The link between sustainability performance and value creation

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ABSTRACT

The increasing focus on corporate sustainability has generated a strong interest in understanding how environmental, social, and governance (ESG) factors affect business value. Companies are investing in sustainability with an eye on future returns. However, measuring the financial impacts of sustainability is challenging due to uncertainties in future conditions and regulations. A study using a real options approach, which looks at the connection between sustainability performance and the creation of long-term value, offers a more comprehensive evaluation of strategic initiatives. An analysis of 27 rigorous and peer-reviewed research studies revealed a significant finding: 81% of them showed a positive correlation between sustainability performance and the generation of long-term value. This compelling finding should inspire confidence in the potential for sustainability to drive long-term value creation, although the impact of this relationship may vary depending on factors such as geography, industry, or performance components.

Keywords: Sustainability, ESG, corporate social responsibility, long-term value creation, real options valuation, PRISMA

1. Introduction

Every business aims to create value with each transaction- for its customers in terms of satisfaction and for itself and its shareholders in terms of profit. Organisations that generate more value per sale are more likely to achieve greater profitability than organisations that generate lower value per sale (Stobierski 2020). Companies that consider environmental and societal impacts build more resilient operations with higher future earnings and lower volatility. For this reason, many companies are investing in sustainability, and many investors are

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incorporating sustainability performance data into their capital allocation decisions (Khan et al. 2015). As per Henisz et al. (2019), ESG can add value for companies in five basic ways: top-line growth, cost reduction, addressing regulatory concerns, improving staff productivity, and optimising asset investments. All business executives across sectors need to take into account these five value-creation levers stemming from ESG, as they can inform decision-making and contribute to long-term success. This is why investing in a strong ESG proposal can help grow its top line with an eye on penetrating new markets, extending its presence in existing ones, and facilitating easier access to resources by fostering closer relationships between firms and local communities/governments. Companies with well-established reputations in ESG are more likely to get opportunities such as infrastructure projects. Besides, efficient implementation of ESG practices can help reduce the current increase of operating expenses associated with factors like resource costs. A better image of ESG might enable organizations to achieve greater strategic flexibility by cutting regulatory scrutiny and winning government support. In addition, ESG practices may aid in the attraction and retention of high-calibre employees, boost employee motivation and a sense of purpose, and ultimately elevate overall productivity. Additionally, by strategically allocating resources to sustainable possibilities and avoiding stranded assets, ESG practices may optimise investment and capital expenditures, ultimately enhancing investment returns. It can also help companies avoid future regulatory changes and constraints (Henisz et al. 2019).

The real options approach plays a significant role in connecting strategic and financial analyses of corporate decisions that include ESG practices. It helps better understand the underlying mechanisms that create value (Trigeorgis & Reuer 2017). Generating value from ESG practices requires evaluating current and future consequences (Hart & Milstein 2003). However, valuing the future value of ESG investments is challenging due to the imbalance between the certainty of short-term costs and the uncertainty surrounding future returns in both scale and timing (Inard, L. 2023). Implementing ESG policies can improve a company's capacity to innovate, pursue new endeavors, create value, and enhance financial performance (Ahmad et al., 2023). Additionally, achieving long-term value necessitates balancing ESG performance, growth opportunities, and other strategies (Fuente et al. 2021).

The research aims to understand how sustainability performance and value creation, using a real options approach, are interrelated and mutually affect each other. Sustainability is increasingly recognised as crucial in business, so it is essential to investigate the long-term financial benefit of practicing sustainable practices. Furthermore, this study will utilise the real options approach to examine the strategic value of sustainability investments and how they can improve a firm's competitive advantage. According to Brozovic et al. (2020), companies with strong sustainability performance outperform peers in financial, stock market, and accounting performance, suggesting that sustainability is crucial for long-term value creation. The evidence suggests that adopting a sustainability-oriented approach contributes to long-term financial sustainability. However, the relationships between sustainability and financial performance are complex and require in-depth analysis. By applying a real options approach to evaluate the relationship between sustainability performance and value creation, this study aims to address the following questions:

Q1: Is there a correlation between the sustainability performance of a business and its ability to create value within the framework of real options valuation?

Q2: Does the connection between sustainability performance and value creation differ based on industries or regions?

This study uses a systematic literature review methodology to develop its argument. A systematic literature review (SLR) helps to identify relevant scientific research on a particular issue, evaluate its quality individually and collectively, and summarise its findings. According to Dinter et al. (2021), SLR is a research method that involves a comprehensive search for relevant primary papers, followed by data extraction, analysis, and synthesis. The goal of SLR is to gain a more in-depth and comprehensive understanding of a particular domain by examining and synthesising the findings of multiple studies. This study compares the theories used by researchers in their investigations to achieve these objectives.

2. Theoretical Background

Definition of value creation in real options analysis

According to Boyer et al. (2003), real options valuation is a strategic decision-making tool that enables companies to take advantage of opportunities and mitigate risks in an unpredictable business environment. They are derived from financial options but applied to actual business situations. Real options valuation allows organisations to make future decisions based on market conditions and other factors. This provides flexibility in decision-making, allowing businesses to adapt to changing conditions and optimise the value of their investments (Yeo & Qiu, 2003). Real options analysis refers to the strategic flexibility that enables businesses to adjust to market changes and make decisions based on the potential value of future opportunities. However, managers hesitate to adopt real options valuation due to concerns about imprecise assumptions and the potential overvaluation of risky projects (Alexander et al., 2004).

The real options approach enables value creation by providing flexibility and the opportunity for enhanced returns on investment. Real options analysis enables management to adjust to evolving circumstances and make decisions based on anticipated future situations. Therefore, a project with a negative net present value (NPV) can be transformed into one with a positive NPV. The ability to adapt to market fluctuations and uncertainty can generate value by seizing opportunities that conventional discounted cash flow analysis may fail to recognise (Yeo & Qiu 2003). Real options valuation is used to value flexibility in managerial decision-making under uncertainty (Brach 2003). Options are advantageous in situations of uncertainty, as they enable management to maximise the value gained from an investment. Thus, possessing a precise project valuation is essential for the viability of firms. The use of various valuation methodologies can lead to differing values for options, underscoring the need to choose the appropriate method (Radjenovic, 2008). Seidl et al. (2021) state that real options valuation distinguishes itself from typical financial options by including the possibility of altering decisions in the future. Hence, real options valuation can generate favourable value by enabling adaptability and decision-making flexibility in response to newly acquired knowledge. This adaptability can result in more advantageous results and enhanced value generation.

Sustainability performance

Business sustainability involves integrating social equity, economic effectiveness, and environmental performance goals into a company's operational procedures. Assessing sustainability performance allows companies to thoroughly measure their impact in all three aspects of sustainability and identify areas for improvement in their operational and managerial approaches (Labuschagne et al. 2003).

Sustainability performance indicators evaluate and measure an organisation's endeavours and results in attaining sustainable practices (Caiado et al., 2018). Organisations can use ESG scores to assess their sustainability performance (Rajesh & Rajendran, 2019). ESG scores assess a company's sustainability performance by evaluating its environmental effect, social responsibility, and governance procedures. Chandrakant and Rajesh (2023) use quantitative methods to assess the effectiveness of companies in handling risks and opportunities associated with sustainability.

Sustainability Performance and Long-Term Value Creation

Ochi (2018) explored methods of willingly encouraging corporations to reveal information about ESG factors. Additionally, he examined the concept of the "real option value" in managing externalities. According to him, integrating ESG strategies and real option value can enhance organisations' ability to address external factors and generate corporate value effectively. He proposes that incorporating ESG measures to address the impact on stakeholders might result in the creation of real option value, which can generate corporate value by capitalising on commercial opportunities or enhancing a company's legitimacy. Non-financial variables, such as reputation, stakeholder engagement, and employee satisfaction, also have an indirect impact on long-term value. Furthermore, organisations that possess a greater understanding of ESG factors appear to guarantee sustained value for shareholders over the long term by enhancing their financial performance and managerial excellence and reducing risk (Zumente & Bistrova 2021).

ESG aspects are essential for creating value as they help firms align with sustainable practices, improve connections with stakeholders, mitigate risks, and promote innovation and efficiency (Inard, L. 2023). Signori et al. (2021) discovered that organisations with higher ESG ratings allocated greater value to their shareholders and reserved a more significant portion of their income for the company's long-term sustainability. However, this was achieved at the cost of reducing benefits for employees and financial providers (excluding shareholders).

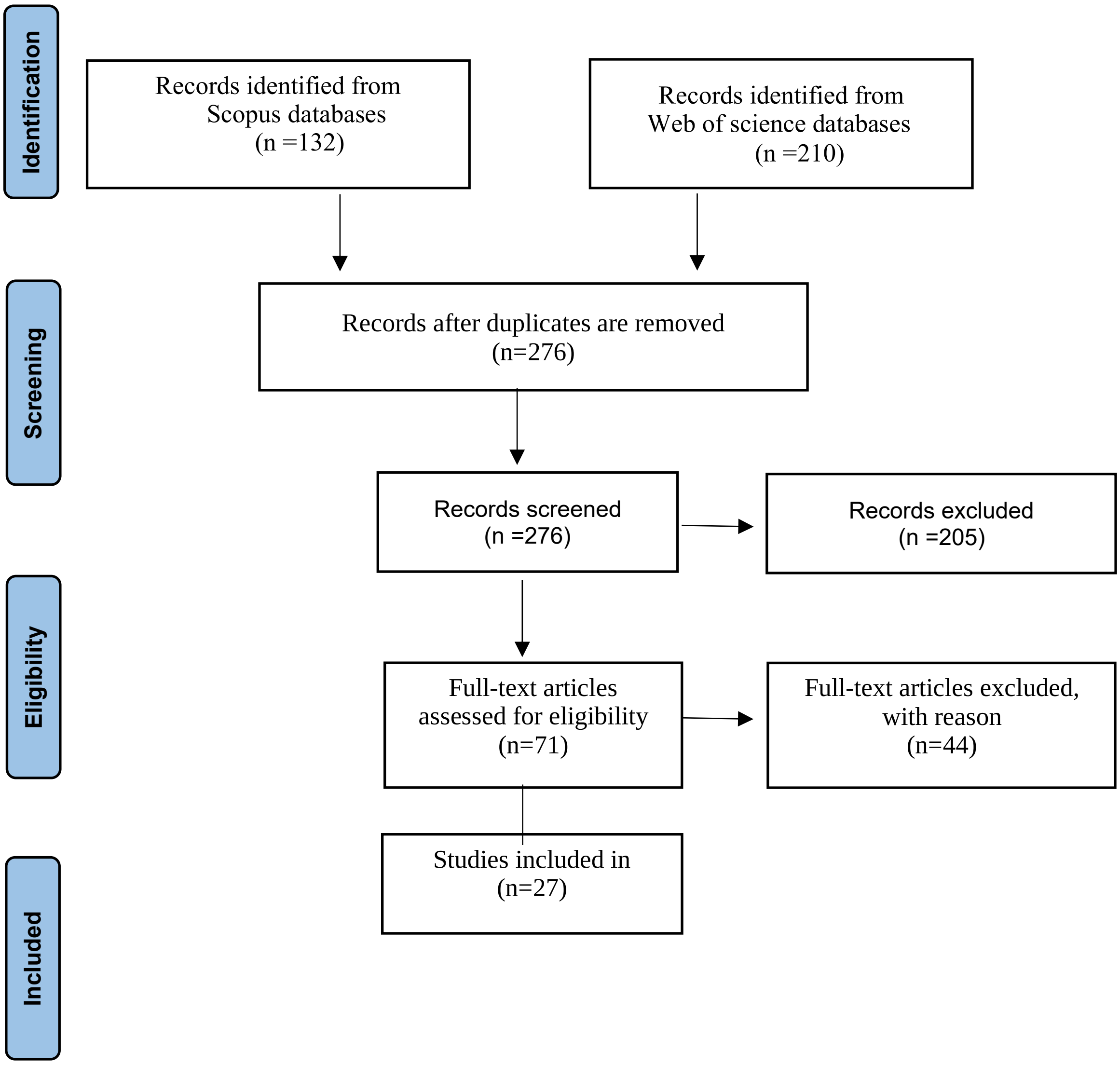
ESG factors can have a substantial impact on the value of growth options. This impact can be either positive or negative, depending on the level of ESG performance. Modest ESG measures can enhance value by fostering trust and attracting stakeholder investments. Nevertheless, if the ESG initiatives are overly abundant, they may diminish the value by excessively mitigating the risk. Hence, it is crucial to uphold a suitable equilibrium between ESG endeavours and risk reduction in order to guarantee enduring expansion (Fuente et al. 2021). Furthermore, organisations that proficiently handle a range of sustainability metrics are more capable of creating enduring value for all stakeholders (Funk 2003).

Rodrigo-González et al. (2021) propose a methodology that combines the circular economy idea (It is considered one of the factors of sustainability) with financial valuation using a real options approach. This enables the measurement of the value generated by asset circularity inside a company in the presence of uncertainty. The circular economy generates value by extending the longevity of assets through the four processes of Reuse, Refurbish, Remanufacture, and Recycle. Prolonging the duration of an asset's existence enhances its value by maintaining or improving its use and economic significance over a period of time. In addition, the circular economy enables the use of subjective judgement and brings adaptability into the process of determining value, leading to a more precise evaluation of the economic and financial worth of circularity. In addition, the circular economy can provide substantial value through the promotion of sustainable production and consumption, improvement of resource efficiency, reduction of emissions and environmental impacts, and contribution to economic, environmental, and social efficiency (Axhami et al., 2023).

3. Methodology

The search approach was enhanced by incorporating "ESG" and "CSR" as alternatives to "sustainability" in order to encompass the various concepts related to sustainability performance. The disclosure of a company's ESG information has a direct impact on its sustainability performance, since a higher level of ESG information leads to improved economic sustainability (Alsayegh et al., 2020). In addition, we expanded the scope of our search for opportunities to create value by incorporating additional terms such as risk and flexibility. Integrating adaptability into decision-making procedures can assist organisations in seizing opportunities and effectively managing risks, hence generating value within the framework of real options valuation (Boyer et al. 2001).

Figure 1: PRISMA flow



The algorithm for searching articles is determined by the concepts and research questions provided. In this case, the search included the terms (sustain* OR ESG* OR CSR*) AND (“value creation”) AND (“real options” OR risk OR flexibility). The review process involved collecting and analysing research articles from two databases: Scopus and Web of Science. At first, the search yielded 356 documents in Scopus and 652 in Web of Science. Nevertheless, filters were implemented to enhance precision and pertinence by considering the subject area, article and review type, and the English language. After implementing these filters, 132 documents in Scopus and 210 publications in Web of Science that met the amended criteria were retained.

To improve the clarity, understanding, excellence, and significance of the reports, we did a systematic literature review following the guidelines set out in "Preferred Reporting Items for

Systematic Reviews and Meta-Analyses (PRISMA)" (Figure 1). Furthermore, a computer program was utilised to analyse the title, abstract, and keywords to discover relevant information. We then analysed 276 abstracts, assessing their appropriateness for whole-text reading using the criteria of titles and abstracts. The study selected articles using terms related to sustainability performance, such as ESG and CSR.

To improve the clarity of our analysis, we removed articles irrelevant to the specific keywords and did not sufficiently address the correlation between sustainability performance and the generation of value. Therefore, we selected 71 articles for comprehensive textual examination in the subsequent phase. The study algorithm generated proverbs from 1994 to 2023. However, it was observed that papers released before 2005 exhibit a notable lack of relation to the present subject matter. A comprehensive analysis was conducted on 71 articles, and the most relevant papers were selected. After many rounds of review, the whole material was carefully examined, and 27 publications that were considered thematically significant were identified and examined.

Our primary aim is to analyse the correlation between sustainability performance and long-term value generation from a real options valuation perspective during selection. Articles that fail to depict this correlation, such as those that exclusively advocate for sustainability or only emphasis value creation, are eliminated. In addition, challenges arose when choosing articles that specifically linked value creation to real options valuation. Value creation is not just limited to real options analysis but also encompasses accounting, operational management, and several other areas. Hence, careful deliberation was undertaken to guarantee that the chosen articles centered on creating value through a real options valuation viewpoint. In addition, some researchers do not directly employ a real options valuation framework. However, the article's findings suggest that a real options valuation perspective could offer further insights, particularly about the flexibility, uncertainty, and timing effects of ESG strategies on corporate investment and long-term value.

4. Findings and Discussion

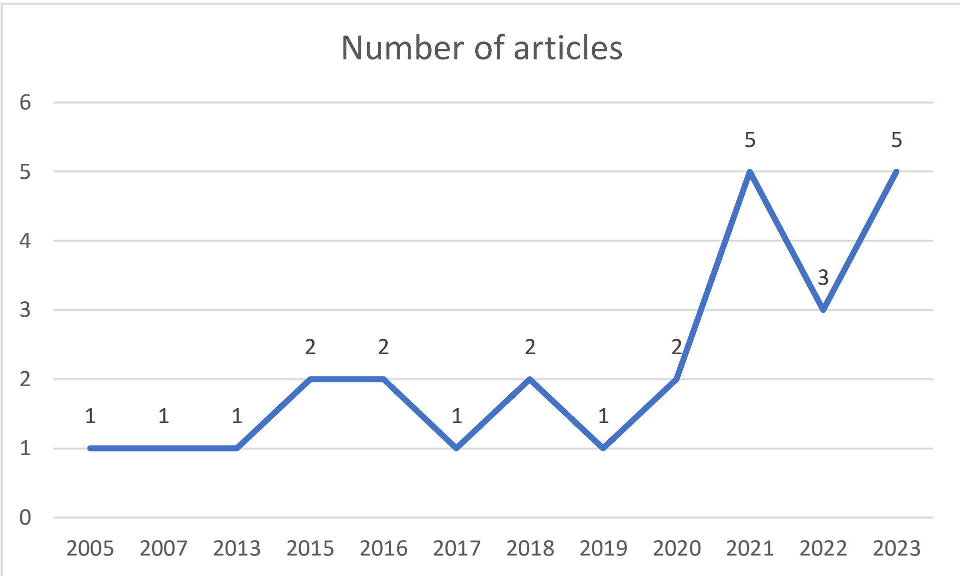
1. Bibliometric Analysis

This section provides a bibliometric literature analysis regarding the relationship between sustainability performance and value generation. It offers a comprehensive overview of the current research on this correlation by undertaking a systematic evaluation of the literature (Chen et al. 2014). It includes an overview of the yearly publication trends, the publishers that stand out in the reviewed articles, citation analysis of the reviewed articles, and the leading countries.

1.1. An overview of the yearly publication trends

This section examines the number of publications addressing sustainable value creation over the years. The analysis shows the yearly trends in publication rates, with Figure 2 displaying the number of reviewed articles released each year. As shown in the figure, no relevant articles were identified before 2005. The first relevant article emerged in 2005, with a consistent publication rate and minimal fluctuations until 2020. However, from 2020 onwards, there was a significant increase in publications, culminating in a significant spike in 2023.

Figure 2. *The yearly publication trends*.



Source: Authors work

There are many vital reasons why sustainability has gained heightened attention in recent years. Organisations increasingly prioritise sustainability due to global concerns, investor expectations, talent preferences, financial benefits, etc. Winston (2022) has analysed the top 10 main stories that significantly impacted the increasing sustainability performance in recent years. These are multiple environmental crises, the first war in Europe in 80 years, and various challenges related to elections, sustainability trajectory, ESG investing, transparency, etc. In addition, the recent focus on sustainability is largely due to legal requirements. For example, ESG performance and reporting are now mandatory in many countries. With different regulatory frameworks and social requirements in many countries, comprehensive and standardised ESG reporting procedures are essential for transparent and cost-effective stakeholder communication (Dathe et al. 2024)

1.2. Key publishers of the reviewed articles

Sustainability has emerged as a prevalent subject of discussion inside organisations. The objective of this analysis is to determine the main research repository that focuses on the long-term impact of sustainability performance on value generation. Identifying notable publishers can offer valuable insights into the possible impact that future scholars may have on the growing field of research. The 27 publications that were examined were published in a total of 23 distinct journals. Among these, 13% were published in the Journal of Cleaner Production, 8% in the Journal of Sustainable Finance & Investment, and 8% in Sustainability. The remaining journals accounted for 71% of the articles (Table 1).

1.3. Keyword analysis for reviewed articles in VOSviewer

VOSviewer is a software application used to visually represent and analyse bibliometric data, such as networks of co-authors, citations, and keyword co-occurrence. This software tool, available at no cost, can generate and present bibliometric correlations among several variables (Kirby 2023).

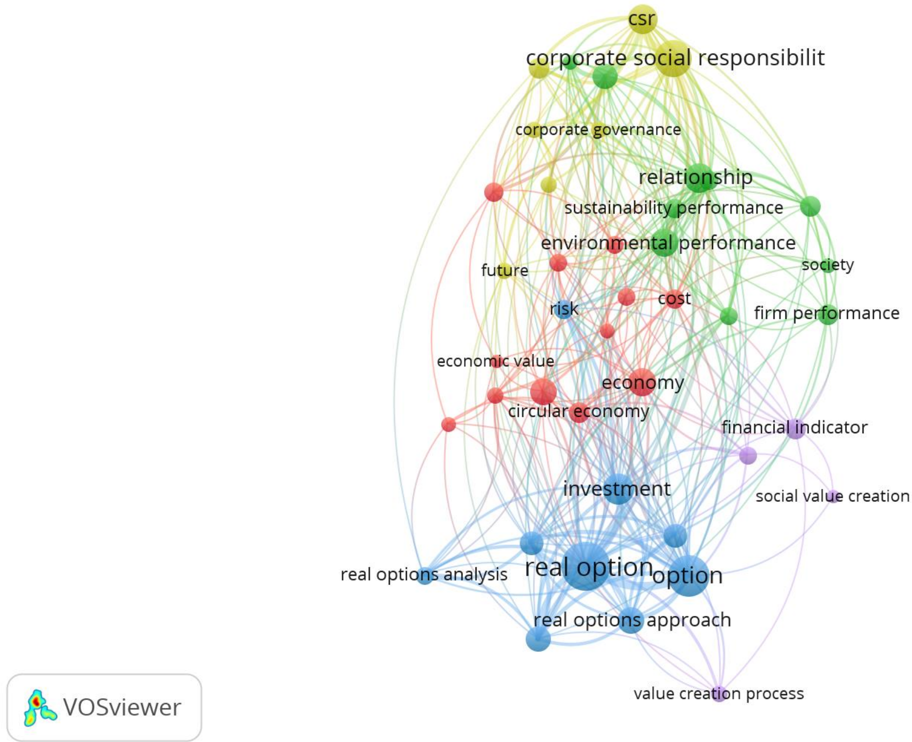
Table 1. *The publishers that stand out in the reviewed articles*

No	Journal names	Number of articles	H Index (SJR)
1	Journal of Cleaner Production	3	309 (Q1)
2	Journal of Sustainable Finance & Investment	2	35(Q1)
3	Sustainability	2	169(Q2)
4	Accounting Auditing & Accountability Journal	1	121(Q1)
5	Architectural Engineering and Design Management	1	40(Q2)
6	European Review	1	33(Q3)
7	Economic Analysis and Policy	1	59(Q1)
8	Economics Letters	1	125(Q2)
9	Geneva Papers on Risk and Insurance Issues and Practice	1	42(Q2)
10	International Journal of Accounting and Information Management	1	35(Q1)
11	International Journal of Applied Economics, Finance and Accounting	1	5 (Q3)
12	International Journal of Business and Society	1	25(Q3)
13	International Journal of Financial Research	1	14(Q4)
14	Journal of Accounting Literature	1	24(Q1)
15	Journal of Business Research	1	265(Q1)
16	Journal of Creating Value	1	15(Q3)
17	Journal of Social and Economic Development	1	20(Q4)
18	International Journal of Product Lifecycle Management	1	24(Q3)
19	Meditari Accountancy Research	1	39(Q1)
20	Polish Journal of Management Studies	1	34(Q3)
21	South African Journal of Economic and Management Sciences	1	26(Q2)
22	European Research Studies Journal	1	38(Q2)
23	Asia-Pacific Journal of Finacial Studies	1	22(Q2)

Source: Authors work

Furthermore, this software has the capability to assess extensive amounts of data and provide outstanding network data mapping (Bukar et al. 2023). By utilising VOSviewer to analyse the co-occurrence network of terms, one can gain useful insights into the correlation between sustainability and value generation. The academic discourse highlights the connection between sustainability performance and value generation. This is evident through the presence of keywords such as value creation, real options valuation, sustainability, and CSR, as depicted in Figure 3. The results demonstrate a more robust association between sustainability performance and the development of value in organisational contexts.

Figure 3. *Keyword analysis in the VOSviewer*



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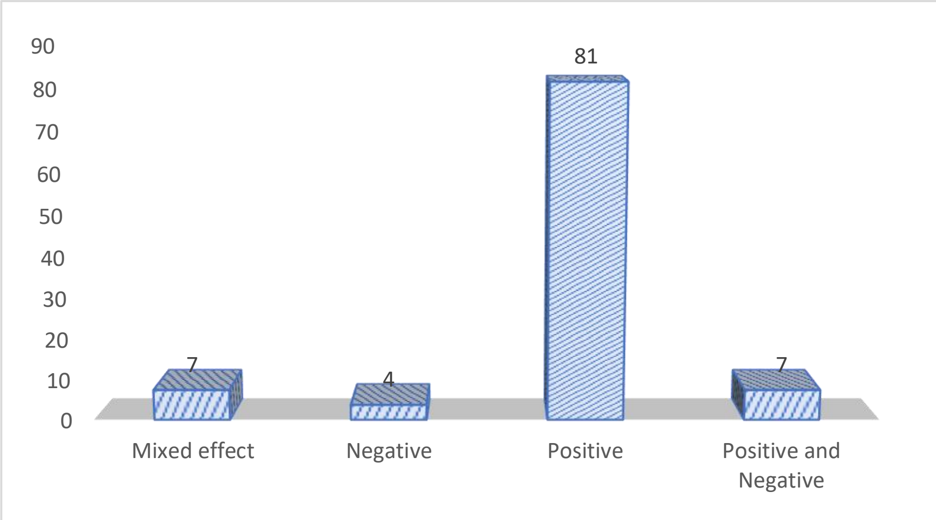
2. Key findings

2.1 The link between sustainability performance and value creation

In the current corporate environment, there is a swift and constant evolution, prompting organisations to prioritise the integration of ESG/CSR efforts into their operations. Implementing thorough and authentic corporate social responsibility (CSR) practices over a long period of time can allow companies to utilise intangible assets like trust, reputation, and goodwill to create value, as stated by Marsiglia and Falautano (2005). The results suggested a positive link between sustainability performance and value generation within the framework of real options analysis. Here, value is created by combining durability, adaptability, convenience, and environmental harm reduction (Vakili-Ardebili & Boussabaine 2007).

The papers examined various results of consequences regarding the association between sustainability performance and value creation in the context of real options valuation. The study analysed 27 scientific papers and found that 81% had a positive correlation, while just 4.0% had adverse effects. Around 7% of the studies presented results that encompassed both good and negative consequences, while 7% of the publications displayed a mixture of positive, negative, and neutral interactions (Figure 2).

Figure 2: *The link between sustainability performance and value creation*



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Sustainability enhances value generation by mitigating risk and fostering long-term economic prospects (Gomez-Bezares et al. 2017; Ochi 2018; Herbert et al. 2020). There is a direct correlation between sustainability performance and market valuation. Furthermore, this correlationis more pronounced in nations with excellent investor safeguarding and financial transparency (Yu & Zhao 2015). Companies that demonstrate exceptional sustainability performance can primarily distinguish their products in the market, attracting new clients and gaining a competitive edge over their rivals (Manda et al. 2017).

Innovation is critical to long-term value creation from a sustainability perspective. Research and development (R&D) enable organisations to create and implement more environmentally friendly goods and business models. This helps them address increasing demands,gives them a competitive edge, and allows them to tap into new market prospects (Saling 2015).

Better ESG disclosure facilitates information processing and reduces risk, enhancing the value ofstructured warrants as real options valuation on the stock (Yen Yip 2019). In addition, investing in funds or companies that concentrate on SDGs can be seen as a way to provide potential opportunities for future growth. Achieving the SDGs is a gradual process, and allocating resources to sustainable initiatives now unlocks potential prospects for creating value in the future as progress is made towards the goals (Harasheh et al., 2023).

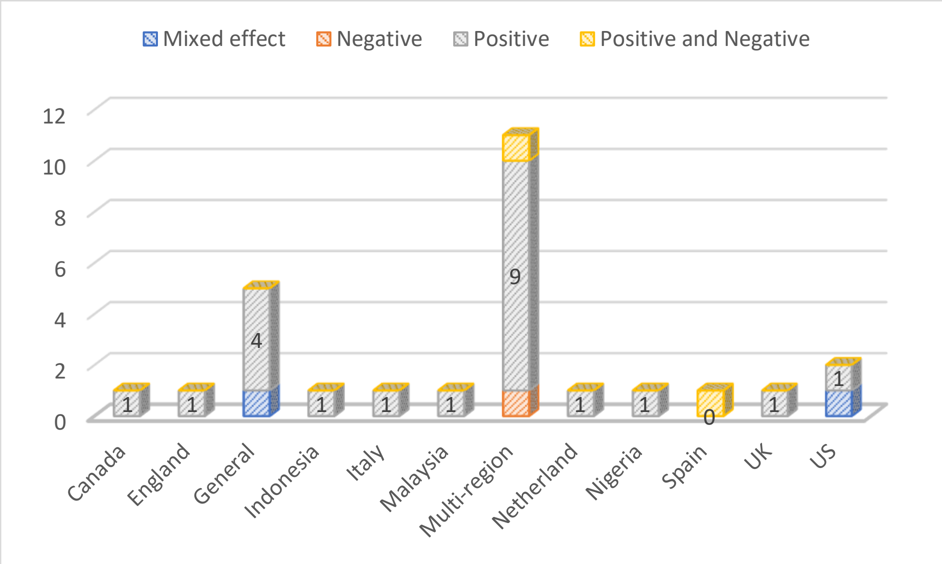
Several research results demonstrated disparate negative, positive, and adverse outcomes and mixed effects. The research results of Rojo-Suárez and Alonso-Conde (2022) indicate that although ESG policies have minimal effects in the short term, over time, better ESG performance leads to reduced value creation. This is primarily due to substitution effects that result in higher long-term discount rates, affecting market value. Piechocka-Kałużna et al. (2021) focused on ascertaining the correlation between ESG score, its individual components, and the expenses associated with equity, debt, and their weighted average. The findings indicate a significant and negative correlation between ESG (E, S and G) scores and WACC, specifically the WACC of Equity. On the other hand, there is an insignificant negative correlation between ESG and its components and the WACC Cost of Debt. According to Weston & Nnadi (2023), numerous non-financial advantages exist, although there are no direct financial benefits to practising sustainability. These include an enhanced reputation, a sense of satisfaction from being environmentally conscious, improved access to debt and equity financing, potentially better credit ratings, and an overall contribution to a healthier environment.

Change et al. (2022) have examined the link between ESG/CSR, firm value, and investment returns. The researchers employed a discounted cash flow valuation methodology to determine thefactors that might increase the company's value through these methods. Empirical researchsubstantiates that implementing ESG/CSR practices may enhance company value through the stimulation of staff motivation, the reinforcement of customer-supplier connections, the promotionof long-term growth, the augmentation of dividends, and the mitigation of financing costs. In contrast, socially responsible firms do not deliver higher excess stock returns in the long run.

2.2 Regional evaluation of the links between sustainability and value creation

The research results on the example of countries such as Canada, England, Indonesia, Italy, Malaysia, Holland, Nigeria, the UK, and the USA revealed a clear and positive relationship between the sustainability indicators of enterprises in these countries and their value creation potential. Furthermore, Spain had a combination of positive and negative outcomes concerning the correlation between factors (Figure 5).

Figure 5: *Regional evaluation of the links between sustainability and value creation*



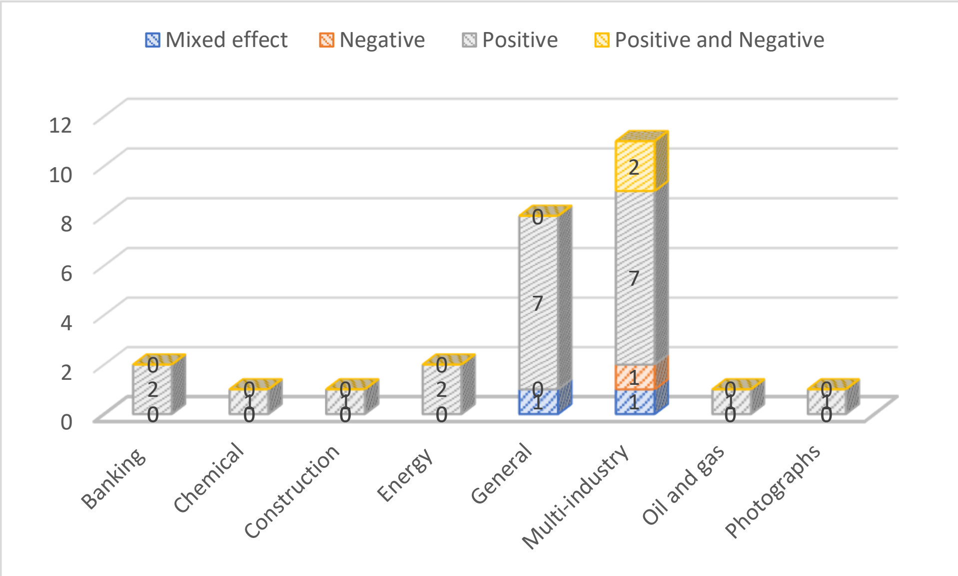
Source: Authors work

It's vital to differentiate between multi-regional and general results. These terms refer to the extent and representation of data utilised in a study, which can significantly affect the validity and usefulness of the findings. While both approaches have their advantages, comprehending their distinctions is essential for precisely interpreting research outcomes. Multi-regional research involves using data utilised from multiple countries or regions. Unlike multi-regional research, general research does not concentrate on countries or industries. It intends to offer a comprehensive insight into a particular subject by combining existing literature or utilising methodologies that don't demand country-specific data.

2.3 Industrial evaluation of the links between sustainability and value creation

Moreover, the results suggest a positive association between sustainability performance and value generation across various organisations in diverse industries, notably banking, energy, and multi-industry domains. However, positive and negative effects were observed in some of the studies at the multi-regional level (Figure 6). In their study, Nsibande and Sebastian (2023) examined how incorporating ESG ratings as a variable affects the prediction accuracy of the Fama-French five-factor model (FF5F) in forecasting stock returns on the Johannesburg Stock Exchange (JSE) at the industry level. The results suggest that the FF5F model's prediction ability is somewhat improved when including an ESG score component. Nevertheless, the influence of ESG criteria on investment decisions made on the JSE is insignificant.

Figure 4: *Industrial evaluation of the links between sustainability and value creation*



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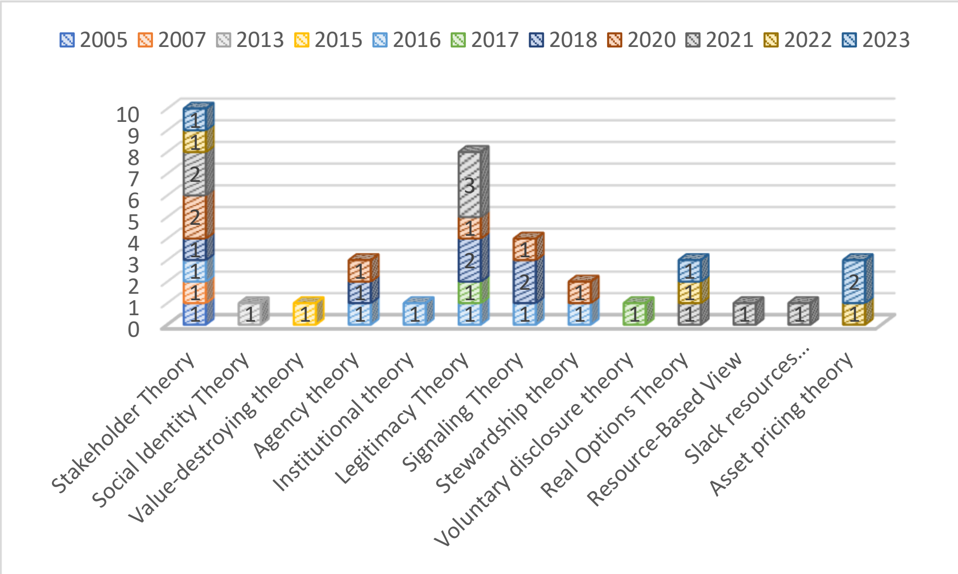
2.4 Theoretical review

The correlation between sustainability performance and value creation may be elucidated by the theories of stakeholders (cited ten times), legitimacy (cited eight times), signalling (cited four times), agency, real options, and asset pricing (each cited three times). Stakeholder theory asserts that companies should create prosperity for all individuals or groups (stakeholders) involved in the firm's goals and operations (Benvenuto et al. 2023).

Figure 5: *Theoretical review*



Source: Authors work

While stakeholders or investors may have a limited comprehension of the immediate environmental effects of financial operations, they believe that businesses adopting environmentally responsible practices will enhance their competitive advantage in both the short and long term (Gutiérrez-Ponce & Wibowo 2023). Implementing the stakeholder theory and corporate social responsibility (CSR) improves interactions with stakeholders, including consumers, employees, communities, and other relevant parties. As a result, this can positively impact important measures of success like customer satisfaction, likelihood to make a purchase, perception of the brand, and more, ultimately resulting in better financial performance over time (Adamska & Dabrowski 2021).

Significant degrees of uncertainty in technical, policy, and market aspects are obstacles to implementing carbon capture and utilisation (CCU). By utilising the principles of basic options theory (ROT), the valuation of environmental investments may effectively tackle this problem byacknowledging the origins of uncertainty and tnnnhe presence of flexible choices. ROT aims to includeand prioritise adaptability in investment choices to respond effectively to evolving circumstances. This statement precisely represents the risks and possibilities associated with CCUprojects (Assche & Compernolle 2022).

Legitimacy theory significantly explains how organisations use sustainability reporting to bridge legitimacy gaps and create value. The article emphasises that the systematic use of photographs in sustainability reporting is construed as an attempt by the company to make its sustainability messages explicit and provide greater legitimacy to activities and performance to enhance organisational value (Ali 2021). Companies can enhance shareholder value by implementing sustainable practices that enable efficient resource utilisation (Gomez-Bezares et al., 2017). Agency theory suggests that management may maximise shareholder interests by pursuing projects that have positive net present value (NPV) and generate future cash flows that increase shareholder value. From this viewpoint, non-financial CSR/ESG sustainability activities can be interpreted as allocating firm resources to programmes that do not prioritise the shareholders' best interests but may benefit other stakeholders (Rezaee 2016).

Ultimately, the board and management must have the necessary mindset and knowledge to prioritise the long-term growth of the company, anticipate emerging trends, cultivate necessary skills, and consistently create innovative business models. In addition, they must concurrently prioritise the creation of economic and societal value rather than solely pursuing profit. Kurznack et al. (2021) devised a model to aid organisations in formulating strategies and evaluating the long-term worth and sustainability of their investment and lending portfolios. The strategy surpasses the goal of increasing immediate shareholder value. The central idea of this approach is around the notion of a "transition curve" specific to a particular sector. This graph depicts the progressive transition of customer demand in a certain industry from traditional products and services to more environmentally friendly and socially responsible alternatives, driven by societal trends. The position of any organisation on the curve is determined by its capabilities.

5. Conclusion

This systematic literature review examined 27 studies that used the PRISMA methodology to investigate the relationship between sustainability performance and the creation of value through the real choices approach.

The findings suggest numerous studies demonstrate a positive association between sustainability performance and value generation. Higher ESG ratings and effective management of environmental and social impacts are linked to increased revenue, decreased costs, reduced risk exposure, innovation advantages, and long-term prosperity. Nevertheless, certain research produces inconclusive findings that vary based on the specific industry, region, and period being examined. Scholars have employed multiple theories, including stakeholder value, signalling, legitimacy, and real choices theory, to elucidate the relationships between sustainability and value. The stakeholder hypothesis posits that organisations should generate value for all stakeholder groups, rather than solely focusing on shareholders. Furthermore, firms can foster positive reputation and confidence among stakeholders by skillfully handling relationships and attending to their needs and concerns through sustainable practices. This can increase the generation of wealth over time by improving both financial and non-financial performance. Out of these choices, the real options approach is advantageous since it considers the adaptability of sustainable investments and enables a more flexible evaluation in unexpected circumstances.

In summary, effectively implementing a sustainability plan that is closely aligned with company objectives can generally result in the production of long-term value, even though the financial impacts may not always be straightforward.

The analysis of the chosen papers suggests certain deficiencies, such as a dearth of empirical research on this topic, a paucity of studies within businesses or countries, and so on. Future scholars should thoroughly analyse these limitations and do research based on a more empirical approach.

References

Adams, C.A. (2017). Conceptualising the contemporary corporate value creation process. *Accounting, Auditing & Accountability Journal, 30* (4), 906-931, https://doi.org/10.1108/AAAJ-04-2016-2529

Adamska, A. & Dabrowski, T. (2021). Investor reactions to sustainability index reconstitutions: Analysis in different institutional contexts. *Journal of Cleaner Production*, 297, 126715, https://doi.org/10.1016/j.jclepro.2021.126715

Ahmad, H., Muhammad, Y. & Lee, S. H. (2023). Environmental-, social-, and governance-related factors for business investment and sustainability: a scientometric review of global trends. *Environment, Development and Sustainability*, 1-23, https://doi.org/10.1007/s10668-023-02921-x

Alexander, B. van Putten & Macmillan, I. (2004). Making Real Options Really Work, *HBS*, 82(12),134-41, https://www.researchgate.net/publication/8123624

Ali, I., Lodhia, S. & Narayan, A. K. (2021). Value creation attempts via photographs in sustainability reporting: a legitimacy theory perspective. *Meditari Accountancy Research*, 29(2), 247-263, https://doi.org/10.1108/MEDAR-02-2020-0722

Alsayegh, M. F. Rahman, R. A. and Homayoun, S. (2020). Corporate Economic, Environmental, and Social Sustainability Performance Transformation through ESG Disclosure, *Sustainability,* 12, 3910, https://doi.org/10.3390/su12093910

Assche, L. H. & Compernolle, T. (2022). Using Real Options Thinking to Value Investment Flexibility in Carbon Capture and Utilization Projects: A Review. *Sustainability*, 14, 2098, https:// doi.org/10.3390/su14042098

Axhami, M., Ndou, V., Milo, V. & Scorrano, P. (2023). Creating Value via the Circular Economy: Practices in the Tourism Sector. *Administrative Sciences*, *13*, 166, https://doi.org/10.3390/admsci13070166

Benvenuto, M., Aufiero, Ch., and Viola, C. (2023). A systematic literature review on the determinants of sustainability reporting systems. *Heliyon,* 9(4), https://doi.org/10.1016/j.heliyon.2023.e14893

Boyer, M., Pavlov, A. D. & Lasserre, P. (2003). Value creation, risk management, and real options, *Center for Interuniversity Research and Analysis on Organizations*, SSN 1701-9990, https://www.researchgate.net/publication/4816345

Brach, M. A. (2003). *Real options in practice*, John Wiley & Sons, USA

Brozović, D., D'Auria, A. & Tregua, M. (2020). Value Creation and Sustainability: Lessons from Leading Sustainability Firms. *Sustainability*, *12*, 4450. https://doi.org/10.3390/su12114450

Caiado, R. G. G., Quelhas, O. L. G., Nascimento, D. L. M., Anholon, R. & Filho, W. L. (2018). Measurement of sustainability performance in Brazilian organizations. I*nternational Journal of Sustainable Development & World Ecology*, 25(4), 312-326, https://doi.org/10.1080/13504509.2017.1406875

Chandrakant, R. & Rajesh, R. (2023). Social sustainability, corporate governance, and sustainability performances: an empirical study of the effects. *Journal of Ambient Intelligence and Humanized Computing*, 14, 9131–9143, https://doi.org/10.1007/s12652-022-04417-4

Chang, X., Fu, K., Jin, Y. & Liem, P. F. (2022). Sustainable Finance: ESG/CSR, Firm Value, and Investment Returns. *Asia-Pacific Journal of Financial Studies*, 51, 325–371, http://dx.doi.org/10.1111/ajfs.12379

Dathe, T., Helmold, M., Dathe, R. & Dathe, I. (2024). ESG reporting rules. Responsible Leadership and Sustainable Management, 147-158. http://dx.doi.org/10.1007/978-3-031-52734-0_11

Dilling, P. F. A. & Harris, P. (2018). Reporting on long-term value creation by Canadian companies: A longitudinal assessment. *Journal of Cleaner Production*, 191, 350-360, https://doi.org/10.1016/j.jclepro.2018.03.286

Dinter, R. v., Tekinerdogan, B. & Catal, C. (2021). Automation of systematic literature reviews: A systematic literature review. *Information and Software Technology*, 136, https://doi.org/10.1016/j.infsof.2021.106589

Funk, K. (2003). Sustainability and Performance. *MIT Sloan Management Review*, 44(2).

Gómez-Bezares, F., Przychodzen, W. & Przychodzen, J. (2017). Bridging the gap: How sustainable development can help companies create shareholder value and improve financial performance. *Business Ethics: A European Review*, 26(1), 1–17, https://doi.org/10.1111/beer.12135

Gutierrez-Ponce, H. & Wibowo, S. A. (2023). Do sustainability practices contribute to the financial performance of banks? An analysis of banks in Southeast Asia. *Corporate Social Responsibility and Environmental Management,* 1-15, https://doi.org/10.1002/csr.2641

Harasheh, M., Bouteska, A. & Manita, R. (2023). Investors' preferences for sustainable investments: Evidence from the U.S. using an experimental approach. *Economics Letters,* 234, 111428, https://doi.org/10.1016/j.econlet.2023.111428

Hart, S., Milstein, M., 2003. Creating sustainable value. *Academy of Management Perspective,* 17(2), https://doi.org/10.5465/ame.2003.10025194

Henisz, W., Koller, T. & Nutall, R. (2019). *Five ways that ESG creates value*, Mc Kinsey & Company, Wiley finance series

Herbert, W. E., Iormbagah, J. A. & Onyilo, F. (2020). Sustainability Reporting and Performance of Listed Upstream Oil and Gas Firms in Nigeria: A Content Evaluation Approach. *International Journal of Applied Economics*, *Finance and Accounting,* 8(1), 46-61, http://dx.doi.org/10.33094/8.2017.2020.81.46.61

Inard, L. (2023). Cash Flow Valuation and ESG. In: Glavas, D. (eds) Valuation and Sustainability, Sustainable Finance. *Environmental Chemistry Letters,99-128,* https://doi.org/10.1007/978-3-031-30533-7_4

Khan, M., Serafeim, G. & Yoon, A. (2015). Corporate Sustainability: First Evidence on Materiality. *HBS*, 15-073, http://nrs.harvard.edu/urn-3:HUL.InstRepos:14369106

Korschun, D. & Du, Sh. (2013). How virtual corporate social responsibility dialogs generate value: A framework and propositions. *Journal of Business Research*, 66, 1494–1504, http://dx.doi.org/10.1016/j.jbusres.2012.09.011

Kurznack, L. & Schoenmaker, D. & Schramade, W. (2021). A model of long-term value creation. *Journal of Sustainable Finance & Investment*, https://doi.org/10.1080/20430795.2021.1920231

Labuschagne, C., Brent, A. C. & van Erck, R. P. G. (2003). Assessing the sustainability performances of industries. *Journal of Cleaner Production*, 13, 373- 385, https://doi.org/10.1016/j.jclepro.2003.10.007

Manda, et al. (2016). Value creation with life cycle assessment: an approach to contextualize the application of life cycle assessment in chemical companies to create sustainable value. *Journal of Cleaner Production*, 26, 337-351, https://doi.org/10.1016/j.jclepro.2016.03.020

Mangid, A., Iramani, R. R. & Muazaroh, M. (2020). Value Creation in The Listed Banks: do Governance Matter?. *International Journal of Business and Society*, 21(2), 917-930, http://dx.doi.org/10.33736/ijbs.3302.2020

Marsiglia, E. & Falautano, I. (2005**).** Corporate Social Responsibility and Sustainability Challenges for a Bancassurance Company. *The Geneva Papers*, 30, 485–497, http://dx.doi.org/10.1057/palgrave.gpp.2510040

Narula, R., Rao, P. & Rao, A.A. (2023). Impact of ESG on firm value: a conceptual review of the literature. *J. Soc. Econ. Dev.*, 25(1), 162–179, https://doi.org/10.1007/s40847-023-00267-8

Nsibande, L.M.Q. & Sebastian, A. (2023. Is the environmental, social and corporate governance score the missing factor in the Fama-French five-factor model?. *South African Journal of Economic and Management Sciences*, 26(1), a4835, https://doi.org/ 10.4102/sajems.v26i1.4835

Ochi, N. (2019). Reporting of Real Options Value Related to ESG: Including Complementary Systems for Disclosure Incentives, *International Journal of Financial Research*, 9(4), https://doi.org/10.5430/ijfr.v9n4p19

Piechocka-Kałużna, A., Tłuczak, T. & Łopatka, P. (2021). The Impact of CSR/ESG on the Cost of Capital: A Case Study of US Companies. *European Research Studies Journal*, 24(3), 536-546, http://dx.doi.org/10.35808/ersj/2510

Radjenovic, T. (2008). Real Options. *Economics and Organisation*, 5(1), 83-92, https://www.researchgate.net/publication/272172385

Rajesh, R. & Rajendran, Ch. (2019). Relating Environmental, Social, and Governance scores and sustainability performances of firms: An empirical analysis. *Business Strategy and the Environment,* 29(3), https://doi.org/10.1002/bse.2429

Rezaee, Z. (2016). Business sustainability research: A theoretical and integrated perspective. *Journal of Accounting Literature*, 36, 48–64, http://dx.doi.org/10.1016/j.acclit.2016.05.003

Rodrigo-Gonzále, A., Grau-Grau, A. & Bel-Oms, I. (2021). Circular Economy and Value Creation: Sustainable Finance with a Real Options Approach. *Sustainability*, 13(14), 7973, https://doi.org/10.3390/su13147973

Rojo-Suárez, J. & Alonso-Conde, A. B. (2022). Short-run and long-run effects of ESG policies on value creation and the cost of equity of firms. *Economic Analysis and Policy*, 77, 599–616, https://doi.org/10.1016/j.eap.2022.12.017

Sarling, P. (2015). Sustainability Improvements and Life Cycle Approaches in Industry Partnerships. *Life Cycle Management,* 117–127, http://dx.doi.org/10.1007/978-94-017-7221-1_10

Schoenmaker, D. & Schramade, W. (2019). Investing for long-term value creation. *Journal of Sustainable Finance & Investment,* 9(4), 356–377, https://doi.org/10.1080/20430795.2019.1625012

Seidl, M., Wensauer, A. & Faber, W. (2022) Experience with valuation methods for the creation of real options enabling diversity of nuclear fuel supply. *Journal of Nuclear Science and Technology*, 59:2, 175-187, https://doi.org/10.1080/00223131.2021.1961632

Signori, S., San-Jose, L., Retolaza, J. L. & Rusconi, G. (2021). Stakeholder Value Creation: Comparing ESG and Value Added in European Companies. *Sustainability,* 13, 1392; https://doi.org/10.3390/su13031392

Stobierski, T. (2020). *What is the value chain analysis*? 3 steps, HBS Online, 03 Dec.

Trigeorgis, L. & Lambertides, N. (2014). The role of growth options in explaining stock returns. *Journal of Financial and Quantitative Analysis,* 49(3), 749–771, https://doi.org/10.1017/S0022109014000118

Vakili-Ardebili, A. & Boussabaine, A. H. (2007). Creating Value through Sustainable Building Design. *Architectural Engineering and Design Management*, 3(2), 83-92, https://doi.org/10.1080/17452007.2007.9684633

Winston, A. (2022). 2022: A Tumultuous Year in ESG and Sustainability. Business and Society, HBR, Dec 24, 2022

Weston, P. & Nnadi, M. (2023). Evaluation of strategic and financial variables of corporate sustainability and ESG policies on corporate finance performance. *Journal of Sustainable Finance & Investment,* 13(2), 1058-1074, https://doi.org/10.1080/20430795.2021.1883984

Wiesel, T. (2022). Value Creation Measurement and Management in Times of Radical Social and Technological Change. *Journal of Creating Value,* 8(2), 171–183, https://doi.org/10.1177/23949643221117678

Yen Yep (2019). The Value Relevance of ESG Disclosure Performance In Influencing the Role of Structured Warrants in Firm Value Creation. *Polish Journal of Management Studies*, 20(1), http://dx.doi.org/10.17512/pjms.2019.20.1.40

Yeo, K. T. F. & Qiu, (2003). The value of management flexibility—a real option approach to investment evaluation. *International Journal of Project Management*, 21, 243–250, doi:10.1016/S0263-7863(02)00025-X

Yu, M. and Zhao, R. (2015). Sustainability and firm valuation: an international investigation. *International Journal of Accounting and Information Management, 23*(3), 289-307, https://doi.org/10.1108/IJAIM-07-2014-0050

Zumente, I. & Bistrova, J. (2021). ESG Importance for Long-Term Shareholder Value Creation: Literature vs. Practice. *Journal of Open Innovation: Technology, Market, and Complexity, 7, 127;* https://doi.org/10.3390/joitmc7020127