



ANALYSIS OF THE IMPACT OF SUSTAINABLE DEVELOPMENT ON COMPANY'S VALUE

Laura UMARAITĖ ^{1*}, Indrė LAPINSKAITĖ ²

¹*Department of Finance Engineering, Faculty of Business Management,
Vilnius Gediminas Technical University, Saulėtekio al. 11, LT-10223, Vilnius, Lithuania*

²*Institute of Dynamic Management, Vilnius Gediminas Technical University,
Saulėtekio al. 11, LT-10223, Vilnius, Lithuania*

Received 4 March 2022; accepted 5 April 2022

Abstract. The attention to sustainability has been increasing rapidly due to environmental and social issues, as well as increasing business risks. It is changing an understanding how business is valued, putting pressure on, and also bringing opportunities for business performance. Along with the increasing weight of sustainability aspects, accessing the value of the company has become a more complex task. The literature analysis suggests different implications on the impact of sustainable development on business value, with most finding a positive relation; however, no clear measures to evaluate such impact can be distinguished. The aim of this paper is to find out the impact of sustainable development on the value of the company. Business sustainability is analysed through the aspects of Environmental, Social, Governance (ESG), which is currently the most emerging sustainability framework, with a special emphasis on governance. Meanwhile, business value is investigated through literature review by determining a range of possible internal and external measures. Panel regression analysis is considered as a method in order to discover a link between sustainable development and business value through selected time period. The results suggest that sustainable development could have a positive impact on business value in the long term.

Keywords: sustainable development, investments to sustainable development, sustainability impact for business, business value, financial ratios.

JEL Classification: Q01, Q56, G32.

Introduction

The main aim of the business is to continuously increase its value and maximize the return on investments. Various strategies are taken by shareholders and top management to increase profits, increase cash flows, or balance other financial measures that positively affect the value of the company. However, what is the value of a company in general and how is it measured? Miller (2010) argues that such valuation is an art or a science. Here, in the face of this question, the concept of sustainable development can be introduced. In a constantly changing world, sustainable development is becoming not a luxury but a necessity for business survival. Rapidly worsening situation of a climate change, i.e., lack of resources, pollution and outcoming social issues are threatening not only the wealth of the Earth overall but also business continuity (United

Nations, 2020). This fosters the need for longer-term investment strategies with more inputs to consider than only financial measures (Sun & Qiu, 2022). In addition, there is largely increasing attention by institutions, investors and public on business impact on the consequences of the climate change, therefore, numerous legislations and initiatives such as Environmental, Social, Governance (ESG) reporting are being created to foster the transparency of business investments strategies (Sokolova & Teymurov, 2022). However, many businesses still struggle to risk investing their capital in sustainable development areas because they usually lack tools or knowledge on how to estimate the outcomes and returns of such investments. The business nature is to earn profits; therefore, solely altruistic support to help with climate change-related issues can be very limited and short-term and rather be an act of marketing than a real investing strategy.

* Corresponding author. E-mail: laura.umaraitė@stud.vilniustech.lt

Therefore, to seek sustainable development in a world where unpredictability due to climate change is constantly increasing, businesses must find measures how investments in sustainable development help not only stay vital in the long term, but also help to increase business value (Hurtado-Jaramillo et al., 2018; Menne et al., 2022).

Numerous other issues could be identified which broadens the scope of research needed on these topics, however, this paper will focus on the first question mentioned above, which brings an object of this article: sustainable development and business value. The aim of this article is to analyse the impact of companies' sustainable development on companies' value. There are some limitations of the research. In this article, 20 companies listed on Nasdaq are analysed over the period of 2015–2021. All companies are operating in the Baltic-Nordic market, i.e., under similar economic and social conditions. Sustainable performance of each company is observed through an official ESG rating, and business value is accessed through Earnings before interest, tax, depreciation and amortization (EBITDA), Return on Assets (ROA), Return on Equity (ROE) and Return on capital employed (ROCE) financial ratios.

The first chapter of this article presents theoretical aspects of business sustainability, second chapter presents how sustainability and business value can be measured, third chapter states methodology, fourth chapter analyses the results of the research and finally, conclusions are listed.

1. Theoretical Aspects of Business Sustainability

Sustainability is described in various ways among literature and mostly it acts as an opposing and issue-solving

term in a context of pollution, scarce resources, changing extreme weathers, rising sea levels and all social dilemmas that come with it. Daily and Ehrlich (1994) has already noted that the market contains no mechanism to scale the economy within the carrying capacity of the planet. In 2021, the activities carried out by businesses already exceed environmental limits (BBC Future, 2021) at the same time, bringing an uneven distribution of income and wealth. The extraordinary increase of economic activity that reflects human consumption and production intensity is reflected in Figure 1 showing world GDP over the last 80 years.

However, increasing economic intensity has an adverse impact on Earth and is best reflected by the global decline in biodiversity by 44% since 1970 (van Goethem & van Zanden, 2021). These facts show that economic activities have been elaborating rapidly and unsustainable with many consequences on Earth, which in some cases already reflect itself and challenges business continuity by:

- disrupting supply chains (BSI Supply Chain Risk Insights Report, 2021);
- disrupting production process (Reuters, 2021);
- increasing costs (e.g., Alphabet, Google's parent company, revealed that increasing temperatures could considerably drive-up costs to cool down their data centres; Plumer, 2019). Costs are also affected by new legislation on reporting responsibilities or increasing numbers of legal cases regarding pollution;
- changing demand for goods (Dellink et al., 2017);
- threatening reputation, etc. (Eccles et al., 2007).

All these risks, together with recent COVID-19 crisis, in addition bring many social dilemmas which are reflected on employees and business social practices. A survey by Coppola et al. (2020) also shows that most

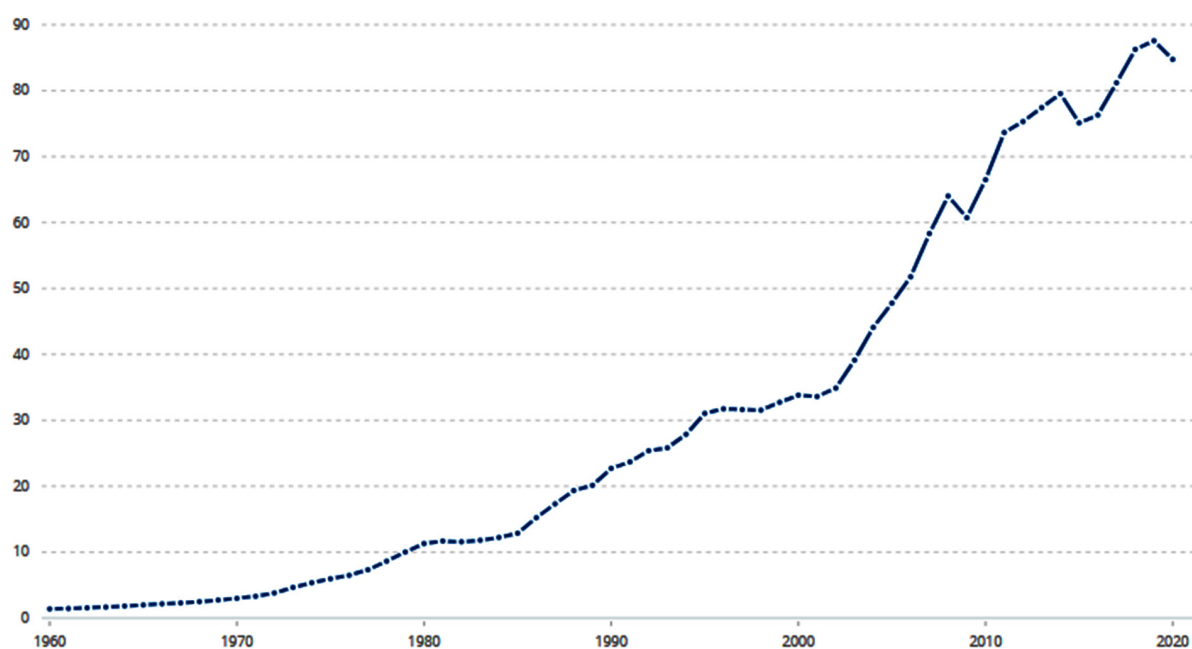


Figure 1. World Gross Product over 1960–2020 (World Bank, 2022)

companies feel pressure to act on climate change from customers, investors, and society due to increasing awareness on sustainability topics. Therefore, to remain successful, business must also connect these viewpoints of different stakeholders.

By not evaluating sustainability related information and focusing solely on financial measures business can no longer have an accurate view of their own performance or longevity. At the same time, business becomes obliged by stakeholders to issue sustainability reports; however, there is still no general framework established for necessary disclosures. From all the aspects mentioned above, the pressure for sustainability comes from the changing attitudes of various stakeholders, social issues, and climate change related risks. But first and foremost, business must identify an added value rather than act on pressure that is brought about by changing circumstances to shift towards a sustainable future. For this, aspects of investments in sustainable development must be identified.

2. Sustainability and Business

2.1. Environmental, Social, and Governmental Sustainability Aspects

This paper uses ESG as a basis for the analysis of sustainable business development. The ESG index is emerging as the most important pillar of Corporate Social Responsibility (CSR) for the development of sustainability strategies that affect the financial performance of any business (Duque-Grisales & Aguilera-Caracuel, 2019). In fact, the relationship between ESG performance and financial performance has been widely studied (Lo & Kwan, 2017; Lee et al., 2015; Gupta et al., 2019; Zhang et al., 2019; Tracy et al., 2019; Clark et al., 2014; Delmas & Pekovic, 2013; Peloza & Papania, 2008; Turban & Greening, 2017; Gao & Zhang, 2016; Godfrey, 2005; Coppola et al., 2019; Loh et al., 2017; AtKisson, 2016) bringing various results: some authors find undoubtful positive relation between these two metrics, while others state negative or no impact relation. Other authors put a special emphasis on the long-term perspective of sustainable strategy with a significant estimate of the recoverable time of such investments. Stafford-Smith et al. (2017) states that investments to be sustainable require pools of “patient capital” – capital investment that measures return not on a quarterly or annual basis, but rather over decades and more. Long-term strategy is the key matter constituting the essence of sustainable development and according to Brown (1998), if an “institution survives over the long term, one might conclude that it has become sustainable.” All the research examined note that return from sustainable development come in a long-term which makes such analysis even more complex. One is clear, that still there is no trustworthy method to measure sustainability impact on business value.

In 2019 Nasdaq's launched the ESG reporting guide (2019) for the Nordic and Baltic markets which refers to

the disclosure of data covering the company's operations in three ESG areas: environmental, social, and corporate governance. ESG reporting helps investors avoid companies that might pose a greater financial risk due to their environmental performance or other social or governmental practices. ESG, together with financial performance figures, has been proven to bring added value to shareholders, see Figure 2.

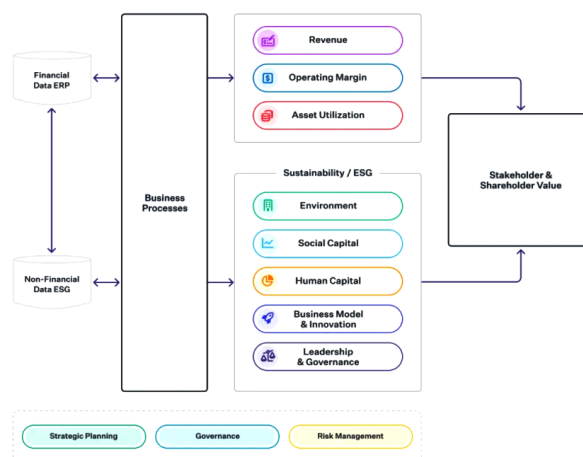


Figure 2. ESG reporting value for shareholders (TheoremOne, 2021)

According to the Global Real Estate Sustainability Benchmarks [GRESB] (2021) organization as appetite for ESG disclosure and sustainability reports increases, the demand for non-financial data is rising nearly at the same level. Furthermore, the ESG index is selected as it is the only index that places emphasis on the governmental aspect, which is the primary and crucial stage of any sustainability strategy (Rasmussen, 2020).

The United Nations (2020) have participated in the development of these ESG criteria mentioned above and its' latest published document “Roadmap for Financing the 2030 Agenda for Sustainable Development” provides evidence that investing in the Sustainable Development Goals (SDGs) makes economic sense, with estimates highlighting that achieving the SDGs could open up 12 trillion dollars in market opportunities and create 380 million new jobs, and that action on climate change would result in savings of approximately 26 trillion dollars by 2030.

In the EGS valuation, crucial attention is paid to the governance aspect of the sustainable development pathway of the business. The important role is taken by managers and their decisions, actions and perceptions to understand what sustainability is and its influence on collaborative relationships for business (De Chernatony et al., 2000). Therefore, internal processes must be developed in each company depending on many criteria (geographical position, industry, available technology etc.) to seek for applicable sustainability-related information in order to overcome cognitive barriers and enable better informed decision-making. Integration into capital

investment decisions of such aspects, for example, energy efficiency measurement (Bunse et al., 2011) may bring additional perspectives to be considered. Therefore, governing process expands to new areas and management who is making investment decisions might not specifically work with these issues, so integration of sustainability-related information in investment decision-making becomes even more relevant for companies in order to create awareness and facilitate for how such aspects can be measured in the investment process (Rasmussen, 2020). Integration of sustainability related information and measuring activities into business processes could plausibly be a significant influencing factor when building sustainable development strategy.

According to Ferguson (2009) in ESG, environmental business performance is valued through different metrics such as carbon footprint, waste management, environmental efficiency, recycling, supply chain performance, etc. Meanwhile, social business performance key indicators comprise employee retention and turnover rates, diversity, equal opportunities, gender balance, human rights etc.

Recent trends show that increasing transparency cannot be avoided and sustainability reporting is urging up with pressure as well as opportunities which firstly must be identified by the management. ESG criteria are being investigated, demanded, and further developed; therefore, they are deemed to be the most appropriate measures for the purpose of this paper, i.e., to analyse investments to sustainable development impact on business value. The following chapter describes different financial ratios through which business value can be measured.

2.2. Financial Value of the Company

Numerous methods of determining the value of a company through financial ratios are analysed in the scientific literature (Egbunike & Okerekeoti, 2018; Alarussi, 2021; Zhang & Tveteras, 2022), however, no unified approach exists on this topic. Therefore, the principles, models and instruments of fundamental analysis theory will be further examined in this paper, determining financial measures for later panel regression analysis to the ESG score.

Different financial ratios have been investigated and considered for the analysis (see listed below) to access business value. It is important to note, that there are no “bad” or “good” ratios when evaluating the company performance, but each is valuable from a certain point of view (Matschke et al., 2010). To have the most comprehensive analysis of the company, it is recommended to calculate as many and as diverse indicators as possible. Usually, the results obtained from a bunch of different financial metrics are combined to a single picture to have a comprehensive evaluation of the company.

Below are listed various financial ratios that are investigated when accessing business value by different authors:

Ratio ROA is used as a tool to measure the rate of return on total assets after interest expense and taxes. However, this ratio is most suitable for companies which have significant cash flows from assets owned (Khaddafi et al., 2014).

ROE shows the extent to which companies manage their own capital (net worth) effectively, measure the profitability of the investment that has been made owners of their own capital or shareholders of the company (Khaddafi et al., 2014). ROE focuses only on the equity component of the investment. It relates the earnings left over for equity investors after debt service costs have been factored into the equity invested in the asset (Damodaran, 2007). However, Damodaran (2007) states, that ROE is not considered as the most accurate ratio as it does not reflect returns on operating assets and also, many companies have negative book value of equity – this is when the ratio becomes meaningless.

Return on Invested Capital (ROIC): The return on capital or invested capital in a business attempts to measure the return earned on capital invested in an investment (Damodaran, 2007).

Earnings per share (EPS) represents a company's net income divided by the total number of outstanding shares (Young & Yang, 2011). Although it is not a direct financial ratio of company performance, it is considered valuable from an investor point of view (Kumar, 2017).

Ratio ROCE is a measure of the efficiency of management in the application or use of the organization's funds or resources (Enyi, 2005).

Market Capitalization is the product of the price of a share for the number of shares issued and listed (Pavone, 2019). It has a significant influence on the growth and development of the economy and the role of this influence is growing (Pavone, 2019). From sustainability perspective, this ratio is considered as a value metrics to see company's extension, i.e., influence in the market.

Turnover is the total amount of money that a business receives as a result of sales over a certain period of time. The calculation does not deduct things like VAT or discounts, which is why it is also referred to as “gross revenue” or “income”. Therefore, it is important that businesses distinguish between income and profit (Cannon & Herda, 2016).

The capital turnover rate (CTR) is the rate or number of times that the average capital employed was used for operations during the period. It measures the number of times the capital employed was turned over during the financial period (Enyi, 2005).

EBITDA is deemed to be an important ratio that enables management to provide users of financial reports with proprietary information that, arguably, provide better decision-useful information for stakeholders (Mey & Lamprecht, 2020).

After the analysis of the company's valuation methods, which examined the main aspect of various financial ratios most often distinguished by different authors and their possible suitability and application to different

types of listed companies, the author selected four ratios for valuing listed companies: EBITDA, ROCE, ROA and ROE. The ratios were selected on the basis of theoretical analysis of each ratio above and also on the availability and comparability of the data for the selected observation period. The next chapter suggests a method for evaluating the relationship between the four selected financial ratios and the ESG index.

3. Methodology

The following standard linear panel regression model has been used for this study purpose (Landstrom, 2019):

$$y_{it} = x_{it}^1 \beta + c_i + u_{it}, \quad i = 1, \dots, N; \quad t = 1, \dots, T, \quad (1)$$

where i indexes units (selected companies) and t indexes time, c is unobserved in all periods but constant over time t . The dependent variable y_{it} reflects business value, i.e., selected financial ratios described in chapter above. Variable x_{it} is ESG rating through the unknown vector β and the error u_{it} . The errors follow the one-way error component structure:

$$u_{it} = \mu_i + \epsilon_{it}, \quad i = 1, \dots, N; \quad t = 1, \dots, T, \quad (2)$$

where the individual – specific effects μ_{it} is independent and identically distributed (i.i.d.) with mean 0 and variance σ_{μ}^2 . The idiosyncratic error $\epsilon_t = (\epsilon_{t1}, \dots, \epsilon_{tN})'$ is generated by a first-order spatial autoregressive process:

$$\epsilon_t = \rho W_{\epsilon t} + v_t, \quad (3)$$

where ρ is the scalar spatial autoregressive coefficient and the elements of v are the i.i.d. The coefficient ρ in (2) measures the degree of correlation, which can be both positive and negative.

However, before the linear regression model is run, several in front steps are taken. As time series are involved in the study, the stationarity of the data is ensured before running the linear regression analysis. A cointegration test and unit root tests are run using SPSS (version 24.0) in order to determine whether time series have a stable, long-run relationship. Time series used in the study are deemed as not dependent on the time at which the series is observed, i.e. time series used do not have seasonality or other trends and are stationary.

Then, as numeric data used for the analysis is very widely spread (i.e. from percentage expressions in ROCE, ROA or ROE to EBITDA values) loglog function is used in SPSS in order to put data to compact representative logarithmic way (Weber, 2016).

Finally, dummy variables are created (Hardy, 1993) for each sample unit (i.e. selected company) as c in (1) is treated as a fixed parameter for each unit, i.e. each company is indicated to be tested through categorical effect of time span through 2015–2020.

Based on the literature review above, research is performed focused on the following question: does selected sustainability variable has a positive correlation with

business value measured through ROCE, ROA, ROE and EBITDA? What are the implications of correlating and not correlating financial ratios?

However, how strong is the influence qualitatively remains unclear and regression analysis is used to determine that.

4. Empirical Evidence

4.1. Research Data and Considerations

This review was done to examine the relationship between the ESG rating and company performance through financial ratios as an expression of company's value. The ESG score has been obtained from the S&P Global platform. In order to have more concentrated research, only companies listed in Nasdaq Baltic and Nordic markets were selected. Financial ratios (EBITDA, ROCE, ROA, and ROE) data were obtained from the Financial Statements of selected companies or the Nasdaq website.

Panel data has been set up for each company for the financial years 2015–2020. Furthermore, based on the literature analysis conducted above (Stafford-Smith et al., 2017), it is considered that for the purpose of this paper it is not appropriate to evaluate the financial ratio of the selected year with the ESG score of the same year because sustainability returns come in a long-term period and not through the same reporting year. Due to the data access limit, only a one-year gap is incorporated in the analysis between the company's value dependents and the ESG score (variable), i.e., the ESG score is taken during periods 2016–2021 and the selected financial ratios during periods 2015–2020 as financial performance is considered as an outcome of the long-term ESG strategy (sustainability index more reflects the past decisions of the company than the performance in the current year performance).

For further studies, a longer time gap could be considered or rather a year-to-year change could be observed of x and y investigated, as it could also be deemed that ESG strategy brings a change in business value rather than direct impact on overall financial figures.

4.2. Data Presentation and Interpretation

There was no correlation found between the company's sustainability and the ROCE, ROE and ROA ratios for the whole selected data set. However, separate cases of significant positive and negative correlations have been identified between individual companies and could be analysed in further studies by conducting in-depth research of their sustainability strategies and their impact on the corresponding dependents.

The study has been further carried out with EBITDA ratio. Summary table below shows that model 1 is reflecting dummy variables: 89% variation in EBITDA performance is occurring between companies shown by R-square. Model 2 shows an 87.6% reflection of the combined effect between dummy variables and time-varying predictors, see Table 1.

Table 1. Models Summary (source: compiled by authors)

Model	R Square	Adjusted R Square	Sig. F Change
1	0.890	0.869	0.000
2	0.898	0.876	0.007

The significant test showed $0,000 < p = 0,05$ significant F test. R square change revealed that additional 0.8% is explained of ESG impact to EBITDA when adding time predictor and sig. F of 0,007 shows that the change is statistically significant. In addition, a coefficient has been determined in order to see what impact ESG (business sustainability) has on EBITDA (business value). See the results below in Table 2.

Table 2. Models Summary (source: compiled by authors)

Coefficients						
Model		Non-St. C		St. C	t	Sig.
		B	S. E.	Beta		
2	ESG	1,016	0.369	0.289	2,750	0.007

The results show a strong positive slope (1,016) and a significant impact (sig. $0.007 < p = 0.05$) of ESG on EBITDA. This suggests that business sustainability positively affected its' EBITDA which is one of the most frequently investigated financial ratio when measuring the company's value. The model also reveals that such positive correlation is constant in long-term perspective, specifically – time span of 2015 to 2020 and thus could be a valuable information for sustainably oriented investor or any other stakeholder. Also, the research conducted above shows no correlation of ESG to ROCE, ROA and ROE in total population examined, however, further research could be carried out of what impact does sustainability have on business value expressed in these corresponding ratios in individual companies rather than the whole pool. It has been observed, that not like EBITDA, all these three ratios incorporate balance sheet items (capital employed, assets and equity) which could vary drastically among different industries, distort in loss making companies and also include more complex holistic approach to the company than solely evaluating income statement components such as revenues and expenses. In addition, EBITDA can provide a more direct reflection of outside factors such as a consumer attitude which is proven to also have a strong positive correlation to business sustainability (Marin-Garcia et al., 2021; Mukhambetov et al., 2020).

Conclusions

As more and more attention is given to sustainability issues, increasing public education on the subject is leading to the demand for transparency on business activities. The majority of listed companies already issue sustainability reports together with their financial reports, however, not

like the aforementioned, sustainability reporting still has no unified framework, making it a complex task to estimate sustainable performance and its impact on business value. However, in recent years, ESG reporting has become a widely accepted reporting framework with increasing recognition. Besides disclosing various environmental and social aspects, it also emphasizes the importance of corporate governance in success of business sustainability strategy. The top management of the businesses still struggles to invest capital in sustainable development as they lack appropriate measures for the valuation of such investments. Therefore, internal processes must be implemented in the planning stage of the investment strategy in order to collect related sustainability information. Only well-informed governance can lead to long-term benefits from investing in sustainable development, and this should be the first step on the path to sustainability.

When conducting literature analysis contradicting and comprehensive considerations of sustainability and business value have been observed. However, most of the studies conducted so far agree that there exists a positive relation between sustainability and business value. In addition, special emphasis is placed on the long-term approach to sustainability investments. Following the findings of the literature review, the paper further suggests an empirical approach to the issue. ESG ratings and several financial ratios representing business value are used for panel regression analysis for 20 selected companies over a selected period. Current research finds a strong positive relation between sustainable performance of the business and EBITDA. No relation is found with ROCE, ROE and ROA. It is considered that these financial ratios might require more industry concentrated approach as it also included balance sheet items into consideration.

The literature analysis on various articles and empirical research conducted suggests that sustainability pays off and increases business value through EBITDA which is a largely valuable ratio for business stakeholders. However, such an analysis still comes with significant limitations such as the absence of a general reporting sustainability framework and relatively recently established ESG scores, which are under limited access to the public. Further studies could be conducted with sustainable and financial performance in a larger sample and also over a longer period of time. In addition, other financial ratios could be further investigated in more industry-concentrated research.

Disclosure statement

Authors do not have any competing financial, professional, or personal interests from other parties.

References

- Alarussi, A. S. A. (2021). Financial ratios and efficiency in Malaysian listed companies. *Asian Journal of Economics and Banking*, 5(2), 116–135.
<https://doi.org/10.1108/AJEB-06-2020-0014>

- AtKisson, A. (2016). The corporate responsibility: The value for business, society & the state. In *Annual Responsible Business Conference in Presidential Palace of the Republic of Lithuania*. Presentation material. Vilnius.
- BBC Future. (2021). *Who is really to blame for climate change?* <https://www.bbc.com/future/article/20200618-climate-change-who-is-to-blame-and-why-does-it-matter>
- Brown, D. R. (1998). Evaluating institutional sustainability in development programmes: Beyond dollars and cents. *Journal of International Development*, 10(1), 55–69. [https://doi.org/10.1002/\(SICI\)1099-1328\(199801\)10:1<55::AID-JID452>3.0.CO;2-W](https://doi.org/10.1002/(SICI)1099-1328(199801)10:1<55::AID-JID452>3.0.CO;2-W)
- BSI. (2021). *BSI supply chain risk insights report 2021*. <https://www.aiag.org/docs/default-source/supply-chain/bsi-wp-supply-chain-risk-insights.pdf>
- Bunse, K., Vodicka, M., Schönsleben, P., Brühlhart, M., & Ernst, F. O. (2011). Integrating energy efficiency performance in production management – gap analysis between industrial needs and scientific literature. *Journal of Cleaner Production*, 19(6–7), 667–679. <https://doi.org/10.1016/j.jclepro.2010.11.011>
- Cannon, N. H., & Herda, D. N. (2016). Auditors' organizational commitment, burnout, and turnover intention: A replication. *Behavioral Research in Accounting*, 28(2), 69–74. <https://doi.org/10.2308/bria-51455>
- Clark, G. L., Feiner, A., & Viehs, M. (2014). *From the Stockholder to the Stakeholder: How sustainability can drive financial outperformance*. <https://doi.org/10.2139/ssrn.2508281>
- Coppola, M., Krick, T., & Blohmke, J. (2019). *Impact of climate change on business*. Deloitte Insights. <https://www2.deloitte.com/us/en/insights/topics/strategy/impact-and-opportunities-of-climate-change-on-business.html>
- Daily, G. C., & Ehrlich, P. R. (1994). Population, sustainability, and Earth's carrying capacity. In *Ecosystem Management* (pp. 435–450). Springer. https://doi.org/10.1007/978-1-4612-4018-1_32
- Damodaran, A. (2007). *Return on Capital (ROC), Return on Invested Capital (ROIC) and Return on Equity (ROE): Measurement and Implications*. <https://doi.org/10.2139/ssrn.1105499>
- de Chernatony, L., Harris, F., & Dall'Olmo Riley, F. (2000). Added value: Its nature, roles and sustainability. *European Journal of Marketing*, 34(1/2), 39–56. <https://doi.org/10.1108/03090560010306197>
- Dellink, R., Hwang, H., Lanzi, E., & Chateau, J. (2017). *International trade consequences of climate change*. <https://doi.org/10.1787/9f446180-en>
- Delmas, M. A., & Pekovic, S. (2013). Environmental standards and labor productivity: Understanding the mechanisms that sustain sustainability. *Journal of Organizational Behavior*, 34(2), 230–252. <https://doi.org/10.1002/job.1827>
- Duque-Grisales, E., & Aguilera-Caracuel, J. (2019). Environmental, Social and Governance (ESG) scores and financial performance of multilatinas: Moderating effects of geographic international diversification and financial slack. *Journal of Business Ethics*, 168(2), 315–334. <https://doi.org/10.1007/s10551-019-04177-w>
- Eccles, R. G., Newquist, S. C., & Schatz, R. (2007, February). *Reputation and its risks*. <https://hbr.org/2007/02/reputation-and-its-risks>
- Egbunike, C. F., & Okerekeoti, C. U. (2018). Macroeconomic factors, firm characteristics and financial performance. *Asian Journal of Accounting Research*, 3(2), 142–168. <https://doi.org/10.1108/AJAR-09-2018-0029>
- Enyi, P. E. (2005). How useful is the Return on Capital Employed (Roc) as a performance indicator. *AJMS*, 1(4). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=753124
- Nasdaq. (2021). *ESG reporting guide*. <https://www.nasdaq.com/ESG-Guide>
- Ferguson, D. L. (2009). *Measuring Business Value and Sustainability Performance. Enhancing business value from the selection, measurement and analysis of Corporate Sustainability Performance characteristics*. <http://www.eabis.org>
- Gao, H., & Zhang, W. (2016). Employment nondiscrimination acts and corporate innovation. *Management Science*, 63(9), 2982–2999. <https://doi.org/10.1287/mnsc.2016.2457>
- Global Real Estate Sustainability Benchmarks. (2021). *Global ESG benchmark for real assets*. GRESB. <https://gresb.com/nl-en/>
- Godfrey, P. C. (2005). The relationship between corporate philanthropy and shareholder wealth: A risk management perspective. *Academy of Management Review*, 30(4), 777–798. <https://doi.org/10.5465/amr.2005.18378878>
- Gupta, S., Goldar, B., & Dang, S. (2019). *Environmental performance and capital markets: Evidence from India* (Working papers 303). Centre for Development Economics, Delhi School of Economics.
- Hardy, M. A. (1993). *Regression with dummy variables* (vol. 93). Sage. <https://doi.org/10.4135/9781412985628>
- Hurtado-Jaramillo, C. H., Chiu, M. C., Arimany-Serrat, N., Ferràs, X., & Meijide, D. (2018). Identifying sustainability-value creation drivers for a company in the water industry sector: An empirical study. *Water Resources Management*, 32(12), 3961–3978. <https://doi.org/10.1007/s11269-018-2030-5>
- Khaddafi, M., Heikal, M., & Ummah, A. (2014). Influence analysis of Return on Assets (ROA), Return on Equity (ROE), Net Profit Margin (NPM), Debt to Equity Ratio (DER), and current ratio (CR), Against Corporate Profit Growth in Automotive in Indonesia Stock Exchange. *International Journal of Academic Research in Business and Social Sciences*, 4(12). <https://doi.org/10.6007/IJARBS/v4-i12/1331>
- Kumar, P. (2017). Impact of earning per share and price earnings ratio on market price of share: A study on auto sector in India. *International Journal of Research -GRANTHAALAYAH*, 5(2), 113–118. <https://doi.org/10.29121/granthaalayah.v5.i2.2017.1710>
- Landstrom, J. (2019). Regression analysis and panel data. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3487658>
- Lee, S. Y., Park, Y. S., & Klassen, R. D. (2015). Market responses to firms' voluntary climate change information disclosure and carbon communication. *Corporate Social Responsibility and Environmental Management*, 22(1), 1–12. <https://doi.org/10.1002/csr.1321>
- Lo, K. Y., & Kwan, C. L. (2017). The effect of environmental, social, governance and sustainability initiatives on stock value – Examining market response to initiatives undertaken by listed companies. *Corporate Social Responsibility and Environmental Management*, 24(6), 606–619. <https://doi.org/10.1002/csr.1431>
- Loh, L., Thomas, T., & Wang, Y. (2017). Sustainability reporting and firm value: Evidence from Singapore-listed companies. *Sustainability*, 9(11), 2112. <https://doi.org/10.3390/su9112112>
- Marin-Garcia, A., Gil-Saura, I., & Ruiz-Molina, M. E. (2021). How does sustainability affect consumer satisfaction in retailing. In *Social and sustainability marketing: A casebook for*

- reaching your socially responsible consumers through marketing science. Productivity Press.
<https://doi.org/10.4324/9781003188186-9>
- Matschke, M. J., Brösel, G., & Matschke, X. (2010). Fundamentals of functional business valuation. *Journal of Business Valuation and Economic Loss Analysis*, 5(1).
<https://doi.org/10.2202/1932-9156.1097>
- Menne, F., Surya, B., Yusuf, M., Suriani, S., Ruslan, M., & Iskandar, I. (2022). Optimizing the financial performance of SMEs based on sharia economy: Perspective of economic business sustainability and open innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(1), 18.
<https://doi.org/10.3390/joitmc8010018>
- Mey, M. T., & Lamprecht, C. (2020). The many faces of earnings before interest, tax, depreciation and amortisation (EBITDA): Assessing the decision usefulness of EBITDA disclosure by Johannesburg Stock Exchange-listed companies. *Journal of Economic and Financial Sciences*, 13(1).
<https://doi.org/10.4102/jef.v13i1.488>
- Miller, W. D. (2010). *Value maps – Valuation tools that unlock business wealth*. Wiley.
- Mukhambetov, T., Yerdavletova, F., Kurbanova, K., Mukhametzhanova, Z., & Sadvakassova, K. (2020). Analysis of financial indicators used to assess the sustainability of companies. In *E3S Web of Conferences* (vol. 208, 03049). EDP Sciences. <https://doi.org/10.1051/e3sconf/202020803049>
- Pavone, P. (2019). Market capitalization and financial variables: Evidence from Italian listed companies. *International Journal of Academic Research in Business and Social Sciences*, 9(3), 1356–1371. <https://doi.org/10.6007/IJARBS/v9-i3/5802>
- Pelozo, J., & Papania, L. (2008). The missing link between corporate social responsibility and financial performance: Stakeholder salience and identification. *Corporate Reputation Review*, 11(2), 169–181.
<https://doi.org/10.1057/crr.2008.13>
- Plumer, B. (2019). Companies see climate change hitting their bottom lines in the next 5 years. *The New York Times*.
<https://www.nytimes.com/2019/06/04/climate/companies-climate-change-financial-impact.html>
- Rasmussen, J. (2020). The role of structural context in making business sense of investments for sustainability – A case study. *Sustainability*, 12(17), 7006.
<https://doi.org/10.3390/su12177006>
- Reuters. (2021). *Toyota to suspend output from nine factories in Japan due to quake*. <https://www.reuters.com/article/us-toyota-output-idUSKBN2AG0YV>
- Sokolova, N. A., & Teymurov, E. S. (2022). Correlation of sustainable development goals and ESG principles. *Courier of Kutafin Moscow State Law University (MSAL)*, 12, 171–183.
<https://doi.org/10.17803/2311-5998.2021.88.12.171-183>
- Stafford-Smith, M., Griggs, D., Gaffney, O., Ullah, F., Reyers, B., Kanie, N., Stigson, B., Shrivastava, P., Leach, M., & O’Connell, D. (2017). Integration: The key to implementing the Sustainable Development Goals. *Sustainability Science*, 12(6), 911–919. <https://doi.org/10.1007/s11625-016-0383-3>
- Sun, Y., & Qiu, Z. (2022). Positive performance feedback and innovation search: New ideas for sustainable business development. *Sustainability*, 14(4), 2086.
<https://doi.org/10.3390/su14042086>
- TheoremOne. (2021). *Sustainability & ESG*. <https://discover.theorem.co/services/sustainability>
- Tracy, U. A., Holt, V., Douglas, E., & Whelan, T. (2019). The Return on Sustainability Investment (ROSI): Monetizing financial benefits of sustainability actions in companies. *Review of Business: Interdisciplinary Journal on Risk and Society*, 39(2), 1–31.
- Turban, D. B., & Greening, D. W. (2017). Corporate social performance and organizational attractiveness to prospective employees. *Academy of Management Journal*, 40(3), 658–672. <https://doi.org/10.5465/257057>
- United Nations. (2020). *Roadmap for financing the 2030 agenda for sustainable development 2019–2021*. Executive summary.
- van Goethem, T., & van Zanden, J. L. (2021). Biodiversity trends in a historical perspective. In *How was life? Vol. II: New Perspectives on Well-being and Global Inequality since 1820*. OECD Publishing.
<https://doi.org/10.1787/2c94883d-en>
- Weber, C. (2016). Making logarithms accessible – Operational and structural basic models for logarithms. *Journal Für Mathematik-Didaktik*, 37, 69–98.
<https://doi.org/10.1007/s13138-016-0104-6>
- World Bank. (2022) *GDP (current US\$)*. Data. <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD>
- Young, S., & Yang, J. (2011). Stock repurchases and executive compensation contract design: The role of earnings per share performance conditions. *The Accounting Review*, 86(2), 703–733. <https://doi.org/10.2308/accr.00000024>
- Zhang, D., & Tveteras, R. (2022). Influence of price variability and financial ratios on business failure in the Atlantic Salmon Industry. *Marine Resource Economics*, 37(2).
<https://doi.org/10.1086/718380>
- Zhang, G., Fang, C., Zhang, W., Wang, Q., & Hu, D. (2019). How does the implementation of the new environmental protection law affect the stock price of heavily polluting enterprises? Evidence from China’s Capital Market. *Emerging Markets Finance and Trade*, 55(15), 3513–3538.
<https://doi.org/10.1080/1540496X.2019.1648250>