sciendo

DOI 10.2478/sbe-2023-0020
SBE no. 18(1) 2023

A SECTORAL-BASED APPROACH TO THE LINK BETWEEN FINANCIAL PERFORMANCE AND SUSTAINABILITY

ȘERBAN Radu-Alexandru
Lucian Blaga University of Sibiu, Romania

MIHAIU Diana Marieta
Lucian Blaga University of Sibiu, Romania

HERCIU Mihaela
Lucian Blaga University of Sibiu, Romania

OGREAN Claudia
Lucian Blaga University of Sibiu, Romania

Abstract:

The main objective of this paper is to analyze if there is a link between financial performance and sustainability in the case of listed companies on stock markets, worldwide, and across all sectors of activity because sustainability has become an important part of the company's strategy. The financial performance of the companies was calculated using public financial data from the annual financial statements, while the environmental, social, and governance (ESG), and controversies scores were used as performance metrics for sustainability at company level. To evaluate financial performance a variety of indicators were used, such as assets management, debt management or market value performance, as a benchmark tool to compare the standing of companies in each sector of activity analyzed. Our findings showed that there are different relations (strong or weak) between financial performance and sustainability if a sectoral-based approach is considered. As a result, the link between financial performance and sustainability was tested on a sample of more than 5,000 companies divided into 10 sectors of activities, according to the Global Industry Classification Standard (GICS), for the period 2017-2021. The main conclusion of this study is that they are interrelated, capitalizing on each other.

Key words: *Financial Performance, ESG Controversies Score, Environmental Pillars, Z-Score Function, Sector of Activity*

1. Introduction

The analysis of the link between the company's financial performance and its sustainability is an intensively researched topic. The questions that are asked on this subject are whether the financial performance favorably influences the sustainability of the company

or whether the improvement of the sustainability determines an improvement of the financial performance. Recent studies use the Environmental, Social, Governance (ESG) indicator as a measure of the company's level of sustainability. Also, another direction of research in this field is whether investment portfolios in shares built considering both ESG and ESG investing principles generate an increased performance for investors compared to portfolios that do not consider the ESG factor.

The objective of our work is to establish what type of connection exists between the financial performance of the company and its sustainability, measured by ESG, considering a large sample consisting of 5,741 companies.

To quantify the financial performance of the companies analyzed, we used ratio analysis based on financial statements for the 2017–2021 period; the ESG Score and ESG Controversy Score for the same period, data provided by Thomson Reuters Refinitiv Eikon, to assess the sustainable performance.

This paper's objectives aim (1) to identify if there is a link between financial performance and sustainable performance of the company, and (2) to identify if there are mean differences at the sector level between the financial and sustainable performance, we started with the financial ratio analysis of the selected variables (16), followed by a Zeta mathematical model.

To achieve the objectives, the paper is structured as follows: starting with the 'Literature Review' section focused on relevant studies on the topics approached in the paper; then the 'Materials and Methods where the methodology used in our research is described; the 'Results' section shows the findings of the research done on the sample companies in the period analyzed (2017-2021), and the paper ends with the 'Conclusion' section, which presents the final and pertinent details, limitations, and future research directions.

2. Literature review

A study carried out on 2,700 individual stocks, in the period 2015-2019, demonstrated the existence of a neutral relationship between the sustainability of companies and the return offered to investors by investments in companies selected according to ESG (Naffa & Fain, 2022).

Another interesting analysis based on over 1,000,000 observations investigated the relationship between the public publication of the results of the ESG score for companies, the actions taken to improve the ESG score, and the financial performance of the company. The results demonstrated that the ESG publication has an impact on the company's profit (on the short-term financial performance), and the actions undertaken to impact the long-term financial performance measured by Tobin's Q rate and by the Intangible Value Assessment score (Yoo & Managi, 2022). Another study carried out on companies from G7 member countries reflected that there is a positive link between the transparency of ESG score results and the financial performance of companies measured by ROA and ROC (Almeyda & Darmansyah, 2019). However, the results are not consistent in one direction (Biktimirov & Afego, 2022), ESG disclosure has been shown to have a negative influence on the value of companies in the energy sector and does not exert any influence on the

value of companies in the medical field (Aivaz, 2021; Constantinescu, 2021). In general, however, several studies have identified a positive relationship between ESG disclosure and the company's financial performance (Alareeni & Hamdan, 2020).

Analyzing Chinese companies listed on the stock exchange in the period 2014-2019, companies listed on the Indian stock exchange, and other 5,557 companies divided into 9 economic sectors of activity from 78 countries and 6 regions, it became evident that improving the ESG score generates an increasing the market value of companies, another way of measuring the financial performance of the company (Zhou et al., 2022; Șerban et al., 2022; Dalal & Thaker, 2019). In Germany, a study carried out on 412 companies listed on the stock exchange, for 4 years, identified that the ESG score has a positive impact on ROA, but has no impact on Tobin's Q, which measures the market value of the company (Velte, 2017; 2019). In the banking sector, a non-linear relationship between ESG and the financial performance of banks was highlighted, measured by ROA, ROE, Tobin's Q, and stock return (El Khoury, Nasrallah & Alareeni, 2021). The same uncertain relationship was confirmed and in the energy sector in Poland, it could not be established with certainty that the ESG score significantly influences the financial performance (measured by ROA, ROE, and ROS - return on sales) of companies in the field (Baran et al., 2022). However, in China's energy sector, improving the ESG score of companies in this sector contributed to increased financial performance (Zhao et al., 2018). Analyzing the ESG scores and financial performance of EFTs during the COVID 19 pandemic, it was shown that "higher levels of the sustainability performance of ETFs do not safeguard investments from financial losses during a severe market t downturn" (Folger-Laronde et al., 2022). But Korean companies that recorded high ESG scores recorded smaller decreases in profitability during the COVID-19 period, concluding that in conditions of uncertainty, the company's sustainability protects its financial gains (Hwang, Kim & Jung, 2021). However, the portfolio returns generated by companies listed on the Australian Security Exchange that have high ESG scores were lower than those generated by companies with lower ESG scores, since the ESG score is not yet viewed by investors with sufficient confidence. especially in terms of the sustainability aspect of the company (Balatbat, Siew & Carmi-chael, 2012). Also in Australia, in the construction sector, a weak link was observed between the ESG score and the financial performance of companies in this sector (Siew, Balatbat & Carmichael, 2013).

An extensive bibliographic study of more than 2,000 works that researched the relationship between ESG and corporate financial performance (CFP) concluded with certainty that there is no negative relationship between ESG and CFP; most studies even identified positive links between them, but of different intensities depending on the activity sector, the region (Friede, Busch & Bassen, 2015; Huang, 2021; Kim & Li, 2021). For example, another research carried out on 351 companies in the UK for 16 years, from 2002-2018, analyzes whether ESG score influences the financial performance of companies, and identified a positive and significant impact of ESG score on financial performance (Ahmad et al., 2021).

The results of previous studies do not converge towards the same conclusion regarding the type and intensity of the connection or the impact of the ESG score on the financial performance of the company.

3. Materials and methods

3.1. Data sampling

The sample of this study consists of 5,741 publicly traded companies divided into 10 sectors of activity, classified based on The Global Industry Classification Standard (GICS). The GICS methodology developed by Morgan Stanley Capital International (MSCI) contains 11 sectors, but we focused on 10 of them, the exception being the Financial sector. As a result, the sample study (5,741 companies) contains 10 sectors, and 5 regions having global coverage, as shown in Table 1.

Table 1: Sample study by sector and region

Sector/Region	Africa	Americas	Asia	Europe	Oceania	TOTAL
Communication Services	7	121	115	84	17	**344**
Consumer Discretionary	17	359	208	181	46	**811**
Consumer Staples	16	153	128	89	23	**409**
Energy	1	204	59	66	26	**356**
Health Care	4	494	102	121	32	**753**
Industrials	19	424	314	299	40	**1,096**
Information Technology	4	338	178	93	28	**641**
Materials	24	219	164	130	79	**616**
Real Estate	14	198	120	81	39	**452**
Utilities	1	122	68	60	12	**263**
TOTAL	**107**	**2,632**	**1,456**	**1,204**	**342**	**5,741**

(Source: Author's computation in Excel)

For the selected sample study, financial ratio analysis has been applied to determine the financial performance, for 5 years, between 2017 and 2021. The financial ratio analysis comprises 16 selected variables (*Asset turnover; Current Ratio; Days Sales Outstanding; Debt/Asset; Debt/Equity; EBIT/Sales; Enterprise Value To EBIT; Gross Margin; Intangibles&Goodwill/Sales; Inventory Turnover; Quick Ratio; R&D/Sales; Return On Assets; Return On Equity; Return On Invested Capital; SG&A/Sales*) calculated for the period 2017-2021, using data from the annual consolidated financial statements to assess how the companies perform in terms of profitability, liquidity, leverage, etc. The data for the quantitative analysis has been obtained from a third-party platform, namely Thomson Reuters Eikon.

The financial ratio analysis used to determine the financial performance, track performance, and make peer-to-peer comparisons related to the company performance is one part of the study. To achieve our paper's objective, if there is a link between financial performance and sustainability, the ESG Scores have been selected as variables for sustainable performance. The values of the ESG Scores: ESG Score and ESG Controversies Score are calculated by Thomson Reuters Refinitiv using their proprietary methodology to measure the company's ESG performance (Thomson Reuters, 2017). The ESG Score is divided into three pillars Environmental Pillar Score, Social Pillar Score, and

Governance Pillar Score, with a score range between 0 and 100, where 0 means the worst performance, and 100 excellent performances. Additionally, the ESG Controversies Score has been also used in the study, to complete the company's sustainability performance evaluation. This score, calculated also by Thomson Reuters, is based on 23 controversial topics and measures how the negative events from the global media in which the companies are involved. The score range is the same, between 0 and 100, but compared with the ESG Score, in the case of the ESG Controversies Score, higher is the best, and lower is the worst. Both scores are calculated using data from annual reports, NGO, and companies' websites, stock exchange filings, CSR reports, news, etc. (Refinitiv, 2022). The sustainable performance for the sample study consists of the ESG Score, used by us divided into its three pillars (Environmental, Social, and Governance), and the Controversies Score, measured, calculated, and provided by Thomson Reuters Eikon for the period analyzed, 2017-2021.

3.2. Research methodology

To achieve the objectives of our paper, O1 - identifying if there is a link between financial performance and sustainable performance of the company; O2 - identifying if there are mean differences at the sector level between the financial and sustainable performance, we started with the financial ratio analysis of the selected variables (16), followed by a Zeta mathematical model based on the one developed by Altman in 1968 (Hayes, 2021) see equation (1). Altman's model is based on predefined variables in the model, with coefficients obtained using discriminant analysis.

$$Z = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E \quad (1)$$

Where A is the Working Capital/Total Assets ratio; B is the Retained Earnings/Total Assets ratio; C is the Earnings Before Interest and Tax/Total Assets ratio; D is the Market Value of Equity/Total Liabilities ratio; E is the Total Sales/Total Assets ratio.
The model proposed by us uses different variables and a different way of calculating the coefficients, see equations (2). Since the study is made on companies from different sectors of activity, the financial performance could be described by a combination of different variables, as a result, the model proposed (Șerban & Herciu, 2019) allows us to measure financial performance based on the particularities of each sector.

$$Z = a_1X_1 + a_2X_2 + a_3X_3 + \cdots + a_nX_n + \sum b \quad (2)$$

Where $a_1 \dots a_n$ are the coefficients for the variables $X_1 \dots X_n$. The coefficients are calculated based on how the variables are optimized, by minimization or maximization, see equations (3) and (4). In the case of financial ratio analysis, depending on the nature of variables, the optimization process is for eg. the profitability ratios are optimized by maximum, and the costs related ratios are optimized by minimum.

Variables optimized by maximum:

$$a = \frac{1}{X_{max} - X_{min}}; b = \frac{-X_{min}}{X_{max} - X_{min}} \quad (3)$$

Variables optimized by minimum:

$$a = \frac{1}{X_{min} - X_{max}}; b = \frac{-X_{max}}{X_{min} - X_{max}} \quad (4)$$

Where a and b are the coefficients.

The result of the Zeta model has been standardized into a range between 10 and 100. The obtained score is the Z-Score financial performance of the company, where the value of 10 (the minimum) is the worst financial performance, and 100 (the maximum) is the highest financial performance. To standardize the result into the range [10, 100] an adapted formula developed by World Economic Forum for the Competitiveness Index has been applied, see equation (5).

$$\text{Z-Score financial performance}_{ij} = 90 \frac{Z_{ij} - Z_{imin}}{Z_{imax} - Z_{imin}} + 10 \quad (5)$$

Where Z_{ij} = the calculated value of the Zeta model i for company j; Z_{imin} = the minimum value of the Zeta model i; Z_{imax} = the maximum value of the Zeta model i.

In IBM-SPSS, Pearson correlation and ANOVA have been applied to test the link between the financial performance (Z-Score financial performance) and sustainability performance (Environmental Pillar Score, Social Pillar Score, and Governance Pillar Score) of the companies analyzed, and to see if there are differences in mean in terms of financial and sustainable performance between sectors.

4. Results and discussions

In the sample study (5,741 companies) for the period 2017-2021, the financial ratio analysis (denoted by X_1...X_{16}), with variables: X_1 - Asset turnover; X_2 - Current Ratio; X_3 - Days Sales Outstanding; X_4 - Debt/Asset; X5 - Debt/Equity; X_6 - EBIT/Sales; X_7 - Enterprise Value To EBIT; X_8 - Gross Margin; X_9 - Intangibles&Goodwill/Sales; X_{10} - Inventory Turnover; X_{11} - Quick Ratio; X_{12} - R&D/Sales; X_{13} - Return On Assets; X_{14} - Return On Equity; X_{15} - Return On Invested Capital; X_{16} - SG&A/Sales; allowed us to determine the Z-Score financial performance for each of the 10 sectors. The extreme values and negative values in terms of profitability ratios were excluded, then the coefficients ('a' and 'b') for the Zeta model were calculated. In the Z-score financial performance function for each sector, out of 16 variables, remained 6 or 7 variables, depending on the sector. The variables that comprise the Z-Score financial performance functions, were selected based on the value of the 'a' coefficient, meaning that the variables with the 'a' coefficient that add up have a weight of at least 95% are representative of measuring the financial performance in that sector of activity. The Z-Score financial performance functions, for each sector, are shown in Table 2 below.

Table 2: Z-Score financial performance functions by sector

Sector	The Z-Score financial performance function
Communication Services	$Z = 1.006X_8 \pm 0.724X_4 + 0.412X_{13} + 0.213X_{12} + 0.161X_1 + 0.149X_{16} + 0.084X_{14} - 0.475$
Consumer Discretionary	$Z = 1.872X_{13} + 1.702X_8 + 0.389X_6 \pm 0.295X_4 + 0.253X_{15} + 0.179X_1 - 1.411$
Consumer Staples	$Z = 4.476X_6 + 2.951X_8 + 1.899X_{13} + 1.666X_{16} + 1.462X_{12} \pm 0.905X_4 - 5.236$
Energy	$Z = 2.004X_8 + 1.091X_{13} + 0.622X_6 + 0.473X_{15} + 0.467X_{14} + 0.154X_1 - 1.864$
Health Care	$Z = 1.379X_8 + 0.484X_6 + 0.245X_1 + 0.211X_{13} + 0.082X_{15} + 0.076X_4 \pm 0.035X_{14} - 1.515$
Industrials	$Z = 1.897X_8 + 1.458X_{13} + 0.607X_6 + 0.465X_{15} \pm 0.277X_4 + 0.260X_1 - 1.756$
Information Technology	$Z = 1.982X_8 + 1.322X_{13} + 0.870X_6 \pm 0.293X_4 \pm 0.276X_1 + 0.101X_9 - 1.764$
Materials	$Z = 1.873X_8 + 1.568X_{13} + 0.589X_{15} + 0.269X_1 + 0.225X_{14} \pm 0.136X_4 + 0.134X_9 - 1.618$
Real Estate	$Z = 2.892X_{13} + 1.512X_{14} + 1.461X_8 + 1.140X_4 + 0.881X_{12} + 0.505X_6 + 0.388X_{15} - 2.312$
Utilities	$Z = 15.297X_{12} + 2.145X_{13} + 1.729X_8 + 1.262X_{14} + 1.224X_{15} \pm 0.597X_4 + 0.395X_1 - 2.077$

(Source: Author's computation in Excel)

In the case of some sectors, the Z-Score financial performance function contains leverage variables, which one that cannot be optimized by minimum or maximum, as a result, depending on the average of that specific sector, the variable will be adjusted with '+' if the company sets below the average, and with '–' if it fits above the average.

After we have obtained the Z-Score financial performance functions, they were applied to the sample (5,741 companies), for each year from the period 2017-2021, then the results were standardized between the range [10, 100].

In IBM-SPSS, the variables Z-Score financial performance function, Environmental Pillar Score, Social Pillar Score, Governance Pillar Score, and ESG Controversies Score, were analyzed using Pearson correlation to see if there is a link between financial and sustainable performance, and ANOVA to spot the differences in means of the variables by sector.

The results of the Pearson correlation were interpreted according to Evans (1996):

- The Communication Services sector – positive, very weak (<0.2), and statistically significant (Sig. <0.01) between Z-Score financial performance and Environmental, Social, and Governance Scores;
- The Consumer Discretionary sector – no correlation.
- The Consumer Staples sector – positive, very weak (<0.2), and statistically significant (Sig. <0.01) between Z-Score financial performance and Environmental and Social Scores;
- The Energy sector – positive, very weak (<0.2), and statistically significant (Sig. <0.01) between Z-Score financial performance and Environmental, Social, and Governance Scores; negative, very weak (<0.2) and statistically significant (Sig. <0.01) between Z-Score financial performance and ESG Controversies Score;
- The Health Care sector – positive, weak (<0.4), and statistically significant (Sig. <0.01) between Z-Score financial performance and Environmental and Governance Scores; positive, very weak (<0.2), and statistically significant (Sig. <0.01) between Z-Score financial performance and Social Scores; negative, very weak (<0.2) and

statistically significant (Sig. <0.01) between Z-Score financial performance and ESG Controversies Score;

- The Industrials sector – positive, very weak (<0.2), and statistically significant (Sig. <0.01) between Z-Score financial performance and Environmental, Social, and Governance Scores;
- The Information Technology sector – positive, very weak (<0.2), and statistically significant (Sig. <0.01) between Z-Score financial performance and Environmental, Social, and Governance Scores; negative, very weak (<0.2) and statistically significant (Sig. <0.01) between Z-Score financial performance and ESG Controversies Score;
- The Materials sector – positive, weak (<0.4), and statistically significant (Sig. <0.01) between Z-Score financial performance and Environmental and Social Scores; positive, very weak (<0.2) and statistically significant (Sig. <0.01) between Z-Score financial performance and Governance Scores; negative, very weak (<0.2) and statistically significant (Sig. <0.01) between Z-Score financial performance and ESG Controversies Score;
- The Real Estate sector – positive, very weak (<0.2), and statistically significant (Sig. <0.01) between Z-Score financial performance and Environmental and Social Scores;
- The Utilities sector – positive, very weak (<0.2), and statistically significant (Sig. <0.01) between Z-Score financial performance and Social and ESG Controversies Scores;

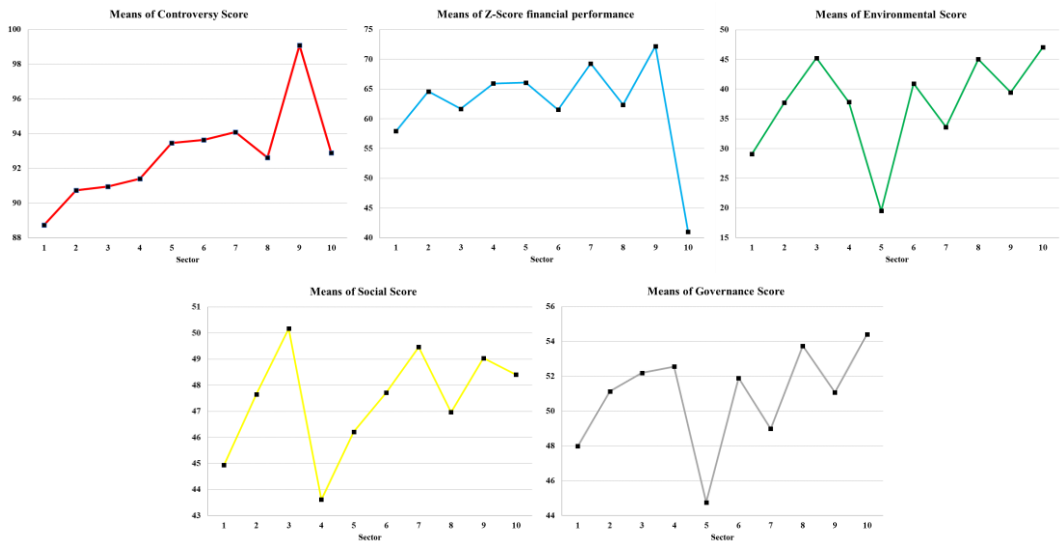


Figure 1: Mean plots by sector

1 – Communication Services; 2 – Consumer Discretionary; 3 – Consumer Staples; 4 – Energy; 5 – Health Care; 6 – Industrials; 7 – Information Technology; 8 – Materials; 9 – Real Estate; 10 – Utilities. (Source: Author's computation in IBM-SPSS)

In Figure 1, above the result of the ANOVA, the mean plots show that between most of the sectors the variables' means (Z-Score financial performance; Environmental, Social, Governance, and ESG Controversies Score) differ statistically. The contrast tests where the significance value is <0.05 support the fact that there is a statistically significant difference in the mean. Also, there are some exceptions between pairs of sectors where the results of the contrast tests show that there is no statistically significant difference (Sig. >0.05) in the case of Z-Score financial performance; Environmental, Social, Governance or ESG Controversies Score, as follows:

- Means of ESG Controversies Score: Consumer Discretionary and Consumer Staples (0.673); Consumer Discretionary and Energy (0.505); Health Care and Industrials (0.703); Industrials and Information Technology (0.322); Materials and Utilities (0.687);
- Means of Z-Score financial performance: Energy and Health Care (0.772); Consumer Staples and Industrials (0.744); Consumer Staples and Materials (0.137);
- Means of Environmental Score: Consumer Discretionary and Energy (0.920); Consumer Staples and Materials (0.795);
- Means of Social Score: Consumer Discretionary and Industrials (0.906);
- Means of Governance Score: Consumer Discretionary and Real Estate (0.931); Consumer Staples and Industrials (0.618); Energy and Industrials (0.286);

5. Conclusion

By performing the Pearson correlation between the Z-Score performance function, calculated for the sample study (5,741 companies) from 10 sectors of activity during the period 2017-2021, and the Environmental, Social, Governance, and ESG Controversies Scores, it confirms the papers' first objective, that there is a link between financial and sustainable performance. However, the link is in most cases a very weak one, not linked with all pillars of sustainable performance, and in the case of the Consumer Discretionary sector, there is no link between them. These results, support the idea from some previous research that financial and sustainable performance go hand-to-hand, but also, at least to the limits of this study, the link that exists, is a very weak one. For further research, it would be necessary to test the impact of sustainability on financial performance, but due to the weak correlation between variables, which shows us only a link, there might be no impact.
The ANOVA results, confirm that there is a statistically significant difference in the mean of the variables analyzed, Z-Score financial performance, Environmental, Social, Governance, and ESG Controversies Scores, between sectors. Also, in this case, there are a few exceptions where the differences are not statistically significant. These results show that the same variables cannot describe financial performance for each sector, and we must take into consideration the particularities of each sector, confirming the second objective of this paper.

In conclusion, this study showed that there is a link between financial and sustainable performance, which proved to be a weak one, in the case of the 5,741 companies from 10 sectors, during the period 2017-2021 analyzed globally, and that there are differences between sectors of activity.

The limitation of this study comes from the period, only 5 years, taking into consideration only publicly listed companies, and the sustainability performance scores were calculated by a third-party organization. Furthermore, a future research direction aims to create a model for measuring sustainability performance, tailored to the particularities of each sector, then test the link and impact between financial and sustainability performance.

ACKNOWLEDGEMENT: *This work is supported by the Ministry of Research, Innovation and Digitization through Program 1 - Development of the national research-development system, Subprogram 1.2 -Institutional performance- Projects for financing excellence in RDI, contract no. 28PFE / 30.12.2021.*

6. References:

Aivaz, K. A. (2021). *Correlations Between Infrastructure, Medical Staff and Financial Indicators of Companies Operating in the Field of Health and Social Care Services. The Case of Constanta County, Romania*. Monograph „Under the presure of digitalization: challenges and solutions at organzational and industrial level, 17-25.

Alareeni, B. A., & Hamdan, A. (2020). *ESG impact on performance of US S&P 500-listed firms*. Corporate Governance: The International Journal of Business in Society.

Almeyda, R., & Darmansya, A. (2019). *The influence of environmental, social, and governance (ESG) disclosure on firm financial performance*. IPTEK Journal of Proceedings Series, (5), 278-290.

Balatbat, M., Siew, R., & Carmichael, D. (2012). *ESG scores and its influence on firm performance: Australian evidence*. In Australian School of Business School of Accounting, School of Accounting Seminar Series Semester (Vol. 2, pp. 1-30). Australia: University of New South Wales, India.

Baran, M., Kuźniarska, A., Makieła, Z. J., Sławik, A., & Stuss, M. M. (2022). *Does ESG Reporting Relate to Corporate Financial Performance in the Context of the Energy Sector Transformation? Evidence from Poland*. Energies, 15(2), 477.

Biktimirov, E. N., & Afego, P. N. (2022). *Do investors value environmental sustainability? Evidence from the FTSE Environmental Opportunities 100 index*. Finance Research Letters, 44.

Dalal, K. K., & Thaker, N. (2019). *ESG and corporate financial performance: A panel study of Indian companies*. IUP Journal of Corporate Governance, 18(1), 44-59.

Evans, J.D. (1996). *Straightforward statistics for the behavioral sciences*. Thomson Brooks/Cole Publishing Co.

Gunnar Friede, Timo Busch & Alexander Bassen (2015). *ESG and financial performance: aggregated evidence from more than 2000 empirical studies.* Journal of Sustainable Finance & Investment, 5:4, 210-233.

Hayes, A. (2022). *Zeta model*. Investopedia. Retrieved 29.06.2022 from https://www.investopedia.com/terms/z/zeta_model.asp#:~:text=The%20Zeta%20Model%20is%20a,accurate%20predictor%20of%20future%20bankruptcy.

Huang, D. Z. (2021). *Environmental, social and governance (ESG) activity and firm performance: A review and consolidation*. Accounting & Finance, 61(1), 335-360.

Hwang, J., Kim, H., & Jung, D. (2021). *The Effect of ESG Activities on Financial Performance during the COVID-19 Pandemic—Evidence from Korea*. Sustainability, 13(20).

Kim, S., & Li, Z. (2021). *Understanding the impact of ESG practices in corporate finance*. Sustainability, 13(7).

Nisar Ahmad, Asma Mobarek & Naheed Nawazesh Roni (2021). *Revisiting the impact of ESG on financial performance of FTSE350 UK firms: Static and dynamic panel data analysis.* Cogent Business & Management, 8:1.

R. El Khoury, N. Nasrallah & B. Alareeni (2021). *ESG and financial performance of banks in the MENAT region: concavity–convexity patterns*. Journal of Sustainable Finance & Investment.

Refinitiv. (2022). *Refinitiv ESG company scores.* Retrieved 29.06.2022 from https://www.refinitiv.com/en/sustainable-finance/esg-scores.

Șerban, R. A., Mihaiu, D. M., & Țichindelean, M. (2022). *Environment, Social, and Governance Score and Value Added Impacts on Market Capitalization: A Sectoral-Based Approach*. Sustainability, 14(4).

Șerban, R.A., and Herciu, M. (2019). *Performance Management Systems–Proposing and Testing a Conceptual Model*. Studies in Business & Economics, 14(1).

Siew, R. Y., Balatbat, M. C., & Carmichael, D. G. (2013). *The relationship between sustainability practices and financial performance of construction companies*. Smart and Sustainable Built Environment.

Thomson Reuters. (2017). *Thomson Reuters ESG scores - ESADE*. Retrieved 29.06.2022 from https://www.esade.edu/itemsweb/biblioteca/bbdd/inbbdd/archivos/Thomson_Reuters_ESG_Scores.pdf.

Velte, P. (2017). *Does ESG performance have an impact on financial performance? Evidence from Germany*. Journal of Global Responsibility.

Velte, P. (2019). *The bidirectional relationship between ESG performance and earnings management–empirical evidence from Germany*. Journal of Global Responsibility.

Zachary Folger-Laronde, Sep Pashang, Leah Feor & Amr ElAlfy (2022). *ESG ratings and financial performance of exchange-traded funds during the COVID-19 pandemic.* Journal of Sustainable Finance & Investment, 12:2, 490-496.

Zhao, C., Guo, Y., Yuan, J., Wu, M., Li, D., Zhou, Y., & Kang, J. (2018). *ESG and corporate financial performance: Empirical evidence from China's listed power generation companies*. Sustainability, 10(8).

Zhou, G., Liu, L., & Luo, S. (2022). *Sustainable development, ESG performance and company market value: Mediating effect of financial performance*. Business Strategy and the Environment.