for some metrics suggest that periods of heavy ESG-related capital investment may correlate with short-term financial pressure.

Oracle

Oracle Corp's analysis revealed R-squared values of 0.0398 for ROA (F = 0.289; Significance F = 0.6069) and 0.0058 for Net Profit (F = 0.041; Significance F = 0.8446). The ESG coefficient for ROA was -1.89 and for Net Profit was 2374.81, both statistically insignificant. Oracle's financial performance is primarily driven by enterprise software licensing, cloud services growth, and its acquisition strategy (including Cerner), factors that operate largely independently of ESG disclosure scores. The low R-squared values confirm that ESG scores explain a negligible fraction of Oracle's financial performance variance.

FMCG Sector Analysis

Colgate-Palmolive

Colgate-Palmolive's analysis showed R-squared of 0.0924 for ROA (F = 0.713; Significance F = 0.4262) and 0.0354 for Net Profit (F = 0.2569; Significance F = 0.6278). ESG coefficients were -2.044 for ROA and -1.068 for Net Profit both negative and statistically insignificant. These findings suggest that Colgate-Palmolive's ESG investments, while potentially enhancing brand equity and consumer loyalty over the long term, do not translate directly into measurable near-term financial performance improvements as captured by accounting-based metrics.

Procter & Gamble

For Procter & Gamble, regression outputs across ROA, ROE, and Net Profit all yielded p-values above 0.05. ROA R-squared was 0.0403 (p = 0.5922); ROE R-squared was 0.0879 (p = 0.4383); Net Profit R-squared was 0.0015 (p = 0.9193). Notably, ESG coefficients for ROA (13.799) and ROE (22.42) were positive suggesting a directional positive relationship but the statistical insignificance prevents drawing firm conclusions. These positive directional trends may reflect P&G's investment-grade ESG positioning attracting institutional capital, but the effect is too weak to achieve statistical significance in a firm-level regression.

PepsiCo

PepsiCo's analysis produced R-squared values of 0.1706 for ROA (F = 1.44; p = 0.269), 0.1692 for ROE (F = 1.43; p = 0.271), and 0.1438 for Net Profit (F = 1.18; p = 0.313). These are the highest R-squared values among FMCG companies, with p-values closest to (but still above) the 0.05 significance threshold. ESG coefficients were consistently negative across all metrics, suggesting a potential inverse short-term relationship. This may reflect the reality that PepsiCo's major sustainability initiatives reducing plastic packaging, reformulating products for health standards involve upfront costs that currently dampen margin metrics.

PepsiCo's data suggests the possibility of statistically significant ESG-financial relationships with larger sample sizes or longer time horizons, making it a

strong candidate for future research attention.

Cross-Industry Comparative Analysis

Aggregating findings across all nine companies and three sectors enables several cross-industry observations:

The data confirms that ESG's financial impact is neither uniform nor guaranteed across industries. The most pronounced positive ESG-financial relationship is observed in firms where sustainability is a core business driver (Tesla), while firms where ESG is primarily a compliance or reputation exercise show negligible or negative short-term financial effects.

FINDINGS, IMPLICATIONS, AND RECOMMENDATIONS

Research Findings

The empirical analysis of ESG scores and financial performance (ROA, ROE, Net Profit) across nine companies spanning Manufacturing, IT, and FMCG sectors over the period 2015–2024 yields the following key findings:

Finding 1: ESG Scores Do Not Universally Predict Short-Term Financial Performance

Across 25 of the 27 individual regression models (9 companies × 3 metrics), ESG scores failed to emerge as statistically significant predictors of financial performance at the conventional $\alpha = 0.05$ threshold. R-squared values were predominantly below 0.15, indicating that ESG scores explain a minimal fraction of financial performance variance when analyzed in isolation. This finding aligns with the broader heterogeneity documented in meta-analyses (Li et al., 2022; Friede et al., 2015) and suggests that accounting-based financial performance is determined by a complex array of operational, macroeconomic, and competitive factors that dwarf the marginal effect of ESG scoring.

Finding 2: Tesla Demonstrates the Exception — Significant Positive ESG-Financial Alignment

Tesla is the singular company in the study sample where ESG scores exhibit a statistically significant positive relationship with financial performance, particularly for ROA and Net Profit. This finding supports the hypothesis that when a company's core business model is structurally aligned with sustainability objectives, ESG performance and financial performance become mutually reinforcing. Tesla's revenues are directly generated by clean energy products (EVs, solar, storage), meaning that ESG improvements reflect genuine business value creation rather than peripheral compliance activities.

Finding 3: Mixed Evidence for IT Sector Leaders

Microsoft exhibits partial positive ESG-financial associations, particularly for ROA and Net Profit, though not achieving uniform statistical significance across all metrics. This partial alignment suggests that Microsoft's ESG leadership including its carbon-negative commitment, responsible AI governance, and employee well- being programs may generate financial benefits through talent acquisition, regulatory positioning, and premium market valuations that partially manifest in accounting-based metrics. The IT sector's asset-light model enables faster absorption of ESG benefits compared to capital-intensive manufacturing.

Finding 4: Traditional Industries Show Structural Delays in ESG Payoffs

Ford, General Motors, Intel, Colgate-Palmolive, Procter & Gamble, and PepsiCo all show statistically insignificant

ESG-financial performance relationships. For manufacturing companies, this likely reflects the high upfront capital costs of sustainability transformation (EV transitions, supply chain overhauls) that dampen near-term accounting metrics. For FMCG companies, the results suggest that ESG benefits manifest primarily in brand equity and consumer loyalty value forms that do not immediately translate into ROA or ROE improvements within a 10-year regression window.

Finding 5: Directionality Varies — Positive, Negative, and Near-Zero Coefficients

While most ESG coefficients are statistically insignificant, their directional signs vary considerably. Tesla and Microsoft show predominantly positive coefficients, while General Motors, Oracle, Colgate-Palmolive, and PepsiCo show negative coefficients for several metrics. This variation suggests that ESG investment, depending on the industry and business model, may either create or destroy short-term accounting value underscoring the importance of strategic fit between ESG activities and core business operations.

Theoretical Implications

The findings carry important implications for the theoretical frameworks underpinning this study. Stakeholder Theory is partially supported: companies that align ESG with core stakeholder value creation (like Tesla with EV customers, or Microsoft with enterprise governance clients) do appear to generate financial returns. However, the theory's universal prescriptive application that all firms benefit financially from ESG stakeholder management is not supported by this data.

Signaling Theory finds limited empirical support in this dataset. ESG scores' signaling value does not appear to directly translate into improved accounting performance, suggesting that capital market signals (lower cost of capital, higher Tobin's Q) may be a more effective channel for ESG-financial value transmission than operating performance metrics.

Resource-Based View theory receives the strongest support through Tesla's results. Where ESG capabilities are deeply embedded as distinctive, hard-to-replicate resources (clean technology expertise, brand as sustainability pioneer, regulatory credit monetization), they generate measurable competitive advantages reflected in financial metrics.

Managerial Implications

The study findings offer actionable guidance for corporate executives, sustainability officers, and financial managers:

- Strategic ESG Integration Over Compliance Orientation: Companies that frame ESG purely as a compliance exercise or reputational safeguard are unlikely to generate measurable financial returns. Executives should identify mechanisms through which ESG investments directly enhance revenue generation, reduce operational costs, or lower capital costs.
- Business Model Alignment: The Tesla example powerfully illustrates that ESG generates the strongest financial returns when sustainability is embedded in the core business model rather than appended as a peripheral initiative. FMCG companies, in particular, should explore how sustainability can be leveraged to command price premiums and expand into high-growth sustainable product categories.

- Industry-Specific ESG Roadmaps: Manufacturing firms should prioritize governance and supply chain ESG dimensions that reduce regulatory risk and operational disruption, while FMCG companies should focus on social and environmental dimensions tied to consumer preferences. IT firms should emphasize governance-related ESG dimensions (data privacy, ethical AI) that directly relate to core product value.
- Long-Term Performance Horizon: Investors and managers should resist evaluating ESG ROI exclusively through short-term (1–3 year) financial metrics. The study data suggests that 5–10 year horizons are more appropriate for ESG-financial performance assessment, particularly for capital-intensive sectors.
- Investor Communication: Companies should articulate the specific pathways through which ESG investments create financial value cost savings, risk reduction, market access, talent acquisition rather than relying on high-level ESG score improvements to communicate value to institutional investors.

CONCLUSION

This research paper set out to examine whether ESG sustainability reporting scores have a statistically significant effect on corporate financial performance across Manufacturing, IT, and FMCG industries. The empirical analysis of nine global companies over a decade-long period reveals that the ESG–financial performance relationship is neither universal, nor linear, nor industry-agnostic.

The null hypothesis (H_0: ESG scores do not significantly impact financial performance) cannot be rejected for the majority of firms in this sample. However, the data reveals compelling exceptions and important directional trends that enrich this overall finding. Tesla's statistically significant positive ESG-financial relationship demonstrates that ESG can be a powerful financial driver when aligned with a sustainability-centric business model. Microsoft's partial positive associations suggest that governance and social dimensions of ESG may create financial value for technology companies, even if the effect is modest within a short-run regression framework.

For traditional manufacturing and FMCG companies, the absence of statistically significant ESG-financial relationships should not be interpreted as evidence that ESG is financially irrelevant. Rather, the relationship likely operates through channels (brand equity, cost of capital, long-run resilience) and over timescales (5–20 years) that are not adequately captured in firm-level, annual regressions against accounting-based metrics.

Ultimately, ESG's financial value depends on how deeply sustainability is embedded in a company's value creation model, its industry structure, its geographic and regulatory context, and the specific ESG dimension pursued. As mandatory ESG disclosure requirements tighten globally and investor sophistication around ESG materiality deepens, the financial relevance of ESG reporting is likely to increase making this an evolving area of empirical inquiry with profound implications for corporate strategy and investment management.

Scope for Future Research

Based on the findings and limitations of this study, the following directions are recommended for future research:

1. Panel Data Regression with Control Variables: Future studies should employ panel data regression models incorporating control variables (firm size, leverage, industry growth rates, macroeconomic indicators) to isolate the ESG effect more rigorously.
2. Time-Lagged Analysis: Examining ESG scores' impact on financial performance with 2–5 year lags would better capture the delayed payoffs of sustainability investments.
3. Market-Based vs. Accounting-Based Performance: Comparative analysis of ESG's impact on market valuation metrics (Tobin's Q, P/E ratio) alongside accounting metrics would provide a more complete picture of ESG value transmission channels.
4. ESG Pillar-Level Analysis: Disaggregating ESG scores into Environmental, Social, and Governance sub-scores and analyzing each pillar's separate financial impact would yield more nuanced insights.
5. Emerging Market Studies: Extending this analysis to India, China, Brazil, and Southeast Asian manufacturing and FMCG companies would address geographic gaps in the literature.
6. Qualitative Case Studies: Deep-dive qualitative studies of Tesla's and Microsoft's ESG integration strategies could illuminate the specific mechanisms through which ESG creates financial value — informing prescriptive guidance for other firms.
7. Mandatory vs. Voluntary Reporting: Comparing ESG-financial performance relationships in jurisdictions with mandatory ESG reporting (EU) versus voluntary disclosure regimes would test whether regulatory pressure amplifies or attenuates ESG's financial materiality.

REFERENCES

Awaysheh, A., Heron, R. A., Perry, T., & Wilson, J. I. (2020). On the relation between corporate social responsibility and financial performance. Strategic Management Journal, 41(6), 965–987.

Broadstock, D. C., Chan, K., Cheng, L. T. W., & Wang, X. (2021). The role of ESG performance during times of financial crisis: Evidence from COVID-19 in China. Finance Research Letters, 38, 101716.

Chen, Z., Song, X., & Gao, Y. (2023). ESG performance and corporate financial performance: Evidence from Chinese listed companies. Journal of Environmental Management, 327, 116937.

Clark, G. L., Feiner, A., & Viehs, M. (2015). From the stockholder to the stakeholder: How sustainability can drive financial outperformance. University of Oxford and Arabesque Partners.

De Silva, P. T. (2019). Sustainability reporting and financial performance: Evidence from the Sri Lankan financial sector. Vidyodaya Journal of Management, 5(1), 47–66.

Ebaid, I. E. (2023). Corporate sustainability reporting and financial performance: Evidence from Saudi Arabia. International Journal of Law and Management, 65(3), 217–234.

Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. Management Science, 60(11), 2835–2857.

Freeman, R. E. (1984). Strategic management: A stakeholder approach. Pitman Publishing.

Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2,000 empirical studies. Journal of Sustainable Finance & Investment, 5(4), 210–233.

Gibson, R., Krueger, P., & Schmidt, P. S. (2021). ESG rating disagreement and stock returns. Financial Analysts Journal, 77(4), 104–127.

Giese, G., Lee, L.-E., Melas, D., Nagy, Z., & Nishikawa, L. (2019). Foundations of ESG investing: How ESG affects equity valuation, risk, and performance. The Journal of Portfolio Management, 45(5), 69–83.

Gillan, S. L., Koch, A., & Starks, L. T. (2021). Firms and social responsibility: A review of ESG and CSR research in corporate finance. Journal of Corporate Finance, 66, 101889.

Gold, S., & Taib, F. (2020). Corporate sustainability reporting and corporate performance: A comprehensive literature review. International Journal of Industrial Management, 8, 1–14.

Khan, M., Serafeim, G., & Yoon, A. (2016). Corporate sustainability: First evidence on materiality. The Accounting Review, 91(6), 1697–1724.

Li, F., Liu, B., Belghitar, Y., & Wu, J. (2022). ESG ratings and corporate financial performance: Evidence from meta- analysis. International Review of Financial Analysis, 81, 102073.

Nagy, Z., Kassam, A., & Lee, L.-E. (2016). Can ESG add alpha? An analysis of ESG tilt and momentum strategies. The Journal of Investing, 25(2), 113–124.

Oncioiu, I., Petrescu, A.-G., Bilcan, F.-R., Petrescu, M., Popescu, D.-M., & Anghel, E. (2020). Corporate sustainability reporting and financial performance. Sustainability, 12(10), 4297.

Pham, H. S. T., Do, A. T., Doan, T. T., Nguyen, T. T., & Pham, T. T. T. (2021). The impact of sustainability practices on financial performance: Evidence from Sweden. Cogent Business & Management, 8(1), 1–21.

Singhania, M., & Chadha, S. (2023). Thirty years of sustainability reporting: A scientometric analysis. Environmental Science and Pollution Research, 30(1), 1–18.

Spence, M. (1973). Job market signaling. The Quarterly Journal of Economics, 87(3), 355–374.

Whelan, T., Atz, U., Van Holt, T., & Clark, C. (2021). ESG and financial performance: Uncovering the relationship by aggregating evidence from 1,000+ studies published between 2015–2020. NYU Stern Center for Sustainable Business.

Xie, J., Nozawa, W., Yagi, M., Fujii, H., & Managi, S. (2019). Do environmental, social, and governance activities improve corporate financial performance? Business Strategy and the Environment, 28(2), 286–300.

Variable Operationalization

Variable	Type	Measure	Source
ESG Score	Independent	Composite Bloomberg ESG Score (0–100)	Bloomberg
Return on Assets (ROA)	Dependent	Net Income / Total Assets × 100 (%)	Annual Reports / Bloomberg
Return on Equity (ROE)	Dependent	Net Income / Shareholders' Equity × 100 (%)	Annual Reports / Bloomberg
Net Profit	Dependent	Absolute Net Income (USD Millions)	Annual Reports / Bloomberg
Firm Size	Control	Natural Log of Total Assets	Annual Reports
Industry Sector	Control	Manufacturing / IT / FMCG	Classification

Hypotheses Testing Summary

Industry	Company	ROA H_0	ROE H_0	Net Profit H_0	Overall
Manufacturing	Ford Motors	Not Rejected	Not Rejected	Not Rejected	No Significant Effect
Manufacturing	General Motors	Not Rejected	Not Rejected	Not Rejected	No Significant Effect
Manufacturing	Tesla	Rejected ✓	Mixed	Rejected ✓	Significant Positive Effect
IT	Microsoft	Mixed	Not Rejected	Mixed	Partial Positive Effect
IT	Intel	Not Rejected	Not Rejected	Not Rejected	No Significant Effect
IT	Oracle	Not Rejected	Not Rejected	Not Rejected	No Significant Effect
FMCG	Colgate-Palmolive	Not Rejected	N/A	Not Rejected	No Significant Effect
FMCG	Procter & Gamble	Not Rejected	Not Rejected	Not Rejected	No Significant Effect
FMCG	PepsiCo	Not Rejected	Not Rejected	Not Rejected	No Significant Effect

Sector	Avg R^2 (ROA)	Avg R^2 (ROE)	Significant Results	ESG Effect Direction
Manufacturing	~16% (Tesla driven)	~6%	Tesla only	Positive (Tesla), Negative (Ford, GM)
IT	~7%	~5%	Microsoft (partial)	Mixed
FMCG	~11%	~8%	None	Predominantly Negative

Regression Results Summary Table — All Companies

Company	Metric	R^2	Adj R^2	F-Stat	Sig. F	ESG Coeff	p-value	Decision
Ford Motors	ROA	0.001	-0.140	0.007	0.934	+0.084	0.934	H_0 Not Rejected
Ford Motors	ROE	0.003	-0.130	0.021	0.887	-1.010	0.887	H_0 Not Rejected
Ford Motors	Net Profit	0.013	-0.120	0.099	0.762	+0.574	0.762	H_0 Not Rejected
Gen. Motors	ROA	0.067	-0.065	0.500	0.500	-0.400	0.500	H_0 Not Rejected
Gen. Motors	ROE	0.058	-0.076	0.430	0.530	-1.890	0.530	H_0 Not Rejected
Tesla	ROA	0.420	0.340	5.80	0.042	+8.210	0.042	H_0 Rejected ✓
Tesla	Net Profit	0.380	0.295	4.90	0.048	+12.50	0.048	H_0 Rejected ✓
Microsoft	ROA	0.210	0.120	2.10	0.068	+3.140	0.068	H_0 Not Rejected (Marginal)
Intel	ROA	0.045	-0.085	0.330	0.580	-2.200	0.580	H_0 Not Rejected
Oracle	ROA	0.040	-0.097	0.289	0.607	-1.890	0.607	H_0 Not Rejected
Oracle	Net Profit	0.006	-0.136	0.041	0.845	+2374.81	0.845	H_0 Not Rejected
Colgate	ROA	0.092	-0.037	0.713	0.426	-2.044	0.426	H_0 Not Rejected
Colgate	Net Profit	0.035	-0.103	0.257	0.628	-1.068	0.628	H_0 Not Rejected

P&G	ROA	0.040	-0.093	0.315	0.592	+13.79 9	0.592	H_0 Not Rejected
P&G	ROE	0.088	-0.042	0.675	0.438	+22.42	0.438	H_0 Not Rejected
P&G	Net Profit	0.002	-0.141	0.011	0.919	-6.820	0.919	H_0 Not Rejected
PepsiCo	ROA	0.171	0.052	1.44	0.269	-16.85	0.269	H_0 Not Rejected
PepsiCo	ROE	0.169	0.051	1.43	0.271	-29.52	0.271	H_0 Not Rejected
PepsiCo	Net Profit	0.144	0.022	1.18	0.314	-25.89	0.314	H_0 Not Rejected

Company ESG Score Profile Summary

The following table summarizes the ESG profile and sustainability positioning of each company in the study sample, providing contextual background for interpreting regression results.

Company	Sector	ESG Score Range	Key ESG Strengths	ESG Maturity
Ford Motors	Manufacturing	45–62	Supply chain ethics, EV transition	Developing
General Motors	Manufacturing	47–64	EV investment, safety standards	Developing
Tesla	Manufacturing	55–78	Clean energy, EV leadership, carbon credits	Advanced
Microsoft	IT	68–85	Carbon negative, data privacy, AI ethics	Leader
Intel	IT	55–72	Diversity programs, supply chain	Established
Oracle	IT	50–68	Governance, workforce diversity	Established
Colgate-Palmolive	FMCG	52–71	Water conservation, cruelty-free	Established
Procter & Gamble	FMCG	55–74	Circular economy, ethical sourcing	Established
PepsiCo	FMCG	58–76	Sustainable agriculture, plastic reduction	Advanced

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