Journal of Informatics Education and Research
ISSN: 1526-4726
Vol 5 Issue 2 (2025)

MAPPING THE RESEARCH LANDSCAPE OF CAPITAL STRUCTURE AND FINANCIAL PERFORMANCE THROUGH BIBLIOMETRIC AND SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

Capital structure and financial performance have long been a focal area in finance and corporate strategy. Understanding the relationship between capital structure and financial performance is crucial for firm's decision making and enhancing profitability. This study investigates the intricate relationship between capital structure and financial performance in order to facilitate the development of a better theoretical and practical understanding. This paper employs PRISMA approach to conduct a comprehensive systematic literature review and Bibliometric analysis to explore existing level of research in this domain. It also seeks to uncover gaps in existing knowledge while highlighting the implications of financing decisions on financial outcomes. The findings indicate significant variation in capital structure strategies across industries and regions, influenced by factors such as market conditions, regulatory environments, and firm-specific characteristics. The study also identifies a noticeable gap in sector-specific research, suggesting a need for more focused studies. The bibliometric analysis further indicates significant academic interest globally, particularly in emerging markets where financing constraints and institutional differences may impact capital structure strategies. This study contributes meaningfully to the existing literature by providing a structured overview of the research area, identifying future research opportunities, and providing insights for academics, industry practitioners, and policymakers aiming to optimize financial strategies in capital-intensive industries.

Keywords:
Capital Structure, Financial Performance, Bibliometric, SLR, TCCM

INTRODUCTION

Financing decisions play a crucial role in determining a company's value, profitability, and resilience. Capital structure and financial performance have long been a focal area in finance and corporate strategy. An organization's capital structure, which includes the mix of debt, equity, and other financial instruments used to finance operations and growth, affects its cost of capital, financial risk and operational flexibility. Additionally, capital structure refers to the level of debt financing within a business's overall capital. A company must determine the appropriate amount of funds to source from both internal and external sources, especially through debt financing. Debt is seen as a vital component of many businesses' strategies for growth (Saji & Eldhose, 2017). Debt and equity are primary sources of capital in a firm's capital structure, particularly in capital-intensive industries such as cement and steel, getting the right balance between them is essential. The optimal debt and equity ratio are also significant in determining the financial performance of a firm. Profitability, return on equity (ROE), and return on assets (ROA) are some of the measures of financial performance that indicate an organization's health and efficiency. The empirical implementation of theories such as the Pecking Order Theory, which suggests that firms prefer internal financing over external debt, and the Trade-off Theory, which suggests that firms balance their debt for tax benefits

against bankruptcy risk, can vary greatly based on regional economic conditions and industry dynamics.

Despite the extensive literature, significant gaps persist in understanding how industry-specific, regional, and economic factors collectively influence the relationship between capital structure and financial performance. To address these gaps, systematic literature review (SLR) and bibliometric analysis have been conducted in this paper using PRISMA Flowchart for research on capital structure and financial performance. The systematic review provides a comprehensive examination of existing studies, while the bibliometric analysis offers insights into publication trends, influential authors, and key research themes. Together, these methods enable a robust evaluation of the present state of knowledge, highlighting areas where additional research is required. Ultimately, this review provides a deeper knowledge of capital structure's role in financial performance and provides insights that are valuable for academic research, industry practitioners, and policymakers aiming to optimize financing strategies in capital-intensive sectors.

DATA AND METHODOLOGY

This study employs a mixed-method approach, combining bibliometric analysis and a systematic literature review (SLR) to explore the relationship between capital structure and financial performance. To extract a diverse and reliable set of data, Scopus database was chosen due to its comprehensive coverage and convenient interface, which facilitates the effective retrieval and analysis of big datasets. The data collection strategy was developed after reviewing various systematic review guidelines, including the PRISMA and PRISMA-P techniques (Moher et al., 2009) and (Moher et al., 2016), as well as the SPAR-4-SLR protocol introduced by (Paul et al., 2021), to ensure unbiased selection process. The methodology is structured into two main parts: data collection procedures and the analytical techniques employed for both the bibliometric and SLR components.

Bibliometric research utilizes quantitative bibliometric data to assess and understand scientific output, with analytical methods employing statistical tools following data extraction. It is recognized as one of the most effective approaches to examine structure of a research field (Castriotta et al. 2019). Bibliometric analysis, as a tool, helps to identify trends, key authors and essential works while also uncovering networks of collaboration and research gaps. It helps to understand the publication patterns and evolution of the research area over time. It uses various indicators like number of authors, articles, citations, and institutions to analyse the publishing pattern in relation to authors and citation. Bibliometric analysis makes it easier to identify future directions and acknowledge the existing level of research (Li et al., 2017).

The SLR aims to synthesize findings from key articles identified through the bibliometric analysis. It focuses on identifying the different types of theories discussed in the literature, impact of capital structure on financial performance, various approaches and methodologies used to study them. This study employs the TCCM framework i.e.; Theory, Context, Characteristics, and Methodology, to systematically categorize and synthesize the literature, facilitating a structured synthesis of theoretical perspectives, regional contexts, firm-specific characteristics, and methodological approaches. By systematically categorizing the literature, the study identifies critical themes, research patterns, gaps and under-researched areas. By combining these two approaches, the study provides both quantitative and qualitative insights,

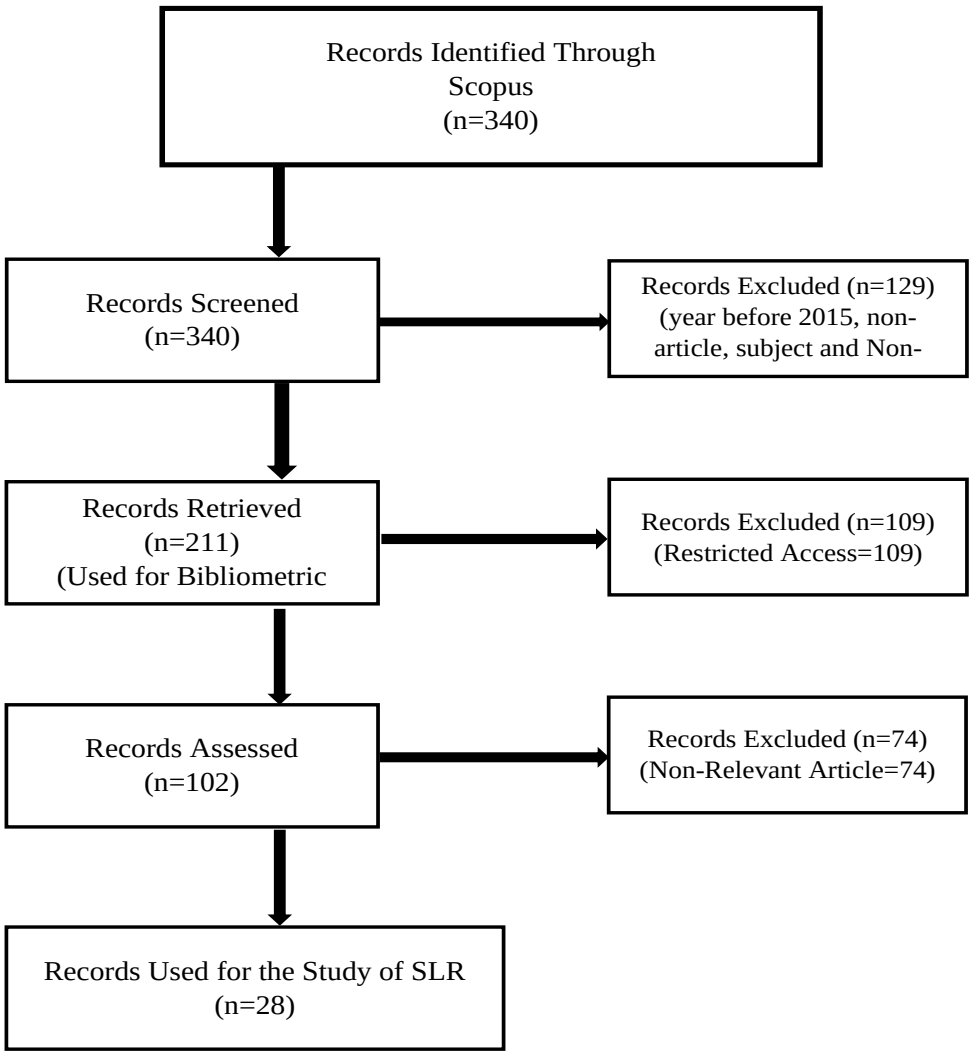
contributing to a more comprehensive understanding of capital structure and financial performance nexus.

This study aims to analyse and promote research works in order to facilitate the development of a better theoretical and practical understanding of capital structure and financial performance. The following research issues are posed by this study:

1. What is the current trend of publications in the field of financial performance and capital structure?
2. What are the most contributing Countries, Organisation, Journal, Author, Articles in this area?
3. What are the common themes of research in this study?
4. What are the determinants of capital structure and financial performance?
5. What is the effect of capital structure on financial performance?
6. What are the various approaches for capital structure and financial performance that are commonly employed in studies?

To answer the research questions, the study combines Bibliometric analysis with Systematic literature review using TCCM approach. Firstly, to extract data, a comprehensive search process in Scopus database was conducted using the key terms “capital structure” and “financial performance” yielding an initial dataset of 340 articles, after which the sample set of papers were systematically extracted with appropriate inclusion and exclusion criteria by using PRISMA Flow chart. Several filters were applied to refine the search results, including the publication year (2015–2024), subject areas (business, economic, social science, decision science, and multidisciplinary fields), and language (English only). To ensure a high academic standard, articles from databases other than Scopus, conference papers, book reviews, and non-peer-reviewed sources such as editorials and opinion pieces were excluded. After applying these exclusion criteria, the dataset comprised 211 studies, which were used for bibliometric analysis. The analysis was conducted using Vosviewer and Biblioshiny (R Package) to identify the most influencing journal, author, country, organisation, and other key metrics.

Following this, an additional filter was applied to include only open-access articles to ensure accessibility, recency and transparency, resulting in a reduced pool of 102 studies. A further screening on the basis of title and abstract reading led to the final selection of 28 studies. These 28 studies were then used for the systematic literature review, employing TCCM approach to investigate the relationship between capital structure and financial performance. To ensure transparency and replicability, the entire process of identifying, screening, and selecting studies was documented and visually represented using a PRISMA flowchart.



PRISMA Flow Chart
Source: Compiled by the Author

RESULTS AND DISCUSSION

Bibliometric Analysis

To create structural representations of scientific domains, the Bibliometric approach uses bibliographic data extracted from publishing databases (Zupic & Čater, 2015). Bibliometric analysis works well for summarizing, assessing, and tracking research that have been published in a journal. "The application of mathematical and statistical methods to books and other means of communication" Pritchard (1969). In this study, several bibliometric analyses were conducted, which includes examining publication and citation trends, identifying the most contributing countries, organizations, sources, authors, articles, and author keywords. Additionally, visual representation such as a three-field plot and thematic map was generated using various tools like Biblioshiny/Bibliometrix (R package) and Vosviewer.

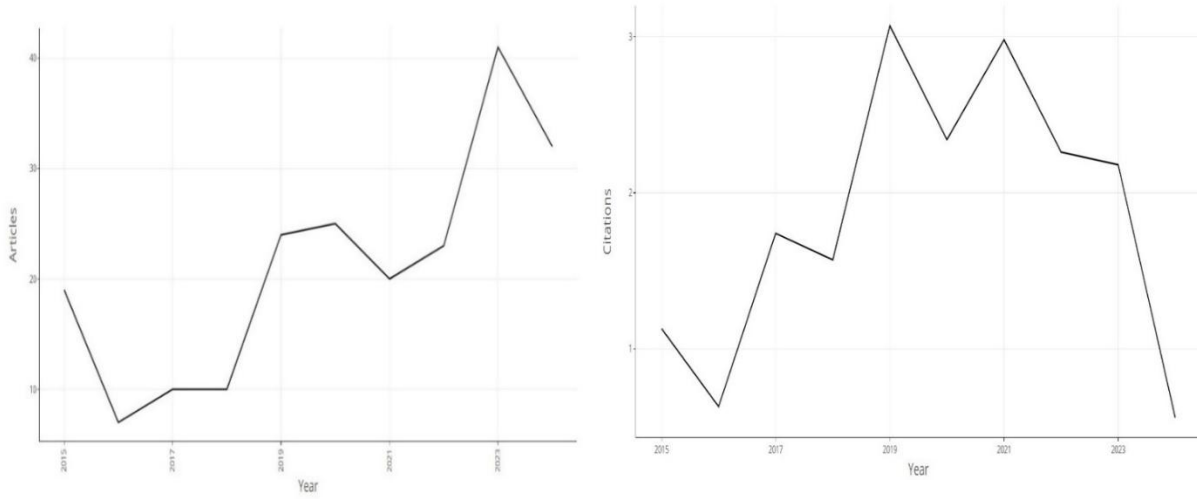


Figure 1 (a) Publication Trend (b) Citation Trend
Source: Biblioshiny

Figure 1, illustrates articles and citations trend in capital structure and financial performance from 2015 to 2024, revealing a fluctuating yet overall upward trend. while the field has seen more research activity in recent years, its influence, as measured by citations, has shown a declining trend. The increase in article publications from 2017 to 2023 suggests a rising academic interest in capital structure and financial performance domain. However, the declining citation trend in recent years might indicate that while more research is being conducted and published, the impact or citation visibility of these newer articles has diminished compared to earlier works. This could be due to a saturation of the topic, pointing to a potential need for more impactful or novel contributions to sustain scholarly attention or a lag in citation accumulation for newer publications, which might take several years to gain academic recognition. This lag should be noted, as it doesn't necessarily reflect lower research quality or relevance.

Country	Documents	Country	Citations
Indonesia	40	Indonesia	328
India	19	Malaysia	200
Malaysia	17	Pakistan	168
United States	14	United States	160
China	12	India	152
Pakistan	10	China	151
South Africa	10	Saudi Arabia	95
Saudi Arabia	9	South Africa	80
Turkey	8	Vietnam	80
United Kingdom	8	United Kingdom	73

Table 1: Most contributing countries in the field
source: compiled by the author

Table 1 illustrates the most contributing countries in the area of capital structure and financial performance. Indonesia is the leading contributor to research on capital structure and financial performance, with 40 documents and 328 citations, reflecting its significant productivity and influence due to its rapid industrial growth, leading to increased academic interest in firm-level financial strategies. India follows with 19 publications and 152 citations, while Malaysia, with 17 documents and 200 citations, demonstrates strong research influence through its strong citation impact. The United States (14 documents, 160 citations) and China (12 documents, 151 citations) also contribute substantially, showcasing the global interest of this research area.

Organisation	**Documents**	**Organisation**	**Citations**
Universitas mercu buana	2	STIE bank Bpd Jateng	130
University of Sheffield	1	Universiti Sains Islam	130
National Economics University	1	University of Haifa	77
University of Southampton	1	Eclipse Investments, Nizzane Oz	77
Eboise State University	1	Tel Aviv University	77
Comsats University	1	Diponegoro University	58
University of Huddersfield	1	Semarang State University	58
STIE Bank Bpd Jateng	1	Comsats University	55
Auburn University	1	Pmas-Arid Agriculture University	55
Diponegoro University	1	University of Zilina	54

Table 2: Most contributing organisation in the field
source: compiled by the author

Table 2 reveals the most contributing organizations in terms of both documents and citations have significant global participation in the research area of capital structure and financial performance. Universitas Mercu Buana stands out with two publications and 27 citations. STIE Bank Bpd Jateng leads in terms of citations with a notable 130 citations from a single document, matched by Universiti Sains Islam Malaysia also contributing 130 citations from one document. Other prominent institutions include Diponegoro University with 58 citations, Comsats University Islamabad with 55 citations, and University of Haifa with 77 citations. This diversity underscores the global engagement across both academic and industry-related institutions in this research field.

Source	Documents	Source	Citations
Cogent Business and management	8	Cogent Business and management	95
Investment management and financial innovations	7	Sustainability (Switzerland)	95
Journal of risk and financial management	6	Journal of risk and financial management	75
Asian Economic and financial review	5	Corporate Governance (Bingley)	56
Cogent Economics and finance	5	Heliyon	56
Advanced science letters	3	Asian Economic and financial review	41
Corporate Governance (Bingley)	3	Investment management and financial innovations	39
Corporate ownership and control	3	Cogent Economics and finance	29
Custos E Agronegocio	3	International Journal of Economics and Financial Issues	20
Heliyon	3	Advanced Science Letters	17

Table 3: Most contributing source in the field,
source: compiled by the author

As shown in Table 3, the most contributing sources in the research of capital structure and financial performance highlight several key journals. Cogent Business and Management leads with eight documents contributing 95 citations, demonstrating its central role in this research area. Investment Management and Financial Innovations follow closely with seven documents and 39 citations. Other prominent sources include Journal of Risk and Financial Management with six documents and 75 citations, Corporate Governance (Bingley) and Heliyon, both contributing three documents and 56 citations each. These journals reflect a broad and diverse range of contributions, reinforcing their importance in advancing the discourse on capital structure and financial performance.

Author	Documents	Author	Citations
Kalash I.	2	Ramli N.A.; Latan H.; Solovida G.T.	130
Nisha N.; Ghosh B.	2	Disegni D.M.; Huly M.; Akron S.	77
Otieno O.L.; Ngwenya S.	2	Ngatno; Apriatni E.P.; Youlianto A.	58
Shubita M.F.	2	Mehmood R.; Hunjra A.I.; Chani M.I.	55
Abdelraheem A.A.A.E.	1	Valaskova K.; Kliestik T.; Gajdosikova D.	54
Abdi M.D.; Bayu K.B.	1	Bayaraa B.	51
Abebe B.; Ali A	1	Gh Popescu C.R.	51
Abuamsha M.; Shumali S.	1	Lim L.G.; Tuli K.R.; Grewal R.	50
Ady S.U.; Mohamad S.; Pantamee A.A.; Keong O.C.; Hieu V.M.; Chong K.W.	1	Bhatt R.R.; Bhattacharya S.	48
Ahmad N.; Azhar N.N.	1	Ullah A.; Pinglu C.; Ullah S.; Zaman M.; Hashmi S.H.	46

Table 4: Most contributing author in the field,
source: compiled by the author

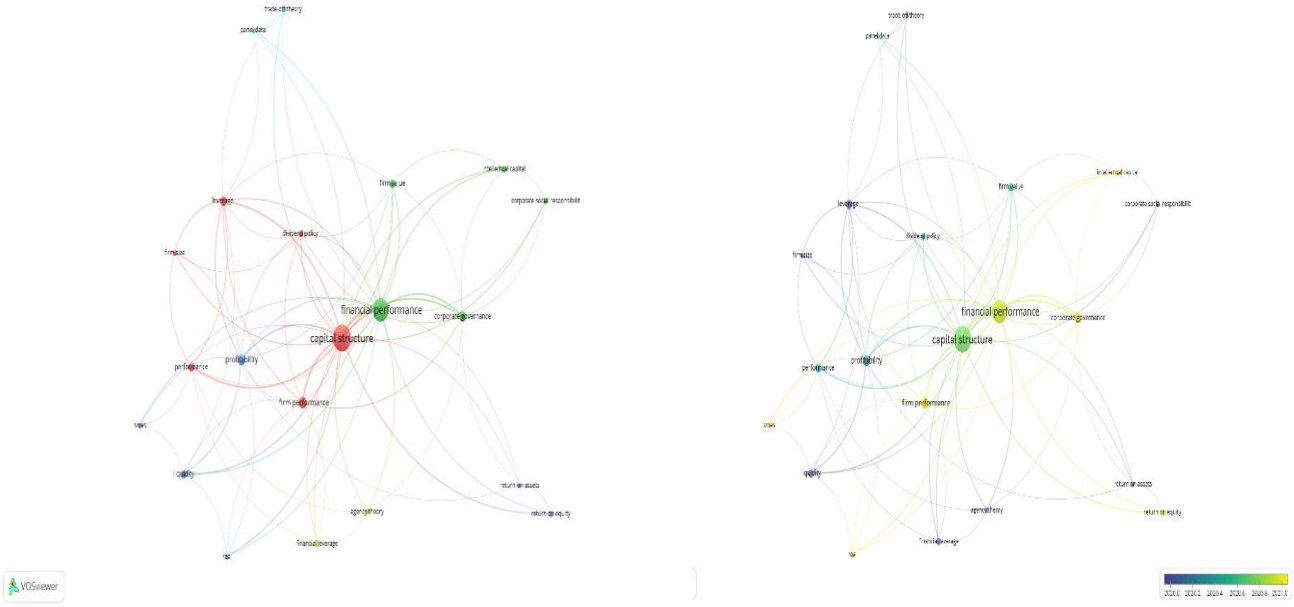
As shown in Table 4, the most contributing authors in the area of capital structure and financial performance include Kalash I., with two documents accumulating 32 citations, making him a key contributor. Nisha N. and Ghosh B. also have two documents but with a lower citation count of 7 each. In terms of single publications, Ramli N.A., Solovida G.T. and Latan H. stand out with a significant contribution of 130 citations from one document, making them the most impactful authors. Other notable contributors include Disegni D.M. with 77 citations and Ngatno with 58 citations from their respective single publications. These authors play a key role in understanding capital structure and financial performance.

Title	Author & Journal	Year	Total Citations
Determinants of Capital Structure and Firm Financial Performance – A PLS-SEM Approach: Evidence from Malaysia and Indonesia	Ramli et al, The Quarterly Review of Economics and Finance	2019	130
Corporate social responsibility, environmental leadership and financial performance	DiSegni et al, Social Responsibility Journal	2015	77
Moderating effects of corporate governance mechanism on the relation between capital structure and firm performance	Ngatno et al, Cogent Business & Management	2021	58
The Impact of Corporate Diversification and Financial Structure on Firm Performance: Evidence from South Asian Countries	Mehmood r, Journal of Risk and Financial Management	2019	55
Distinctive determinants of financial indebtedness: evidence from Slovak and Czech enterprises	Valaskova K et al, Quarterly Journal of Economics and Economic Policy	2021	54
Corporate Social Responsibility, Corporate Governance and Business Performance: Limits and Challenges Imposed by the Implementation of Directive 2013/34/EU in Romania	Gh Popescu Cr, Sustainability	2019	51
Financial Performance Determinants of Organizations: The Case of Mongolian Companies	Bayaraa B, Journal of Competitiveness	2017	51
Customer Satisfaction and Its Impact on the Future Costs of Selling	Lim et al, Journal of Marketing	2020	50
Board structure and firm performance in Indian IT firms	Bhatt Rr, Journal of Advances in Management Research	2015	48
The nexus between capital structure, firm-specific factors, macroeconomic factors and financial performance in the textile sector of Pakistan	Ullah et al, Heliyon	2020	46

Table 5: Most contributing article in the field
source: compiled by the author

Table 5 demonstrates the most contributing articles in the domain of capital structure and financial performance. “Determinants of capital structure and firm financial performance—A PLS-SEM Approach: Evidence from Malaysia and Indonesia” (Ramli et al., 2019) in the Quarterly Review of Economics and Finance stands out with 130 citations. (DiSegni et al.,

2015) An article in the Social Responsibility Journal follows with 77 citations, addressing corporate social responsibility and financial performance. Ngatno's (2021) article in Cogent Business and Management with 58 citations, focused on corporate governance as a moderator in the capital structure-performance relationship. Other notable contributions include Mehmood R. (2019) with 55 citations and Valaskova K. (2021) with 54 citations, adding depth to the research on financial structure and firm performance across various regions. These studies highlight influential findings that shape the discourse in the field.



(a) (b)

Figure 2 (a): Author's keyword network visualisation (b) Author's keyword overlay visualisation, Source: Generated Using Vosviewer

Figure 2 shows the network visualisation of author's keyword and author keyword overlay, generated using Vosviewer with a minimum occurrence threshold of five keywords. It highlights "capital structure" and "financial performance" as the most central and frequently studied topics, indicating their prominence in the literature. The first visualization displays the network of frequently used keywords in research area. The size of node frequency of its occurrence, and the connecting lines represents frequency of its co-occurrence within the same publication. The overlay visualization offers a temporal perspective, with the colour gradient showing how research focus has shifted over time. Keywords in yellow and light green indicate newer research trends.

The visualization reveals several keyword clusters, with related concepts like "profitability," "corporate governance," "leverage," and "firm value" frequently co-occurring with the central themes. These clusters suggest interconnected research areas, where topics such as firm performance, corporate social responsibility, and dividend policy are closely tied to financial performance and capital structure decisions. The presence of keywords like "trade-off theory", "agency theory" and "return on equity" suggests theoretical frameworks commonly used in analysing financial performance and capital structure. Similarly, co-occurrence of keywords

like "ROA", "ROE" and "liquidity" indicates their relevance in performance analysis, suggesting a focus on financial health and firm outcomes. This network reflects the richness and diversity of research within the domain, with notable trends in profitability, governance, and firm size influencing capital structure discussions.

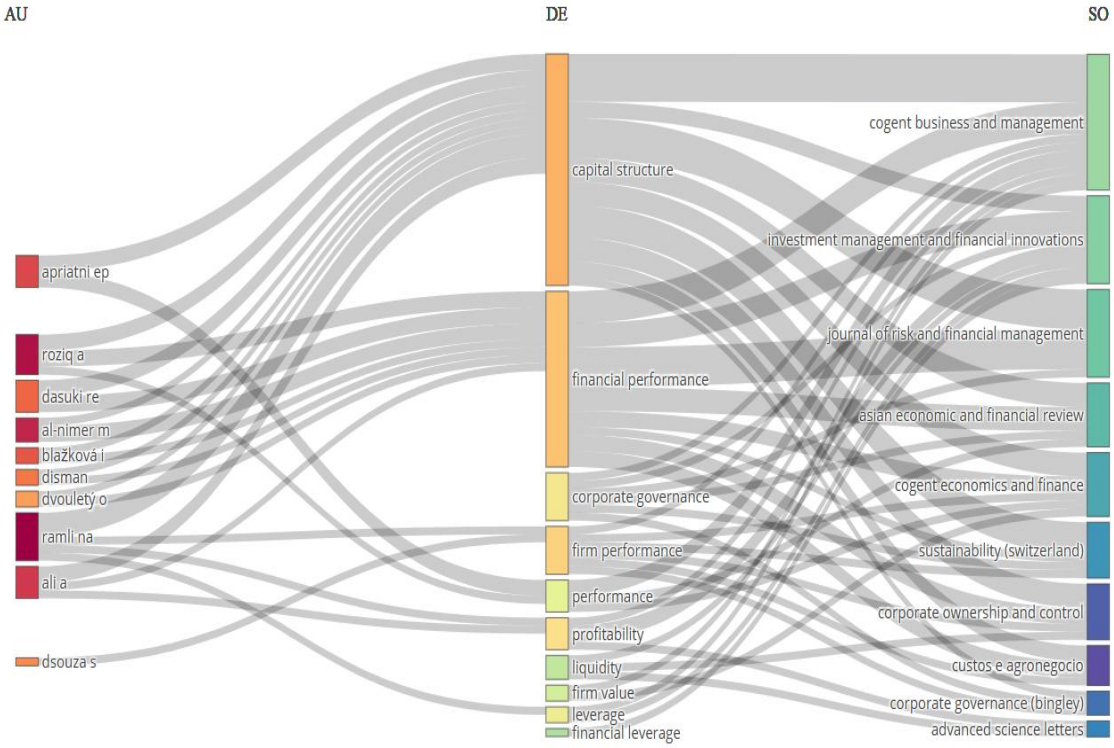


Figure 3: Three Field Plot,
Source: Generated Using Bibliometrix R Package

Figure 3 represents the three-field plot which highlights the interconnectedness between authors (AU), keywords or descriptors (DE), and sources (SO). The most significant authors in the plot, such as Apriatni E.P., Roziq A., Ramli N.A., and Dasuki R.E., are shown to focus on critical themes like capital structure, financial performance, corporate governance, and firm performance. These authors are connected to journals such as Cogent Business and Management, Journal of Risk and Financial Management, and Investment Management and Financial Innovations, which have published substantial research in this area. The plot demonstrates how authors are linked to particular research topics and the journals that publish their work. For example, “capital structure” and “financial performance” are the most frequently researched themes, with journals such as cogent Business and Management serve as major platforms for disseminating these findings. The visualisation reveals the central role of these journals and topics within the research community, indicating their importance in the field of financial and corporate governance studies.

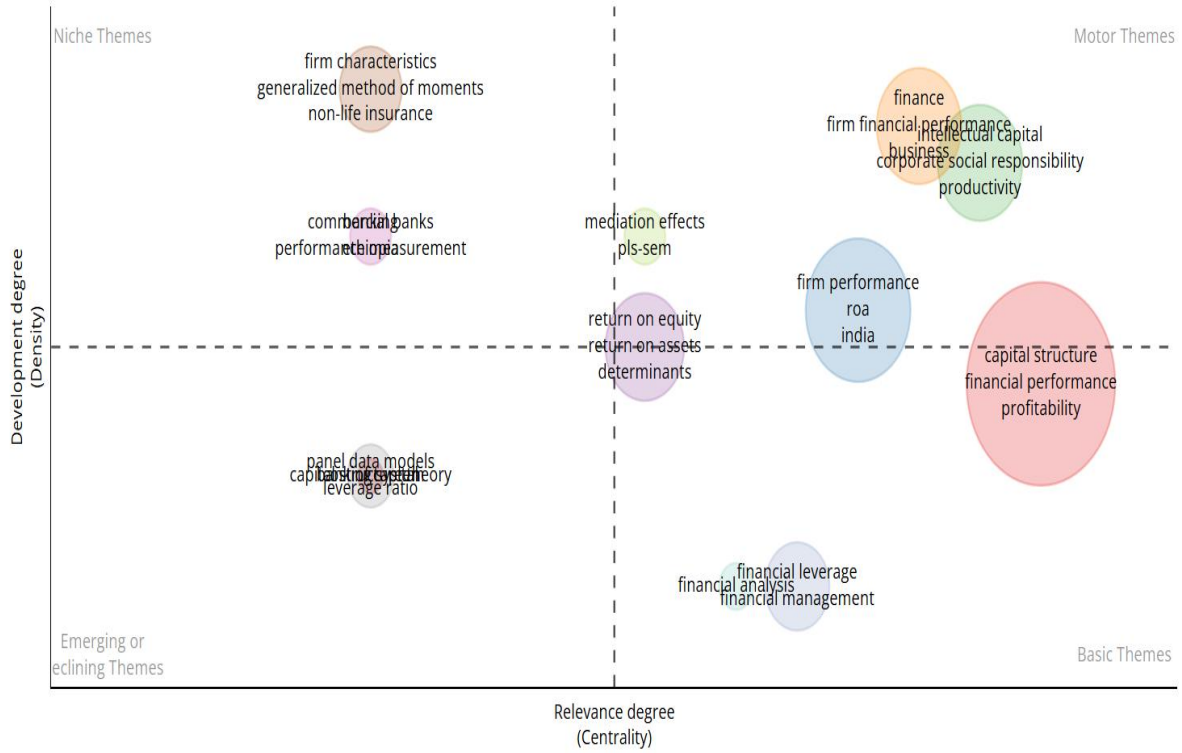


Figure 4: Thematic Map,
Source: Generated Using Bibliometrix R Package

Figure 4 illustrates the thematic map, which provides an insightful visualization of the key research themes in the field of capital structure and financial performance. The top-right quadrant, labelled Motor Themes, includes well-developed and central topics such as "capital structure," "financial performance," and "profitability," indicating their importance and maturity in the literature. These themes are crucial for understanding firm performance and are pivotal in shaping both theoretical frameworks and practical applications. In the Basic Themes quadrant (bottom-right), topics such as "financial leverage," "financial analysis," and "financial management" indicates high relevance but lower density, signalling that while they are important, they are still in the development phase and have room for more in-depth research. The Niche Themes quadrant (top-left) contains highly specialized topics like "firm characteristics," "generalized method of moments," and "non-life insurance". These are well-developed but less central to the core research area, reflecting their limited application in mainstream studies on capital structure. Finally, the Emerging or Declining Themes quadrant (bottom-left) consists of topics such as "panel data models," "capital structure theory," and "leverage ratio," which show lower relevance and development in the current literature. These themes may either represent under-researched areas with potential for growth or declining areas that are becoming less central to the field over time. Overall, the map highlights both established research areas and emerging opportunities for future investigation.

Systematic Literature Review

This systematic literature review (SLR) aims to investigate the intricate relationship between capital structure and financial performance. In this section, we basically highlight the previous literature using TCCM approach incorporating detailed insights from the 28 studies. Based on previous research, we identify knowledge gaps and suggestions have been proposed for future research.

Theory (T):

Theoretical foundations across the 28 studies are employed to explore capital structure and financial performance. The three most commonly referenced theories are 'Pecking Order Theory', 'Trade-off Theory' and 'Agency Theory'. According to the Pecking Order Theory, a company should put internal funding (retained earnings) ahead of external debt and equity. (Rehan et al., 2023 and Ayange et al., 2021). These theories are frequently applied to investigate the connection between financial performance and capital structure, especially in developing economies and emerging markets (Sdiq & Abdullah, 2022; Tesema, 2024; Ahmed et al., 2023). These hierarchy results from the costs incurred while issuing new equity and adverse selection problems related to debt. Many studies corroborate this theory by demonstrating how firms with higher profitability typically rely on retained earnings, thereby minimizing their reliance on debt financing. However, according to the trade-off theory, companies should seek out the best capital structure that balances between the tax advantages of debt and the possible consequences of financial strain (Muhammed et al., 2024; Dsouza et al., 2023). For example, (Ahmed et al., 2023) emphasizes this balance in the context of firms operating in capital-intensive industries like cement and steel, where debt can provide necessary funding while introducing risk. Some studies align with the Agency Theory, which explains the conflicts between shareholders and managers, where debt is viewed as an instrument for reducing agency problem and to align their interests by enforcing stricter financial discipline (Zandi et al., 2023). Research by (Sdiq & Abdullah, 2022 and Ahmad et al., 2022) illustrating how higher levels of debt can mitigate agency costs by aligning the interests of managers and shareholders, thereby promoting better performance outcomes. Other theoretical approaches such as the Modigliani-Miller Theorem are referenced in studies related to financial firms and sectors where the capital structure decisions have more direct implications on firm value (Abdelraheem, 2024; Brusov et al., 2023). These theories illustrate how leverage impacts firm value and performance in perfect capital markets. It provides a conceptual framework for analysing how firms make financing decisions and how those decisions impact financial performance.

Context (C):

The context of the studies spans a diverse range of geographical regions and industries, highlighting the global relevance of capital structure and financial performance across different economies and market environments. Geographically, the research covers countries in Africa (e.g., Nigeria, Ethiopia, Ghana), the Middle East (e.g., Saudi Arabia, GCC countries), Southeast Asia (e.g., Vietnam, Malaysia), and Latin America (e.g., Brazil, Chile, Mexico, Peru) (Khan & Qasem, 2024; Ayange et al., 2021; Dabi et al., 2023). This geographical diversity reveals that specific economic conditions, regulatory frameworks, and cultural factors significantly influence how firms manage their capital structure in these regions. For instance,

(Tesema, 2024 and Muhammed et al., 2024) provides valuable insights into the Ethiopian banking sector, illustrating how local market conditions and financial systems impact capital structure choices. Studies focusing on the GCC emphasize the unique characteristics of firms operating in oil-dependent economies, which may influence their capital structure decisions differently than firms in more diversified economies. The industries studied include banking, manufacturing, microfinance, energy, and non-financial firms (Sivalingam & Kengatharan, 2018; Hoang et al., 2019). For instance, banking and microfinance sectors often focus on the implications of liquidity and regulatory requirements on debt management, while manufacturing and non-financial firms emphasize on profitability and operational efficiency (Otieno & Ngwenya, 2015). The timeframes of these studies typically range from the early 2000s to 2021, capturing both pre- and post-global financial crisis periods, as well as the COVID-19 pandemic's impact in certain cases (e.g., Malaysian firms during the pandemic) (Huang, 2021; Ahmed et al., 2023). This temporal aspect is crucial, as it allows researchers to observe long-term trends and shifts in capital structure decisions in response to economic cycles and crises.

Characteristics (C):

A common characteristic across the studies emphasises the impact of capital structure on various financial performance indicators. ROE, ROA and market-based structure like Tobin's Q are commonly used as performance indicators (Ferriswara et al., 2022; Bayaraa, 2017). These metrics are essential for assessing the profitability, operational efficiency and overall firm performance and are often used alongside other indicators such as Earnings Per Share (EPS) and Net Operating Profitability (NOP). On the capital structure side, the studies commonly examine ratios such as debt-to-equity ratio, total debt ratio, and distinctions between short-term and long-term debt. For instance, some studies specifically investigate the impact of long-term debt on profitability, while others look at how short-term debt affects liquidity or operational efficiency. Research like as one conducted by (Ramli et al., 2020 and Valaskova et al., 2021) demonstrate that capital structure decisions significantly influence these performance metrics, although the effects vary across different sectors and contexts. This variability highlights the significance of taking sector-specific characteristics.

To provide a more thorough knowledge of the factors influencing financial performance, a number of studies also take control variable such as firm size, sales growth, asset tangibility, and profitability (Sike et al., 2023; Nguyen et al., 2022). Furthermore, several studies investigate the role of agency costs, governance factors, and macroeconomic variables like GDP growth and inflation as moderators or mediators that influence the relationship between capital structure and performance (Zandi et al., 2023; Rehan et al., 2023). These characteristics provide insight into how different financial indicators and external factors interact with capital structure decisions (shown in Figure 5). Industry-specific variables, such as energy consumption in the energy sector or growth opportunities in the manufacturing sector, are also used to better understand sector-specific dynamics.

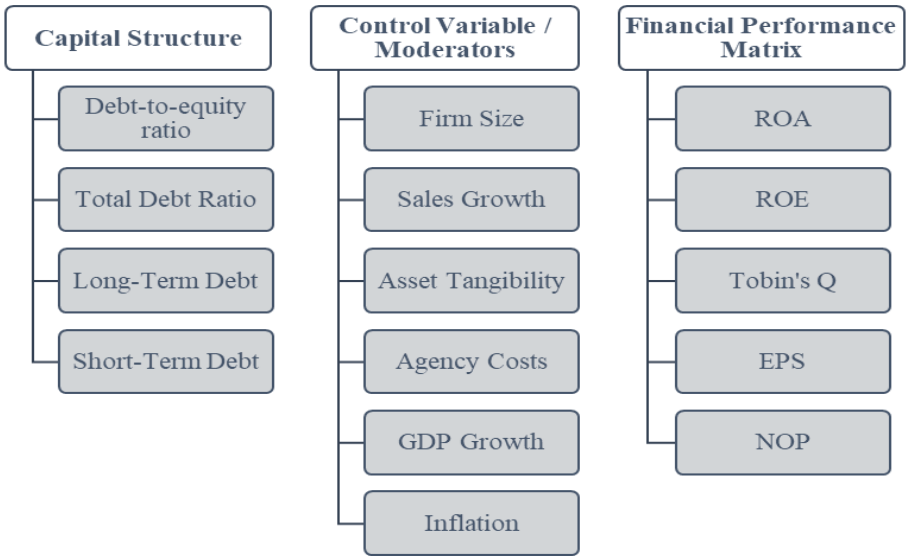


Figure-5: Distribution of variables used in studies
Source: Compiled by Author

Methodology (M):

Methodologically, a majority of the studies adopt quantitative research designs, relying heavily on secondary data from financial statements, stock exchanges, and databases, with some using surveys for primary data collection. Explanatory research designs are common, investigating cause-effect relationships between capital structure and financial performance. For example, (Muhammed et al., 2024) used audited financial reports from 14 banks to analyse this relationship, while (Prekazi et al., 2023) applied panel data from 41 companies to examine the impact of debt on ROCE and ROA. To investigate the connection between capital structure and financial performance, the majority of the studies have employed quantitative approaches emphasising on regression models, panel data analysis, and correlation analysis. Panel data models are frequently employed to handle longitudinal data and control for firm-specific effects, as seen in (Tesema, 2024 and Zandi et al., 2023), who used GMM models. The use of panel data is common, as it allows for the examination of firm behaviour over time and across different firms (Khan & Qasem, 2024; Vu Thi & Phung, 2021). Techniques such as Ordinary Least Squares (OLS) regression, Fixed and Random Effects Models, are frequently used to generate more reliable estimates of how capital structure affects performance and to account for possible endogeneity problems (Sivalingam & Kengatharan, 2018 and Brusov et al., 2023). (Sdiq & Abdullah, 2022; Tesema, 2024) Who used Generalized Method of Moments (GMM) to control the firm specific effect. Panel data models are particularly effective in controlling for unobserved heterogeneity across firms, allowing researchers to capture both cross-sectional and time-series variations (Abuamsha & Shumali, 2022; Huang, 2021). In some cases, more advanced statistical techniques are employed, such as PLS-SEM, which is useful for analysing complex relationships between variables, as in (Abdelraheem, 2024) study or Feasible Generalized Least Squares (FGLS), which accounts for heteroskedasticity and autocorrelation in the data (Brusov et al., 2023; Rehan et al., 2023). Some studies also use correlation analysis or Pearson's correlation to examine how strongly and in which direction important variables are related, as demonstrated by (Tesema, 2024). Furthermore, in cases where macroeconomic variables are considered, studies may employ multi-level regression models to capture the interaction between firm-specific and macroeconomic factors. In terms of software, various statistical and econometric software tools are employed depending on data complexity and the

statistical methods used. STATA, utilized in several studies, handles regression analysis, panel data models, and random/fixed effects models, such as (Muhammed et al., 2024) analysis of loan-to-deposit ratios and financial performance. SPSS is primarily used for basic statistical and descriptive analysis, exemplified by (Abdelraheem, 2024) application of SPSS for analysing survey responses. EViews is applied for time-series analysis and econometric modelling, while PLS-SEM software like SmartPLS is used for structural equation modelling. For better understanding, heatmap of methodologies and software used in studies has been shown in fig-6 which shows methodology used in studies on one axis, software on the other.

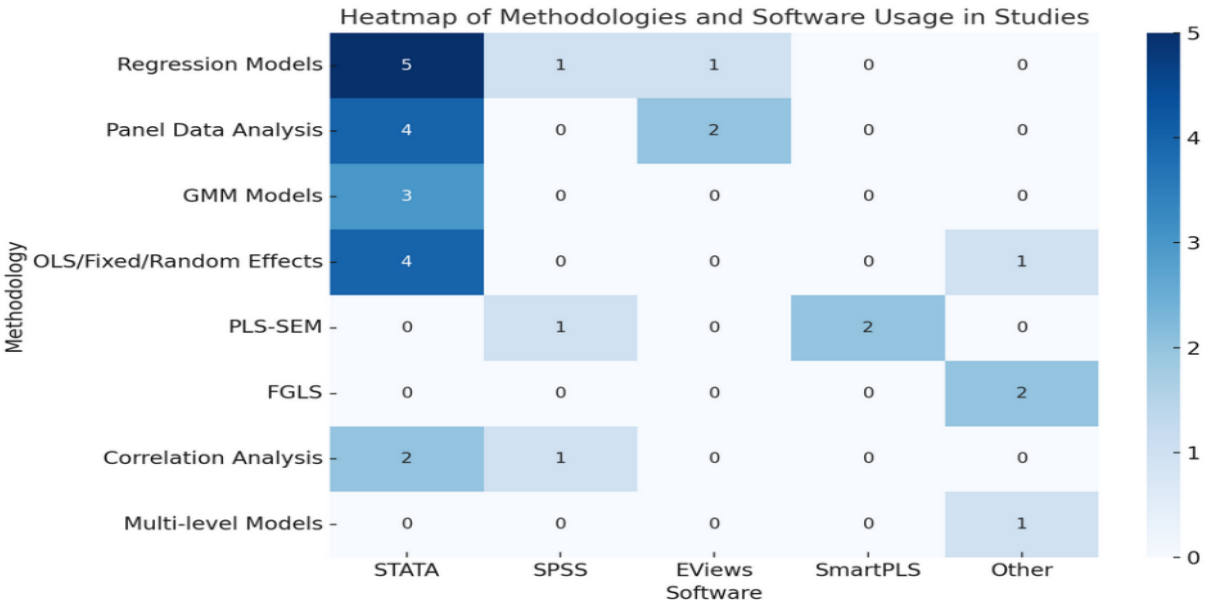


Figure-6: Heatmap of methodology and software used in studies
Source: Compiled by Author

CONCLUSION

The systematic literature review and bibliometric analysis on capital structure and financial performance reveal several key insights and contributions to the field. Through the integration of bibliometric tools and the TCCM framework, the study has mapped the critical theories, contexts, characteristics, and methodologies employed across a range of studies, highlighting prevailing trends and identifying gaps in the literature.

Firstly, the study confirms the vital role that capital structure decisions play in balancing debt and equity and determining financial outcomes. The analysis reveals that capital structure decisions are significantly influenced by various industry-specific and macroeconomic factors, with distinct effects on financial performance indicators such as ROA and ROE. Key determinants of capital structure include firm size, profitability, and asset tangibility. Whereas; the findings underscore the predominant reliance on theories like the Trade-off Theory, Pecking Order Theory, and Agency Theory, which collectively explain firms' preferences for debt or equity based on tax advantage. Additionally, this analysis highlights the diverse regional and sectoral applications of these theories, showing how capital structure decisions are shaped by unique economic, regulatory, and market factors for example, Pecking Order Theory was more frequently applied in emerging markets, where firms prioritize internal funding due to underdeveloped capital markets. Quantitative methods, especially panel data and regression models, are widely used, yet few studies address the capital structure dynamics

of cement and steel sectors. Thematic analysis reveals mixed findings: some studies suggest a positive relationship between debt and profitability, such as in banking sectors in Saudi Arabia and Ethiopia, others highlight the negative effects of leverage, particularly long-term debt, on performance metrics like (NOP) and (ROA) in manufacturing and non-financial sectors. Common research themes include profitability, governance, leverage, and firm value.

Despite the volume of research, a few studies directly examine the cement or steel industries, indicating a significant research gap and opportunity for further investigation in these capital-intensive sectors. Moreover, several additional gaps were identified, such as the need for focused research on specific industries and regional contexts, especially under-studied areas like India's cement and steel sectors. There is also limited exploration of the moderating and mediating effect of institutional, regulatory, and macroeconomic variables. Future research could benefit from investigating the long-term and dynamic relationships between capital structure and financial performance using advanced techniques, adopting emerging theoretical perspectives, and employing interdisciplinary approaches. Additionally, addressing endogeneity concerns using more robust econometric models and incorporating qualitative research could provide deeper insights into managerial decision-making processes.

The bibliometric analysis further indicates significant academic interest globally, particularly in emerging markets where financing constraints and institutional differences may impact capital structure strategies, however, there is a noticeable decline in citation impact in recent years. Indonesia, India, and Malaysia are among the top contributing countries, with journals like Cogent Business and Management frequently publishing in this area. Innovative methods and fresh context can rejuvenate academic contribution in this area.

LIMITATION AND FUTURE SCOPE

Despite the systematic approach adopted in the research, it has few limitations. First, the review was confined to articles indexed in Scopus, which may have excluded relevant studies indexed in other academic databases. Additionally, the study time frame (2015-2024) might have omitted valuable insights and perspective from earlier literature that could have included in our study. Secondly, the study focused exclusively on open-access studies to promote transparency and accessibility, which may have led to the omission of impactful articles. Another limitation is the concentration only on English-language publications, potentially overlooking meaningful contributions in other languages. Moreover, while this study intended to emphasis on cement and steel industries was also constrained by the availability of sector-specific studies.

Future studies can address these limitations by including multiple databases, such as Web of Science, EBSCO and could consider incorporating a more diverse set of languages to provide more comprehensive understanding of the study. Extending the time frame beyond the study period would benefit in capturing long term trends and perspective. Finally, future studies can benefit from adopting additional bibliometric analysis and different approaches for literature review so as to identify emerging research fields.

Despite these limitations, this study contributes meaningfully to the existing literature by providing a structured overview of research on capital structure and financial performance through bibliometric analysis and the TCCM framework. Its special focus on sector specific industries offers valuable direction for future research and practical insights for financial decision-making in capital-intensive sectors.

REFERENCES

1. Abdelraheem, A. A. E. (2024). The effect of capital structure on financial performance. *Uncertain Supply Chain Management*, *12*(3), 1879–1884. https://doi.org/10.5267/j.uscm.2024.2.015
2. Abuamsha, M., & Shumali, S. (2022). Debt structure and its impact on financial performance: An empirical study on the Palestinian stock exchange. *Journal of International Studies*, *15*(1), 211–229. https://doi.org/10.14254/2071-8330.2022/15-1/14
3. Ahmad, Z., Hassan, A., & Dakingari, U. M. (2022). EFFECT OF FIRM CHARACTERISTICS AND SOME KEY MONETARY VARIABLES ON THE FINANCIAL PERFORMANCE OF UNILEVER NIGERIA PLC. *Asian Journal of Economic Modelling*, *10*(4), 236–244. https://doi.org/10.55493/5009.v10i4.4663
4. Ahmed, A. M., Nugraha, D. P., & Hágen, I. (2023). *The Relationship between Capital Structure and Firm Performance: The Moderating Role of Agency Cost*. https://doi.org/10.3390/risks
5. Ayange, A., Emmanuel, N. C., Rosemary, I. H., Ndudi, U. C., & Samuel, U. E. (2021). Effect of capital structure on firms' performance in Nigeria. *Universal Journal of Accounting and Finance*, *9*(1), 15–23. https://doi.org/10.13189/ujaf.2021.090102
6. Bayaraa, B. (2017). Financial performance determinants of organizations: The case of Mongolian companies. *Journal of Competitiveness*, *9*(3), 22–33. https://doi.org/10.7441/joc.2017.03.02
7. Brusov, P., Filatova, T., & Kashirin, A. (2023). An Assessment of the Financial Indicators of PJSC Gazprom. *Journal of Risk and Financial Management*, *16*(7). https://doi.org/10.3390/jrfm16070339
8. Dabi, R. S. K., Nugraha, Disman, & Sari, M. (2023). Capital structure, financial performance and sustainability of Microfinance Institutions (MFIs) in Ghana. *Cogent Economics and Finance*, *11*(2). https://doi.org/10.1080/23322039.2023.2230013
9. DiSegni, D. M., Huly, M., & Akron, S. (2015). Corporate social responsibility, environmental leadership and financial performance. *Social Responsibility Journal*, *11*(1), 131–148. https://doi.org/10.1108/SRJ-02-2013-0024
10. Dsouza, S., K, K., Kayani, U. N., & Nasseredine, H. (2023). Variables that sway the capital structure! Evidence from the US automotive industry. *Cogent Social Sciences*, *10*(1). https://doi.org/10.1080/23311886.2023.2293309
11. Ferriswara, D., Sayidah, N., & Agus Buniarto, E. (2022). Do corporate governance, capital structure predict financial performance and firm value? (empirical study of Jakarta Islamic index). *Cogent Business and Management*, *9*(1). https://doi.org/10.1080/23311975.2022.2147123
12. Hoang, T. V. H., Dang, N. H., Tran, M. D., van Vu, T. T., & Pham, Q. T. (2019). Determinants influencing financial performance of listed firms: Quantile regression approach. In *International Journal of English Language and Literature Studies* (Vol. 9, Issue 1, pp. 78–90). Asian Economic and Social Society. https://doi.org/10.18488/journal.aefr.2019.91.78.90
13. Huang, C. C. (2021). Assessing the financial performance of airlines in the Asia-Pacific region. *Investment Management and Financial Innovations*, *18*(2), 234–244. https://doi.org/10.21511/imfi.18(2).2021.19

14. Khan, S., & Qasem, A. (2024). Are the firms' capital structure and performance related? Evidence from GCC economies. *Cogent Business and Management*, *11*(1). https://doi.org/10.1080/23311975.2024.2344749
15. Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. In *BMJ (Online)* (Vol. 339, Issue 7716, pp. 332–336). https://doi.org/10.1136/bmj.b2535
16. Moher, D., Shamseer, L., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., Shekelle, P., Stewart, L. A., Estarli, M., Barrera, E. S. A., Martínez-Rodríguez, R., Baladia, E., Agüero, S. D., Camacho, S., Buhring, K., Herrero-López, A., Gil-González, D. M., Altman, D. G., Booth, A., … Whitlock, E. (2016). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Revista Espanola de Nutricion Humana y Dietetica*, *20*(2), 148–160. https://doi.org/10.1186/2046-4053-4-1
17. Muhammed, S., Desalegn, G., & Emese, P. (2024). Effect of Capital Structure on the Financial Performance of Ethiopian Commercial Banks. *Risks*, *12*(4). https://doi.org/10.3390/risks12040069
18. Nguyen, H., Do, D. T., Nguyen, T. H. T., Nguyen, T. T. T., Tran, M. D., Nguyen, T. T., Pham, V. H., & Nguyen, T. T. (2022). THE IMPACT OF INTERNAL FINANCIAL DETERMINANTS ON THE FINANCIAL PERFORMANCE OF LISTED MINERAL FIRMS ON THE VIETNAM STOCK EXCHANGE. *Corporate Governance and Organizational Behavior Review*, *6*(2 Special Issue), 287–299. https://doi.org/10.22495/cgobrv6i2sip13
19. Otieno, O. L., & Ngwenya, S. (2015). THE RELATIONSHIP BETWEEN CAPITAL STRUCTURE AND FINANCIAL PERFORMANCE OF FIRMS LISTED ON THE NAIROBI SECURITIES EXCHANGE. In *Corporate Ownership & Control* (Vol. 13, Issue 1).
20. Paul, J., Lim, W. M., O'Cass, A., Hao, A. W., & Bresciani, S. (2021). Scientific procedures and rationales for systematic literature reviews (SPAR-4-SLR). *International Journal of Consumer Studies*. https://doi.org/10.1111/ijcs.12695
21. Prekazi, Y., Bajrami, R., & Hoxha, A. (2023). The impact of capital structure on financial performance. *International Journal of Applied Economics, Finance and Accounting*, *17*(1), 1–6. https://doi.org/10.33094/ijaefa.v17i1.1002
22. Ramli, N. A., Latan, H., & Solovida, G. T. (2019). Determinants of capital structure and firm financial performance—A PLS-SEM approach: Evidence from Malaysia and Indonesia. *Quarterly Review of Economics and Finance*, *71*, 148–160. https://doi.org/10.1016/j.qref.2018.07.001
23. Ramli, N. A., Ramli, N. E., Marzuki, A., & Nazri, M. A. (2020). Mediation effects of firm leverage from the perspective of Malaysian shariah compliant companies-A partial least square structural equation modelling approach (PLS-SEM). *Research in World Economy*, *11*(3), 67–79. https://doi.org/10.5430/rwe.v11n3p67
24. Rehan, R., Sa'ad, A. A., Haron, R., & Hye, Q. M. A. (2023). Are shariah and non-shariah firms' capital structure determinants and financial performance related? Evidence from Malaysia. *Asian Journal of Economic Modelling*, *11*(3), 149–164. https://doi.org/10.55493/5009.v11i3.4903
25. 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 and Finance*, *10*(1). https://doi.org/10.1080/23322039.2022.2148364

26. Sike, R. I., Ibrahim, U. A., & Maitala, F. (2023). Capital Structure and Financial Performance: A Sectorial Analysis. *WSEAS Transactions on Business and Economics*, *20*, 1498–1508. https://doi.org/10.37394/23207.2023.20.132
27. Sivalingam, L., & Kengatharan, L. (2018). Capital structure and financial performance: A study on commercial banks in Sri Lanka. *Asian Economic and Financial Review*, *8*(5), 586–598. https://doi.org/10.18488/journal.aefr.2018.85.586.598
28. Tesema, T. N. (2024). The effect of capital structure on performance: empirical evidence from manufacturing companies in Ethiopia. *Cogent Economics and Finance*, *12*(1). https://doi.org/10.1080/23322039.2023.2300926
29. Valaskova, K., Kliestik, T., & Gajdosikova, D. (2021). Distinctive determinants of financial indebtedness: Evidence from slovak and czech enterprises. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, *16*(3), 639–659. https://doi.org/10.24136/eq.2021.023
30. Vu Thi, A. H., & Phung, T. D. (2021). Capital Structure, Working Capital, and Governance Quality Affect the Financial Performance of Small and Medium Enterprises in Taiwan. *Journal of Risk and Financial Management*, *14*(8). https://doi.org/10.3390/jrfm14080381
31. Zandi, G., Rehan, R., Hye, Q. M. A., & Choo, S. L. B. (2023). Exploring Capital Structure Determinants for OECD Energy Firms. *International Journal of Energy Economics and Policy*, *13*(4), 338–347. https://doi.org/10.32479/ijeep.14559