Corporate Social Responsibility and Financial Metrics: A Study of ESG Ratings and Profitability

by

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“Investigating the impact of Corporate Social Responsibility (CSR) initiatives on financial performance, focusing on the relationship between ESG metrics and key financial indicators in companies.”

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"Strive for progress, not perfection."

Abstract

This thesis explores the relationship between corporate social responsibility (CSR) and financial performance, focusing on S&P 500 companies from 2020 to 2023. CSR performance is measured through MSCI ESG Ratings, while financial performance metrics include return on equity (ROE), net profit margin (NPM), and earning per shares (EPS). Recognizing the importance of financial context, this study incorporates total assets and leverage ratio as control variables.

The analysis uses multiple regression models and rigorous diagnostic tests to assess these relationships. Results indicate that while ESG ratings have a marginally significant positive impact on EPS, they exhibit no significant influence on ROE or NPM. In contrast, leverage ratio demonstrates a significant negative impact on Roe, underscoring the critical role of financial risk management. Total assets show negligible effects across all models.

These findings challenged the perception that CSR alone drives financial performance, highlighting the importance of integrating ESG strategies with robust financial management practices. This research contributes to the ongoing debate on the financial implications of CSR and provides actionable insights for businesses aiming to balance profitability with sustainability

Keywords: ESG, CSR, return on equity, net profit margin, earnings per share, leverage ratio.

1. Introduction

Growing concern for environmental and social issues has been increasing at a significant pace over the last few years. Awareness for the planet's resources is becoming more widespread, particularly in corporate behavior. The public is paying more attention to the initiatives that companies undertake to either contribute to or harm society. As a result, Corporate Social Responsibility has become a competitive advantage in which companies need to invest more.

Corporate social responsibility (CSR) has transitioned from a peripheral consideration to a core strategic priority for companies worldwide. At its essence, CSR embodies the idea that businesses must balance profitability with their responsibilities to society and the environment. This paradigm shift is driven by increasing stakeholders demand for transparency, accountability, and sustainability.

In recent years, ESG (environmental, social and governance) metrics have emerged as a critical tool for quantifying CSR efforts. These metrics, exemplified by MSCI ESG Ratings, provide a standardized framework for evaluating a company's social and environmental impact alongside its governance practices. However, the question of whether these initiatives translate into measurable financial benefits remains a topic of considerable debate.

This thesis investigates the interplay between CSR, as measured by MSCI ESG Ratings, and financial performance, focusing on S&P 500 companies. Financial performance is assessed using three key metrics: return on equity (ROE), net profit

margin (NPM), and earning per shares (EPS). Recognizing the importance of financial context this study incorporates 2 control variables: total assets to account for firm size and leverage ratio to measure financial risk.

By examining these variables, the study aims to address a critical gap in literature. While previous research has explored the relationship between CSR and financial performance, few studies have systematically accounted for firm size and leverage as mediating factors. This omission limits the generalizability of findings and obscures the true impact of CSR initiatives.

The timing of this research is particularly significant. The 2020-2023. Represents a dynamic phase in corporate governance, characterized by heightened attention to sustainability issues amidst global economic challenges. This context provides a unique opportunity to analyze how companies navigate the dual pressures of profitability and social responsibility.

This thesis is structured as follows: the next section provides a comprehensive review of literature, highlighting key theoretical perspectives and empirical findings. The methodology section details the research design, data collection, and analytical techniques employed. Results are presented in the subsequent section, followed by a discussion that contextualizes the findings within the border academic discourse. The thesis concludes with recommendations for future research and practical implications for business.

1.1 Background

Corporate social responsibility (CSR) has undergone a significant transformation over the past few decades, evolving from a secondary concern to a core strategic priority for many organizations. This shift reflects a border understanding of business obligations, extending beyond profit maximization to encompass social and environmental responsibilities. Initially, CSR was synonymous with philanthropic endeavors, such as charitable donations and community support, serving as a mean for companies to demonstrate goodwill [1]. However as societal expectations evolved and stakeholders demanded greater transparency and accountability, CSR has grown into a multifaceted framework encompassing ethical governance, environmental sustainability, and social equity [2].

The growing interconnectedness between businesses and society has played a critical role in this evolution. Companies are no longer seen merely as a profit-making entity but as integral components of the community in which they operate, wielding significant influence over social, environmental, and economic outcomes. This shift has heightened expectations from a diverse range of stakeholders, including customers, investors, employees, and regulators, who now demand that businesses align their operations with ethical, sustainable, and socially responsible practices while delivering financial returns [3].

Pressing global challenges such as climate change, income inequality, and social injustice have further underscored the importance of CSR. Businesses are increasingly viewed as pivotal agents in addressing this multifaceted issues, leveraging their resources and influence to drive meaningful change [4]. Consumers, in particular, have become more discerning, favoring companies that demonstrate a

genuine commitment to sustainability and social responsibility. Similarly, investors are prioritizing strategies that not only yield financial returns but also contribute positively to environmental, social and governance (ESG) outcomes. This has given rise to ESG ratings, a standardized metric for assessing CSR performance and its alignment with corporate objectives [5].

Regulatory development and industry-specific trends have also shaped the evolution of CSR. Governments worldwide have introduced frameworks to encourage responsible business practices, encompassing areas such as Environmental Protection, human rights, and corporate governance [6]. Voluntarily initiatives, such as the United Nations Global Compact and The Sustainable Development Goals (SDGs), Provide companies with benchmarks for integrating CSR into their operations. These frameworks offer guidance to align profit motives and sustainability goals, reinforcing the strategic importance of CSR [7].

Technological advancements and the rise of digital communication have further amplified CSR's significance. Social media platforms and real time communication channels have empowered stakeholders to hold companies accountable for their actions, enhancing the reputational risk associated with CSR lapses [8]. Transparency, once optional, is now a necessity, as companies face heightened scrutiny over their environmental and social impact.

In this context, understanding the relationship between CSR initiatives and financial performance has become imperative. Businesses increasingly recognize CSR not merely as a moral obligation but as a strategic imperative for creating long term value while addressing societal and environmental challenges. This study explores this

relationship by examining the impact of MSCI ESG Ratings on financial metrics such as return on equity (ROE), net profit margin (NPM), and earnings per share (EPS). Incorporating total assets and leverage ratio as control variables, this research aims to provide n insights into the intersection of CSR and financial performance, offering actionable recommendations for stakeholders navigating the complex balance between profit, purpose, and sustainability.

1.2 Problem Statement

Despite the widespread adoption of CSR initiatives, a significant gap persists in understanding their tangible impact on financial performance. Advocates argue that CSR activities can enhance long term profitability, mitigate risk, and foster stakeholder trust, while skeptics question whether such initiatives provide measurable economic benefits [9]. The relationship between CSR and financial performance remains complex, with existing research often yielding inconclusive or contradictory findings [10).

In today's competitive business environment, the pursuit of profit frequently overshadows border social and environmental responsibilities. While companies may prioritize short term financial gains, they risk overlooking the long-term advantages of integrating CSR into their strategic frameworks. This profit-centric approach has led to a critical gap in comprehending how CSR initiatives influence financial outcomes, particularly when considering firm specific factors such as size and financial leverage [11]. Without a deeper understanding, companies may miss opportunities to enhance their performance and create value through socially responsible practices.

This study addresses this gap by examining the extent to which CSR initiatives, as measured by MSCI ESG Ratings, contribute to financial performance in S&P 500 companies. The inclusion of total assets and leverage ratio as control variables ensures a comprehensive analysis, accounting for factors that can influence financial outcomes independently of CSR efforts. By focusing on three key financial metrics - ROE, NPM, and EPS - This research aims to uncover the mechanisms through which CSR impacts profitability and operational efficiency.

Furthermore, the study situates its analysis within the border context of 2020 to 2023, a period marked by heightened focus on sustainability amidst global economic challenges. This temporal framework allows for an examination of how companies have navigated to dual pressures of financial performance and societal expectations during a time of significant disruption and transformation [12].

Through rigorous empirical investigation and statistical analysis, this research seeks to provide actionable insights for businesses, investors, and policymakers. The findings will contribute to the academic disclosure on CSR by elucidating the nuanced relationship between ESG ratings and financial performance, while highlighting the critical roles of firm size and leverage. By bridging the gap between CSR theory and practice, this study aims to inform strategic decision making, fostering a more sustainable and socially responsible approach to business management.

1.3 Research Objective

This study aims to analyze the impact of corporate social responsibility (CSR) on financial performance, focusing specifically on companies listed in the S&P 500 from 2020 to 2023. The primary objective is to assess how CSR initiatives, as measured by MSCI ESG Ratings, correlate with key financial performance metrics such as return on equity (ROE), net profit margin (NPM), and earnings per share (EPS).

To achieve this, the research incorporates financial control variables- total assets and leverage ratio- to account for firm size and financial risk, respectively. This methodological refinement ensures a nuanced exploration of CSR's impact, isolating its effects from other factors that traditionally influence financial performance.

The research aims to answer the following questions:

- Does higher CSR performance, reflected in ESG ratings, lead to better financial outcomes in terms of ROA, NPM, or EPS?
- How does the firm size and financial leverage influence the relationship between CSR and financial performance?
- What are the practical implications of CSR initiatives for businesses striving to balance profitability with sustainability?

This study seeks to provide valuable insights into the strategic importance of CSRs for corporate management, investors, and policymakers. By exploring these relationships within a sample of SMP 500 companies, the research contributes to a deeper understanding of the mechanisms through which CSR initiatives impact

financial outcomes, offering actionable recommendations for integrating sustainability into corporate strategies.

1.4 Scope of the Study

This study focuses on publicly traded companies listed in the S&P 500 index, covering the years 2022-2023. These companies were selected based on the availability of comprehensive and consistent data for the study period. The initial pool consisted of all S&P 500 constituents, but the sample was redefined to include only firms with the last four years of historical financial and EEG data (2020-2023). This section criterion ensures their robustness and reliability of the analysis while capturing the longitudinal trends in CSR practices and financial performance. The number of companies was 477.

Data Sources

Data for the study was retrieved from the following reputable databases:

- Alpha Vantage: For financial performance metrics, including return on equity (ROE), net profit margin (NPM), and earnings per share (EPS), total assets, leverage ratio.
- MSCI ESG Ratings: For assessing CSR performance across Environmental, Social, and Governance dimensions.

Variables

The analysis includes the following variables:

- Dependent variables: ROE, NPM, EPS (representing corporate financial performance).
- Independent variable: MSCI ESG Rating, measure of CSR performance.
- Control variables: Total Assets, to account for firm size, and leverage ratio, to account for financial risk.

The sample selection was based on companies listed in S&P 500 companies and having at least four years of historical data (2020-2023) for financial performance and ESG ratings on MSCI database.

2. Literature Review

2.1 Conceptual Framework of CSR

Corporate social responsibility (CSR) reflects the evolving role of business in addressing societal and environmental challenges alongside goals. Howard Bowen (1953), often credited as the “father of CSR”, provided an early definition of CSR, describing it as “the obligations of businessmen to pursue polices, make decisions, or follow lines of action that are desirable in terms of objectives and values of society” [1]. This foundational concept introduced the idea that businesses bear ethical responsibilities beyond profit-making, challenging traditional economic views of corporate behavior.

From Profit to Broader Responsibilities

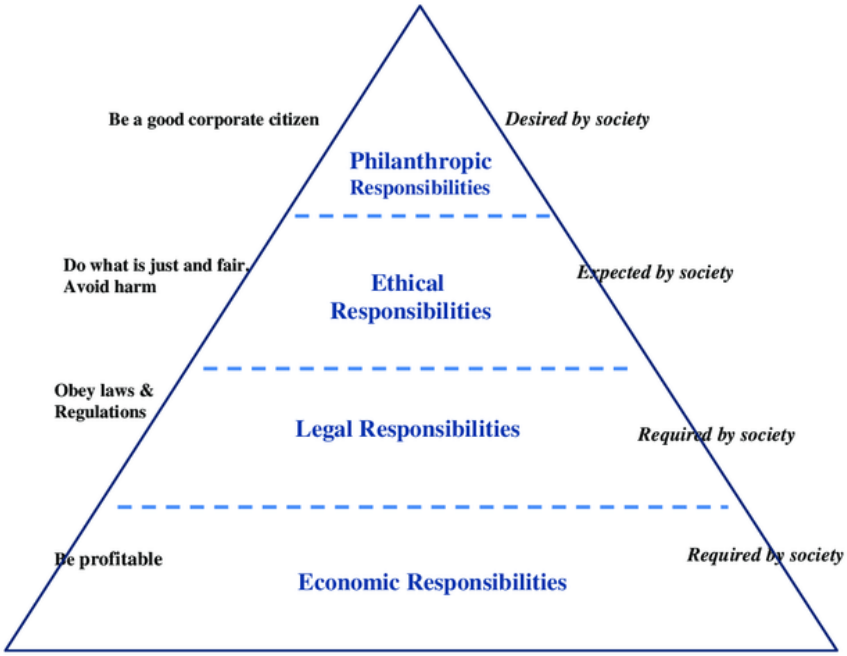
In his earliest conceptualization, CSR was largely absent from mainstream business practices. Milton Friedman (1970) and epitomized the traditional economic view, arguing that a corporation's sole responsibility is to maximize shareholder value within the bounds of legal compliance [1]. He asserted that businesses addressing social concerns were deviating from their primary purpose, which could potentially harm profitability. Theodore Levitt (1958) echoed this statement, cautioning that allocating corporate resources to social initiatives could undermine competitiveness and distract from economic objectives [13].

These profit-centric perspective dominated early CSR discussions, portraying social and environmental initiatives as discretionary or even counterproductive. However, societal expectations began to evolve, driven by heightened awareness of social and environmental issues. Keith Davis (1960) are you for a boiler corporate purpose, stating that businesses must consider "decisions and actions taken for reasons at least partially beyond the firms direct economic and technical interest" [4]. His perspective acknowledged the interconnectedness between business operations and societal well-being, emphasizing the long-term sustainability of integrating social responsibilities into corporate strategies.

Carroll's Pyramid of CSR

Archie Carroll (1991) proposed a comprehensive framework for understanding CSR, known as **pyramid of CSR** call Matt witch, delineates 4 levels of corporate responsibilities: economic, legal, ethical, and philanthropic [6]. This model emphasizes that businesses must balance profitability with their social obligations.

Fig. 1 Carroll's pyramid of CSR [a]



- **Economic responsibility**: at the base of the pyramid, economic responsibility forms the foundation of CSR. Companies must produce goods and services that meet societal needs while generating sufficient profit to sustain operations
- **Legal responsibility**: beyond profitability, firms are obligated to comply with laws and regulations governing fair competition, labor rights, Environmental Protection, and ethical conduct.
- **Ethical responsibility**: companies must uphold ethical principles that go beyond legal requirements, addressing societal expectations for fairness, justice, and integrity.
- **Philanthropic responsibility**: at the apex of the pyramid, philanthropic initiatives involve voluntarily contributions to community welfare, such as

charitable donations, educational programs, and environmental conservation efforts.

Carroll's model remains influential in CSR discourse, providing a framework for integrating corporate objectives with societal expectations. By aligning profitability with legal compliance, ethical standards, and community engagement, businesses can achieve sustainable success.

Triple Bottom Line (TBL) Approach

The triple bottom line (TBL) framework, introduced by John Elkington (1997), advocates for businesses to measure success across 3 dimensions: economic, social, and environmental [14]. The TBL approach challenges the traditional emphasis on financial performance, emphasizing the importance of balancing profitability with societal and environmental considerations.

- Economic: financial performance remains critical, but profitability must be achieved in a manner that supports societal well-being and environmental sustainability.
- Social: companies are encouraged to prioritize social equity via addressing the needs of employees, customers, and communities through fair practices and inclusivity.
- Environmental: firms must minimize their ecological impact by adopting sustainable practices, such as reducing waste, conserving resources, and mitigating carbon emissions.

The TBL framework underscores the interconnectedness of economic, social, and environmental outcomes, reflecting the growth demand for sustainable business practices. This approach aligns with contemporary global challenges, such as climate change and social inequality, demonstrating that corporate success increasingly depends on a holistic view of value creation.

Stakeholder Theory

Freeman's (1984) stakeholder theory represents another significant conceptual development in CSR, emphasizing that businesses must consider the interests of all stakeholders, including employees, customers, suppliers, communities, and the environment [11]. This theory challenges the stakeholder-centric view, arguing that addressing diverse stakeholder needs enhances corporate legitimacy, trust, and competitiveness.

Stakeholder theory suggests that businesses cannot operate in isolation; their success is intricately Linked to the well-being of the communities and ecosystems in which they operate. Ignoring the stakeholder concerns can lead to reputational risks, diminished customer loyalty, and regulatory scrutiny, whereas fostering positive stakeholder relationships contributes to long term sustainability.

CSR in the context of ESG metrics

In contemporary business practice, CSR is increasingly evaluated through environmental, social, and governance (ESG) metrics. MSCI ESG Ratings, for example, access corporate performance he now areas such as environmental sustainability, social responsibility, and governments practices. These ratings

provide a standardized framework for measuring CSR, enabling investors and stakeholders to assess the alignment of corporate strategies with societal expectations. By focusing on ESG metrics, the study investigates the impact of CSR on financial performance, particularly in the context of S&P 500 companies.

2.2 Theoretical Perspectives on CSR and Financial Performance

The relationship between CSR and financial performance is informed by various theoretical frameworks, each offering unique insights into how CSR initiatives influence corporate success.

Agency theory

agency theory examines the potential conflicts of interest between shareholders (principals) and managers (agents). Kathleen Eisenhardt (1989) Highlighted the misalignment that can arise when managerial decisions prioritize personal objectives over shareholder interests, leading to agency costs [8]. CSR initiatives can reduce these costs by aligning managerial behavior with stakeholder goals. For example, engaging in CSR activities that enhance corporate reputation and stakeholder trust can mitigate the risk of managerial opportunism and foster long term value creation (Jensen & Meckling, 1976) [15].

Stakeholder theory

Freeman’s (1984) stakeholder theory emphasizes the importance of creating value for all stakeholders, asserting that businesses that address the needs of diverse

stakeholder groups are more likely to achieve sustainable success [11]. By investing in CSR initiatives that enhance stakeholder well-being, firms can build trust, loyalty, and legitimacy, ultimately contributing to improved financial performance.

Resource-based view (RBV)

Resource-based view (RBV), Articulated by Barney (1991), posits that unique resources and capabilities such as CSR practices, provide firms with competitive advantages [12]. CSR activities, such as ethical supply chain management or environmental sustainability programs, create intangible assets like customer trust and brand loyalty. These assets are valuable, rare, and difficult to replicate, positioning CSR as a strategic resource that drives superior financial outcomes.

Institutional theory

Institutional theory explores the role of societal norms, cultural values, and regulatory pressures in shaping corporate behavior. DiMaggio and Powell (1983) argued that companies adopt CSR practices to gain legitimacy and align with societal expectations [16]. This alignment enhances stakeholder confidence, reduces uncertainty, and fosters financial resilience.

2.3 Empirical evidence on CSR and financial performance

Positive relationships

Numerous studies highlight the positive correlation between CSR initiatives and financial performance. Margolis and Walsh (2003) Conducted a meta-analysis of over 100 studies, finding that CSR initiatives enhance profitability through improving

brand reputation, stakeholder trust, and operational efficiency [17]. Orlitzky, Schmidt, and Rynes (2003) similarly conducted that CSR investments drive customer loyalty and reduce regulatory risk, leading to superior financial outcomes [18].

Neutral or mixed relationships

McWilliams and Siegel (2000) reported neutral results, noting that the financial impact of CSR varies depending on industry context, firm size, and geographic location [19]. Similarly, Waddock and Graves (1997) observed mixed results, emphasizing the role of stakeholder expectations in moderating CSR's influence on financial performance [20].

Negative relationships

While less common, some studies report negative relationships between CSR and financial performance. Bernett and Slomon (2006) found that excessive CSR spending can detract from stakeholder wealth, particularly when initiatives are poorly aligned with corporate strategy [21]. These findings underscore the need for strategic integration of CSR into border business goals.

2.4 Summary and key findings

The literature reveals a complex relationship between CSR and financial performance, shaped by contextual factors such as industry dynamics, stakeholder expectations, and strategic alignment. While many studies demonstrate positive outcomes, others highlight neutral or negative impacts. This study builds on three insights by analyzing MSCI ESG Ratings and their influence on financial

performance in S&P 500 companies, incorporating total assets and leverage ratio as control variables.

3. Methodology

This this section outlines the comprehensive methodology adapted to examine the relationship between corporate social responsibility CSR and financial performance among S&P 500 companies. It describes the research design, data collection methods, sample selection criteria, variables, and measurements as well as the data analysis techniques used.

3.1 Research Design

The research design employed is a quantitative, correlational approach, suitable for identifying a statistical relationship between CSR metrics and financial outcomes. This design ensures objectively and facilitates their generalization of findings, providing insights into the role of CSR in influencing financial performance.

Quantitative approach

The quantitative approach forms the backbone of this study. It involves the collection and analysis of numerical data to test hypothesis and identify patterns. By leveraging statistical methods this approach enables the precise measurements of relationships between variables such as MSCI ESG Ratings and financial performance metrics used as dependent variables.

The use of numerical data minimizes subjectively, allowing for rigorous analysis and evidence-based conclusion. Furthermore, the approach aligns with the study's objective of establishing clear and measurable links between CSR performance and financial outcomes.

Correlational study

This study adopts a correlational design to assess the natural relationships between variables without manipulation. Unlike experimental studies, correlational studies observe data as it exists, making them ideal for exploring how CSR performance relates to financial metrics such as profitability that shareholder returns.

For instance, this study evaluates whether higher MSCI ESG Ratings, Reflecting better CSR management, are associated with improved financial indicators. This design provides valuable insights into the interdependence between CSR activities and corporate success, facilitating evidence based strategic decision making.

Regression analysis

Multiple linear regression analysis serves as the primary statistical tool, modeling the relationship between dependent and independent variables. This technique helps estimate the strength and direction of these relationships, offering a nuanced understanding of how CSR activities affect financial outcomes. The regression model is represented by the following equation

$Yi = \beta 0 + \beta 1 X 1 + . . . + \beta n X n + \varepsilon i,$

Where:

- Yi: Dependent variable
- $\beta 0$: Constant
- $\beta 1$- βn: Regression coefficients
- $X1$- Xn: Explanatory variable (independent)
- εi: Error term

In this study:

- dependent variables (Y): financial performance indicators, including return on equity (ROE), net profit margin (NPM), and earnings per share (EPS).
- Independent variables (X): CSR performance metrics, MSCI ESG Ratings, control variables, total assets and leverage ratio.

This method allows the study to determine the extent to which CSR performance impacts financial outcomes while controlling for variables such as company size and financial leverage. By including both the pendant and independent variables, the regression model provides a comprehensive framework for analysis.

Regression analysis is a powerful statistical technique that models the relationship between a dependent variable and one or more independent variables

Research Hypothesis

The primary objective of this study is to examine the relationship between corporate social responsibility CSR, as measured by MSCI ESG Ratings,

Hypothesis: There is a positive relationship between CSR initiatives and the financial performance of companies.

Research Model

The study adopts a regression-based analytical framework to evaluate the hypothesized relationships between CSR initiatives and financial performance. The regression model is designed to test the influence of MSCI ESG Ratings on three financial performance indicators, while accounting for firm size (Total Assets) and financial leverage (Leverage Ratio) as control variables.

Research model

The research model can be represented as follows

Yi=β0+β1(MSCI ESG Ratings)+β2(log(Total Assets))+β3(Leverage Ratio)+ϵi

Where:

- Yi: Dependent variable
- $\beta 0$: Intercept
- $\beta 1$- $\beta 2$ - $\beta 3$: Regression coefficients of independent variables
- εi: Error term

Variables:

- Dependent Variables (Y):
  - Return on Equity (ROE): Measures profitability relative to shareholder equity.
  - Net Profit Margin (NPM): Reflects operational efficiency and cost management.
  - Earnings Per Share (EPS): Captures shareholder returns.

- Independent Variable (X):
    - MSCI ESG Ratings: Evaluates a firm's management of environmental, social, and governance risks.
- Control Variables:
    - Log-transformed Total Assets: Represents firm size, accounting for scale effects.
    - Leverage Ratio: Reflects financial structure and the degree of debt utilization.

This model provides a robust framework for analyzing the effect of CSR on financial outcomes while addressing firm-level characteristics

3.2 Data collection

The study employs secondary data sourced from reputable databases to ensure data quality, reliability, and consistency. The dataset spans a four-year period (2020–2023) to provide longitudinal insights into CSR practices and financial performance.

Sources of data collection

1. MSCI ESG Ratings: Data on MSCI ESG Ratings was retrieved from the MSCI database. These ratings offer a standardized assessment of corporate sustainability, focusing on environmental, social, and governance dimensions.
2. Alpha Vantage: Financial performance data, including ROE, NPM, EPS, and Total Assets, was sourced from Alpha Vantage. This platform provides comprehensive financial information on publicly traded companies.

3. Internal Calculations: Derived metrics, such as log-transformed Total Assets and adjusted Leverage Ratios, were calculated using raw data from Alpha Vantage to align with analytical requirements.

Data collection process

The data collection process involves identifying the relevant financial and CSR performance indicators for each company in the sample. The most recent available data was used to ensure the relevance and timeliness of the analysis. The data was then compiled into a comprehensive data set for further analysis.

The following steps were taken during the data collection process:

1. Identification of companies: companies were selected from the S&P 500 based on their availability of complete MCSI ESG Ratings and financial performance for at least 4 consecutive years (2020-2023).
2. Data retrieval:
   - MCSI ESG Ratings were collected directly from the MSCI database.
   - Financial data (ROE, NPM, EPS, Total Assets, and leverage Ratio) was retrieved from Alpha Vantage.
3. Data verification: the retrieved data was cross checked for consistency, accuracy, and completeness to ensure the robustness of the data set.
4. Data compilation: the verified data was compiled into a structured data set, ensuring alignment between financial and CSR performance indicators for each company.

3.3 Sample Selection

The study focuses on a curated sample of publicly traded companies from S&P 500 index, ensuring a diverse representation of industries and firm sizes.

Rationale for Sample Selection

1. Comprehensive representation: the S&P 500 index includes leading U.S. companies across various industries providing a well-rounded perspective on CSR practices and financial performance.
2. Data availability: the focus on publicly traded companies and shares access to detail, standardized, and transparent financial and CSR data.
3. Longitudinal analysis: the inclusion of firms with at least four years of complete data facilitates the exploration of trends and patterns over time.

Sample Selection Criteria

1. Inclusion in the S&P 500 index: companies must be listed in the S&P 500 index as of the most recent fiscal year.
2. Complete data availability: companies must have MSCI ESG Ratings and financial performance data (ROE, NPM, EPS, Total Assets, and leverage Ratio) For 2020 to 2023.
3. Industry representation: the sample includes firms from various sectors ensuring a comprehensive analysis of CSR's impact across industries.

3.4 Variables and Measurements

The study involves several key variables, each measured using specific indicators to ensure accurate and meaningful analysis. The variables and their measurements are as follows:

Dependent variable

1. Return on Equity (ROE)

$$\text{ROE} = \frac{\text{Net Income}}{\text{Shareholder Equity}}$$

Indicate the profitability generated from stakeholder investments.

2. Net profit margin (NPM)

$$\text{NPM} = \frac{\text{Net Income}}{\text{Revenue}}$$

Reflects the efficiency of cost management in generating profits.

3. Earnings per share (EPS)

$$\text{EPS} = \frac{\text{Net Income - Dividends on Preferred shares}}{\text{Average outstanding shares}}$$

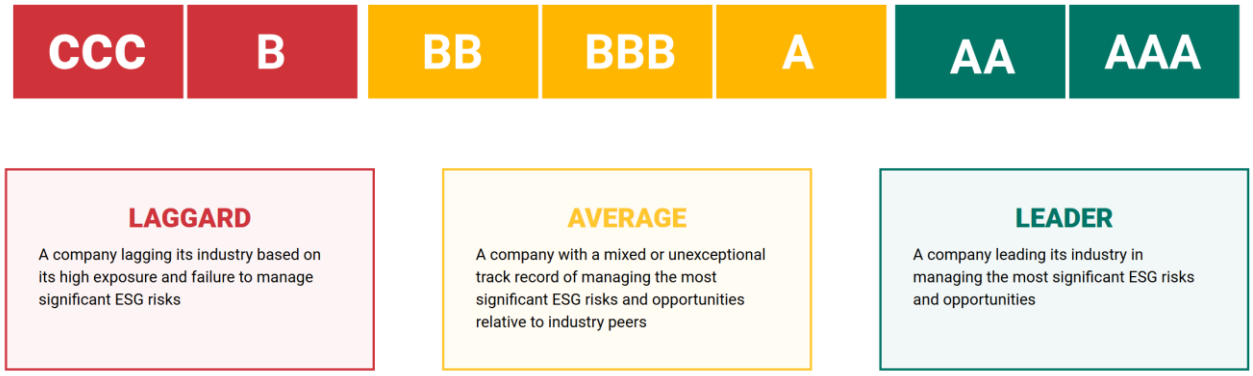
Measures profitability on a per share basis, reflecting shareholder returns.

Independent variable

1. MSCI ESG Ratings

How does MSCI ESG Ratings work?

Figure b.



Data transformation to numeric value:

MCSI ESG	Value
CCC	1
B	2
BB	3
BBB	4
A	5
AA	6
AAA	7

Scores range from 1 to 7, with higher values indicating stronger management of EG risks.

Control variables

1. Total Assets: adjusts for skewness in firm size, providing a normalized distribution for regression analysis, for the data analysis this variable was adjusted to log transformed residuals.
2. Leverage ratio:

$$\text{Leverage Ratio} = \frac{\text{Total Debt}}{\text{Total Equity}}$$

Captures financial structure, reflecting the degree of depth utilization.

3.5 Data Analysis Techniques

The following statistical techniques were employed to examine the relationships between CSR and financial performance:

1. Descriptive Statistics: descriptive statistics (mean, median, standard deviation, minimum, and maximum) summarizes the data set and identifies patterns or anomalies.
2. Correlation Analysis: evaluates the strength and direction of linear relationships between MSCI ESG Ratings, financial metrics, and control variables.
3. Regression Analysis: multiple regression models assess the impact of MSCI ESG Ratings on financial performance, while accounting for firms' size and leverage.
4. Multicollinearity Check: Variance Inflation Factor (VIF) analysis ensures the that independent variables are highly correlated, avoiding multicollinearity issues.
5. Residual diagnostics: tests for normality, homoscedasticity, and independence of residuals ensure the validity of regression results.

4. Data Analysis and Results

This section delves into comprehensive analysis of data and results obtained in this study. Various statistical methods, including descriptive statistics, correlation analysis, regression analysis, and diagnostic evaluations, are utilized to investigate the relationship between corporate social responsibility and financial performance.

4.1 Descriptive statistics

Descriptive statistics provide an initial understanding of data set, summarizing the distribution, central tendency, and dispersion of the variables. Table 1% these summary statistics for all variables included in this study.

Table 1. Descriptive statistics

Variable	Mean	Median	Std. Dev.	Min	Max
Return on Equity (ROE)	50.65	14.74	1035.23	-3333.02	38870.00
Net Profit Margin (NPM)	0.09	0.07	0.56	-14.71	6.97
Earnings Per Share (EPS)	782.17	472.00	4081.57	-99525.00	49216.00
MSCI ESG Ratings	4.77	5.00	1.25	1.00	7.00
Total Assets (log)	10.45	10.40	0.59	7.86	12.59
Leverage Ratio	0.77	1.70	76.17	-3096.95	772.50

Observations:

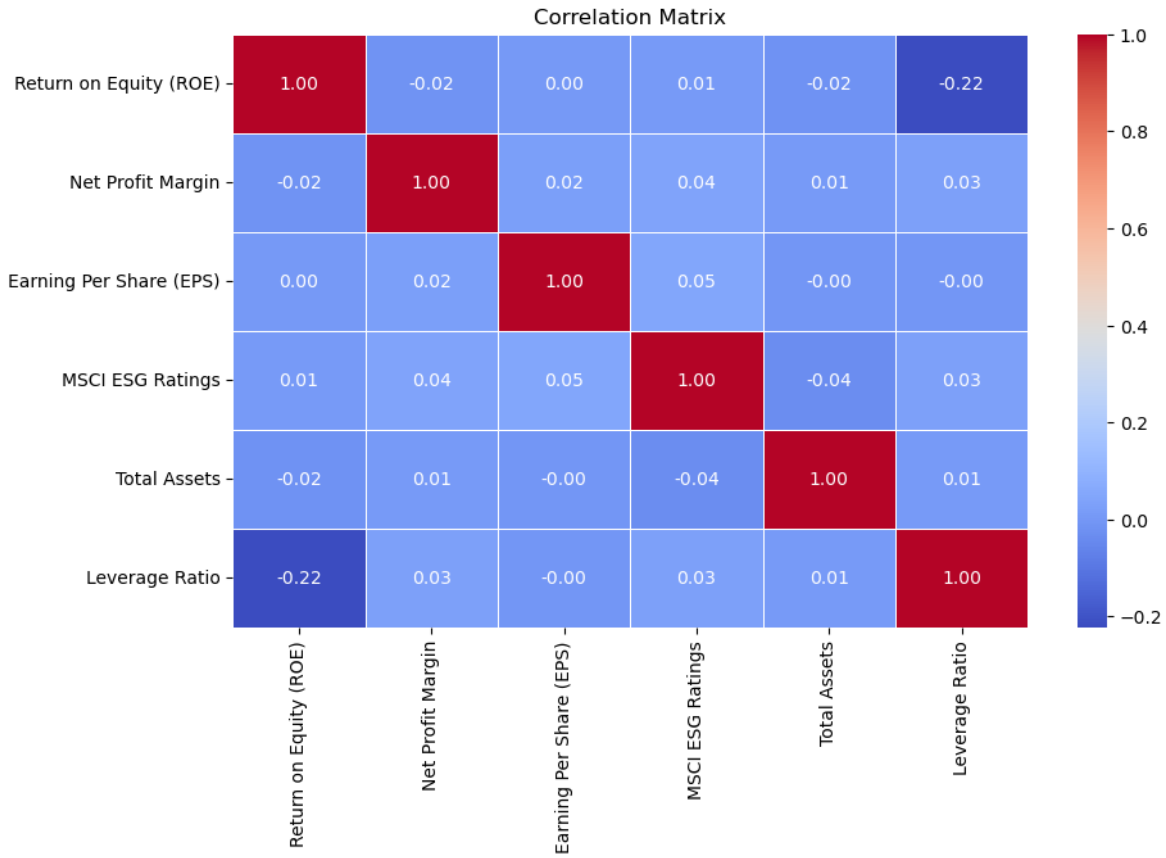
- ROE: the substantial variability (std. dev. = 1035.23) highlights extreme outliers, underscoring the diverse profitability in landscape of the firms in the sample.

- NPM: exhibits minimal variability, with a narrow range indicating consistent operational efficiency lacrosse companies.
- EPS: large variability (std. dev. = 4081.57) replaced significant differences in shareholder returns across firms.
- MSCI ESG Ratings: scores range from 1:00 to 7:00, with an average of 4.77, indicating a wide range of CSR performance.
- Leverage ratio: high variability suggests substantial differences in financial structuring.

4.2 Correlation Analysis

Correlation analysis evaluates the linear relationships between variables, offering insights into potential associations. Table 2 presents the correlation matrix, summarizing the relationships among the variables of interest.

Table 2. Correlation matrix



Key Insights:

- ROE and leverage ratio: a moderate negative correlation (-0.223) suggests that firms with higher financial leverage exhibit reduced profitability.
- EPS and MSCI ESG ratings: a weak positive correlation (0.048) implies that firms with stronger CSR initiatives tend to deliver higher shareholder returns.
- NPM and MSCI ESG ratings: positive or minimal correlation (0.035), suggesting weak alignment between operational efficiency and CSR ratings.

4.3 Regression Analysis

Regression analysis was conducted to investigate the influence of CSR initiatives as measured by MSCI ESG ratings, alongside control variables (total assets and

leverage ratio), on three financial performance metrics: return on equity, net profit margin, and earnings per share. It tests whether CSR performance and financial structure significantly influence profitability and shareholder value.

Hypothesis for regression analysis

For each regression analysis the following hypothesis were tested:

- null hypothesis (H0): there is no significant relationship between the independent variables (MSCI ESG Ratings, total assets, and leverage ratio) and the dependent variables (ROE, NPM, ESP).
- Alternative hypothesis (H1): There is a significant relationship between independent variables (MSCI ESG Ratings, total assets, and leverage ratio) and dependent variables (ROE, NPM, ESP).

Interpretation criteria:

- P value < 0.05: Reject H0 indicating a statistically significant relationship.
- P value > or equal 0.05: failed to reject H0 indicating no statistically significant relationship.

Regression Results

Model for return on equity (ROE)

The regression model for Roe showed significant results, particularly driven by the leverage ratio.

Table 4. Anova Table for ROW

Source	df	SS	MS	F	Significance F
Regression	3.00	1079329.28	359776.43	33.65	3.40E-21
Residual	1918.00	20518069.74	10696.77		
Total	1921.00	21597498.02			

Table 5. Cofficients Table for ROE

Variable	Coefficient	Std. Error	ttt-value	ppp-value	Interpretation
Intercept	272.92	424.5	0.643	0.52	*Not significant*
MSCI ESG Ratings	12.01	18.45	0.651	0.515	*Not significant*
Total Assets	-26.54	39.38	-0.674	0.501	*Not significant*
Leverage Ratio	-3.03	0.3	-10.01	0	*Significant and negative*

Significant predictor: leverage ratio ($p<0.001$), indicating that higher leverage decreases ROE.

Overall model: this model is statistically significant ($F = 33.65$, $P<0.001$), explaining 5% of variance ($r2 = 0.05$).

Model for net profit Margin (NPM)

Table 6. ANOVA Table for NPM

Source	df	SS	MS	F	Significance F
Regression	3	1.13	0.38	1.28	0.281
Residual	1918	570.62	0.3		
Total	1921	571.75			

Table 7. Coefficients Table for NPM

Variable	Coefficient	Std. Error	ttt-value	ppp-value	Interpretation
Intercept	-0.094	0.236	-0.398	0.691	*Not significant*
MSCI ESG Ratings	0.016	0.01	1.53	0.126	*Not significant*
Total Assets	0.01	0.022	0.475	0.635	*Not significant*
Leverage Ratio	0.0002	0	1.094	0.274	*Not significant*

Overall model: insignificant (p = 0.281)

hypothesis testing: failed to reject H0 for all predictors.

Model for earnings per share EPS

Table 8. ANOVA Table for EPS

Source	df	SS	MS	F	Significance F
Regression	3	30409035	10136345	1.48	0.217
Residual	1918	1312483969	68433		
Total	1921	1342893004			

Table 9. Coefficients Table for EPS

Variable	Coefficient	Std. Error	ttt-value	ppp-value	Interpretation
Intercept	135.32	1715.16	0.079	0.937	*Not significant*
MSCI ESG Ratings	156.09	74.53	2.094	0.036	*Significant and positive*
Total Assets	-9.37	159.13	-0.059	0.953	*Not significant*
Leverage Ratio	-0.33	1.22	-0.274	0.784	*Not significant*

Significant predictor: MSCI ESG Ratings (p= 0.036), suggesting a weak positive influence on EPS.

Multicollinearity Analysis

To evaluate multicollinearity among independent variables, the variance inflation factor (VIF) was calculated.

Check for multicollinearity among independent variables in a multiple regression analysis to see if there exists correlation. The measure used for this test was Variance Inflation Factor (VIF), represented in Table 10, this can estimate how much the variance of a regression coefficient is inflated due to multicollinearity. A large VIF on an independent variable indicates a highly collinear relationship to the other variable that should be considered or adjusted for in the structure of the model.

Interpretation criteria: VIF equal to 1 means that variables are not correlated, VIF in rates of 1 - 5 variables are moderately correlated, and VIF greater than 5 represents a high correlation between variables. When VIF is higher than 10, there is a significant multicollinearity that needs correction.

Variable	VIF	Interpretation
MSCI ESG Ratings	1.002	*No multicollinearity.*
Total Assets	1.001	*No multicollinearity.*
Leverage Ratio	1	*No multicollinearity.*

Interpretation of VIF values:

All VIF values are close to 1, indicating no significant multicollinearity among predictors.

4.4 Interpretation of Results

1. **ROE:**

- Significance: the most significant model driven by the negative relationship between Roe and leverage ratio (B = -3.03, p < 0.001).
- Implications: higher financial leverage detracts from equity profitability, emphasizing the risk of over leveraging in capital structures.

2. **NPM:**

- Significance: the model was not statistically significant, with no independent variable showing a meaningful relationship with NPM.
- Implications: operational efficiency, as measured by MPM, appears less influenced by CSR performance or financial structure.

3. **EPS:**

- Significance: MSCI ESG Ratings Demonstrated a weak positive association with EPS (p = 0.36), but the overall model lacked significance.
- Implications: shareholder returns may benefit modestly from strong ESG performance, aligning with investors' growing emphasis on sustainability.

4. **Multicollinearity:**

- The lack of multicollinearity supports the reliability of the regression models, allowing independent variables to be interpreted with confidence

5. **Overall Observations:**

- The study highlights ROE as the most reliable indicator of financial performance in relation to CSR performance and financial structure.
- While MSCI ESG Ratings showed limited significance, their association with EPS reflects the nuanced role of ESG factors in shaping corporate outcomes.

Theoretical Implications

The findings of this study contributes valuable insights to the theoretical frameworks underpinning corporate finance and sustainability research. They align with and expand upon several key theories:

1. resource based view RBV theory

   the negative association between leverage ratio and Roe observed in this study underscores the importance of natural efficiency and resource optimization. The RBV theory posits that a firm's internal resources and capabilities are critical determinants of its competitive advantages and market value. The significant impact of leverage and ROE highlights how poorly managed financial structures can erode profitability, even in firms with robust operational models.

2. Stakeholder theory

   the relationship between MSCI ESG Ratings and EPS reflects the growing importance of stakeholder considerations in corporate decision making. Stakeholder theory emphasizes that companies must balance the interest of various stakeholders, including investors, employees, customers, and the border society. Firms with higher ESG ratings demonstrates better management of environmental, social, and governance risks, which fosters

stakeholder trusts and may translate into enhanced profitability, as evidenced by the positive link to EPS.

3. Social contract theory

   the findings relating to MSCI ESG Ratings also tie into the social contract theory which suggests that businesses operate within an implicit agreement with society to behave responsibly and ethically. Firms that effectively manage social and environmental risks, as reflected in higher ESG scores signal their commitment to upholding societal values. This behavior is rewarded by stakeholders, particularly investors, who recognize the long-term benefits of socially responsible management practices.

4. Signaling theory

   The weak positive association between MSCI ESG Ratings and EPS can be interpreted through signaling theory. Companies with high ESG scores may not necessarily reflect immediate financial performance but signal their commitment to addressing ESG risks. Transparent reporting and proactive management of ESG factors may be perceived by investors as indicators of sound governance and strategic foresight, thereby boosting investor confidence and, over time, shareholder returns.

5. Institutional theory

   Institutional pressures, such as regulations and market expectations for ESG disclosures, likely Dr. firms to improve their ESG ratings. This study supports the notion that companies adhering to institutional expectations by improving their ESG performance and recognize positively in the market, even in if their financial outcomes are not immediately apparent.

5. Discussion

This chapter provides a comprehensive interpretation of this study's findings, contextualizing them within existing literature and theoretical frameworks. It also highlights practical implications, acknowledged limitations, and suggests avenues for future research.

5.1 Comparison with previous Studies

The findings of this study aligned with and diverge from previous research on the relationship between EG performance and financial outcomes.

Financial efficiency and ROE

the significant negative relationship between leverage ratio and arroe observed in this study is consistent with Tretikova (2021) and others, who emphasize that efficient financial management is crucial for maximizing profitability and shareholder value. High leverage negatively impacts profitability, reaffirming that companies must balance their financial structure to sustain long term growth.

ESG ratings and financial performance

The weak association between MSCI ESG Ratings and financial metrics contrasts with Eccles, Loannou, and Serafeim (2014), who suggests that robust ESG practice generally correlates with superior financial outcomes. While signaling theory may explain the modest positive influence of ESG ratings on EPS in this study, the lack

of significant relationships for other metrics highlights the complexity of quantifying ESG impacts.

Divergent findings on ESG dimensions

the absence of strong correlations between ESG ratings and financial metrics echoes findings from studies indicating mixed results due to methodological differences, such as variations in ESG measurements standards or simple characteristics (Orlitzky et al., 2003). These studies results reaffirms the need to refine ESG metrics and methodologies for assessing their impact on financial performance.

5.2 Explanation of Findings

The the mixed results regarding ESG ratings and financial performance can be attributed to several factors:

a) Multidimensional nature of ESG ratings

   MSCI ESG Ratings aggregate diverse dimensions - environmental, social, and governance - which may dilute the specific effects of individual factors on financial performance.

b) Sectoral and contextual influences

   The sample’s diversity across industry introduces variability in ESG relevance. For instance, governance practices may I would wait environmental considerations in financial sectors, affecting ESG's aggregate impact.

c) Temporal disconnect

ESG practices often yield long term benefits, which may not align with the time frame of this cross-sectional study. Investors might reward proactive ESG strategies over time rather than immediately.

d) Market perception and signaling

signaling theory explains that positive relationship between MSCI ESG Ratings and EPS. Investors may perceive higher ESG ratings as indicative of strategic foresight and resilience, fostering long term profitability expectations despite limited short-term financial effects.

5.3 Implications for theory and practice

Theoretical Contributions

This study advances several theoretical frameworks:

- Resource based view: the significant impact of financial structure (e.g., leverage) on Roe underscores the importance of internal resource management for competitive advantage.
- Stakeholder theory: findings on ESG ratings affirm the importance of addressing stakeholder interests in achieving sustainable financial success.
- Signaling theory: weak positive associations between ESG ratings and EPS suggest that transparent ESG practices positively influence investor perceptions.

Practical Implications

- Strategic management: firms should balance financial structures to maximize profitability while adopting targeted ESG strategies.
- ESG integration: ESG initiatives should align with sector specific priorities, addressing material issues to enhance relevance and impact.
- Investor decisions: investors should evaluate ESG strategies as indicators of long term value rather than short term performance.

The findings highlight the importance of focusing on financial efficiency, social responsibility, and proactive ESG risk management to enhance market value. Companies should strive to improve their financial performance, manage social risk effectively, and transparently disclose their ESG practices to attract positive investor sentiment and achieve higher market valuations. It is important to consider the credibility gap, which is the difference between what you are saying, and what you are doing, in relation to ESG practices. Additionally, investors should consider these factors when evaluating potential investments as companies that excel in these areas are likely to offer better long-term returns.

Sustainable investing has seen remarkable growth over the past decade and a half. In 2006, 63 investors managing $6.5 trillion signed the United Nations Principle for Responsive Investment (UN PRI). By 2021, this number has surged to 3,404 Investors, collectively managing $121 trillion. This exponential increase in sustainable investing indicates a strong momentum that could significantly boost corporate social responsibility initiatives, as more investors prioritize ESG considerations in their investment decisions.

5.4 Limitations of the study

Despite the significant findings, the study has several limitations that should be acknowledged:

Sample Size: With a sample of 1922 observations, 477 companies, border generalizability is limited. Future research should include larger, more diverse datasets.

Cross-sectional data: the use of cross-sectional data precludes analysis of temporary dynamics. Longitudinal studies could better capture esg's long term financial effects.

Narrow financial metrics: this study focuses on Roe, net profit margin, and EPS. Future studies should incorporate additional metrics, such as stock volatility or P/E ratios, for a comprehensive financial performance analysis.

Sector specific impacts: the mix effects of ESG ratings might reflect sectoral variations in ESG materiality. Further research should disaggregate data by industry to account for specific sectors dynamics.

Measurement of ESG: MSCI ESG Ratings, well comprehensive, aggregate the various you mentioned, potentially making this specific impacts of individual ESG components. Future studies should analyze environmental, social, and governance factors separately.

Potential multicollinearity: while VIF analysis showed no significant multicollinearity issues, moderate correlations among variables suggests further refinement. Advanced techniques like rich regression could address this.

By addressing these limitations in future research, scholars can build on the current study's findings and contribute to a more comprehensive understanding of the complex relationships between Market capitalization, financial performance, social responsibility, ESG risk management, and market value.

6. Conclusion

This chapter provides a comprehensive synthesis of the research findings, explores the border implications for corporate strategy and sustainability, and outlines the contributions to the existing body of knowledge. It also purposes future research directions to address the limitations of this study and leverage opportunity for further explorations of ESG practices has a strategic advantage.

6.1 Summary of Findings

Corporate Social Responsibility (CSR) And environmental, social and governance (ESG) activities are becoming increasingly relevant in the context of corporate financial performance. This study aimed to evaluate the relationship between ESG performance measured using MSCI ESG Ratings, and financial metrics such as return on equity, net profit margin, earnings per share. The leverage ratio and total assets were included as control variables.

The result suggest the following key findings:

1. Weak relationships: the regression analysis did not indicate a statistically significant relationship between MSCI ESG Ratings and the financial metrics analyzed. However,

leverage ratio had a significant negative relationship with our ROE, underlining the importance of maintaining financial stability.

2. Potential long term value: despite weak short term correlations, the findings hint at the potential for ESG practices to generate long term value, particularly when aligned with strategic objectives.

3. Control variables relevance: the significant impact of control variables such as leverage ratio emphasizes the need for careful consideration of financial structure in ESG performance studies.

These findings demonstrate that while ESG practices may not directly impact financial performance in short term, their role as long term strategic tools cannot be ignored.

6.2 Contributions to knowledge

This study contributes to the academic and practical understanding of the relationship between ESG and financial performance through the following:

Empirical validation: The findings provide non insights into existing theories, including Resource base view in supporting the notion that financial efficiency drives competitive advantage, stakeholder theory in highlighting the value of socially responsible practices in enhancing corporate reputation, and signaling theory in suggesting that transparent ESG disclosure may influence investor perceptions positively.

Methodological contributions: By employing robust statistical tools such as regression analysis, correlation matrices, and variance inflation factor assessments, the study

ensures methodological rigor. This contributes to the development of reliable approaches for future ESG performance research.

Strategic implications: The study underscores the importance of ESG as a strategic tool for addressing stakeholder concerns mitigating risk and aligning with long term business goals.

Practical insights: companies can utilize these findings to understand the importance of aligning ESG practices with financial strategies to achieve sustainable growth and enhance stakeholder trust.

6.3 Recommendations for future research

well this study provides valuable insights, several limitations highlight opportunities for further exploration:

1. Expand sample scope: future research should burden the data set to include companies across diverse industries, sizes, and geographical regions to enhance the generalizability of findings
2. Longitudinal Analysis: Conditional approach can capture the dynamic nature of ESG impacts over time, offering a clearer understanding of casualty.
3. Incorporate additional metrics: Future studies could examine additional financial metrics, such as price to earnings ratios, stock volatility, and dividend yields, to provide a more comprehensive view of financial performance.

4. Disaggregation of ESG ratings: breaking down EEG scores into their individual components (environmental, social, and governance) can reveal more granular relationships.
5. Sector specific studies: ESG prioritize vary by industry; sector focused research can identify material ESG issues relevant to specific domains, enhancing the strategic utility of ESG data.

6.4 Practical Benefits of CSR and ESG Initiatives

this study reinforces the importance of CSR and ESG initiatives as core components of corporate strategy, offering the following benefits:

Enhanced Corporate Reputation: CSR and ESG activities improve brand image, customer loyalty, and overall market positioning, which are critical for long term growth.

Human capital development: organizations with strong ESG commitments attract and retain top talent by fostering inclusive and sustainable workplace cultures.

Risk management: ESG initiatives help companies anticipate and manage risks associated with environmental regulations, social equity, and governance compliance.

Promoting financial stability: by addressing stakeholder concerns and aligning with border societal values, companies can enhance investor confidence, ensuring stable financial performance.

Strategic differentiation: firms that integrate ESG into their core operations position themselves as leaders in sustainable innovation, gaining a competitive edge in the global market.

Broader Implications:

Driving ESD investments: the growing demand for sustainable investments underscored the need for companies to prioritize ESG strategies. Investors increasingly view ESG practices as indicators of long-term profitability.

Policy development: policymakers can leverage these findings to encourage transparent ESG disclosures to align corporate practices with global sustainability goals.

Global business transformation: the integration of ESG into corporate strategies promotes a shift toward sustainable business models that prioritize stakeholder value alongside shareholder returns.

ESG and sustainability have become essential elements to consider in business. The growing interest in investments related to ESG and CSR implementations has turned these practices into a competitive advantage. There is an increasing trend towards responsible investment, with a focus on long-term profitability.

The objective of this study has been to promote the use of CSR strategies in business, aiming to generate a positive impact on the environment and society while also benefiting shareholders. Moreover, a reduction in social risk within corporations is indicative of good corporate management.

It is important to acknowledge that the relationship between EG practices and financial performance is inherently complex and influenced by a multitude of factors. The vast body of research of this topic reflects the diversity of findings, with varying methodologies, sample characteristics, and contexts yielding mixed results. This variability underscores the difficulty of isolating ESG impacts from other financial determinants, such as market conditions, industry specific factors, or company strategies. However, despite these challenges, this study reinforces the idea that while immediate correlations may be weak or inconsistent, UG initiatives often manifest their benefits over the long term. By focusing on sustainable practices, companies can position themselves for enduring success, creating value not only for shareholders but also for a wider range of stakeholders.

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Figures:

a) Carroll's pyramid of CSR: taking another look - Scientific Figure on ResearchGate. Available from: https://www.researchgate.net/figure/Carrolls-pyramid-of-CSR_fig2_304662992 [accessed 15 Oct, 2024].
b) ESG Ratings from MSCI: https://www.msci.com/sustainable-investing/esg-ratings

8. Appendix

8.1 Correlation matrix

	Return on Equity (ROE)	Net Profit Margin	Earning Per Share (EPS)	MSCI ESG Ratings	Total Assets	Leverage Ratio
Return on Equity (ROE)	1.000000	-0.015393	0.003703	0.008416	-0.017362	-0.222609
Net Profit Margin	-0.015393	1.000000	0.021252	0.035296	0.009815	0.026103
Earning Per Share (EPS)	0.003703	0.021252	1.000000	0.047678	-0.003092	-0.004850
MSCI ESG Ratings	0.008416	0.035296	0.047678	1.000000	-0.035471	0.029717
Total Assets	-0.017362	0.009815	-0.003092	-0.035471	1.000000	0.008261
Leverage Ratio	-0.222609	0.026103	-0.004850	0.029717	0.008261	1.000000

8.2 Variables data description

	Return on Equity (ROE)	Net Profit Margin	Earning Per Share (EPS) \
count	1922.000000	1922.000000	1922.000000
mean	50.652736	0.089981	782.169615
std	1035.231513	0.562501	4081.570344
min	-3333.021281	-14.711356	-99525.000000
25%	7.406987	0.041468	202.250000
50%	14.744804	0.069378	472.000000
75%	28.104941	0.118142	870.500000
max	38870.000000	6.965833	49216.000000

	MSCI ESG Ratings	Total Assets	Leverage Ratio
count	1922.000000	1922.000000	1922.000000
mean	4.773153	10.448289	0.771118
std	1.250319	0.585387	76.169762
min	1.000000	7.857332	-3096.952381
25%	4.000000	10.055175	0.849415
50%	5.000000	10.404261	1.702504
75%	6.000000	10.794287	3.256106
max	7.000000	12.588316	772.500000

8.3 Regression results

Regression for Dependent Variable: Return on Equity (ROE)

OLS Regression Results

==========

Dep. Variable: Return on Equity (ROE) R-squared: 0.050

Model: OLS Adj. R-squared: 0.049

Method: Least Squares F-statistic: 33.65

Date: Wed, 20 Nov 2024 Prob (F-statistic): 3.40e-21

Time: 23:54:52 Log-Likelihood: -16021.

No. Observations: 1922 AIC: 3.205e+04

Df Residuals: 1918 BIC: 3.207e+04

Df Model: 3

Covariance Type: nonrobust

==========

	coef	std err	t	P>|t|	[0.025	0.975]
const	272.9187	424.500	0.643	0.520	-559.612	1105.449
MSCI ESG Ratings	12.0119	18.447	0.651	0.515	-24.166	48.190
Total Assets	-26.5368	39.384	-0.674	0.501	-103.777	50.704
Leverage Ratio	-3.0297	0.303	-10.011	0.000	-3.623	-2.436

==========

Omnibus: 5453.303 Durbin-Watson: 2.020

Prob(Omnibus): 0.000 Jarque-Bera (JB): 168332428.069

Skew: 36.154 Prob(JB): 0.00

Kurtosis: 1451.011 Cond. No. 1.41e+03

==========

Notes:

[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.

[2] The condition number is large, 1.41e+03. This might indicate that there are strong multicollinearity or other numerical problems.

Regression for Dependent Variable: Net Profit Margin

OLS Regression Results

Dep. Variable:	Net Profit Margin	R-squared:	0.002
Model:	OLS	Adj. R-squared:	0.000
Method:	Least Squares	F-statistic:	1.276
Date:	Wed, 20 Nov 2024	Prob (F-statistic):	0.281
Time:	23:54:52	Log-Likelihood:	-1618.9
No. Observations:	1922	AIC:	3246.
Df Residuals:	1918	BIC:	3268.
Df Model:	3		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
const	-0.0941	0.236	-0.398	0.691	-0.558	0.370
MSCI ESG Ratings	0.0157	0.010	1.530	0.126	-0.004	0.036

Total Assets 0.0104 0.022 0.475 0.635 -0.033 0.053

Leverage Ratio 0.0002 0.000 1.094 0.274 -0.000 0.001

==========

Omnibus: 2898.987 Durbin-Watson: 1.917

Prob(Omnibus): 0.000 Jarque-Bera (JB): 6421458.338

Skew: -8.322 Prob(JB): 0.00

Kurtosis: 285.679 Cond. No. 1.41e+03

==========

Notes:

[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.

[2] The condition number is large, 1.41e+03. This might indicate that there are strong multicollinearity or other numerical problems.

Regression for Dependent Variable: Earning Per Share (EPS)

OLS Regression Results

==========

Dep. Variable: Earning Per Share (EPS) R-squared: 0.002

Model: OLS Adj. R-squared: 0.001

Method: Least Squares F-statistic: 1.483

Date: Wed, 20 Nov 2024 Prob (F-statistic): 0.217

Time: 23:54:52 Log-Likelihood: -18704.

No. Observations: 1922 AIC: 3.742e+04

Df Residuals: 1918 BIC: 3.744e+04

Df Model: 3

Covariance Type: nonrobust

==========

coef std err t P>|t| [0.025 0.975]

---

const 135.3247 1715.158 0.079 0.937 -3228.445 3499.095

MSCI ESG Ratings 156.0916 74.533 2.094 0.036 9.917 302.266

Total Assets -9.3743 159.129 -0.059 0.953 -321.458 302.709

Leverage Ratio -0.3354 1.223 -0.274 0.784 -2.733 2.063

==========

Omnibus: 2396.032 Durbin-Watson: 1.423

Prob(Omnibus): 0.000 Jarque-Bera (JB): 6159340.720

Skew: -5.509 Prob(JB): 0.00

Kurtosis: 280.111 Cond. No. 1.41e+03

==========

Notes:

[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.

[2] The condition number is large, 1.41e+03. This might indicate that there are strong multicollinearity or other numerical problems.

8.4 List of companies:

ticker	Name
A	AgilentTechnologies
AAPL	AppleInc.
ABBV	AbbVie
ABNB	Airbnb
ABT	AbbottLaboratories
ACGL	ArchCapitalGroup
ACN	Accenture
ADBE	AdobeInc.
ADI	AnalogDevices
ADM	ArcherDanielsMidland
ADP	AutomaticDataProcessing
ADSK	Autodesk
AEE	Ameren
AEP	AmericanElectricPower
AES	AESCorporation
AFL	Aflac
AIG	AmericanInternationalGroup
AIZ	Assurant
AJG	ArthurJ.Gallagher&Co.
AKAM	AkamaiTechnologies
ALB	AlbemarleCorporation
ALGN	AlignTechnology
ALL	Allstate
ALLE	Allegion
AMAT	AppliedMaterials
AMCR	Amcor
AMD	AdvancedMicroDevices
AME	Ametek
AMGN	Amgen
AMP	AmeripriseFinancial
AMT	AmericanTower
AMZN	Amazon
ANET	AristaNetworks
ANSS	Ansys
AON	Aon
AOS	A.O.Smith
APA	APACorporation
APD	AirProducts
APH	Amphenol
APTV	Aptiv
ARE	AlexandriaRealEstateEquities
ATO	AtmosEnergy
AVB	AvalonBayCommunities
AVGO	Broadcom

AVY	AveryDennison
AWK	AmericanWaterWorks
AXON	AxonEnterprise
AXP	AmericanExpress
AZO	AutoZone
BA	Boeing
BAC	BankofAmerica
BALL	BallCorporation
BAX	BaxterInternational
BBY	BestBuy
BDX	BectonDickinson
BEN	FranklinResources
BF.B	Brown–Forman
BG	BungeGlobal
BIIB	Biogen
BK	BNYMellon
BKNG	BookingHoldings
BKR	BakerHughes
BLDR	BuildersFirstSource
BLK	BlackRock
BMY	BristolMyersSquibb
BR	BroadridgeFinancialSolutions
BRK.B	BerkshireHathaway
BRO	Brown&Brown
BSX	BostonScientific
BX	BlackstoneInc.
BXP	BXP,Inc.
C	Citigroup
CAG	ConagraBrands
CAH	CardinalHealth
CARR	CarrierGlobal
CAT	CaterpillarInc.
CB	ChubbLimited
CBOE	CboeGlobalMarkets
CBRE	CBREGroup
CCI	CrownCastle
CCL	Carnival
CDNS	CadenceDesignSystems
CDW	CDW
CE	Celanese
CEG	ConstellationEnergy
CF	CFIndustries
CFG	CitizensFinancialGroup
CHD	Church&Dwight
CHRW	C.H.Robinson

CHTR	CharterCommunications
CI	Cigna
CINF	CincinnatiFinancial
CL	Colgate-Palmolive
CLX	Clorox
CMCSA	Comcast
CME	CMEGroup
CMG	ChipotleMexicanGrill
CMI	Cummins
CMS	CMSEnergy
CNC	CenteneCorporation
CNP	CenterPointEnergy
COF	CapitalOne
COO	CooperCompanies(The)
COP	ConocoPhillips
COR	Cencora
COST	Costco
CPAY	Corpay
CPB	CampbellSoupCompany
CPRT	Copart
CPT	CamdenPropertyTrust
CRL	CharlesRiverLaboratories
CRM	Salesforce
CRWD	CrowdStrike
CSCO	Cisco
CSGP	CoStarGroup
CSX	CSXCorporation
CTAS	Cintas
CTLT	Catalent
CTRA	Coterra
CTSH	Cognizant
CTVA	Corteva
CVS	CVSHealth
CVX	ChevronCorporation
D	DominionEnergy
DAL	DeltaAirLines
DAY	Dayforce
DD	DuPont
DE	Deere&Company
DECK	DeckersBrands
DELL	DellTechnologies
DFS	DiscoverFinancial
DG	DollarGeneral
DGX	QuestDiagnostics
DHI	D.R.Horton

DHR	DanaherCorporation
DIS	WaltDisneyCompany(The)
DLR	DigitalRealty
DLTR	DollarTree
DOC	HealthpeakProperties
DOV	DoverCorporation
DOW	DowInc.
DPZ	Domino's
DRI	DardenRestaurants
DTE	DTEEnergy
DUK	DukeEnergy
DVA	DaVita
DVN	DevonEnergy
DXCM	Dexcom
EA	ElectronicArts
EBAY	eBay
ECL	Ecolab
ED	ConsolidatedEdison
EFX	Equifax
EG	EverestGroup
EIX	EdisonInternational
EL	EstéeLauderCompanies(The)
ELV	ElevanceHealth
EMN	EastmanChemicalCompany
EMR	EmersonElectric
ENPH	EnphaseEnergy
EOG	EOGResources
EPAM	EPAMSystems
EQIX	Equinix
EQR	EquityResidential
EQT	EQTCorporation
ERIE	ErieIndemnity
ES	EversourceEnergy
ESS	EssexPropertyTrust
ETN	EatonCorporation
ETR	Entergy
EVRG	Evergy
EW	EdwardsLifesciences
EXC	Exelon
EXPD	ExpeditorsInternational
EXPE	ExpediaGroup
EXR	ExtraSpaceStorage
F	FordMotorCompany
FANG	DiamondbackEnergy
FAST	Fastenal

FCX	Freeport-McMoRan
FDS	FactSet
FDX	FedEx
FE	FirstEnergy
FFIV	F5,Inc.
FI	Fiserv
FICO	FairIsaac
FIS	FidelityNationalInformationServices
FITB	FifthThirdBancorp
FOXA	FoxCorporation (ClassA)
FSLR	FirstSolar
FTNT	Fortinet
FTV	Fortive
GD	GeneralDynamics
GDDY	GoDaddy
GE	GEAerospace
GEHC	GEHealthCare
GEN	GenDigital
GILD	GileadSciences
GIS	GeneralMills
GLW	CorningInc.
GM	GeneralMotors
GOOGL	AlphabetInc. (ClassA)
GPC	GenuinePartsCompany
GPN	GlobalPayments
GRMN	Garmin
GS	GoldmanSachs
GWW	W.W.Grainger
HAL	Halliburton
HBAN	HuntingtonBancshares
HCA	HCAHealthcare
HD	HomeDepot(The)
HES	HessCorporation
HIG	Hartford(The)
HII	HuntingtonIngallsIndustries
HLT	HiltonWorldwide
HOLX	Hologic
HPE	HewlettPackardEnterprise
HPQ	HPInc.
HRL	HormelFoods
HSIC	HenrySchein
HST	HostHotels&Resorts
HSY	HersheyCompany(The)
HUBB	HubbellIncorporated
HUM	Humana

HWM	HowmetAerospace
IBM	IBM
ICE	IntercontinentalExchange
IDXX	IdexxLaboratories
IEX	IDEXCorporation
IFF	InternationalFlavors&Fragrances
INCY	Incyte
INTC	Intel
INTU	Intuit
INVH	InvitationHomes
IP	InternationalPaper
IPG	InterpublicGroupofCompanies(The)
IQV	IQVIA
IR	IngersollRand
IRM	IronMountain
ISRG	IntuitiveSurgical
IT	Gartner
ITW	IllinoisToolWorks
J	JacobsSolutions
JBHT	J.B.Hunt
JBL	Jabil
JCI	JohnsonControls
JKHY	JackHenry&Associates
JNJ	Johnson&Johnson
JNPR	JuniperNetworks
JPM	JPMorganChase
K	Kellanova
KDP	KeurigDrPepper
KEY	KeyCorp
KEYS	KeysightTechnologies
KHC	KraftHeinz
KIM	KimcoRealty
KKR	KKR
KLAC	KLACorporation
KMB	Kimberly-Clark
KMI	KinderMorgan
KMX	CarMax
KO	Coca-ColaCompany(The)
KR	Kroger
L	LoewsCorporation
LDOS	Leidos
LEN	Lennar
LH	LabCorp
LHX	L3Harris
LIN	Lindeplc

LKQ	LKQCorporation
LLY	Lilly(Eli)
LMT	LockheedMartin
LNT	AlliantEnergy
LOW	Lowe's
LRCX	LamResearch
LULU	LululemonAthletica
LUV	SouthwestAirlines
LVS	LasVegasSands
LW	LambWeston
LYB	LyondellBasell
LYV	LiveNationEntertainment
MA	Mastercard
MAA	Mid-AmericaApartmentCommunities
MAR	MarriottInternational
MAS	Masco
MCD	McDonald's
MCHP	MicrochipTechnology
MCK	McKessonCorporation
MCO	Moody'sCorporation
MDLZ	MondelezInternational
MDT	Medtronic
MET	MetLife
META	MetaPlatforms
MGM	MGMResorts
MKC	McCormick&Company
MKTX	MarketAxess
MLM	MartinMariettaMaterials
MMC	MarshMcLennan
MMM	3M
MNST	MonsterBeverage
MO	Altria
MOH	MolinaHealthcare
MOS	MosaicCompany(The)
MPC	MarathonPetroleum
MPWR	MonolithicPowerSystems
MRK	Merck&Co.
MRNA	Moderna
MRO	MarathonOil
MS	MorganStanley
MSFT	Microsoft
MSI	MotorolaSolutions
MTB	M&TBank
MTCH	MatchGroup

MTD	MettlerToledo
MU	MicronTechnology
NDAQ	Nasdaq,Inc.
NDSN	NordsonCorporation
NEE	NextEraEnergy
NEM	Newmont
NFLX	Netflix
NI	NiSource
NKE	Nike,Inc.
NOC	NorthropGrumman
NOW	ServiceNow
NRG	NRGEnergy
NSC	NorfolkSouthernRailway
NTAP	NetApp
NTRS	NorthernTrust
NUE	Nucor
NVDA	Nvidia
NVR	NVR,Inc.
NWSA	NewsCorp (ClassA)
NXPI	NXPSemiconductors
O	RealtyIncome
ODFL	OldDominion
OKE	ONEOK
OMC	OmnicomGroup
ON	ONSemiconductor
ORCL	OracleCorporation
ORLY	O'ReillyAutoParts
OTIS	OtisWorldwide
OXY	OccidentalPetroleum
PANW	PaloAltoNetworks
PARA	ParamountGlobal
PAYC	Paycom
PAYX	Paychex
PCAR	Paccar
PCG	PG&ECorporation
PEG	PublicServiceEnterpriseGroup
PEP	PepsiCo
PFE	Pfizer
PFG	PrincipalFinancialGroup
PG	Procter&Gamble
PGR	ProgressiveCorporation
PH	ParkerHannifin
PHM	PulteGroup
PKG	PackagingCorporationofAmerica
PLD	Prologis

PLTR	PalantirTechnologies
PM	PhilipMorrisInternational
PNC	PNCFinancialServices
PNR	Pentair
PODD	InsuletCorporation
POOL	PoolCorporation
PPG	PPGIndustries
PPL	PPLCorporation
PRU	PrudentialFinancial
PSA	PublicStorage
PSX	Phillips66
PTC	PTCInc.
PWR	QuantaServices
PYPL	PayPal
QCOM	Qualcomm
QRVO	Qorvo
RCL	RoyalCaribbeanGroup
REG	RegencyCenters
REGN	RegeneronPharmaceuticals
RF	RegionsFinancialCorporation
RJF	RaymondJamesFinancial
RMD	ResMed
ROK	RockwellAutomation
ROL	Rollins,Inc.
ROP	RoperTechnologies
ROST	RossStores
RSG	RepublicServices
RTX	RTXCorporation
RVTY	Revvity
SBAC	SBACommunications
SBUX	Starbucks
SCHW	CharlesSchwabCorporation
SHW	Sherwin-Williams
SJM	J.M.SmuckerCompany(The)
SLB	Schlumberger
SMCI	Supermicro
SNA	Snap-on
SNPS	Synopsys
SO	SouthernCompany
SPG	SimonPropertyGroup
SPGI	S&PGlobal
SRE	Sempra
STE	Steris
STLD	SteelDynamics
STT	StateStreetCorporation

STX	SeagateTechnology
STZ	ConstellationBrands
SWK	StanleyBlack&Decker
SWKS	SkyworksSolutions
SYF	SynchronyFinancial
SYK	StrykerCorporation
SYY	Sysco
T	AT&T
TAP	MolsonCoorsBeverageCompany
TDG	TransDigmGroup
TDY	TeledyneTechnologies
TECH	Bio-Techne
TER	Teradyne
TFC	TruistFinancial
TFX	Teleflex
TGT	TargetCorporation
TJX	TJXCompanies
TMO	ThermoFisherScientific
TMUS	T-MobileUS
TRGP	TargaResources
TRMB	TrimbleInc.
TROW	T.RowePrice
TRV	TravelersCompanies(The)
TSCO	TractorSupply
TSN	TysonFoods
TT	TraneTechnologies
TTWO	Take-TwoInteractive
TXN	TexasInstruments
TXT	Textron
TYL	TylerTechnologies
UAL	UnitedAirlinesHoldings
UBER	Uber
UDR	UDR,Inc.
UHS	UniversalHealthServices
ULTA	UltaBeauty
UNH	UnitedHealthGroup
UNP	UnionPacificCorporation
UPS	UnitedParcelService
URI	UnitedRentals
USB	U.S.Bancorp
V	VisaInc.
VICI	ViciProperties
VLO	ValeroEnergy
VMC	VulcanMaterialsCompany
VRSK	VeriskAnalytics

VRSN	Verisign
VRTX	VertexPharmaceuticals
VST	VistraCorp.
VTR	Ventas
VTRS	Viatris
VZ	Verizon
WAB	Wabtec
WAT	WatersCorporation
WBA	WalgreensBootsAlliance
WBD	WarnerBros.Discovery
WDC	WesternDigital
WEC	WECEnergyGroup
WELL	Welltower
WFC	WellsFargo
WM	WasteManagement
WMB	WilliamsCompanies
WMT	Walmart
WRB	W.R.BerkleyCorporation
WST	WestPharmaceuticalServices
WTW	WillisTowersWatson
WY	Weyerhaeuser
WYNN	WynnResorts
XEL	XcelEnergy
XOM	ExxonMobil
XYL	XylemInc.
YUM	Yum!Brands
ZBH	ZimmerBiomet
ZBRA	ZebraTechnologies
ZTS	Zoetis