

ESG and Firm Value

Andrea Quintiliani¹

¹ Department of Law and Economic Sciences, Pegaso Online University, Naples, Italy

Correspondence: Andrea Quintiliani, Department of Law and Economic Sciences, Pegaso Online University, Naples, NA, Directional Center of Naples, Pegaso Tower F2, Italy. E-mail: andrea.quintiliani@unipegaso.it

Received: October 22, 2022

Accepted: November 18, 2022

Online Published: November 22, 2022

doi:10.5430/afr.v11n4p37

URL: <https://doi.org/10.5430/afr.v11n4p37>

Contribution/ Originality: This research contributes to broadening the scope of the literature review regarding ESG performance.

Abstract

This study aims to investigate the correlations between ESG score and firm value. The paper verifies the hypothesis that there is a positive correlation between ESG score and firm performance, as indicated by levered free cash flow, ROE, current ratio, and quick ratio; also, the study aimed to investigate the relationship between ESG score and firm value improvement, as indicated by stock price of firm. The study applied linear regression to a panel data using Bloomberg ESG disclosure scores from a sample of 115 companies listed in Europe. The time under study was from 2016 to 2020. Findings suggest a positive and significant relationship between the variables. Research findings will help firms' stakeholders to improve their awareness of the impact of ESG disclosure on the performance of the firm. The findings, which support the positive relationship between ESG and firm performance, can be used to supporting or even completing other studies with similar or same concept, after necessary adjustments have been made. Data used for this study need to be subjected to more statistical tests in order to establish a more robust validity and reliability. It is necessary to acquire further strengthened data and assume a variety of conditional situations. It is expected that subsequent studies can use larger samples and diversified by sector, a broader geographic base, and a multi-faceted analysis.

Keywords: ESG, firm value, stock price of firm, firm performance, ESG disclosure

1. Introduction

ESG acronym (Environmental, Social, and Governance) undoubtedly recalls one of the most current and debated topics in the field of investments. The past three years have seen a multitude of people questioning the Google search engine about what "ESG investing" means. The attention is very high! The impetus given by the Covid-19 pandemic on social issues, as well as the environmental concerns justified by the climate phenomenon of global warming, have forced business managers to deal with environmental, social, and corporate governance issues; the latter, even before the outbreak of the health crisis, carefully monitored / evaluated by the institutional investor community. But what is it about? Is ESG investing a fad or a long-term trend that will dominate the capital market in the near future?

As clarified in my previous monographic work (Quintiliani, 2021), the ESG is undoubtedly a trend that has already been underway for some time; however, it has accelerated sharply with the health emergency. The succession of different epidemic waves and confinement measures have pushed companies to reduce their carbon footprints. The progressive reduction of commuting, the spread of smart working, the emergence of a more careful awareness of the gravity of an epidemic event, the now settled fear of an invisible enemy constantly lurking, are all factors that, post-Covid, could encourage companies to calibrate and manage their impact in environmental, social and governance terms.

As can be seen from the survey conducted by Welsh (2018) on a significant panel of American investors, already in 2018, the "activist shareholders" showed a certain sensitivity in actively supporting ESG objectives and initiatives: climate change (19%), sustainability environmental (13%), other environmental (7%) and policy initiatives (19%). Based on the empirical feedback obtained by Welsh (2018), it is clear that 39% of the resolutions presented by shareholders were related to the environment.

It is undeniable that the world of finance is inspiring its choices also thanks to the adoption and use of ESG rankings

(Bradley, 2021); in this regard, the study conducted by Bellavite Pellegrini, Dallochio and Parazzini (Bellavite Pellegrini et al., 2020) highlights the significant impact of ESG Scores on the cost of capital.

It is good to remember that companies often benefit from activities that do not give rise to financial outflows but that determine external costs. These costs, which are not recognized / accounted for but transferred to society in general, are called "externalities". It is undeniable that business activity can be a source of numerous negative externalities, or external diseconomies, with a high environmental, social, or political impact. The health emergency must not be a conditioning element but a stimulus for all companies, so that they tend to evaluate / quantify negative externalities, both environmental and social.

In the aftermath of the outbreak of the epidemic, rating agencies have notified companies that the presence (or absence) of sustainability plans and objectives could affect their bond prices and their WACC - Weighted Average Cost of Capital (Schenker, 2020); in other words, it could impact on profitability, company value, creditworthiness and share price.

In the future, businesses will increasingly need to demonstrate ESG achievement; otherwise, they may find themselves at the mercy of activist shareholders and, therefore, be negatively affected in terms of reduced profitability and share price.

But let's take a step back and focus on the concept of ESG. Commonly referred to as "the analysis of a company's environmental, social and governance practices", the ESG first caught the attention of the financial world following a 2005 United Nations Global Compact report, in which it was stated that the incorporation of ESG criteria into capital markets would allow to "do well by doing good" (Bradley, 2021). Since then, the importance of ESG issues has skyrocketed.

Confirming the strong interest in ESG issues, it is useful to recall how the international network of investors, certified as per Principles for Responsible Investment (PRI), currently has more than 1200 signatories including institutional investors, asset management companies and service providers. Launched by the United Nations Organization (UN) in 2006, the "principles for responsible investment" aim to promote the spread of sustainable and responsible investment among institutional investors. The marked sensitivity of investors to the issue of environmental impact and their greater awareness of the critical role of ESG performance in safeguarding the success of a company, mean that today ESG can no longer be considered a niche investment.

It is clear how ESG issues can become sources of opportunities and threats for companies and, therefore, determining their long-term prospects.

In recent years, the term "ESG" has become synonymous with "sustainable investment" or, better still, with "socially responsible investment"; however, the ESG, rather than an investment strategy in its own right, should be better interpreted and conceptualized as it is placed within a "risk management" system functional to the analysis of company value. In fact, the integration of risks associated with environmental, social and corporate governance factors allows the company a better understanding of the context in which it operates, greater awareness of the risks assumed and, lastly, strengthens its ability to respond to stakeholder needs.

For greater clarity, the acronym ESG indicates the "suitable criteria for measuring the sustainability and social impact of an investment in the company". These criteria are strategic since, in perspective, they allow the company management to better orientate itself towards the financial performance objectives.

It seems necessary to emphasize that ESG should not be confused with "impact investing"; in fact, impact investments refer to the type of investments the investor is targeting, while the ESG criteria are part of an evaluation process that mutates non-financial data with the aim of identifying tangible risks and growth opportunities of the company. Furthermore, with impact investing, the investor intentionally aims to derive economic returns from an investment capable of generating a positive, and therefore measurable, social and environmental impact. Instead, unlike impact investing, ESG is a "means to an end", as it is suitable for identifying those non-financial risks which, ultimately, can be reflected, in terms of tangible impact, on the value of agency.

Furthermore, the concept of ESG is often confused or used (erroneously) as a synonym for two phenomena, which are actually different: "Corporate Sustainability" and "Corporate Social Responsibility", also known as Corporate Social Responsibility (CSR). While there are some overlaps, these terms cannot be considered interchangeable:

- *Corporate sustainability*. The term Corporate Sustainability is generally used to describe the company's ability to seize opportunities and manage risks deriving from economic, environmental, and social developments, so as to create long-term value for all its stakeholders. For many others, corporate

sustainability simply means "doing good" and does not require pre-established conditions.

- *Corporate Social Responsibility*. By Corporate Social Responsibility, we mean the integration by companies of the social and environmental concerns of key stakeholders in their operations and commercial activities of interest. All this is done on a voluntary basis by companies. In comparison, ESG evaluates a company's ESG practices, together with more traditional financial metrics.

Finally, the ESG is further associated with "ethical investments". However, the ESG criteria configure a "preparatory approach" to investment, and which explicitly considers environmental, social and corporate governance factors. In other words, the ESG provides an investigation framework suitable for capturing, in relation to the individual factors "E", "S" and "G", the most relevant risks and opportunities that companies will have to face. This leads investors to select stocks that boast the best ESG scores ("high-ranked" or "best-in-class") and, conversely, to reject those stocks that, for example, record an environmental score that is not in line with their expectations.

Ethical investment implies the choice of securities on the basis of ethical or moral principles; in general, these investors reject "sinful securities", such as those relating to gambling, alcohol or weapons manufacturing, by means of an ESG selection system that sees "sinful securities" explicitly excluded from a generic wallet.

Unlike traditional ratios / financial indices, there is no system for evaluating ESG indicators, shared by practice and literature, able to accurately evaluate and distinguish performing companies from non-performing ones; in other words, it is not yet clear which rating systems are capable of accurately assessing / indicating ESG performance levels.

For greater clarity, the ESG rating is a report that certifies the solidity of the company from the point of view of environmental, social and governance aspects. In assigning the rating, another question, still open, is the opportunity to consider / integrate / aggregate all three ESG factors or just some; in fact, only some of the ESG factors may be significant for certain stocks. For example, the environmental risks associated with a bank's business will be less significant than those that a company operating in the steel sector will have to face; on the other hand, the hypothesis that sees the financial intermediary most exposed to the risks deriving from factors attributable to governance issues appears likely.

A further aspect, not to be overlooked, is recomposing of the equity portfolios through "integration" of the ESG criteria; this integration, functional to maximizing value and minimizing risk, is consistent with the "fiduciary duty" of managers and institutional investors to take into consideration all relevant information, material risks and opportunities that characterize potential investments. With reference to this aspect, it should be remembered that the approach to ESG integration should not be interpreted as automatically excluding (negative screening) or including (positive screening); in fact, the integration of ESG criteria, unlike fundamental analysis, is not constrained by the need for portfolio diversification and may include equities which, despite having low ESG ratings, are considered, in perspective, to perform as their issuing companies show that they are committed to reconsidering their ESG objectives and responsibilities. It follows that all large institutional investors are directed to the use of ESG factors. In particular, the signatories of the PRI have done their utmost to promote the incorporation of environmental, social and corporate governance factors in investment decision-making processes. For example, "BlackRock", the largest investment manager in the world, based in New York, has announced that sustainability will be its new "investment standard"; in particular, given that sustainable investments have the potential to deliver better results, BlackRock is incorporating sustainability into risk management, portfolio construction, formulating new products and interacting with companies. In addition, BlackRock is increasingly committed to including some key ESG performance indicators in its engagement policies, providing clarity on its expectations for companies.

Here it should be noted that risk assessment is one of the main reasons that push companies to undertake ESG analyzes. But that's not the only reason. In fact, the ESG analysis proves to be further useful to seize, in advance of the wider audience of investors, the investment opportunities in those companies committed to improving their "E", "S" or "G" profiles.

Arising even before the outbreak of the Covid-19 crisis, the ESG phenomenon has been the subject of multiple scientific studies whose results, converging with each other, allow us to state the following:

- The application of ESG principles/criteria has a positive effect on the returns of investments in individual securities. The main empirical evidence shows that the equity performance of the most virtuous companies in environmental, social and governance terms is better than that shown by the less virtuous competitors (Eccles et al., 2014; Waddock and Graves, 1997; Dimson et al., 2015; Auer and Schuhmacher, 2016; Khan et al., 2016; Chelawat and Trivedi, 2016).

- The application of ESG principles/criteria has advantages on risk profiling and the return of a portfolio. Empirical data shows that integrating ESG criteria into the investment process and investing in companies with high ESG scores can contribute to better performance (Derwall et al., 2005; Borgers et al., 2015; Tamimi and Sebastianelli, 2017; Van Duuren et al., 2016).
- The integration of ESG analysis mitigates the risk. The studies conducted show that ESG analysis generates returns similar to non-ESG investments, but at the same time mitigates the risk (Eccles et al., 2014; Morgan Stanley, 2015; Verheyden et al., 2016).

Leaving behind a complicated, not to say tragic 2021, a 2022 under the banner of sustainability is envisaged. A 2022 that will see the impact of climate change rise to the main risk area "E", together with the Covid-19 phenomenon, whose social implications will significantly and permanently impact the sphere of social risk "S". Furthermore, the impact of the questionable Brexit, as well as uncertainties about the possibility of keeping Covid-19 at bay, will see companies further committed to incorporating "G" governance principles into the management of their supply chains. Furthermore, the volatility of the markets, induced by the military aggression of Russia against Ukraine, will see companies increasingly attentive to ESG factors. Therefore, our future investigations over a longer period will have to consider these aspects.

Supporters of the ESG phenomenon highlight how the disclosure of ESG information is a critical and determining factor in the company's ability to create value. The reasons are to be found in the effects produced by the "ESG report": greater transparency, improvement of internal and external decision-making processes, safeguarding and strengthening of financial stability (Eccles and Saltzman, 2011; Eccles et al., 2015).

Multiple studies, mostly recent, show the significant role of sustainability reports in promoting transparency, as well as the evident effects on corporate finance (Jensen and Berg, 2012; Adams, 2017). The Steyn study (2014) shows the positive impact of the sustainability report on the business and on the company's ability to improve its financial performance. Furthermore, numerous scientific evidence indicates that disclosure of ESG data leads the company to reputational benefits, as well as significant competitive advantages (Gardberg and Fombrun, 2006; Lee Brown et al., 2009; Simnett et al., 2009).

The incessant process of internationalization and globalization of the markets, the widespread international economic integration and the dimensional growth of companies have led many managers and business stakeholders to not underestimate and to consider the disclosure of information on corporate governance critical and relevant (Singh and Gaur, 2009).

Therefore, this study tries to test the following research hypotheses:

H₁. There is a positive correlation between company performance and ESG score.

H₂. There is a positive correlation between market performance and ESG score.

This study formulates its research hypotheses supported by the agency and signaling theory. It is expected that subsequent studies can use larger samples and diversified by sector, a broader geographic base, and a multi-faceted analysis.

This work proceeds as follows: Section 2 offers a bibliographical framework. Section 3 explains data and sample selection. Section 4 summarizes the research findings. Section 5 is devoted to drawing conclusions.

2. Literature Review

ESG is an acronym commonly used by investors to evaluate companies from the point of view of environmental, social, and corporate governance aspects. ESG criteria are considered non-financial performance indicators and are used to identify good corporate practices in the fields of ethics, social responsibility, and corporate governance. In other words, the ESG issue identifies a parameter for assessing the performance of companies, together with traditional economic parameters, by the financial world (banks and institutional investors) but also by the so-called "supply chain leaders", that is companies that lead of the supply chain by asking its suppliers to adapt their governance standards to the principles of sustainable development. In terms of ESG investments, a key concept emerges, among others, namely "ESG integration"; in this regard, the UN Principles (Principles for Responsible Investment - PRI) define it as follows: "The explicit and systematic inclusion of ESG factors in the analysis and investment decisions". In other words, ESG integration recalls the application of ESG factors in traditional financial analysis. ESG or ESG factors are increasingly being paid attention to by finance professionals, individual investors, institutional investors, and professional fund buyers. With the intention of being recognized and labeled socially responsible, recent years have seen an ever-increasing number of companies engaged in ESG activities. At the same

time, the investment initiatives of an increasing number of wealth managers, pension funds and institutional investors have been undertaken after evaluating the ESG assets of the target companies.

The financial industry and the academic world reveal the now strong awareness of investors about the existence of an intimate link between ESG and corporate finance.

A survey conducted by Accenture in 2021 on a large panel of institutional and non-institutional investors, highlights how 72% of respondents incorporate ESG principles into their investment approaches and decision-making processes. Of those who already implement ESG strategies, 46% believe this analysis is as important to their investment process as traditional 'fundamental analysis'. 90% of respondents believe, looking ahead, ESG integrated portfolios will outperform the market and non-ESG integrated portfolios. In addition, some of the institutional respondents envision the potential and enormous challenges that will emerge from ESG assessments.

As already clarified, ESG criteria are essential for understanding a company's business practices but also for predicting its financial performance.

Here, supported by existing literature, I will try to clarify how ESG practices can play a key role in generating value for a company or a single investment. In other words, I will clarify how the ESG performance (ESG scores) can be reflected on the constituent elements of the company value: cost of risk capital, cost of debt capital, return and risk.

In the literature there is an intense scientific production on the causal links between ESG performance and business performance; however, the non-univocity of the data and the extreme variety of approaches to reporting ESG performance are reflected in the scientific results, which are quite different from each other (Li et al., 2018).

Why should ESG practices improve business performance? In an attempt to answer this question, a widely accepted and widespread theory has spread that traces the best business performance to the reduction in the cost of capital. The supporters of this theory highlight how the higher costs incurred to adapt to the ESG criteria are reflected, virtuously and to the same extent, on the reduction in the cost of capital. In this regard, Mackey et al. (2007) clarify that behavior that can be qualified as socially responsible can be associated with a "product" sold by companies to investors. But does this product create value for the company? In line with the cost of capital theory, the study by El Ghouli et al. (2011) shows a negative correlation: the higher the ESG rating, the lower the cost of capital. Albuquerque et al. (2012) believes that the ESG is a product that can be qualified as strategic and, therefore, a source of greater profits for the company. Particularly interesting is the study conducted by Sharfman and Fernando (2008) which demonstrates how the disclosure of non-accounting information and ESG reporting are valid tools to support the management and control of business risks; therefore, companies with higher ESG ratings are considered less risky.

Over time, numerous theoretical and empirical studies have highlighted the correlation between ESG performance and corporate financial performance. Friedman, Mackey, and Rodgers (Friedman et al., 2005) find a negative correlation; this scientific evidence is consistent with the neoclassical economic theory according to which the ESG behaviors of companies cause competitive disadvantages and cause an unjustifiable increase in operating costs (Aupperle et al., 1985; McWilliams and Siegel, 1997; Jensen, 2002). In line with those who highlight the negative correlation, the statements of Perrini et al. (2011) which clarify how ESG issues should only be addressed by non-profit organizations. In particular, the supporters of the shareholder theory highlight how ESG practices are irreconcilable with the objectives of the company aimed at maximizing the wealth of its shareholders (Jensen, 2002).

On the other hand, very quickly there is a fruitful scientific production that sees the supporters of the agency and signaling theory corroborate the positive correlation between ESG performance and corporate financial performance (Donaldson and Preston, 1995). Based on this theory, companies could improve their profitability by mitigating information asymmetries (Freeman, 2010; Alon & Vidovic, 2015).

Other studies clarify that financial performance is subordinated to the company's ability to manage relationships with key stakeholders (Waddock, 1997). For many, ESG performance is comparable to an intangible capable of leading the company to a more efficient and strategic management of available resources.

3. Data and Empirical Model

This study uses a dependent variable (ESG score), five independent variables (levered free cash flow, ROE, current ratio, quick ratio, and stock price of firm) and two control variables (financial leverage, and firm size). The four performance indexes (levered free cash flow, ROE, current ratio, and quick ratio) investigate final performance of the company, focusing on the evaluation of net performance. ROE, in fact, is the synthesis par excellence of the company's net profitability. In addition to ensuring a good level of return to share capital, it is important that

company has sufficient cash to distribute these profits. Here, then, is the importance of levered free cash flow, which measures the ability of cash flows to remunerate shareholders. Last two performance indicators, the current ratio and quick ratio, verify the balance in the correlation of sources/uses. Market value is measured using stock price.

Furthermore, control variables chosen are financial leverage, and size. “Financial leverage” variable is measured by debt to total assets ratio. “Size” variable is necessary to summarize the different level of information asymmetry and the different degree of market reactivity due to the organizational, structural and governance dimensions of each company. The variable in question can be expressed with measures of different types. The most common are: the “total asset” (Watson *et al.*, 2002); the “market value of equity” or, alternatively, the “book value of debt” (Chow and Wong-Boren, 1987); the “number of shareholders” (McKinnon and Dalimunthe, 1993). Our choice fell on “total asset”, perhaps the most used measure in value relevance studies (Taillard, 2022), discarding measures based on stock market data to avoid multicollinearity phenomena with the variable employee. This value, in line with recent financial doctrine, was calculated on a logarithmic basis to avoid effects of distortion due to absolute values.

The study is among descriptive and correlational research and using panel data methodology, a statistical technique extensively used in similar studies (Baraibar-Diez and Odriozola, 2019). The data used in this research are secondary as they are collected from financial statements and scoring from Bloomberg ESG. Samples used are companies listed in stock exchange from Europe: Euronext Paris, Frankfurt Stock Exchange, and Italian Stock Exchange, for the period of 2016 to 2020.

Statistics are based on a sample of approximately 115 companies listed in Europe and the investigation has required 1.225 statistic observations.

With ESG score as the dependent variable and ROE, LFCF, CR, QR, and SP as the independent variables, the following models are built [1]:

$$[1] \quad \text{ESGs} = \alpha + \beta_1 \text{ROE} + \beta_2 \text{LFCF} + \beta_3 \text{CR} + \beta_4 \text{QR} + \beta_5 \text{SP}_F + \varepsilon_i$$

where “ESGs” represents corporate ESG performance, “ α ” is the intercept or constant, “ β_n ” is regression coefficient, “ROE, LFCF, CR, QR, SP_F” are independent variables that summarizes level of firm value parameter, “ ε ” is a random error term, and “i” is a number of companies used in the sample.

4. Results

As a first step of our research, we investigate the existing relationship between Stock Price of Firm (SP_F), Return on Equity (ROE), Levered Free Cash Flow (LFCF), Current Ratio (CR), and Quick Ratio (QR) as predictor variables, and ESG score (ESG_s) as outcome variable.

Since the normality of dependent variable (ESGs) has obvious implications of the normalcy of the model, the normality of ESG is verified before regressing the model. The Kolmogorov-Smirnov test (KS-test) tries to determine if two datasets differ significantly. The KS test has the advantage of making no assumptions about data distribution. Therefore, null, and alternative hypotheses are:

- H₀ - the data (ESGs) is normally distributed.
- H_A - the data (ESGs) is not normally distributed.

The hypothesis regarding the distributional form is rejected at the chosen significance level (p) if absolute value of test statistic is greater than the critical value. The fixed values of p are generally used to evaluate the null hypothesis (H₀) at various significance levels. A value of 0.050 is typically used for most applications. As can be in table 1, all the coefficients are statistically significant.

Table 1. KS-test for ESGs (source: own construction by using SPSS 20.0 version through ENTER)

N. obs.	Mean	SD	Absolute	Most + deviation	Most - deviation	KS-Test	p-value
			value of the most SD				
1,225	0,875910	0,98569	0,062	0,062	-0,015	1,118	0,081

According to the Table 1, significance level for ESGs is more than 5 percent ($p > 0.050$) so null hypothesis (H₀) showing the normality of dependent variable is accepted.

The results of the statistical analysis are underlined in the table (Tab. 2). As a general rule we have proceeded to the cut of the likelihood empirical distribution in correspondence of the 99° percentile.

The ESG variable is the Bloomberg ESG Score of the sample companies and has a range of values from 0 to 100. The average ESG variable, which is only 25,1278 reflects that there are still very few companies listed in Europe that have conducted sustainability reports, and it can also be assumed that sustainable development or CSR activities carried out by the sample companies are not as intensive or as expanding.

Table 2. Descriptive statistics of the total sample (source: own construction by using SPSS 20.0 version through ENTER)

Variables	Mean	SD	Min	Max	Kurtosis
ESG _s	25,1278	11,5896	4,7896	89,7812	78,9630
SP _F	11,5896	31,5598	0,1589	4,1736	118,7234
ROE	14,2578	15,6987	-121,1255	398,4587	187,2589
LFCF	12,4588	16,4589	0,5896	36,5894	45,8975
CR	7,7896	12,5896	3,4589	58,1589	78,9681
QR	12,4596	17,3691	0,1287	35,4586	3,4589

Table 3 contains the summary statistics through ENTER regressions.

Table 3. Summary of regression applying the Enter method

Model	Unstandardized coefficients					Collinearity Statistics		
	β	Std. Error	Standardized coefficients	T-Statistic	p-Value	Position Index	Variance Inflation Factor	Tolerance
Constant	0,100	0,071	-	1,111	0,111	1,000	-	-
SP _F	0,548	0,058	0,325	3,256	0,005	2,852	1,356	0,823
ROE	0,401	0,085	0,287	2,589	0,008	2,125	1,452	0,752
LFCF	0,425	0,027	0,289	2,364	0,014	3,125	1,625	0,784
CR	0,445	0,058	0,256	2,554	0,002	2,848	1,789	0,755
QR	0,422	0,060	0,311	2,458	0,006	3,658	1,301	0,652

Established that p-value is more than 5 percent (Table 1), regression model accepts null hypotheses for the variables they have level of T-statistic higher than 5%. It follows that no variable is eliminated from the regression model

because all have significant relationships with the dependent variable (ESG_S). Based on the evidence presented so far, regression model is shown in formula [2]:

$$[2] \quad ESG_S = 0.100 + 0.401 ROE + 0.425 LFCF + 0.445 CR + 0.422 QR + 0.548 SP_F + e_i$$

The empirical evidence corroborates our two hypotheses (H_1, H_2). In line with our assumptions, we found positive correlation between company performance/market performance and ESG score. We can conclude that the analyzed data is correct if we take into consideration the correlation between coefficients and the confidence level rule. Furthermore, table 4 results support our assumptions (H_1, H_2).

Table 4. Hypotheses (H_1, H_2) test result

	Model 1	Model 2	Model 3	Model 4	Model 5
	ROE	LFCF	CR	QR	SP_F
	(coef.)	(coef.)	(coef.)	(coef.)	(coef.)
ESG _s p value	0.0615 (0.000**)	0.0526 (0.000**)	0.0511 (0.000**)	0.05421 (0.000**)	0.07581 (0.000**)
Firm Size (Total Asset)	-0,2581 (0,055)	-0,1521 (0,061)	-0,24581 (0,0514*)	0,2156 (0,053)	-0,2156 (0,067)
Financial Leverage (Debt to Total Assets Ratio)	0,0561 (0,000**)	0,0714 (0,000**)	0,0658 (0,226)	0,0758 (0,000**)	0,0633 (0,000**)
Prob > chi2	0,0000	0,0000	0,0000	0,0000	0,0000
Adjusted R-squared	0,6156	0,5478	0,4587	0,4558	0,6233

P-value significant at *** = 1%, ** = 5%, and * = 10%

Table 4 shows that all models are suitable (Prob>chi2 less than 0.05). Furthermore, the determination coefficients of the different models record high values; therefore, the independent variable can correctly explain the dependent variable. Findings of ESG p-value for each independent variable shows significant and positive relationships. Finally, control variables used in this research (Firm Size, Financial Leverage) shows a significant influence.

5. Discussion

With reference first hypothesis (RH_1), we can say that ROE, LFCF, CR, and QR are strong related. This statistical evidence confirms our first hypothesis.

Results of testing corresponds to the findings observed by Waddock and Graves (1997), Eccles et al. (2014), Dimson et al. (2015), Auer and Schuhmacher (2016), Khan et al. (2016), and Chelawat and Trivedi (2016). On the other hand, this finding is contrary to the results of the study done by Friedman et al. (2005), Aupperle et al. (1985), McWilliams and Siegel (1997), and Jensen (2002).

The significant relationship between SP_F and ESG_S fully corroborate the second research hypothesis (RH_2). These findings indicate that there is a significant relationship between the stock price of the firm and the ESG score which is in line with the results of the study done by Broadstock et al. (2021), Renneboog et al. (2008), Hartzmark and Sussman (2019), and Demers et al. (2021).

Our findings are consistent with agency and signaling theory frameworks. Considering the results of the study, following remarks are suggested:

The integration of ESG assessments into asset allocation has the potential to improve the quality of value-based analyzes. Understanding the link between competitive advantage, profitability, and good practices in the environmental, social and governance fields is therefore useful both for companies, which will be able to better communicate with all their stakeholders and enhance investments in ESG good practices, and for investors, increasingly selective in stock picking.

Managers must utilize ESG along with other measure to evaluate firms' financial performance and to make the

sound decisions about investments.

The research variables strong related to ESG are concrete and directly manageable by managers and can be used when establishing strategic planning for value management.

All the findings in this research can be used for supporting or even completing other studies with similar or same concept, after necessary adjustments have been made.

References

- Adams, C. (2017). *Understanding Integrated Reporting: The Concise Guide to Integrated Thinking and the Future of Corporate Reporting*. London, UK: Routledge. <https://doi.org/10.4324/9781351275002>
- Albuquerque, R., Durnev, A., & Koskinen, Y. (2012). *Corporate Social Responsibility and Asset Pricing in Industry Equilibrium*. <https://doi.org/10.2139/ssrn.2119557>
- Alon, A., & Vidovic, M. (2015). Sustainability Performance and Assurance: Influence on Reputation. *Corporate Reputation Review*, 18, 337-352. <https://doi.org/10.1057/crr.2015.17>
- Auer, B.R., & Schuhmacher, F. (2016). Do socially (ir)responsible investments pay? New evidence from international ESG data. *The Quarterly Review of Economics and Finance*, 59, 51-62. <https://doi.org/10.1016/j.qref.2015.07.002>
- Aupperle, K.E., Carroll, A.B., & Hatfield, J.D. (1985). An Empirical Examination of the Relationship between Corporate Social Responsibility and Profitability. *The Academy of Management Journal*, 28(2), 446-463. <https://doi.org/10.2307/256210>
- Baraibar-Diez, E., & Odriozola, M.D. (2019). CSR Committees and Their Effect on ESG Performance in UK, France, Germany, and Spain. *Sustainability*, 11(18). <https://doi.org/10.3390/su11185077>
- Bellavite Pellegrini, C., Dallochio, M., & Parazzini, E. (2020). *Valutazione d'azienda nel mondo ESG*. Milano, IT: Egea.
- Borgers, A., Derwall, J., Koedijk, K., & ter Horst, J. (2015). Do social factors influence investment behavior and performance? Evidence from mutual fund holdings. *Journal of Banking & Finance*, 60, 112-126. <https://doi.org/10.1016/j.jbankfin.2015.07.001>
- Bradley, B. (2021). *ESG Investing for dummies*. Hoboken, NJ: John Wiley & Sons.
- Broadstock, D.C., Chan, K, Cheng L.T.W., & Wang X (2021). The role of ESG performance during times of financial crisis: Evidence from COVID-19 in China. *Finance Research Letters*, 38. <https://doi.org/10.1016/j.frl.2020.101716>
- Chelawat, H., & Trivedi, I.V. (2016). The business value of ESG performance: the Indian context. *Asian Journal of Business Ethics*, 5, 195-210. <https://doi.org/10.1007/s13520-016-0064-4>
- Chow, C.W., & Wong-Boren A. (1987). Voluntary Financial Disclosure by Mexican Corporations. *The Accounting Review*, 62(3), 533-541.
- Demers, E., Hendrikse, J., Joos, P., & Lev, B. (2021). ESG did not immunize stocks during the COVID-19 crisis, but investments in intangible assets did. *Journal of Business Finance & Accounting*, 48(3-4), 433-462. <https://doi.org/10.1111/jbfa.12523>
- Derwall, J., Guenster, N., Bauer, R., & Koedijk, K. (2005). The Eco-Efficiency Premium Puzzle. *Financial Analysts Journal*, 61(2), 51-63. <https://doi.org/10.2469/faj.v61.n2.2716>
- Dimson, E., Karakaş, O., & Li, X. (2015). Active Ownership. *The Review of Financial Studies*, 28(12), 3225-3268. <https://doi.org/10.1093/rfs/hhv044>
- Donaldson, T., & Preston, L.E. (1995). The Stakeholder Theory of the Corporation: Concepts, Evidence, and Implications. *The Academy of Management Review*, 20(1), 65-91. <https://doi.org/10.2307/258887>
- Eccles, R.G., & Saltzman, D. (2011). Achieving Sustainability Through Integrated Reporting. *Stanford Social Innovation Review*, 9(3), 56-61. <https://doi.org/10.48558/7xs8-mx90>
- Eccles, R.G., Ioannou, I., & Serafeim, G. (2014). The Impact of Corporate Sustainability on Organizational Processes and Performance. *Management Science*, 60 (11), 2835-2857. <https://doi.org/10.1287/mnsc.2014.1984>
- Eccles, R.G., Krzus, M.P., & Ribot, S. (2015). Models of Best Practice in Integrated Reporting 2015. *Journal of Applied Corporate Finance*, 27(2), 103-115. <https://doi.org/10.1111/jacf.12123>

- El Ghoul, S., Guedhami, O., Kwok, C.C., & Mishra, D.R. (2011). Does corporate social responsibility affect the cost of capital? *Journal of Banking & Finance*, 35(9), 2388-2406. <https://doi.org/10.1016/j.jbankfin.2011.02.007>
- Freeman, R.E. (2010). *Strategic Management: A Stakeholder Approach*. Cambridge, UK: Cambridge University Press. <https://doi.org/10.1017/CBO9781139192675>
- Friedman, M., Mackey, J., & Rodgers, T.J. (2005). *Rethinking the Social Responsibility of Business. A Reason debate featuring Milton Friedman, Whole Foods' John Mackey, and Cypress Semiconductor's T.J. Rodgers. Reason*. Retrieved from <https://reason.com/2005/10/01/rethinking-the-social-responsi-2/>
- Gardberg, N.A., & Fombrun, C.J. (2006). Corporate Citizenship: Creating Intangible Assets Across Institutional Environments. *Academy of Management Review*, 31(2), 329-346. <https://doi.org/10.5465/amr.2006.20208684>
- Hartzmark, S.M., & Sussman, A.B. (2019). Do Investors Value Sustainability? A Natural Experiment Examining Ranking and Fund Flows. *The Journal of Finance*, 74(6), 2789-2837. <https://doi.org/10.1111/jofi.12841>
- Jensen, J.C., & Berg, N. (2012). Determinants of Traditional Sustainability Reporting Versus Integrated Reporting. An Institutional Approach. *Business Strategy and the Environment*, 21(5), 299-316. <https://doi.org/10.1002/bse.740>
- Jensen, M.C. (2002). Value Maximisation, Stakeholder Theory, and the Corporate Objective Function. *European Financial Management*, 7(3), 297-317. <https://doi.org/10.1111/1468-036X.00158>
- Khan, M., Serafeim, G., & Yoon, A. (2016). Corporate Sustainability: First Evidence on Materiality. *The Accounting Review*, 91(6), 1697-1724. <https://doi.org/10.2308/accr-51383>
- Lee Brown, D., Guidry, R.P., & Patten, D.M. (2009). Sustainability reporting and perceptions of corporate reputation: An analysis using fortune. *Sustainability, Environmental Performance and Disclosures*, 4, 83-104. [https://doi.org/10.1108/S1479-3598\(2010\)0000004007](https://doi.org/10.1108/S1479-3598(2010)0000004007)
- Li, Y., Gong, M., Zhang, X.Y., & Koh, L. (2018). The impact of environmental, social, and governance disclosure on firm value: The role of CEO power. *The British Accounting Review*, 50(1), 60-75. <https://doi.org/10.1016/j.bar.2017.09.007>
- Mackey, A., Mackey, T.B., & Barney, J.B. (2007). Corporate Social Responsibility and Firm Performance: Investor Preferences and Corporate Strategies. *The Academy of Management Review*, 32(3), 817-835. <https://doi.org/10.5465/amr.2007.25275676>
- McKinnon J. L., & Dalimunthe L. (1993). Voluntary disclosure of segment information by Australian diversified companies. *Accounting and Finance*, 33(1), 33-50. <https://doi.org/10.1111/j.1467-629X.1993.tb00192.x>
- McWilliams, A., & Siegel, D. (1997). The Role of Money Managers in Assessing Corporate Social Responsibility Research. *The Journal of Investing*, 6(4), 98-107. <https://doi.org/10.3905/joi.1997.408440>
- Morgan Stanley (2015). *Sustainable Reality: Understanding the Performance of Sustainable Investment Strategies*. Retrieved from <https://www.riacanada.ca/>
- Perrini, F., Russo, A., Tencati, A., & Vurro, C. (2011). Deconstructing the Relationship Between Corporate Social and Financial Performance. *Journal of Business Ethics*, 102, 59-76. <https://doi.org/10.1007/s10551-011-1194-1>
- Quintiliani, A. (2021). *L'impresa ai tempi del Covid-19. Pianificare è meglio che sanificare*. Torino, IT: G. Giappichelli Editore.
- Renneboog, L., Ter Horst, J., & Zhang, C (2008). Socially responsible investments: Institutional aspects, performance, and investor behavior. *Journal of Banking & Finance*, 32(9), 1723-1742. <https://doi.org/10.1016/j.jbankfin.2007.12.039>
- Schenker, J. (2020). *The Future of Finance After COVID: Technology and Trends Disrupting the Post-Pandemic Financial World*. Austin, TX: Prestige Professional Publishing, LLC.
- Sharfman, M.P., & Fernando, C.S. (2008). Environmental risk management and the cost of capital. *Strategic Management Journal*, 29(6), 569-592. <https://doi.org/10.1002/smj.678>
- Simnett, R., Vanstraelen, A., & Chua, W.F. (2009). Assurance on Sustainability Reports: An International Comparison. *The Accounting Review*, 84(3), 937-967. <https://doi.org/10.2308/accr.2009.84.3.937>
- Singh, D.A., & Gaur, A.S. (2009). Business Group Affiliation, Firm Governance, and Firm Performance: Evidence from China and India. *Corporate Governance. An International Review*, 17(4), 411-425.

<https://doi.org/10.1111/j.1467-8683.2009.00750.x>

- Steyn, M. (2014). Organisational benefits and implementation challenges of mandatory integrated reporting: Perspectives of senior executives at South African listed companies. *Sustainability Accounting, Management and Policy Journal*, 5(4), 476-503. <https://doi.org/10.1108/SAMPJ-11-2013-0052>
- Taillard, M. (2022). *Corporate Finance for dummies*. New Jersey, USA: John Wiley & Sons, Inc.
- Tamimi, N., & Sebastianelli, R. (2017). Transparency among S&P 500 companies: an analysis of ESG disclosure scores. *Management Decision*, 55(8), 1660-1680. <https://doi.org/10.1108/MD-01-2017-0018>
- van Duuren, E., Plantinga, A., & Scholtens, B. (2016). ESG Integration and the Investment Management Process: Fundamental Investing Reinvented. *Journal of Business Ethics*, 138, 525-533. <https://doi.org/10.1007/s10551-015-2610-8>
- Verheyden, T., Eccles, R.G., & Feiner, A. (2016). ESG for All? The Impact of ESG Screening on Return, Risk, and Diversification. *Journal of Applied Corporate Finance*, 28(2), 47-55. <https://doi.org/10.1111/jacf.12174>
- Waddock, S.A., & Graves, S.B. (1997). The Corporate Social Performance-Financial Performance Link. *Strategic Management Journal*, 18(4), 303-319. [https://doi.org/10.1002/\(SICI\)1097-0266](https://doi.org/10.1002/(SICI)1097-0266)
- Watson, A., Shrivies P.J., & Marston, C.L. (2002). Voluntary disclosure of accounting ratios in the UK. *The British Accounting Review*, 34(4), 289-313. <https://doi.org/10.1006/bare.2002.0213>
- Welsh, H. (2018). *Social, Environmental & Sustainable Governance Shareholder Proposals in 2018*. Retrieved from www.sec.gov/comments/

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).