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ESG Impact on Stock Valuation: An Empirical Analysis of European Markets

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Abstract
The natural environment plays a crucial role in the lives of human beings. Global concerns such as pollution, loss of biodiversity, deforestation, social inequality, labour rights, and water shortages present visible dangers to economies and livelihoods that affect companies, funds, investors, and consumers alike. Also, in the current times, with the coming of the Covid-19 pandemic, people are becoming more aware of ESG (Environmental, Social, Governance) issues. It has resulted in a major shift toward socially responsible investing. Investor demographics, climate change conversations, and social justice matters are all changing business value systems and increasing the adoption of ESG investment approaches. Also, ESG reporting is now required for the European Union's 50,000 largest corporations. Keeping these developments in mind, this paper aims at analysing the impact of ESG on the stock valuation of European companies. In this paper, we contribute with a quantitative study that fills the gap in the literature regarding significant differences that are obtained in ESG and financial performance of FTSE 100. Environmental criteria consider how a company performs as a steward of nature. Social criteria examine how it manages relationships with employees, suppliers, customers, and the communities where it operates. Governance is concerned with the leadership of a company, executive pay, audits, internal controls, and shareholder rights. Multiple regression analysis is used in this work to demonstrate the relationship between the selected dependent and independent variables at one point in time.

1. Introduction

1.1 Environment and Europe

In recent years, investors have begun to construct portfolios centred on Socially Responsible Investing (SRI). SRI, also known as sustainable investing, is a novel investment strategy that aims to combine environmental, social, and governance factors (ESG factors). ESG investing is sometimes referred to as sustainable investing, responsible investing, impact investing, or socially responsible investing (SRI). To assess a company based on environmental, social, and governance (ESG) criteria, investors look at a broad range of behaviors. Sustainable investing can be correlated to sustainable development. According to the Report of the United Nations World Commission on Environment and Development 1987, sustainable development means development that satisfies the present need but without comprising of the ability of future generations to fulfil their needs.

One of the major driving forces behind ESG has been regulations. Previously, the landscape was dominated by inconsistent disclosure, greenwashing, and inaccurate nomenclature. When it comes to implementing regulations, Europe is first, followed by the United States and Asia-Pacific (APAC). ESG disclosures, carbon regulations, and taxonomy have all been implemented in Europe. The EU Sustainable

Finance Action Plan was adopted in 2018. It concentrated on critical issues such as standardised EU labelling, increased corporate disclosure obligations, benchmarks for low-carbon investing, and transparency. Some of the regulatory aspects relating to disclosures have already been implemented in 1Q20.

However, according to the 'European Environment - Status 2020 (SOER 2020),' while European policies focusing on environmental and climate policies have made some progress over the decades, Europe still has a long way to go before reaching its goals. There has been progress in areas such as air and water pollution, as well as the implementation of new plastic waste management policies. Efforts have been made to support climate change, the cycle, and the living economy. However, Europe is still a long way from achieving 'world prosperity within its borders.'

Europe has been unable to reduce greenhouse gas and industrial emissions. They have failed to reduce waste, improve energy efficiency, and increase the proportion of renewable energy. Short-term progress in European conservation and conservation remains a major focus. Every year, a lack of access in a matter of minutes kills many people in Europe, disproportionately affecting Central and Eastern European countries. There is also growing concern about the dangers posed by harmful chemicals. If Europe is serious about improving the environment, it must reduce environmental risks to health by better integrating environmental and health policies.

2. Literature review

Companies' ESG performance can have a significant impact on investors. Krüger (2015) concludes that "greater transparency increases corporate value, thanks to increased stock liquidity and lower information asymmetries," based on research on the performance of listed companies on the London Stock Exchange following the mandatory implementation of GHG emissions. Radhouane, Nekhili, Nagati, and Paché (2018) evaluate company results in reporting on environmental activities and show that customers and shareholders are positive and interested in companies for better environmental performance. Jacobs et al. (2010) discovered in a similar study that the market is sensitive to environmental performance announcements, which have an impact on the market value of companies. Hartzmark and Sussman (2019) discovered that investors (both institutional and individual) place a premium on sustainability by tracking the flow of capital to and from joint ventures with varying levels of global sustainability. According to Stark et al. (2017), the popularity of ESG high school firms is affected by the investment climate, with high ESG firms preferred over other firms only in long-term investments. However, according to some researchers (Brammer et al., 2006), there is not always a positive relationship between social and financial performance, depending on the type of business. According to Hong and Kacperczyk (2009), social norms are a significant driver of lower investor demand for'sin' stocks, resulting in higher expected returns on firms involved in the production of alcohol, tobacco, and gaming.

Employee satisfaction can also have an impact on stock numbers. According to Edmans (2011), firms with higher employee happiness have higher stock returns. According to the study, "a portfolio based on the '100 Best Companies to Work For in America' achieved an annual alpha of 3.5 percent since 1984 2009, and 2.1 percent above industry norms." The findings are encouraging for solid signal controls, various measurement methods, and outlier removal." Edmans (2012, AMP, ABS 3 NF) extended the sample from 1984 to 2011 and found similar results. As previously stated, Kempf and Osthoff (2005) and Statman and Glushkov (2009) discovered a high return on investment in KLD school-based strategy in employee (and community) relationships. These findings are consistent with Edmans' (2011, 2012).

Social statement provides a company's achievements in social areas over a specific time period. Other indicators besides financial indicators that can be sensitive information for the important people involved are employee welfare, customer satisfaction, work accident rates, and customer complaint levels. The disclosure of relevant information can help to reduce information asymmetry. Greater transparency of sustainability activities can reduce investor confusion about firm value and thus increase investor confidence. As a result, market participants are expected to place a higher value on companies that disclose more information. Businesses bear social and environmental responsibilities. Good corporate social performance can be interpreted positively by investors because it is linked to the long-term sustainability of the company's operations and can raise investors' awareness of the importance of considering social factors as an indicator of potential risks in the future. When investors use social information as a basis for decision making, it is said to have value relevance.

Fatemi et al. (2018) investigated the impact of ESG performance and disclosure on firm values in the United States. ESG disclosures were discovered to have the potential to change the effects of performance in both positive and negative directions. The relationship is investigated between ESG disclosures and investment returns in the Japanese stock market and found no significant differences as per Yuyama et al. (2019). The relation between ESG performances and disclosures as well as debt capital costs in 15 EU countries is investigated as per Eliwa et al. (2019). In their study, there were no significant differences in ESG performance and disclosure. According to Boffo and Patalano (2020), the correlation between ESG scores of a firm provided by different rating providers is low. Different rating providers use different rating approaches, and as a result, the performance of ESG scores varies. Quiros [27] investigated the impact of ESG disclosure on firm value.

The aggregate disclosure of ESG information assists investors in comprehensively assessing the firms' non-financial performances. Bernardi (2016) discovered empirical evidence that combined reporting had an effect on earning prediction accuracy. Investors can benefit from the disclosure of relevant ESG information. Peiris and Evan (2016) investigated the impact of ESG factors on stock returns. Between 1991 and 1996, the research was based on 250 stocks in the Domini Social Index (DSI) in the United States. According to the empirical findings, ESG disclosure had a significant positive effect on stock returns. The stock returns were reviewed around ESG news announcements by using the event study methodology and calculate the cumulative abnormal return (CAR) to 21 trading days around for each news release as per Cui B. and Docherty P. (2020). They discovered evidence that the market overreacts to ESG news, which could have negative implications for market efficiency and investor behaviour.

The disclosure of data on corporate environmental responsibility is a good sign for investors. Companies with good environmental performance can gain a competitive advantage because competitors with poor environmental performance will find it difficult to emulate them. Such a benefit may have an impact on the companies' long-term viability in terms of generating profits for investors. Governance information, according to Mouselli (2014), is a major determinant of company estimates, financial costs, and market capitalization. The impact of corporate governance on stock recovery was investigated by Koerniadi, Krishnamurti, and Rad (2014). They discovered that well-managed firms had a higher rate of return on shares because they were less risky. Lower risk levels are associated with good governance.

According to a common neoclassical viewpoint, investing in social media incurs additional corporate costs (Palmer, Oates, and Portey, 1995) and is frequently regarded as a negative economic agent, as corporate competition may be harmed (Baumol and Blackman, 1991). The fundamental assumption is that the benefits of investing in ESG-related actions do not outweigh the costs. According to some recent research

papers, companies that report on investment in ESG-related activities or win various green awards are still at risk (Jacobs, Singhal, & Subramanian, 2010; Fisher-Vanden & Thorburn, 2011; Lyon, Lu, Shi, & Yin, 2013). an unusual return, implying that market participants are hesitant to invest in this feature. According to Moon (2007), the complexity of organisational accountability in different companies with varying social and environmental impacts cannot be monitored, and the diversity of social norms / values makes declaring a universal view of multiculturalism doubtful.

3. Objective

On analysing the available research on ESG and Stock Valuation, the conclusions reached are mixed in nature. Also, the data available for the European market is not abundant enough to reach some valuable conclusions.

To fill this void, the current paper attempts to investigate the following: -

- To fill this void, the current paper attempts to investigate the following: - For example, Tobin Q
- The study focuses on analysing the relationship between ESG rating and FTSE 100 stock valuation.

3.1 The Data

Because the sample evidence was gathered in the context of Europe, this study relies on secondary data to demonstrate the topic's validity. The majority of the data used in this study was obtained from Yahoo Finance.

Variables Incorporated

- ESG rating, Return on Equity, and Price to Book Value of FTSE 100 Companies, i.e. Tobin Q

Date of Study

- 5th August 2021

Data Source

- Yahoo finance and Morning Star

Selection of Dependent Variable

This paper simply attempts to investigate the relationship between ESG, Return on Equity, and Price to Value (stock valuation) by using Price to Book Value as the dependent variable, as Palepu (1986), Ambrose and Megginson (1992), Chen and Su (1997), and Powell (1999) have done (1997; 2001; 2004).

Selection of Independent Variable

This paper merely attempts to investigate the relationship between ESG and Return on Equity with Price to Value (stock valuation) by treating Environment, Social, Governance, and Return on Equity as Independent Variables.

Table 1-List of deal-related variables included in the study

Variable name	Measurement
Price to Book Value (Firm Valuation)	Dependent Variable
Environment	Independent Variable
Social	Independent Variable
Governance	Independent Variable
Return on Equity	Independent Variable

3.2 variables for establishing esg

A) Price to Book Value (Firm Valuation)

The firm's value is extremely important. Tobin-Q, calculated as the ratio of market cap to book value of assets, is used in this study to determine a firm's valuation. It is calculated mathematically as shown in Equation (4.6). Tobin-Q is used by researchers such as Palepu (1986), Ambrose and Megginson (1992), Chen and Su (1997), and Powell (1997; 2001; 2004) to determine a firm's valuation.

$$Tobin - Q = \frac{Totalmarketvalueoffirm}{Totalassetvalueoffirm} \quad (1)$$

B) Return on Equity

Return on Equity measures the value of a company's stock to its shareholders (ROE). It represents the return on shareholders' equity as a percentage of net income. It has a mathematical definition, as shown in Equation (4.4).

$$ROE = \frac{NetIncome}{Shareholders'Equity} \quad (2)$$

ROE forecasts a company's ability to generate profit from the funds invested by shareholders. It is an important factor in determining a company's profitability. When a company's ROE is higher, it motivates its chief financial officers to take more risks. Return on equity is always an important metric for assessing a firm's competitive capability. Several other studies, on the other hand, claim that ROE has a negative relationship with the likelihood of being taken over (Barnes, 1998; Barnes, 2000; Bhabra, 2008).

C) Social

Employee satisfaction, for example, has an impact on the investor. According to Edmans (2011), firms with high employee satisfaction have high future stock returns. According to Kempf and Osthoff (2005) and Statman and Glushkov (2006), a strategy based on KLD scores on employee relations (and community) yielded the highest returns (2009).

D) Environment

According to Mario La et al. (2020), the Environment variable can be defined as the company's ability to positively contribute to climate change. The company should implement environmental policies that reduce negative environmental impacts. They must also report on their performance in terms of the environmental factor. Furthermore, their manufacturing should be committed to reducing waste.

E) Governance

Governance should ensure that the best practises for forming a board of directors are understood. The leadership should concentrate on integrating the surrounding environment with the company's core business. Corporate policies that are aligned with sustainability objectives should be transparent to stakeholders. (Mario La and colleagues-2020)

3.5 Model for investigating the impact of esg on stock valuation

This section presents the multiple regression model (P.C. Narayan M. Thenmozhi 2014) adopted for assessing the influence of ESG rating on the Valuation of the FTSE 100 firms. In this work, multiple regression analysis is applied to demonstrate the relationship between the selected dependent and independent variables at one period or point in time. The Price to Book Value is considered as the dependent variable. The general cross-sectional regression model is as shown in Equation (3).

$$Price\ to\ Book\ Value = \beta_1 E + \beta_2 S + \beta_3 G + \beta_4 ROE + e_{it} \quad (3)$$

In Equation (3), E indicates Environment, S refers to the Social, G denotes the Governance, , and ROE represents the Return on Equity.

3.6 RESULT AND ANALYSIS

This section goes over the findings of the analysis in detail. The significant deal features are investigated using multiple regression analysis. The overall result shows that all ESG related variables, except Governance, have an impact on the valuation of FTSE 100 firms, i.e. Price to Book Value.

It has been observed that the Environment and Social have a negative impact on the price to book value of FTSE 100 companies. That is, the higher the Environment and Social rating (Severe Environment and Social rating), the lower the Company Equity Value, or Price to Book Value.

The reason for this is that Yahoo Finance publishes ESG data from sustainalytics.com. Sustainalytics.com has identified five categories of ESG risk severity that may have an impact on a company's enterprise value. That is, the higher the rating, the riskier the company is in terms of long-term performance. For example, if the company has an Environment rating of 40 or higher, it means that the company does not adhere to environmental standards. Norms/Compliances.

Table 2: Impact of ESG Rating and ROE on Valuation of FTSE 100 Firms

Dependent Variables- Price to Book Value		
	Coeff	**t-stat**
Intercept	65.65	0.32
Environment	-19.44	**-2.84***
Social	-19.05	-1.28
Governance	40.28	1.40
Return on Equity	107.27	**1.55****
Adjusted R Square	*0.148*	
Prob(F-Statistic)	*0.010*	
S. E of regression	*351.04*	
Sum Squared resid	*690.1*	
Log Likehood	*-441.46*	
Akaike info criterion	*14.63*	
Schwarz Criterion	*14.811*	
Hannan-Quinn	*14.70*	
Durin Watson	*1.73*	
The symbols ****, ***, ** and * represent significance at 15%, 10% & 5% & 1% respectively.		

Furthermore, the Price to Book Value has a significant impact on return on equity (firm valuation). As a result, the higher the Return on Equity, the higher the Company Valuation. The interpretation is that if a company has a higher return on equity with a low ESG score (especially Environment and Social), it is expected to have a higher equity valuation than companies that are comparable to you.

It should be noted that while Social and Governance are not gaining importance, Social is still having a negative impact on valuation, accounting for 21% of the P Value. However, no significant conclusion can be drawn in the case of Governance because Social has positive coefficients with a P value of 16 percent. Thus, using a multiple regression model, this study identifies the significant ESG Variables and Return on Equity that affect the equity valuation of FTSE 100 firms. Environment and Return Equity are two examples of variables. Price to Book Value, for example, is important in FTSE 100 equity valuation.
It should be noted that the Adjusted R Square for the Model is 0.148 and Prob(F-Statistic) is 0.010, indicating that the model is perfectly fit.

4. CONCLUSION

Overall, according to the empirical test inference, investors in Company Valuation have reacted positively to environmental, social, and Return on Equity factors. The study demonstrates the comparison of a relatively newer set of performance evaluations to traditional ones. The impact of ESG ratings and ROE on FTSE 100 firm valuation was considered. Price to Book Value (dependent variable), Return on Equity, Environment, Social, and Governance are the variables considered in this study.
It was discovered that having a high environment score (Severe Score) has a negative impact on the price to book value of FTSE 100 firms, with a 1% significance level. It was also discovered that if a company has a high social impact score (Severe), it has a negative impact on its price to book value. Although it should be noted that social has a negative impact, the value is not significant. Furthermore, the Price to Book Value has a significant impact on return on equity (firm valuation). This means that the greater the Return on Equity, the greater the Company Valuation. On the other hand, the governance factor was discovered to play no significant role in the company's valuation, indicating its impending insignificance.

5. POLICY IMPLICATION

- It can be concluded that stakeholders should pay more attention to the direct and indirect environmental impact of their businesses.
- In the long run, for the committed ESG investor, active information and the use of subtler ESG information ownership may be a more effective strategy.
- Companies should design their policies with the goal of positively impacting the environment, and they should also be transparent when it comes to reporting information that may have an impact on the environment. Any information that contributes to pollution should be disclosed and corrected.
- Companies should also ensure that no material is wasted during the manufacturing process.

6. LIMITATIONS

- The work only focuses on the FTSE 100. However, the same research methodology can be used in other countries.
- Furthermore, there may be some unobserved factors that influence the relationship between ESG factors and company market value

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