

ASSESSING THE ENVIRONMENTAL, SOCIAL, AND GOVERNANCE PERFORMANCE AND CAPITAL STRUCTURE IN EUROPE: A BOARD OF DIRECTORS' AGENDA

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Abstract

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This research examines the impact of environmental, social, and governance (ESG) performance on the capital structure in European non-financial companies. The sample covers 450 non-financial organizations listed on the stock exchanges of 10 European countries (Germany, France, Luxembourg, Italy, Austria, Finland, Denmark, Portugal, the Netherlands, and Switzerland) during the period 2014–2023. This paper applies the generalized method of moments (GMM) regression to investigate the impact. The dependent variable is the leverage ratio (debt ratio) and the independent variables are ESG, environment, social, and governance factors, while controlling for firm characteristic variables (profitability, firm size, tangibility, non-debt tax shield, and market-to-book ratio) and macroeconomic variables (inflation and gross domestic product — GDP). The main finding is that ESG positively impact the leverage ratio in sustainable organizational performance. The practical implementation of this empirical research is that it helps the board of directors to make rules and regulations that help the company to report effective financial statements through clear and better information transparency and this should adjust towards the optimal capital structure. The social implication is that the organizations will increase the quality of their ESG performance which should affect the society positively.

Keywords: ESG Score, Corporate Governance, Capital Structure, Non-Financial Companies, European Countries

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1. INTRODUCTION

Considering the concept of environmental, social and governance (ESG), ESG issues are defined by the European Banking Authority (EBA, 2021) as factors that can have either a beneficial or

detrimental impact on the financial performance or stability of organizations or individuals. Investors often employ ESG as a standard methodology to evaluate corporate conduct and anticipated future financial performance. The three core components of ESG establish a framework for evaluating

the sustainable growth of enterprises and their selection. Furthermore, ESG factors facilitate the evaluation of the long-term sustainability and societal impacts of corporate activities (Li et al., 2021). The assessment of available literature on ESG research is still limited when investigating the impact on leverage (Daugaard, 2020).

The debt ratio utilized by a business to support its investments and operations is termed its capital structure (Ziolo et al., 2019). It demonstrates how a firm uses several funding sources to finance its expansion and daily operations (Sultana et al., 2022). Capital structure can be understood as a combination of debt and equity ratios (Stoiljković et al., 2024). The capital structure serves as an independent variable that significantly contributes to the research's conclusions (Sheikh & Wang, 2013). Theories related to finance suggest that capital structure will substantially influence corporate profitability (Sdiq & Abdullah, 2022). Developed nations have been the primary focus of previous global studies on capital structure and ESG. A scarcity of extensive studies exists regarding the impact of ESG on capital structure within the European context (Yoshikawa et al., 2021). Companies' non-financial performance determines the optimal capital structure that advantages stakeholders by improving ESG performance (Al Amosh et al., 2024).

The European Union (EU) supervises the formulation of rigorous ESG policies that influence, among other factors, investment decisions, carbon disclosure markets, transparency, and due diligence in cross-border commerce (Widyawati, 2020). These regulations are likely to have enduring impacts on corporations globally (Aluchna & Roszkowska-Menkes, 2019). Enterprises that promote the cultivation of social value will be better equipped for the progressively ESG-aligned regulatory environment (Drempetic et al., 2020). Despite the EU enacting ESG legislation, other countries are integrating the ESG Brussels impact into their policymaking processes (Alamillos & de Mariz, 2022). This research topic encompasses variables specifically designed to examine the assessment of ESG performance in European non-financial firms. This research addresses the non-financial European countries, analysing non-financial enterprises through the lens of ESG and capital structure performance.

The primary objectives of this paper are, firstly, to analyze the effects of ESG on the capital structure, and secondly, to examine the influence of factors such as firm characteristics (size, profitability, growth, tangibility, and non-debt-tax shields) and macroeconomic variables (gross domestic product (GDP) and inflation) on the relationship between ESG performance and capital structure.

Based on the previous argument, this empirical paper tries to answer the question:

RQ: What is the impact of environmental, social, and governance on the capital structure of non-financial firms in Europe?

This research question examines the relationship between capital structure and ESG performance by selecting non-financial corporations, while controlling for firm characteristics and macroeconomic variables across 10 European nations, including Germany, France, Luxembourg, Austria, Finland, Portugal, the Netherlands, and Switzerland. ESG in

non-financial organizations boosts performance and fosters sustainable growth. Furthermore, how these variables augment future initiatives for fostering organizational growth in non-financial entities throughout ten European nations.

The structure of the paper is as follows. Section 2 provides selected previous studies and selected theoretical background. Section 3 states the methodology and sample used. Section 4 presents the results and analysis. Section 5 concludes the paper.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1. Theoretical background

2.1.1. Agency theory

This theory examines the conflict between ownership and control, emphasizing the selection of managers to supervise their firms. Furthermore, this principle underscores the board of directors' monitoring responsibility regarding agents to ensure they behave in the shareholders' best interests (Hazaea et al., 2022). Agency theory posits that organizations with substantial debt may be disinclined to engage in high-return projects, indicating that financial resources are pivotal in the corporate decision-making process (Grabinska et al., 2021). Corporate governance methods mitigate organizational challenges and influence financial decisions regarding capital structure (Bajaj et al., 2021).

2.1.2. Pecking order and trade-off theories

The pecking order and trade-off theories are two concepts that inform business capital structure decisions, which are essential to a company's value. This theory posits that highly profitable corporations prefer internal finance resources over external ones and seek to minimize their borrowing capacity, hence restricting their ability to capitalize on investment opportunities. The probability of investing in high-return ventures will increase concurrently with the cost of lending (Kiliç & Sakalsiz, 2023). The trade-off theory posits an optimal combination of debt and equity in a firm's financial resources to achieve its objectives, wherein costs and benefits are weighed prior to determining the capital structure financing approach (Guermazi, 2020). This theory will ultimately yield an optimal capital structure with equivalent marginal benefits and reduced borrowing costs, hence enhancing the company's market value (Ellili, 2020). The financing capital structure may be contingent upon the business's ESG strategy, the extent of its implementation, and the feasibility of the expected benefits derived from it. This is due to ESG safeguarding the organization from dangers and enhancing its ability to maintain value (Huang & Ye, 2021).

2.2. Previous studies and hypothesis development

ESG influences various aspects of non-financial organizational performance, and the management of risk has resulted in heightened attention to these

elements in financial studies, i.e., Nurwulandari (2021) and Cuevas-Vargas et al. (2022). Numerous research projects investigated the relationships between financial metrics such as debt ratio and equity ratio. Arora and Sharma (2022) and Adeneye et al. (2023) examined the impact of ESG ratings on the company's loan costs and identified a correlation between lower interest rates and higher ESG scores. Utilizing ESG considerations has mitigated financial risks (Antunes et al., 2023). The company's overall financial success may influence the relationship between ESG and a reduced debt ratio, which may be favorably connected with non-financial performance (Trisnowati et al., 2022).

The significance of ESG in non-financial performance is emphasized, particularly regarding its impact on enhancing capital performance and return on equity (Jovita, 2023). The long-term debt to total-debt ratio of real estate investment trusts was found to have an inverse correlation with leverage and a positive correlation with business growth, indicating that debt financing decisions may be influenced by ESG disclosures and ultimately affect organizational value (Feng & Wu, 2023). The research indicates that organizations exhibiting superior sustainability performance, as evidenced by ESG metrics, had a distinct capital structure (Ullah et al., 2020). Research indicates that stock market returns may be influenced by companies that demonstrate superior financial and environmental performance (Kruk, 2021). The hypothesis posits that ESG performance impacts a company's non-financial performance and may affect stock market returns (Liu et al., 2023). Research indicates that ESG can enhance risk-adjusted returns, implying a positive impact on financial performance (Sarajoti et al., 2023).

Exhibits a positive correlation between sustainability and ESG performance, indicative of sound financial management (Matuszewska-Pierzynka et al., 2023). Trade-off theory posits that the benefits of debt must be weighed against the costs of bankruptcy (Kim & Li, 2021). This trade-off can be influenced by ESG considerations, which may alter the optimal level of debt by affecting organizational risk and reputation. Analyses the conduct of ethical enterprises and proposes that ESG may influence non-financial success (El Khoury et al., 2022). Research indicates that ESG influences corporate financial performance, particularly through agency and trade-off theories affecting debt and equity ratios, as well as equity returns, hence highlighting the significance of ESG in financial analysis and decision-making processes (Backholer et al., 2021).

On the other hand, research indicates a negative association between debt and ESG parameters, suggesting that ESG performance may be inferior to equity ratios (Bellavite Pellegrini et al., 2019). Evidence indicates a good correlation between the market-to-book equity ratio and ESG parameters (Ernst & Woithe, 2024). The impact of ESG on debt

ratios may vary significantly according to industry, geography, and historical context. Gul and Cho (2019) and Stegovec and Črnigoj (2020) illustrate how debt mitigates agency theory disputes between owners and shareholders, suggesting that debt may positively influence the enhancement of organizational value (Xiao, 2022; Ahmed, Khalaf, et al., 2023).

The hypothesis of the study suggests the following:

H1: There is an impact of environmental, social, and governance performance on capital structure.

3. RESEARCH METHODOLOGY

3.1. Sample used

This study necessitates the evaluation of the influence of ESG performance and capital structure in publicly traded European companies. This empirical paper focuses on 10 European countries, namely Germany, France, Luxembourg, Austria, Finland, Portugal, the Netherlands, and Switzerland, with a sample size of 450 non-financial companies. The dependent variable is the capital structure, the independent variable is ESG performance, and the control variables include firm characteristics (company size, profitability, non-debt tax shield, market-to-book ratio, and tangibility) and also controlling for macroeconomic variables (GDP and inflation).

Table 1. Sample collected for 10 European countries during the period 2014–2023

Country	Population	Final sample size
Austria	42	19
Denmark	135	25
Finland	129	20
Germany	643	118
Italy	382	35
Luxembourg	60	19
The Netherlands	116	39
Portugal	45	12
Switzerland	294	87
France	614	76
Total	2460	450

The data has been collected from Refinitiv Eikon platforms (LSEG Data & Analytics) and the World Bank database. The following Table 1 provides the details for companies collected and the final sample after excluding any company that had no available data.

3.2. Model

This empirical research examines the impact of ESG performances along with the control variables on the capital structure of European companies. The econometric model applied for this purpose is as follows:

$$\text{Leverage ratio} = f(\text{ESG performance, Environmental score, Social score, Governance score, and control variables}) \quad (1)$$

$$LEV_{i,t} = \beta_0 + \beta_1 ESG_{i,t} + \beta_2 ROA_{i,t} + \beta_3 NDTS_{i,t} + \beta_4 FSIZE_{i,t} + \beta_5 TANG_{i,t} + \beta_6 GDP_t + \beta_7 INFL_t + \varepsilon \quad (2)$$

$$LEV_{i,t} = \beta_0 + \beta_1 E_{i,t} + \beta_2 ROA_{i,t} + \beta_3 NDTS_{i,t} + \beta_4 FSIZE_{i,t} + \beta_5 TANG_{i,t} + \beta_6 GDP_t + \beta_7 INFL_t + \varepsilon \quad (3)$$

$$LEV_{i,t} = \beta_0 + \beta_1 S_{i,t} + \beta_2 ROA_{i,t} + \beta_3 NDTS_{i,t} + \beta_4 FSIZE_{i,t} + \beta_5 TANG_{i,t} + \beta_6 GDP_t + \beta_7 INFL_t + \varepsilon \quad (4)$$

$$LEV_{i,t} = \beta_0 + \beta_1 G_{i,t} + \beta_2 ROA_{i,t} + \beta_3 NDTs_{i,t} + \beta_4 FSIZE_{i,t} + \beta_5 TANG_{i,t} + \beta_6 GDP_t + \beta_7 INFL_t + \varepsilon \quad (5)$$

where, leverage ratio (*LEV*) is used for measuring the capital structure; *ESG* is the environmental, social, and governance score; *ROA* is profitability; *NDTS* is the non-debt-tax shield; *FSIZE* is the firm size; *TANG* is tangibility; *GDP* is the growth in the gross domestic product; *INFL* is inflation; and ε is the error term.

3.3. Variable measurements

Table 2 presents a detailed summary of the variables included in the model, together with their definitions and measurement standards derived from recognized literature. Each variable is meticulously chosen to correspond with the research objectives and theoretical foundations, guaranteeing relevance and validity.

Table 2. Variables measurements

<i>Proxies</i>	<i>Abbreviations</i>	<i>Measurements</i>	<i>References</i>
Dependent variable			
Leverage ratio	<i>LEV</i>	Total debt ratio divided by total assets	Siregar and Harahap (2021), Al-Kubaisi and Khalaf (2023)
Independent variables			
ESG performance score	<i>ESG</i>	ESG score	Teng et al. (2021), Alshaiba and Abu Khalaf (2024)
Environmental score	<i>E</i>	Environmental pillar score	Abdelazim and Khalaf (2024), Ahmed, Khalaf, et al. (2023)
Social score	<i>S</i>	Social pillar score	
Governance score	<i>G</i>	Governance pillar score	
Control variables (Firm characteristics)			
Firm size	<i>FSIZE</i>	The natural logarithm of total assets	Frank and Goyal (2009), Abu Khalaf (2024)
Tangibility	<i>TANG</i>	Fixed assets to total assets	Dsouza et al. (2024), Abdullah et al. (2024)
Market-to-book ratio	<i>P/B</i>	Percentage of market value to equity to book value	Bilgin (2023), Awad et al. (2024)
Profitability (return on assets)	<i>ROA</i>	Net income to total assets	Thakur et al. (2024), Abu Khalaf et al. (2024)
Non-debt-tax-shield	<i>NDTS</i>	Ratio of accumulated depreciation to total asset	Bilgin (2023), Abdelazim and Khalaf (2024)
Control variables (Macroeconomic variables)			
Gross domestic product	<i>GDP</i>	The growth in GDP	Michael et al. (2023), Abu Khalaf and Awad (2024)
Inflation	<i>INFL</i>	Consumer price index	Gharios et al. (2024), Ahmed, Nugraha, et al. (2023)

4. RESEARCH RESULTS

4.1. Descriptive statistics

The LSEG ESG score for the sample organizations functions as the ESG variables, with a value range of 0 to 100 (Ismail et al., 2020). The sample business's

ESG efforts in environmentally sustainable development are likely less extensive and progressive than those of businesses in advanced European economies, as indicated by the average ESG score of 61.320. Table 3 presents the findings of the descriptive statistics for all variables.

Table 3. Descriptive statistics

<i>Statistics</i>	<i>ESG</i>	<i>E</i>	<i>S</i>	<i>G</i>	<i>LEV</i>	<i>ROA</i>	<i>P/B</i>	<i>TANG</i>	<i>FSIZE</i>	<i>NDTS</i>	<i>INFL</i>	<i>GDP</i>
Mean	61.320	69.749	61.979	52.231	0.264	0.069	3.530	13.651	22.275	0.348	0.014	0.015
Std. dev.	17.268	15.833	21.626	24.059	0.222	0.066	5.497	18.251	1.605	1.488	0.019	0.026
Min	15.975	40.000	1.660	0.385	0.000	-0.052	0.011	0.017	14.630	0.001	-0.011	-0.090
Max	95.464	99.937	98.148	98.699	8.588	0.670	235.789	99.934	26.571	81.359	0.100	0.083
Count	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500

The study results of Table 3 indicate that the mean value and standard deviation of the ESG score for the environmental pillar (*E*) are 69.749 and 15.833, respectively, representing the average score of the *E* in ESG firm performances. The minimum and maximum values of company performance, 40.000 and 99.937, respectively, underscore the robustness of ESG performance in non-financial organizations (Ktit & Khalaf, 2024). The social component of ESG (*S*) indicates that a firm's average performance is influenced by the statistical value of *S*, which surpasses that of environmental performance. The governance pillar (*G*) exhibits a mean and standard deviation that correspond to social performance. There exists minimal disparity between these factors. The mean and standard deviation of the *G* are 52.231 and 24.059, respectively.

The smallest value of the *G* is less than that of the *E*, which is 0.385, while the greatest value corresponds to the social performance at 98.699.

4.2. Correlation matrix

In the analysis of ESG ratings, a correlation matrix helps lighten the relationships among various ESG components and capital structure. These matrices are employed by researchers to understand the relationships and impacts of variables, particularly ESG scores, in specific contexts (Erhart, 2022). Moreover, the correlation matrix constructed from selected economic ESG scores offers valuable insights into the relationships among different categories (Ioannidis et al., 2022).

Table 4. Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) E	1											
(2) S	0.614	1										
(3) G	0.494	0.567	1									
(4) ESG	0.791	0.868	0.852	1								
(5) ROA	-0.209	-0.076	-0.103	-0.143	1							
(6) P/B	-0.086	-0.046	-0.074	-0.080	0.271	1						
(7) TANG	0.002	-0.070	-0.020	-0.038	0.028	-0.058	1					
(8) FSIZE	0.237	0.263	0.217	0.283	-0.149	-0.080	-0.001	1				
(9) NDTS	-0.009	-0.035	-0.024	-0.029	-0.008	-0.020	0.015	0.059	1			
(10) INFL	0.124	0.148	0.143	0.166	-0.034	-0.052	-0.024	0.074	0.000	1		
(11) GDP	0.160	-0.021	-0.060	-0.048	0.047	-0.059	0.006	-0.031	-0.023	0.289	1	
(12) LEV	0.044	0.046	0.083	0.071	-0.207	-0.006	-0.076	0.080	0.033	0.080	-0.015	1

ESG aspects exhibit a positive correlation with capital structure, suggesting that companies with robust ESG procedures are more inclined to utilize debt funding. The positive association can be elucidated by the signaling effect of ESG performance on creditors. Firms with strong ESG activities are regarded as lower-risk borrowers because of their dedication to sustainability, ethical conduct, and effective governance, which fosters trust and diminishes capital costs. For example, banks and financial institutions are more inclined to offer advantageous loan conditions to enterprises exhibiting robust ESG compliance, resulting in increased dependence on debt in their capital structure.

Conversely, profitability (ROA) and growth (P/B) demonstrate an inverse relationship with capital structure. Profitable companies frequently produce adequate internal capital to support their operations and growth, hence diminishing their dependence on external loans. This corresponds with the pecking order theory, which posits that firms favor internal funding over external sources to mitigate the costs and hazards linked to debt. Likewise, companies with significant growth potential may choose to sustain lower debt levels to retain financial flexibility and reduce risks linked to unpredictable future cash flows. These firms may prioritize equity financing or reinvest retained earnings to facilitate their expansion instead of augmenting their leverage.

Consequently, although ESG aspects increase a firm's appeal to creditors and encourage elevated debt utilization, enhanced profitability and development offer firms alternatives to debt, leading to reduced reliance on capital structure. This dual dynamic

demonstrates how strategic priorities and stakeholder perceptions influence capital structure decisions.

4.3. Generalized method of moments regression results and analysis

The generalized method of moments (GMM) is a resilient econometric technique appropriate for assessing the influence of ESG performance on capital structure. This approach effectively mitigates endogeneity issues stemming from the dynamic characteristics of capital structure decisions and the possible simultaneity between ESG performance and financing selections (Sverner et al., 2023). By adding lagged dependent variables as regressors, GMM compensates for the influence of prior decisions, while employing internal instruments drawn from the data to ensure consistent parameter estimations. Furthermore, GMM accounts for unobserved variability that may skew results in conventional approaches and demonstrates resilience to measurement mistakes frequently found in ESG composite scores. Moreover, GMM is especially beneficial for panel datasets characterized by a limited temporal dimension (T) and an extensive cross-sectional dimension (N), which is common in firm-level analysis, since it effectively mitigates problems of autocorrelation and heteroskedasticity (Yu et al., 2024). These characteristics render GMM an optimal method for generating dependable and impartial evaluations of the correlation between ESG performance and capital structure. The following Table 5 shows the results of the GMM regression for all models.

Table 5. GMM regression results (Dependent variable: LEV) (Part 1)

Variable	Model 1 (ESG)		Model 2 (E)		Model 3 (S)		Model 4 (G)	
	Coeff	p-value	Coeff	p-value	Coeff	p-value	Coeff	p-value
LagLEV	0.095	0.000	0.042	0.020	0.036	0.010	0.058	0.000
ESG	0.084	0.000						
E			0.039	0.015				
S					0.075	0.000		
G							0.043	0.052
ROA	-0.052	0.000	-0.049	0.001	-0.042	0.000	-0.039	0.020
P/B	0.063	0.025	0.053	0.000	0.045	0.000	0.075	0.000
TANG	0.042	0.034	0.039	0.000	0.041	0.000	0.052	0.010
FSIZE	0.045	0.010	0.084	0.000	0.074	0.023	0.091	0.041
NDTS	0.073	0.040	0.012	0.030	0.044	0.021	0.130	0.000
INFL	0.092	0.000	0.084	0.000	0.079	0.000	0.145	0.000
GDP	0.046	0.041	0.051	0.071	0.033	0.000	0.071	0.000
Intercept	0.532	0.302	0.621	0.510	0.145	0.412	0.624	0.182
AR(1)		0.062		0.053		0.074		0.066
AR(2)		0.152		0.241		0.295		0.410
Hansen test		0.532		0.425		0.625		0.745
Wald Chi ²		856.247 (0.000)		956.257 (0.000)		1024.152 (0.000)		0.869.258 (0.000)
Year dummies		Yes		Yes		Yes		Yes

The above Table 5, which provides the GMM regression results, presents essential insights into the relationship between ESG performance and capital structure. ESG performance indicates a strong positive impact on capital structure, showing that enterprises with higher ESG scores are more inclined to assume larger amounts of debt. This advantageous correlation underscores the increasing significance of sustainable practices in shaping finance decisions, as companies with strong ESG credentials may get improved access to financial markets and more favorable borrowing terms. The control factors, including *P/B*, *TANG*, *FSIZE*, *NDTS*, *INFL*, and *GDP*, demonstrate a strong beneficial influence on capital structure.

The findings correspond with theoretical expectations, indicating that growth opportunities and asset tangibility improve enterprises' capacity to obtain financing, while larger firms with greater tax shields utilize debt as a cost-efficient funding alternative. Moreover, advantageous macroeconomic indices, including inflation and GDP growth, foster a climate conducive to optimizing capital structures. Conversely, profitability exerts a substantial negative influence on capital structure, corroborating the pecking order theory, which asserts that more profitable enterprises favor internal financing over debt due to reduced reliance on external funding sources. This negative link underlines the relevance of retained earnings in lowering reliance on debt financing for prosperous enterprises. These findings jointly emphasize the significance of ESG performance in influencing capital structure decisions, while also illustrating the intricate roles of firm-specific and macroeconomic factors in defining corporate financial strategy.

In addition, the findings demonstrate that the three ESG pillars — environmental, social, and governance scores — positively and significantly influence the capital structure, underscoring their collective significance in influencing organizations' financial choices. The social element is the most significant, indicating that enterprises with robust social practices, including employee welfare, community participation, and equitable procedures, are more adept at using debt. The increased importance of the social dimension may indicate rising investor and creditor confidence in companies that emphasize societal welfare. While the environmental and governance ratings also positively influence capital structure, their relatively smaller relevance emphasizes the multifaceted function of ESG factors

in determining financing options. This emphasizes the necessity for companies to implement a balanced strategy for sustainability, particularly focusing on enhancing their social efforts.

5. CONCLUSION

In conclusion, our study, which investigated the impact of ESG criteria on the capital structure of 450 companies across 10 European nations over the period 2014–2023, reveals the substantial role of sustainable practices in corporate finance decisions. The findings demonstrate that all three ESG pillars positively and significantly influence capital structure. The social pillar is particularly highly significant, highlighting the crucial role of robust social practices in enhancing investor and creditor confidence. The results indicate that companies with strong ESG performance, especially in social projects, might get advantageous funding conditions. The study provides significant insights for firms and investors, advocating for a holistic focus on ESG to boost financial resilience and strategic leverage.

This study encounters multiple limitations. Firstly, the emphasis on a particular region may restrict the applicability of the findings to other areas with distinct legislative frameworks, economic systems, or cultural perspectives about ESG. Secondly, discrepancies in data quality and ESG reporting standards among nations may result in measurement inconsistencies. The investigation is limited to a certain time frame (2014–2023), perhaps overlooking long-term consequences and failing to account for dynamic market fluctuations. Furthermore, variances particular to industries and cross-national disparities in macroeconomic situations and ESG legislation may not be comprehensively addressed. Subsequent research may broaden the geographical focus to encompass additional locations or examine industry-specific effects to yield a more detailed comprehension. Employing extended time horizons and dynamic models may reveal long-term effects and temporal trends. Research may additionally investigate the impact of regulatory alterations and investor preferences on capital accessibility and cost. Incorporating qualitative insights from interviews with corporate leaders could enhance quantitative findings and provide context, facilitating a more profound comprehension of ESG's strategic significance in financial decision-making.

REFERENCES

- Abdelazim, A., & Khalaf, B. A. (2024). Do board characteristics affect ESG performance for European banks? In B. Awwad (Ed.), *The AI revolution: Driving business innovation and research* (Vol. 2, pp. 1035–1052). Springer. https://doi.org/10.1007/978-3-031-54383-8_78
- Abdullah, W., Rahmati, S., Mohammad, A., Al-Hajj, N., & Khalaf, B. A. (2024). Does non-performing loans affect bank lending behavior? In B. Awwad (Ed.), *The AI revolution: Driving business innovation and research* (Vol. 2, pp. 919–933). Springer. https://doi.org/10.1007/978-3-031-54383-8_70
- Abu Khalaf, B. (2024). Impact of board characteristics on the adoption of sustainable reporting practices. *Cogent Business & Management*, 11(1), Article 2391563. <https://doi.org/10.1080/23311975.2024.2391563>
- Abu Khalaf, B., & Awad, A. B. (2024). Exploring the bearing of liquidity risk in the Middle East and North Africa (MENA) banks. *Cogent Economics & Finance*, 12(1), Article 2330840. <https://doi.org/10.1080/23322039.2024.2330840>
- Acharya, C., Ojha, D., Gokhale, R., & Patel, P. C. (2022). Managing information for innovation using knowledge integration capability: The role of boundary spanning objects. *International Journal of Information Management*, 62, Article 102438. <https://doi.org/10.1016/j.ijinfomgt.2021.102438>

- Adeneye, Y. B., Kammoun, I., & Ab Wahab, S. N. A. (2023). Capital structure and speed of adjustment: The impact of environmental, social and governance (ESG) performance. *Sustainability Accounting, Management and Policy Journal*, 14(5), 945–977. <https://doi.org/10.1108/SAMPJ-01-2022-0060>
- Ahmed, A. M., Nugraha, D. P., & Hågen, I. (2023). The relationship between capital structure and firm performance: The moderating role of agency cost. *Risks*, 11(6), Article 102. <https://doi.org/10.3390/risks11060102>
- Ahmed, O., Khalaf, B. A., & Awad, A. B. (2023). Impact of corporate social responsibility and corporate governance on the performance of nonfinancial companies [Special issue]. *Corporate Governance and Organizational Behavior Review*, 7(4), 370–379. <https://doi.org/10.22495/cgobrv7i4sip15>
- Al Amosh, H., Khatib, S. F. A., Alkurdi, A., & Bazhair, A. H. (2024). Capital structure decisions and environmental, social and governance performance: Insights from Jordan. *Journal of Financial Reporting and Accounting*, 22(4), 972–989. <https://doi.org/10.1108/JFRA-12-2021-0453>
- Alamillos, R. R., & de Mariz, F. (2022). How can European regulation on ESG impact business globally? *Journal of Risk and Financial Management*, 15(7), Article 291. <https://doi.org/10.3390/jrfm15070291>
- Ali, S., Rangone, A., & Farooq, M. (2022). Corporate taxation and firm-specific determinants of capital structure: Evidence from the UK and US multinational firms. *Journal of Risk and Financial Management*, 15(2), Article 55. <https://doi.org/10.3390/jrfm15020055>
- Al-Kubaisi, M. K., & Khalaf, B. A. (2023). Does green banking affect banks' profitability? *Journal of Governance & Regulation*, 12(4), 157–164. <https://doi.org/10.22495/jgrv12i4art15>
- Alshaiba, S., & Abu Khalaf, B. (2024). The impact of board gender diversity on the Gulf Cooperation Council's reporting on sustainable development goals. *Corporate Board: Role, Duties and Composition*, 20(1), 33–41. <https://doi.org/10.22495/cbv20i1art3>
- Aluchna, M., & Roszkowska-Menkes, M. (2019). Integrating corporate social responsibility and corporate governance at the company level. Towards a conceptual model. *Engineering Economics*, 30(3), 349–361. <https://doi.org/10.5755/j01.ee.30.3.17511>
- Antunes, J., Wanke, P., Fonseca, T., & Tan, Y. (2023). Do ESG risk scores influence financial distress? Evidence from a dynamic NDEA approach. *Sustainability*, 15(9), Article 7560. <https://doi.org/10.3390/su15097560>
- Arora, A., & Sharma, D. (2022). Do environmental, social and governance (ESG) performance scores reduce the cost of debt? Evidence from Indian firms. *Australasian Accounting, Business and Finance Journal*, 16(5), 4–18. <https://doi.org/10.14453/aabfj.v16i5.02>
- Asimakopoulos, P., Asimakopoulos, S., & Li, X. (2023). The combined effects of economic policy uncertainty and environmental, social, and governance ratings on leverage. *The European Journal of Finance*, 30(7), 673–695. <https://doi.org/10.1080/1351847X.2022.2150559>
- Awad, A. B., Gharios, R., Khalaf, B. A., & Seissian, L. A. (2024). Board characteristics and bank performance: Empirical evidence from the MENA region. *Risks*, 12(5), Article 81. <https://doi.org/10.3390/risks12050081>
- Aydoğmuş, M., Gülay, G., & Ergun, K. (2022). Impact of ESG performance on firm value and profitability. *Borsa Istanbul Review*, 22(Suppl. 2), S119–S127. <https://doi.org/10.1016/j.bir.2022.11.006>
- Backholer, K., Baum, F., Finlay, S. M., Friel, S., Giles-Corti, B., Jones, A., Patrick, R., Shill, J., Townsend, B., Armstrong, F., Baker, P., Bowen, K., Browne, J., Büsst, C., Butt, A., Canuto, K., Canuto, K., Capon, A., Corben, K., ... Demaió, S. (2021). Australia in 2030: What is our path to health for all? *Medical Journal of Australia*, 214(S8), S5–S40. <https://doi.org/10.5694/mja2.51020>
- Bajaj, Y., Kashiramka, S., & Singh, S. (2021). Economic policy uncertainty and leverage dynamics: Evidence from an emerging economy. *International Review of Financial Analysis*, 77, Article 101836. <https://doi.org/10.1016/j.irfa.2021.101836>
- Barnett, M. L., Henriques, I., & Husted, B. W. (2020). Beyond good intentions: Designing CSR initiatives for greater social impact. *Journal of Management*, 46(6), 937–964. <https://doi.org/10.1177/0149206319900539>
- Bellavite Pellegrini, C., Caruso, R., & Mehmeti, N. (2019). The impact of ESG scores on cost of equity and firm's profitability. In S. Esposito De Falco, F. Alvino, & A. Kostyuk (Eds.), *New challenges in corporate governance: Theory and practice* (pp. 38–40). Virtus Interpress. https://doi.org/10.22495/ncpr_9
- Berg, F., Fabisik, K., & Sautner, Z. (2021). *Is history repeating itself? The (un)predictable past of ESG ratings* (Finance Working Paper No. 708/2020). European Corporate Governance Institute (ECGI). <https://doi.org/10.2139/ssrn.3722087>
- Bilgin, R. (2023). The selection of control variables in capital structure research with machine learning: Control variables in capital structure. *Journal of Corporate Accounting & Finance*, 34(4), 244–255. <https://doi.org/10.1002/jcaf.22647>
- Bissoondoyal-Bheenick, E., Brooks, R., & Do, H. X. (2023). ESG and firm performance: The role of size and media channels. *Economic Modelling*, 121, Article 106203. <https://doi.org/10.1016/j.econmod.2023.106203>
- Broadstock, D. C., Chan, K., Cheng, L. T. W., & Wang, X. (2021). The role of ESG performance during times of financial crisis: Evidence from COVID-19 in China. *Finance Research Letters*, 38, Article 101716. <https://doi.org/10.1016/j.frl.2020.101716>
- Castro, P., Fernández, M. T. T., Amor-Tapia, B., & de Miguel, A. (2016). Target leverage and speed of adjustment along the life cycle of European listed firms. *BRQ Business Research Quarterly*, 19(3), 188–205. <https://doi.org/10.1016/j.brq.2016.01.003>
- Chasiotis, I., Georgakopoulos, G., Rezitis, A., & Toudas, K. (2023). The role of ESG performance in the capital structure-market competition nexus: Some evidence from Japan. *Theoretical Economics Letters*, 13(3), 525–534. <https://doi.org/10.4236/tel.2023.133033>
- Cook, D. O., & Tang, T. (2010). Macroeconomic conditions and capital structure adjustment speed. *Journal of Corporate Finance*, 16(1), 73–87. <https://doi.org/10.1016/j.jcorpfin.2009.02.003>
- Cuevas-Vargas, H., Cortés-Palacios, H. A., & Lozano-García, J. J. (2022). Impact of capital structure and innovation on firm performance. Direct and indirect effects of capital structure. *Procedia Computer Science*, 199, 1082–1089. <https://doi.org/10.1016/j.procs.2022.01.137>
- Daugaard, D. (2020). Emerging new themes in environmental, social and governance investing: A systematic literature review. *Accounting & Finance*, 60(2), 1501–1530. <https://doi.org/10.1111/acfi.12479>

- de Campos-Rasera, P. P., de Abreu Passos, G., & Colauto, R. D. (2021). A estrutura de capital influencia a responsabilidade social corporativa? Uma análise das companhias nas maiores economias do mundo [Does capital structure influence the performance of corporate social responsibility? An analysis in companies of the world's largest economies]. *Revista De Contabilidade E Organizações*, 15, Article e174007. <https://doi.org/10.11606/issn.1982-6486.rco.2021.174007>
- de Franco, C. (2020). ESG controversies and their impact on performance. *The Journal of Investing*, 29(2, special issue), 33–45. <https://doi.org/10.3905/joi.2019.1.106>
- Drempeć, S., Klein, C., & Zwergel, B. (2020). The influence of firm size on the ESG score: Corporate sustainability ratings under review. *Journal of Business Ethics*, 167, 333–360. <https://doi.org/10.1007/s10551-019-04164-1>
- Dsouza, S., K, K., Kayani, U. N., & Nasserredine, H. (2024). Variables that sway the capital structure! Evidence from the US automotive industry. *Cogent Social Sciences*, 10(1), Article 2293309. <https://doi.org/10.1080/23311886.2023.2293309>
- Eccles, N. S., & Viviers, S. (2011). The origins and meanings of names describing investment practices that integrate a consideration of ESG issues in the academic literature. *Journal of Business Ethics*, 104, 389–402. <https://doi.org/10.1007/s10551-011-0917-7>
- El Khoury, R., Nasrallah, N., Harb, E., & Hussainey, K. (2022). Exploring the performance of responsible companies in G20 during the COVID-19 outbreak. *Journal of Cleaner Production*, 354, Article 131693. <https://doi.org/10.1016/j.jclepro.2022.131693>
- Ellili, N. O. D. (2020). Environmental, social, and governance disclosure, ownership structure and cost of capital: Evidence from the UAE. *Sustainability*, 12(18), Article 7706. <https://doi.org/10.3390/su12187706>
- Erhart, S. (2022). Take it with a pinch of salt — ESG rating of stocks and stock indices. *International Review of Financial Analysis*, 83, Article 102308. <https://doi.org/10.1016/j.irfa.2022.102308>
- Ernst, D., & Woithe, F. (2024). Impact of the environmental, social, and governance rating on the cost of capital: Evidence from the S&P 500. *Journal of Risk and Financial Management*, 17(3), Article 91. <https://doi.org/10.3390/jrfm17030091>
- European Banking Authority (EBA). (2021). *EBA report on management and supervision of ESG risks for credit institutions and investment firms* (EBA/REP/2021/18). <https://shorturl.at/XgzDU>
- Feng, Z., & Wu, Z. (2023). ESG disclosure, REIT debt financing and firm value. *The Journal of Real Estate Finance and Economics*, 67(3), 388–422. <https://doi.org/10.1007/s11146-021-09857-x>
- Frank, M. Z., & Goyal, V. K. (2009). Capital structure decisions: Which factors are reliably important? *Financial Management*, 38(1), 1–37. <https://doi.org/10.1111/j.1755-053X.2009.01026.x>
- Gavrilakis, N., & Floros, C. (2023). ESG performance, herding behavior and stock market returns: Evidence from Europe. *Operational Research*, 23(1), Article 3. <https://doi.org/10.1007/s12351-023-00745-1>
- Gharaibeh, A. M. O. (2015). The effect of capital structure on the financial performance of listed companies in Bahrain Bourse. *Journal of Finance and Accounting*, 3(3), 50–60. <https://doi.org/10.11648/j.jfa.20150303.13>
- Gharios, R., Awad, A. B., Abu Khalaf, B., & Seissian, L. A. (2024). The impact of board gender diversity on European firms' performance: The moderating role of liquidity. *Journal of Risk and Financial Management*, 17(8), Article 359. <https://doi.org/10.3390/jrfm17080359>
- Gomes, S., Ferreira, J., Lopes, J. M., & Farinha, L. (2022). The impacts of the entrepreneurial conditions on economic growth: Evidence from OECD countries. *Economies*, 10(7), Article 163. <https://doi.org/10.3390/economies10070163>
- Grabinska, B., Kedzior, D., Kedzior, M., & Grabinski, K. (2021). The impact of CSR on the capital structure of high-tech companies in Poland. *Sustainability*, 13(10), Article 5467. <https://doi.org/10.3390/su13105467>
- Guermazi, I. (2020). The determinants of Sukūk issuance in GCC countries. *Islamic Economic Studies*, 28(1), 25–45. <https://doi.org/10.1108/IES-08-2019-0026>
- Gul, S., & Cho, H.-R. (2019). Capital structure and default risk: Evidence from Korean stock market. *The Journal of Asian Finance, Economics and Business*, 6(2), 15–24. <https://doi.org/10.13106/jafeb.2019.vol6.no2.15>
- Haron, R., Ibrahim, K., Nor, F. M., & Ibrahim, I. (2013). Factors affecting speed of adjustment to target leverage: Malaysia evidence. *Global Business Review*, 14(2), 243–262. <https://doi.org/10.1177/0972150913477469>
- Hazaea, S. A., Zhu, J., Khatib, S. F. A., Bazhair, A. H., & Elamer, A. A. (2022). Sustainability assurance practices: A systematic review and future research agenda. *Environmental Science and Pollution Research*, 29(4), 4843–4864. <https://doi.org/10.1007/s11356-021-17359-9>
- Huang, H., & Ye, Y. (2021). Rethinking capital structure decision and corporate social responsibility in response to COVID-19. *Accounting & Finance*, 61(3), 4757–4788. <https://doi.org/10.1111/acfi.12740>
- Ioannidis, E., Tsoumaris, D., Ntemkas, D., & Sarikeisoglou, I. (2022). Correlations of ESG ratings: A signed weighted network analysis. *AppliedMath*, 2(4), 638–658. <https://doi.org/10.3390/appliedmath2040037>
- Ismail, N., Isa, M. A. M., Rahman, N. H. A., & Mazlan, N. F. (2020). Sustainability performance using environmental, social, and governance (ESG) scores: Evidence from public listed companies (PLCS) in Malaysia. *International Journal of Accounting*, 5(30), 183–194. <https://www.researchgate.net/publication/353759403>
- Jovita, G. A. (2023). Impact of ESG implementation on financial performance and capital structure. *Jurnal Informatika Ekonomi Bisnis*, 5(4), 1480–1486. <https://doi.org/10.37034/inf.v5i4.778>
- Junius, D., Adisurjo, A., Rijanto, Y. A., & Adelina, Y. E. (2020). The impact of ESG performance to firm performance and market value. *Jurnal Aplikasi Akuntansi*, 5(1), 21–41. <https://doi.org/10.29303/jaa.v5i1.84>
- Khan, M. A., Hassan, M. K., Maraghini, M. P., Biancone, P., & Valentinuz, G. (2024). Valuation effect of ESG and its impact on capital structure: Evidence from Europe. *International Review of Economics & Finance*, 91, 19–35. <https://doi.org/10.1016/j.iref.2024.01.002>
- Kiliç, M., & Sakalsiz, S. A. (2023). Analysis of the validity of trade-off and pecking order theories in capital structure decisions of sustainable companies. *Kahramanmaraş Sütçü İmam Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 13(2), 29–46. <https://doi.org/10.47147/ksuibf.1379933>
- Kim, S., & Li, Z. (2021). Understanding the impact of ESG practices in corporate finance. *Sustainability*, 13(7), Article 3746. <https://doi.org/10.3390/su13073746>
- Kliestik, T., & Michalkova, L. (2018). Review of tax shield valuation and its application to emerging markets finance. In G. Kucukkoçaoğlu & S. Gokten (Eds.), *Financial management from an emerging market perspective*. IntechOpen. <https://doi.org/10.5772/intechopen.70943>

- Kruk, S. (2021). Impact of capital structure on corporate value — Review of literature. *Journal of Risk and Financial Management*, 14(4), Article 155. <https://doi.org/10.3390/jrfm14040155>
- Ktit, M., & Khalaf, B. A. (2024). Corporate governance, corporate social responsibility, and dividends in Europe. *Corporate Ownership & Control*, 21(1), 39–46. <https://doi.org/10.22495/cocv21i1art4>
- Lebow, D. E., & Rudd, J. B. (2006). *Inflation measurement* (Finance and Economics Discussion Series (FEDS) Working Paper No. 2006-43). Federal Reserve Board. <https://doi.org/10.17016/feds.2006.43>
- Li, T.-T., Wang, K., Sueyoshi, T., & Wang, D. D. (2021). ESG: Research progress and future prospects. *Sustainability*, 13(21), Article 11663. <https://doi.org/10.3390/su132111663>
- Liu, L., Nemoto, N., & Lu, C. (2023). The effect of ESG performance on the stock market during the COVID-19 pandemic — Evidence from Japan. *Economic Analysis and Policy*, 79, 702–712. <https://doi.org/10.1016/j.eap.2023.06.038>
- Lu, Y., Chu, C. C., Chih, H.-H., & Lin, Y.-E. (2021). Effect of mispricing and growth opportunity on dividend policy: Evidence from market-to-book ratio decomposition. *Revista Argentina de Clínica Psicológica*, 30(1), 463–476. <https://www.revistaclinicapsicologica.com/archivesarticle.php?id=370>
- Madyan, M., & Widuri, S. K. (2023). Environmental, social, governance (ESG) performance and capital structure: The role of good corporate governance. *Jurnal Manajemen Teori dan Terapan/Journal of Theory and Applied Management*, 16(3), 560–570. <https://doi.org/10.20473/jmtt.v16i3.47483>
- Matuszewska-Pierzynka, A., Mrzygód, U., & Pieloch-Babiarz, A. (2023). ESG performance and dividend stability of the world's largest enterprises. *Journal of Entrepreneurship, Management and Innovation*, 19(4), 184–217. <https://doi.org/10.7341/20231946>
- Memon, P. A., Rus, R. B. M., & Ghazali, Z. B. (2015). Firm and macroeconomic determinants of debt: Pakistan evidence. *Procedia — Social and Behavioral Sciences*, 172, 200–207. <https://doi.org/10.1016/j.sbspro.2015.01.355>
- Memon, P. A., Syed, M. M. S., Ghumro, N. H., & Rus, R. Md. (2020). Capital structure and adjustment speed: Evidence from listed manufacturing firms in Indonesia and Malaysia. *Indonesian Capital Market Review*, 11(2), 95–107. <https://doi.org/10.21002/icmr.v11i2.11607>
- Michael, J., Awad, A. B., & Khalaf, B. A. (2023). Exploring environmental, social, and governance and bank performance in the Gulf Cooperation Council region [Special issue]. *Corporate Law & Governance Review*, 5(2), 192–200. <https://doi.org/10.22495/clgrv5i2sip6>
- Nguyen, D. T., Hoang, T. G., & Tran, H. G. (2022). Help or hurt? The impact of ESG on firm performance in S&P 500 non-financial firms. *Australasian Accounting, Business and Finance Journal*, 16(2), 91–102. <https://doi.org/10.14453/aabfj.v16i2.7>
- Nurwulandari, A. (2021). Effect of liquidity, profitability, firm size on firm value with capital structure as intervening variable. *ATESTASI: Jurnal Ilmiah Akuntansi*, 4(2), 257–271. <https://doi.org/10.57178/atstasi.v4i2.271>
- Öztek, Ö. (2015). Capital structure decisions around the world: Which factors are reliably important? *Journal of Financial and Quantitative Analysis*, 50(3), 301–323. <https://doi.org/10.1017/s0022109014000660>
- Rachmawati, L. (2024). Effect of non-debt tax shield, growth, size, and asset structure of firm value and capital structure. *KUNKUN: Journal of Multidisciplinary Research*, 1(1), 5–14. <https://ejournal.mediakunkun.com/index.php/kunkun/article/view/37>
- Saini, N., Singhanian, M., Hasan, M., Yadav, M. P., & Abedin, M. Z. (2022). Non-financial disclosures and sustainable development: A scientometric analysis. *Journal of Cleaner Production*, 381(Part 1), Article 135173. <https://doi.org/10.1016/j.jclepro.2022.135173>
- Sarajoti, P., Chatjuthamard, P., Papangkorn, S., & Phiromswad, P. (2023). Perspective chapter: The environmental, social, and governance (ESG) investment and its implications. In M. Sarfraz (Ed.), *Corporate social responsibility in the 21st century*. IntechOpen. <https://doi.org/10.5772/intechopen.108381>
- Sari, L. P. (2019). *Pengaruh struktur modal, profitabilitas dan ukuran perusahaan pada nilai perusahaan* [The effect of capital structure, profitability and firm size on firm value] [Thesis, STIE Indonesia Banjarmasin]. <https://eprints.stiei-kayutangi-bjm.ac.id/57/>
- Sdiq, S. R., & Abdullah, H. A. (2022). Examining the effect of agency cost on capital structure-financial performance nexus: Empirical evidence for emerging market. *Cogent Economics & Finance*, 10(1), Article 2148364. <https://doi.org/10.1080/23322039.2022.2148364>
- Sheikh, N. A., & Wang, Z. (2013). The impact of capital structure on performance: An empirical study of non-financial listed firms in Pakistan. *International Journal of Commerce and Management*, 23(4), 354–368. <https://doi.org/10.1108/IJCoMA-11-2011-0034>
- Siregar, Q. R., & Harahap, D. D. (2021). Influence current ratio, debt to equity ratio and total asset turnover on return on equity in the transportation sector industry. *International Journal of Business Economics*, 2(2), 99–112. <https://doi.org/10.30596/ijbe.v2i2.6644>
- Stegovec, K., & Črnigoj, M. (2020). Optimal capital structure and leverage adjustment speed of European public and private firms. *Economic and Business Review*, 22(2), 261–288. <https://doi.org/10.15458/eb103>
- Steinbø, K., & Kristiansen, B. M. H. (2023). *Exploring the relationship between ESG-scores and company performance: Insights from the COVID-19 pandemic* [Master's thesis, Handelshøyskolen BI]. BI Open. <https://biopen.bi.no/bi-xmlui/handle/11250/3105572>
- Stoiljković, A., Tomić, S., Leković, B., Uzelac, O., & Ćurčić, N. V. (2024). The impact of capital structure on the performance of Serbian manufacturing companies: Application of agency cost theory. *Sustainability*, 16(2), Article 869. <https://doi.org/10.3390/su16020869>
- Sultana, S., Saha, P., Hasan, S., Alam, S. M. R., Akter, R., Islam, M. M., Arnob, R. I., Islam, A. K. M. N., Al-Ameen, M. N., & Ahmed, S. I. (2022). Imagined online communities: Communion, sovereignty, and inclusiveness in Facebook Groups. *Proceedings of the ACM on Human-Computer Interaction*, 6(CSCW2), Article 407. <https://doi.org/10.1145/3555132>
- Sverner, C., Minardi, A., & Moraes, F. T. (2023). The impact of ESG momentum in stock prices. *Revista Brasileira de Finanças*, 21(1), 77–105. <https://doi.org/10.12660/rbfin.v21n1.2023.85688>

- Teng, X., Wang, Y., Wang, A., Chang, B.-G., & Wu, K.-S. (2021). Environmental, social, governance risk and corporate sustainable growth nexus: Quantile regression approach. *International Journal of Environmental Research and Public Health*, 18(20), Article 10865. <https://doi.org/10.3390/ijerph182010865>
- Thakur, O. A., Tunde, M. B., Noordin, B.-A. A., Alam, M. K., & Prabowo, M. A. (2024). The relationship between goodwill and capital structure and the moderating effect of financial market development. *Journal of Economics, Finance and Administrative Science*, 29(57), 121-145. <https://doi.org/10.1108/JEFAS-04-2022-0107>
- Thao, N. T. T. (2024). A study on cash holdings and firm value in listed insurance companies on the Vietnamese stock market. *International Journal of Advanced Multidisciplinary Research and Studies*, 4(1), 668-671. <https://www.multiresearchjournal.com/arclist/list-2024.4.1/id-2274>
- Trisnowati, Y., Achسانی, N. A., Sembel, R., & Andati, T. (2022). The effect of ESG score, financial performance, and macroeconomics on stock returns during the pandemic era in Indonesia. *International Journal of Energy Economics and Policy*, 12(4), 166-172. <https://doi.org/10.32479/ijeeep.13212>
- Ullah, A., Pinglu, C., Ullah, S., Zaman, M., & Hashmi, S. H. (2020). The nexus between capital structure, firm-specific factors, macroeconomic factors and financial performance in the textile sector of Pakistan. *Heliyon*, 6(8), Article e04741. <https://doi.org/10.1016/j.heliyon.2020.e04741>
- Widyawati, L. (2020). A systematic literature review of socially responsible investment and environmental social governance metrics. *Business Strategy and the Environment*, 29(2), 619-637. <https://doi.org/10.1002/bse.2393>
- Xiao, H. (2022). Environmental regulation and firm capital structure dynamics. *Economic Analysis and Policy*, 76, 770-787. <https://doi.org/10.1016/j.eap.2022.09.020>
- Yoshikawa, T., Nippa, M., & Chua, G. (2021). Global shift towards stakeholder-oriented corporate governance? Evidence from the scholarly literature and future research opportunities. *Multinational Business Review*, 29(3), 321-347. <https://doi.org/10.1108/MBR-10-2020-0200>
- Yu, Z., Farooq, U., Alam, M. M., & Dai, J. (2024). How does environmental, social, and governance (ESG) performance determine investment mix? New empirical evidence from BRICS. *Borsa Istanbul Review*, 24(3), 520-529. <https://doi.org/10.1016/j.bir.2024.02.007>
- Ziolo, M., Filipiak, B. Z., Bąk, I., & Cheba, K. (2019). How to design more sustainable financial systems: The roles of environmental, social, and governance factors in the decision-making process. *Sustainability*, 11(20), Article 5604. <https://doi.org/10.3390/su11205604>