

# Bibliometric Analysis Of Brazilian Scientific Production On Capital Structure

Francisco Ivander Amado Borges Alves, Vicente Lima Crisóstomo  
(Department Of Accounting, Federal University Of Ceará, Brazil)

---

## Abstract:

**Background:** This research provides a comprehensive survey of Brazilian production on capital structure from 2001 to 2024. Although previous bibliometric studies on this topic exist, they do not cover such a recent period. Furthermore, some prior studies are limited to presenting bibliometric tables without indicating the implications of these results regarding current research trends or future research agendas. Thus, this article seeks to describe how Brazilian research is being developed and provides insights for conducting new studies.

**Materials and Methods:** Bibliometrics was employed to identify research characteristics such as annual output, the most prolific authors, the most representative research institutions, the main journals, the most cited papers, adherence to bibliometric laws, the most frequent data analysis techniques, and suggestions for future research. The sample consisted of 151 articles retrieved from Web of Science and Scopus.

**Results:** The findings show that Brazilian production is not heavily concentrated among a few authors, grows annually, and is predominantly composed of empirical studies. A total of 354 mentions of various theories were identified, most notably the Irrelevance of Capital Structure (71 mentions), Pecking Order (55), Agency Theory (53), Trade-off (49), and Market Timing (29). Together, these represent 72% of all theoretical mentions. Most studies utilize linear regression techniques and suggest that further investigations could benefit from other firm attributes, increased sample scopes, and/or replicating the methodology in different institutional environments.

**Conclusion:** The study identified that the topic attracts researchers and is not concentrated in a small group of authors. Distinct attributes were observed in the current research landscape (empirical, quantitative studies using regression, publishing in specialized national journals, among others). Opportunities for new research can leverage these findings to follow two paths: developing studies that address gaps in previous literature while maintaining the established research mode, or more creative studies that explore gaps using strategies that remain under-explored.

**Keywords:** Capital structure, bibliometrics, Web of Science, Scopus, Brazil.

---

Date of Submission: 01-01-2026

Date of Acceptance: 10-01-2026

---

## I. Introduction

Companies constantly require resources for financing. These resources can originate from the company's internal funds or from external sources, such as debt and equity issuance. The combination of these different funding sources is what characterizes the capital structure adopted by a firm (Boateng et al., 2022).

Given the complexity of corporate financing decisions, various theories have emerged attempting to explain how entities establish their financing strategies. In this context, theories such as Trade-off, Pecking Order, and Market Timing are prominent, among others (Ahmed et al., 2023; De Jong et al., 2011; José-García & Herrero, 2021; Myers, 1984; Myers & Majluf, 1984). The importance and complexity of the theme have generated an extensive body of literature, from the initial proposal of capital structure irrelevance (Modigliani & Miller, 1958) to the present day, documenting evidence on the relevance of financing strategy decisions and the pertinence of the proposed theories (Barclay & Smith, 2020; Berens & Cuny, 1995). Research on capital structure has advanced across different markets, although it remains centered on developed markets; a factor that motivates the identification of how research is being developed in emerging markets (Bajaj et al., 2021).

Literature presents theories and conducts empirical tests to verify theoretical pertinence in distinct markets. Literature review studies make it possible to identify key elements in existing research, such as theories, methodological strategies, and the identification of gaps within that field of knowledge: elements that deserve further research attention. Several bibliometric studies have mapped the work conducted on the topic of capital structure within the Brazilian market (Alves & Crisóstomo, 2018; Coelho et al., 2013; Nakamura et al., 2017; Ribeiro et al., 2019; Teixeira et al., 2020).

Considering previous bibliometric research that analyzed scientific production on capital structure in Brazil, it is timely to consider the most recent literature and incorporate additional elements into bibliometric research. In this sense, this study advances the knowledge of how capital structure research has been developed, revealing the theoretical foundations, the methodological techniques used, and the suggestions provided by

studies for the development of new research. Furthermore, by covering publications up to 2024, the research also includes the recent period of the COVID-19 pandemic.

## **II. Literature Review**

### **Capital Structure**

Companies constantly make decisions that are crucial to their business continuity. Among these, the composition of financing sources is noteworthy, as the choice of capital structure can affect future financing capacity, the cost of capital, risk, liquidity, and firm value (Bajaj et al., 2021). In this sense, the literature advocates for a capital structure composition that maximizes firm value without the cost of resources having an unfavorable impact on value creation (Boateng et al., 2022).

Historically, the study by Modigliani and Miller (1958) gained prominence, concluding that capital structure is irrelevant to value creation under ideal market conditions. In a later development, Modigliani and Miller (1963) acknowledged the importance of capital structure when considering the effect of taxes. Subsequently, a long tradition of papers emerged investigating capital structure, arguing that the choice of financing sources is vital for value creation and business continuity, culminating in the development of several theories (José-García & Herrero, 2021).

A prominent theory is Trade-off Theory, which suggests a balance between the benefits and costs of debt. In this case, firms leverage themselves, and the interest paid on loans and financing can be deducted during income tax assessment. This tax shield is an advantage for the company and should be fully exploited. However, taking on additional debt generally implies higher borrowing costs. Creditors tend to charge more to lend to highly indebted firms. In this scenario, the interest incurred on new financing may outweigh the debt benefit. Thus, firms must reach an optimal point in the cost-benefit ratio of debt to maximize firm wealth. In the dynamic version of this theory, the costs of adjusting the capital structure are high, leading firms to change this policy only if the benefits outweigh the costs of the adjustment (Brusov & Filatova, 2023; Kraus & Litzenberger, 1973; Myers, 1984).

In turn, Pecking Order Theory proposes a preference hierarchy for financing sources. Initially, companies prefer to use internally generated resources that are already available. When internal funds are insufficient to finance investment projects, the firm resorts to debt. Since debt involves financial costs from interest payments, it serves as the second financing option. When debt is also insufficient, the company turns to the equity market, which requires higher informational costs to attract investors (Bajaj et al., 2021; Myers, 1984; Myers & Majluf, 1984).

There is also Market Timing Theory, which posits that companies follow market dynamics to conduct operations. In this sense, when a firm assesses that its stock price is overvalued by the market, it issues more shares. Thus, the company takes advantage of this discrepancy to raise more capital. Conversely, if the market undervalues the shares, the company may repurchase them, holding them as treasury stock until a more opportune time to release them to the market (Allini et al., 2018; Baker & Wurgler, 2002).

Agency Theory is also present in capital structure studies. Briefly, the separation between management and ownership may allow managers (agents) to act in ways that do not align with the best interests of shareholders (principals), leading to conflicts of interest. Recognizing this conflict, it is necessary to implement control and monitoring practices (corporate governance mechanisms) to align agents with owners' interests. Among these alignment mechanisms, debt has an interesting aspect: creditors can act as monitors of management, pressuring managers to use company resources efficiently (Harris & Raviv, 1991; Jensen & Meckling, 1976).

Beyond testing the adherence of corporate financing decisions to capital structure theories, research has developed along other tracks. One focus is identifying the determinants of capital structure: attributes that influence the selection of financing sources, such as size, tangibility, profitability, macroeconomic factors, and the legal environment (Fukui et al., 2023; Rajan & Zingales, 1995; Titman & Wessels, 1988).

Capital structure research grows annually (Boateng et al., 2022). An increasing number of articles are published worldwide detailing this theme. Although some research analyzes the influence of other topics on capital structure and vice versa, such as corporate governance, management characteristics, ownership structure, and corporate social responsibility. The investigation of firm-specific factors as determinants remains dominant (Dantas & Oliveira, 2021). Investigar como a pesquisa em estrutura de capital está sendo desenvolvida demanda o uso de métodos apropriados, como a bibliometria.

### **Bibliometrics**

Since the contributions of Otlet (1934) and Pritchard (1969), bibliometrics has become more sophisticated and widely used in academic research, as it enables the evaluation of indicators of quality, impact, and the influence of authors, journals, and institutions (Bawack et al., 2022). Technological advancement and

the availability of bibliometric software, along with its interdisciplinary application beyond information science, have contributed to its broader utilization (Donthu et al., 2021).

The literature identifies three main bibliometric approaches (Chueke & Amatucci, 2022; Donthu et al., 2021): (i) performance analysis, which includes indicators such as production volume, co-authorship, and citations; (ii) science mapping, which examines connections between authors, journals, and institutions; and (iii) network analysis, which assesses authors and institutions within existing collaboration networks. Bibliometrics can indicate directions for future research by identifying the current state of scientific production and evaluating the content of the work (Romanelli et al., 2021; Rousseau & Rousseau, 2021).

In the process of conducting a bibliometric study of a specific field, researchers survey existing literature and identify trends associated with its scientific production. Three laws are prominent in bibliometric studies: Lotka's Law, Bradford's Law, and Zipf's Law. Lotka's Law evaluates scientific production by author, determining whether production is concentrated among a few authors (Veiga-del-Baño et al., 2023). Bradford's Law assesses the dispersion of scientific production across journals to indicate if there are more attractive venues for researchers in the field (Farias & Hoffmann, 2018; Yumnam & Singh, 2023). Lastly, Zipf's Law investigates terms or words, identifying the most frequently used vocabulary (Farias & Hoffmann, 2018).

Bibliometric analysis is, therefore, an important tool for researchers, allowing them to identify other active scholars, their institutional affiliations, connections with other experts, and the most utilized journals for dissemination (Chueke & Amatucci, 2022; Donthu et al., 2021). Additionally, this analysis involves surveying research attributes, such as predominant theories, main data analysis methods, and identifying possibilities for new research. Brazilian research already has several bibliometric works on capital structure, as shown in Table 1.

**Table 1:** Bibliometric research on capital structure in Brazil

Study	Objective	Sample	Attributes analyzed	Results
Coelho <i>et al.</i> (2013)	To identify the main theories adopted by researchers regarding capital structure in studies associated with national and international companies	42 articles from Brazilian and international journals, between 2000 and 2008, classified as 'A' in the areas of Administration, Accounting Sciences and Tourism, according to the Qualis/ Capes	Journal. Annual output. Number of authors per article. Most prolific authors. Authors' affiliated institution. Theories.	The journal that linked the most articles was RAUSP: Revista de Administração. The production of the last 4 years was greater than the previous 5 years. The year 2007 had the most publications. The prevalence is of research developed in pairs and trios. The most prolific author was Rubens Famá (6 articles). FEA/USP and Mackenzie are the affiliated institutions of the most prominent authors. 22 articles mention some theory of capital structure. The Pecking Order Theory is the most representative (17 articles).
Nakamura, Jones e Nakamura (2017)	To conduct a survey of Brazilian scientific production on capital structure and the main theories addressed	16 articles published between 2009 and 2015 in leading national journals classified as A in the Qualis/ CAPES evaluation, in the areas of Administration, Accounting Sciences, and Tourism.	Journal. Annual output. Number of authors per article. Most prolific authors. Theories.	The main journal was the Contabilidade & Finanças (10 articles). The year 2009 was the year with the highest production (7 articles). The prevalence is that articles are mostly written in pairs (11 articles). The most productive author was Wilson Nakamura (3 articles). The Modigliani and Miller Model, the Trade-off and Pecking Order theories were addressed in 13 articles. One article did not mention a theory of capital structure.
Alves e Crisóstomo (2018)	To analyze the profile of scientific production on capital structure in Brazilian journals	102 Brazilian articles, produced between 2001 and 2017, available on the Capes Periodicals Portal	Journal. Lotka's Law in journals. Journal quality, according to Qualis Capes. Annual output. Number of authors per article. Most prolific authors. Lotka's Law for authors. Authors' affiliated institution.	The most representative journal was the journal Contabilidade & Finanças (14 articles). Lotka's Law in journals revealed a concentration of production in a few journals. Regarding the quality of the journal, it was observed that the works were published in journals with a higher ranking in the QUALIS/CAPES system. Annual production is increasing, with peaks in 2009 and 2015 (16 articles). The articles were developed by 231 authors. The prevalence is of articles developed in trios of authors. The most productive author was Wilson Nakamura (13 articles). Lotka's Law did not reveal a concentration of articles in a few authors.

			Lotka's Law for Author Affiliation Institutions. Keywords. References.	<p>The most representative institution was the University of São Paulo, with 37 authors. There is a concentration of production in some affiliated institutions.</p> <p>The most used keywords were 'capital structure' (18% of occurrences) and 'Indebtedness' (4%). On average, there are 35 references per article, with the majority being international studies (64%).</p>
Ribeiro et al. (2019)	To identify the main theories adopted regarding the structure of capital in Brazilian scientific publications	45 articles from 2007 to 2016, published in national journals with an 'A' rating in the areas of Administration, Accounting Sciences, and Tourism, according to Qualis (Capes)	Journal. Annual output. Most prolific authors. Authors' affiliated institution. Institutions. Theories.	<p>The Contabilidade &amp; Finanças Journal presented the highest number of articles (16 articles). The year 2009 had the highest production (10 articles). The authors did not identify an evolution in production over time.</p> <p>104 authors were identified. Of these, 66 were PhDs and 33 were Masters.</p> <p>The most prolific author was Wilson Nakamura (5 articles).</p> <p>The University of São Paulo was the institution with the most authors (19).</p> <p>The most mentioned theory was the Pecking Order (19 articles).</p>
Teixeira et al. (2020)	To understand the origin, nature, and purposes of these studies, as well as to identify the methods used and the main theories.	50 articles available in the SPELL database, published between 2008 and 2016, written in Portuguese, in journals with a 2016 Qualis classification stratum of at least B1.	Journal. Annual output. Number of authors per article. The authors' gender. Authors' affiliated institutions. Methodological approaches. Topics studied. Theories.	<p>The highlight was the Contabilidade &amp; Finanças Journal with 9 articles.</p> <p>2009 was the most productive year (13 articles). The trend is for articles to be written in pairs (50% of the sample).</p> <p>Most authors are male (76%).</p> <p>The institution of note was the University of São Paulo (13 participations among the first authors of articles). The 8 most representative institutions concentrate 60% of the production.</p> <p>Most articles are theoretical-empirical (96%), are quantitative (96%) and use panel data (23 occurrences).</p> <p>The central theme of the articles is to study 'determinants of capital structure' (11 articles). 24 articles made use of some theory, with Pecking order being a highlight (18 articles).</p>
Ferreira (2022)	Describe bibliometric characteristics of research on Economic Freedom and Capital Structure	70 articles from 1996 to 2021, in the field of 'Business, Management and Accounting', available in the Scopus database.	Document type. Journal. Annual output. Number of authors per article. Countries of origin of the authors. Citations. Co-citation network. Topics studied.	<p>Most of the documents are articles (48) and books (9).</p> <p>The average age of the documents is 7.57 years. The most representative journals were Emerging Markets Review and Revue Internat: Droit Economique, both with two documents.</p> <p>The year 2019 was the most productive (8 documents), and an increasing production trend was identified.</p> <p>There is a prevalence of documents written by co-author pairs.</p> <p>A total of 140 authors were identified, most of whom developed their work in partnership with others (108).</p> <p>Most of the authors are from the United States of America (USA – 25.71%) and the United Kingdom (UK – 14.26%). No Brazilian authors were identified.</p> <p>The average citation rate is 15 per document, with a total of 4,376 references cited.</p> <p>The most cited article is Lee (1996), with 334 citations. The country of origin of the most cited authors was the USA (627 citations).</p> <p>The co-citation network analysis identified three groups (Gwartney, Miller, and Young). These three clusters were related to authors with classic and seminal research focused on the recognition of institutional and macroeconomic factors, such as economic freedom, in the capital structure.</p> <p>Between 1996 and 2014, the predominant themes were finance, business, and social issues. From 2015 onwards, these themes underwent transitions and evolved to address topics such as rights, development, and impact.</p>

Source: Elaborated by the authors (2026).

Despite the relevance of these works, these studies consider timeframes that already exceed the last five years. Scientific research is dynamic and grows continuously, necessitating constant surveys of scientific production—findings that are essential for observing how the theme has developed and identifying opportunities for advancement in new studies.

### III. Material And Methods

This research analyzes articles authored by Brazilian researchers and published in journals focusing on the topic of capital structure. For this purpose, articles on this theme were retrieved from the Scopus and Web of Science (WoS) databases. The choice of these databases is justified by the fact that they index thousands of journals, are multidisciplinary, and have consolidated themselves as reliable and widely used sources for bibliometric research (Birkle et al., 2020; Khan et al., 2022; Pranckutė, 2021).

After defining the databases, search strings were established for each one. These strings aimed to capture journal articles mentioning 'capital structure' (in English, Portuguese, and Spanish) in the title, abstract, or keywords, published between 2001 and 2024, where at least one author's affiliation is Brazil.

In Scopus, the search was conducted using the following string:

*TITLE-ABS-KEY ( "capital structure" ) OR TITLE-ABS-KEY ( "estrutura de capital" ) OR TITLE-ABS-KEY ( "estructura de capital" ) AND PUBYEAR > 2000 AND PUBYEAR < 2025 AND ( LIMIT-TO ( DOCTYPE , "ar" ) ) AND ( LIMIT-TO ( AFFILCOUNTRY , "Brazil" ) )*

In the *Web of Science* (WoS), the following search string was used:

*(ALL=("estrutura de capital") OR ALL=("capital structure") OR ALL=("estructura de capital")) AND CU=("Brazil") AND PY=(2001 OR 2002 OR 2003 OR 2004 OR 2005 OR 2006 OR 2007 OR 2008 OR 2009 OR 2010 OR 2011 OR 2012 OR 2013 OR 2014 OR 2015 OR 2016 OR 2017 OR 2018 OR 2019 OR 2020 OR 2021 OR 2022 OR 2023 OR 2024)*

The search in both databases was conducted between July 20, 2024, and February 2, 2025. As a result, 126 articles were identified in Scopus and 130 in WoS. From this total, the following were removed: 11 articles from Scopus and 27 from WoS for addressing themes essentially outside the research scope, and 2 papers from WoS for being bibliometric studies themselves.

The papers resulting from this screening were exported in *.csv* (Scopus) and *.bib* (WoS) formats. During exportation, the option for full data records was selected, including citations. Subsequently, the data were imported into the Bibliometrix package within RStudio, which operates on the R language. These tools were chosen because they offer an environment specifically designed for bibliometric analysis, are widely used in previous studies, and allow for integration with other R packages (Aria & Cuccurullo, 2017; Büyükkidik, 2022; Khan et al., 2022).

Once the data were loaded into the software, the files from both databases were merged, and duplicate articles were removed, resulting in 160 articles. The data from this final set were exported to an *.rds* file and subsequently loaded into the biblioshiny web interface.

Within the biblioshiny interface, all data were exported to an *.xls* file for manual analysis, which revealed that: there were 3 duplicate records (with minor title variations, which is why the electronic analysis did not identify them as duplicates); 4 articles were not authored by Brazilian researchers; and 3 articles were conference papers that appeared in the databases despite applying the 'journal articles' filter.

After these exclusions, the final sample consisted of 151 articles. Furthermore, during the manual verification, it was found that some authorships were being incorrectly identified by prepositions instead of last names, and there were variations in the spelling of authors' names and institutions, requiring manual corrections in the *.xls* file. After defining the sample and making the necessary database adjustments, the file was re-imported into biblioshiny.

The data were subjected to descriptive analysis (using count tables, proportions, and graphs) and the application of Lotka's Law. First, the number of authors who produced the articles in the sample was identified; then, a graph of the annual article production was plotted, the most prolific authors on the subject were identified, and it was verified whether scientific production is concentrated among a few authors via Lotka's Law.

Lotka's Law proposes that the expected number of authors contributing  $n$  articles ( $\alpha_n$ ), in a given period is a fraction of the number of authors making a single contribution ( $\alpha_1$ ), according to the following formula:  $\alpha_n = \alpha_1 * \frac{1}{n^2}$ . The value expected by Lotka's Law serves as a threshold to determine if there is a concentration of publications among a few authors. If the observed number of authors with a certain number of articles ( $n$ ) exceeds the expected value for that quantity, then there is a concentration of production.

The main affiliation institutions of the authors and their regions were identified, revealing the primary research centers on the theme in Brazil. Additionally, Bradford's Law was applied to identify the journals most

receptive to the sample articles, which constitute the core of Brazilian scientific production on capital structure. The most cited references in the Brazilian articles were also mapped

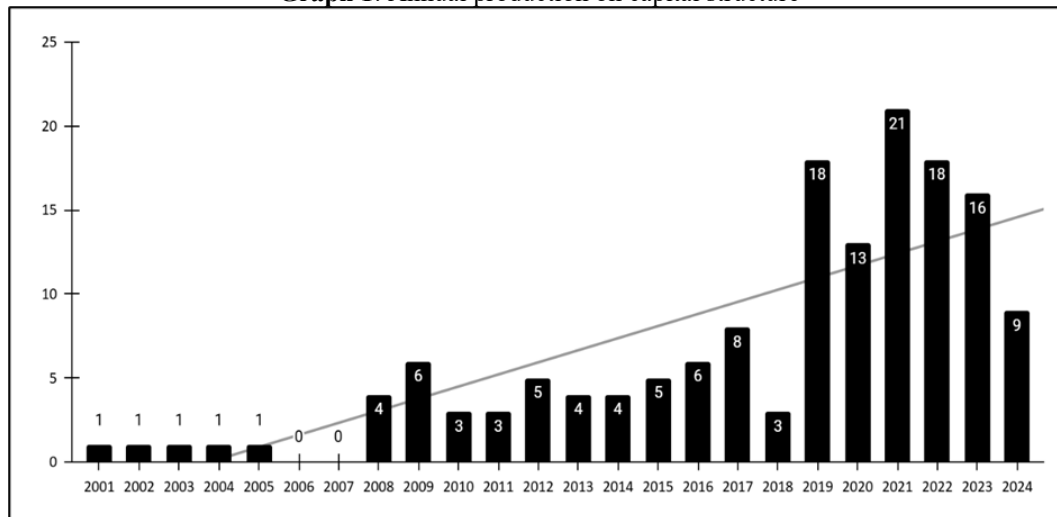
The theoretical framework of the papers was analyzed to identify the most prevalent theories. The methodology of the studies was also examined to identify the primary approach (empirical or theoretical), the business sectors analyzed, and the predominant statistical techniques. Finally, suggestions for further research mentioned in the articles' conclusions were identified.

#### IV. Result

This research identified 151 articles published between 2001 and 2024, produced by 366 authors. The average number of authors per article was three, suggesting a preference for collaborative partnerships in research development. Regarding international collaborations, it was found that 8.55% of the studies involved the participation of foreign researchers. The primary partners for Brazilian scholars are in North America (the United States and Canada), followed by Europe (Finland, France, and Portugal). These international partnerships are crucial for enhancing knowledge exchange and expanding the dissemination of Brazilian scientific production abroad, thereby increasing the visibility and impact of this research.

Regarding the annual evolution of the research, a historical growth in scientific production on capital structure is observed, as shown in Graph 1. Initially, there was a modest volume of publications until the first spike in 2008 (four articles). From then on, a higher, consolidated volume of publications emerged, reaching an average of 4.47 articles in the 2008-2018 period. In 2019, another significant increase in the number of articles was recorded, with an average of 15.83 articles per year in the 2019–2024 period. This is a positive indicator of research growth in this field, reaching a peak in the number of publications in 2021, with 21 articles.

**Graph 1:** Annual production on capital structure



Source: Elaborated by the authors (2026).

Once the evolution of scientific production has been analyzed, it is relevant to identify the researchers involved in this output, as shown in Table 2. In this regard, the most productive authors on the subject were identified. The four most productive authors are present in nearly 20% of the Brazilian articles on capital structure. Furthermore, there is a predominance of men among the most productive authors. The names of these researchers and the greater male presence are consistent with findings from studies such as Coelho et al. (2013), Nakamura, Jones and Nakamura (2017), Alves and Crisóstomo (2018), and Oliveira et al. (2019).

**Table 2:** Most prolific authors in capital structure

Author	Articles	Presence in the entire sample
Tatiana Albanez	9	5.92%
Wilson Toshiro Nakamura	7	4.60%
Paulo Renato Soares Terra	7	4.60%
Eduardo Kazuo Kayo	7	4.60%

Source: Elaborated by the authors (2026).

Together, the most productive authors show a significant representation in the sample; however, it remains to be clarified whether this presence is sufficient to conclude that Brazilian scientific production is concentrated among a few authors. To this end, Table 3 was developed, presenting the indicators for the number of articles and authors per article, which allow for the assessment of a possible concentration of publications in certain authors according to Lotka's Law.

**Table 3:** Lotka's Law for articles on capital structure

(i) Number of articles by a given author ( <i>n</i> )	(ii) Observed number of authors contributing to <i>n</i> articles	(iii) % of the observed number of authors contributing to <i>n</i> articles	(iv) Expected number of authors contributing to <i>n</i> articles, according to Lotka's Law ( $\alpha_n$ )	(v) % of the expected number of authors contributing to <i>n</i> articles	(vi) Diferença entre % observada e esperada de autores contribuindo em <i>n</i> artigos
1	324	88.52%	324	67.38%	21.15%
2	26	7.10%	81	16.84%	-9.74%
3	6	1.64%	36	7.49%	-5.85%
4	6	1.64%	20	4.21%	-2.57%
6	1	0.27%	9	1.87%	-1.60%
7	2	0.55%	7	1.38%	-0.83%
9	1	0.27%	4	0.83%	-0.56%
Total	366	100.00%	481	100.00%	

Source: Elaborated by the authors (2026).

Table 3 presents the number of articles in which a given author participates (*n*) (Table 3. i). There are authors contributing to only one article, while others are involved in up to nine articles. The observed number of authors contributing to *n* articles is also shown (Table 3. ii). followed by the proportion of the observed number of authors contributing to *n* articles (Table 3. iii). Column (iv) displays the expected number of authors contributing to *n* articles according to Lotka's Law ( $\alpha_n$ ). Finally, the difference between the observed and expected proportions of authors contributing to *n* articles (Table 3. vi) shows that the observed concentration of production is lower than the concentration expected by Lotka's Law ( $\alpha_n$ ) for all quantities of articles with two or more authors.

This result indicates that there is no excessive concentration in scientific production on capital structure in Brazil. This finding is in agreement with previous studies (Alves & Crisóstomo, 2018). Thus, although more productive researchers exist, there is a reasonably balanced distribution of authorship, indicating a dynamic and diverse research environment for capital structure in Brazil.

In turn, the analysis of researchers' affiliations with education and research institutions indicates that nine institutions account for nearly 50% of the articles published on capital structure, most of them located in the Southeast and South regions (Table 4). This result is aligned with the literature, signaling a regional concentration of scientific production (Ribeiro et al., 2019). Recognizing these institutions as research development hubs is important because it can foster inter-institutional collaborations, thereby boosting research in other geographic environments.

**Table 4:** Authors' affiliation institutions

Institution/Affiliation	Region	Number of authorships	%	Cumulative %
Universidade de São Paulo	Southeast	74	16%	16%
Universidade Federal de Minas Gerais	Southeast	27	6%	22%
Universidade Presbiteriana Mackenzie	Southeast	27	6%	28%
Universidade Federal do Rio de Janeiro	Southeast	19	4%	32%
Universidade Regional de Blumenau	South	16	4%	36%
Universidade Federal do Rio Grande do Sul	South	14	3%	39%
Universidade Federal de Uberlândia	Southeast	14	3%	42%
Universidade Federal do Ceará	North East	14	3%	45%
Universidade de Brasília	Central-West	9	2%	47%

Source: Elaborated by the authors (2026).

Another aspect that warrants attention is the group of journals that disseminate the research production. The application of Bradford's Law allows for the distinction of journals that constitute the core of the scientific production: that is, the primary venues for disseminating Brazilian research on capital structure. These prominent journals are identified as 'core' in the final column of Table 5. The core of Brazilian publications captured in this research was disseminated by national scientific journals, which account for more than 40% of all publications.

**Table 5:** Main journals that published articles on capital structure

Journal	Total	%	Cumulative %	Zone
Revista de Administração Mackenzie	15	10%	10%	Core
Revista Evidenciação Contábil & Finanças	8	5%	15%	Core
Revista Contabilidade & Finanças	8	5%	20%	Core
Custos e Agronegócio On Line	5	3%	23%	Core
Revista de Administração de Empresas	5	3%	26%	Core
Revista Brasileira de Administração e Negócios	5	3%	29%	Core
Revista Ambiente Contábil	5	3%	32%	Core
Brazilian Administration Review	4	3%	35%	Non-core
Contabilidade, Gestão e Governança	4	3%	38%	Non-core
Quarterly Review of Economics and Finance	4	3%	41%	Non-core
Revista de Gestão e Secretariado	4	3%	44%	Non-core

Source: Elaborated by the authors (2026).

The identification of these journals, which constitute the core of capital structure research dissemination in Brazil, confirms previously observed trends, with variations occurring only in the journals' rankings within the list (Alves; Crisóstomo, 2018; Coelho et al., 2013; Teixeira et al., 2020). Furthermore, identifying the primary dissemination vehicles allows researchers to recognize the most specialized and, potentially, most receptive journals for articles on capital structure. This identification also brings visibility to qualified journals for the theme that may not yet be primary targets for publication.

The research also assessed the most frequently used references in articles on capital structure within the Brazilian market (Table 6). The predominant references are classic and international studies. For instance, the works of Modigliani and Miller (1958, 1963) discuss the relevance of capital structure, while Jensen and Meckling (1976) address agency conflicts, and Myers (1984) and Myers and Majluf (1984) focus on Pecking Order Theory. In Brazilian articles, mentioning these works appears to be a consolidated practice, revisiting the theoretical and historical framework of the subject.

**Table 6:** Most cited references in Brazilian studies

Reference	Citations	%
MODIGLIANI F. 1958. AM ECON REV. V48. P261	45	0.74%
MYERS SC. 1984. J FINANC. V39. P575. DOI 10.2307/2327916	42	0.69%
MYERS SC. 1984. J FINANC ECON. V13. P187. DOI 10.1016/0304-405X(84)90023-0	37	0.61%
MODIGLIANI F. 1963. AM ECON REV. V53. P433	34	0.56%
JENSEN MC. 1976. J FINANC ECON. V3. P305. DOI 10.1016/0304-405X(76)90026-X	30	0.50%
RAJAN RG. 1995. J FINANC. V50. P1421. DOI 10.2307/2329322	30	0.50%
JENSEN MC. 1986. AM ECON REV. V76. P323	26	0.43%
TITMAN S. 1988. J FINANC. V43. P1. DOI 10.2307/2328319	25	0.41%
BOOTH L. 2001. J FINANC. V56. P87. DOI 10.1111/0022-1082.00320	17	0.28%

Source: Elaborated by the authors (2026).

Delving deeper into the analysis, certain attributes of the collected articles were identified. Regarding the research approach, there is a predominance of empirical articles (145 articles) compared to essentially theoretical ones (6). This finding is in line with observations by Nakamura, Jones, and Nakamura (2017). This result suggests two paths for researchers: identifying theoretical gaps and developing research using an underexplored approach, or applying empirical models to controversial or less-studied gaps, following the dominant practice of previous papers.

Regarding the theoretical foundation of the works, there were 354 mentions of theories, the most prominent being the irrelevance of capital structure (71 mentions), Pecking Order Theory (55), Agency Theory (53), Trade-off Theory (49), and Market Timing (29). Together, these approaches represent 72% of all theoretical mentions. Although the literature has identified these theories as dominant (Coelho et al., 2013; Nakamura et al., 2017), it was noted that their usage has varied over time; Market Timing has emerged in the rankings, while Pecking Order, Agency, and Trade-off theories have nearly the same volume of mentions. Furthermore, this research identified a phenomenon seldom reported in previous studies: articles that do not mention any theory. It was found that 17 studies (11%) did not mention any theory as a basis for the research or in the analysis and discussion of results, which may indicate a need for greater depth in research.

In terms of methodological aspects, there is a preponderance of studies that analyzed multiple business sectors (115 studies). Among those dedicated to investigating a specific sector, the most recurrent was the electric power sector (7 articles). While most research analyzes more than one sector simultaneously, suggesting a trend in Brazilian research, this result also signals research opportunities in specific economic activity sectors.



These may present interesting peculiarities regarding corporate investment policies and the demand for different forms of financing due to unique sectoral financial configurations (Bajaj et al., 2021).

In the area of research on business sectors, the opportunity to investigate specific sectors could yield interesting findings. Future research following this suggestion could identify, for example, a higher (or lower) utilization of certain financing sources in a given sector. Alternatively, research could compare corporate financing behavior across different economic sectors, considering characteristics such as long-term debt ratios, technology, liquidity needs, government subsidies, collateral, revenue, growth rates, and the corporate life cycle.

Regarding the statistical methods used for analysis, linear regression is the most employed technique (130 articles), followed by descriptive statistics (117), and it is common for both to be used in the same study. Among the types of regression, there is a preference for panel data (62) and ordinary least squares (OLS) (47). These results are in line with practices observed in international articles (Bajaj et al., 2021). Thus, it is observed that the predominant method among researchers in the field is the use of quantitative techniques, especially linear regression models. In this sense, new research can follow consolidated approaches for greater acceptance or innovate with other techniques still unusual in capital structure research, provided the methodological justifications are properly presented.

Finally, the suggestions indicated in the consulted articles as perspectives for future work were investigated. It is a consolidated practice for articles to mention, in their conclusions, possibilities for the development of new studies. These suggestions are shown in Table 7.

**Table 7:** Suggestions for future research identified in the sample studies

Suggestions for future studies	Occurrences	%
Adding other explanatory factors for capital structure	63	28%
Increasing the sample size	42	19%
Replication of the article's methodology	38	17%
No suggestions	43	19%
Using other data analysis methods	22	9%
Investigating other economic sectors	17	7%
Applying other theories in the research	2	1%
Total	227	100%

Source: Elaborated by the authors (2026).

Approximately one-third of the papers (63 articles) indicate that a natural path for deepening the subject is the development of studies that account for other possible determinants of capital structure. The listed possibilities include advancing research that analyzes companies from various countries simultaneously (with greater use of variables characterizing diverse markets and the local institutional environment), as well as applying more variables that characterize the firm (such as corporate governance practices, ownership structure, investment policy, dividend policy, organizational life cycle, management characteristics, performance metrics, and sustainability actions).

Furthermore, there are suggestions to employ other variables to characterize capital structure itself. This allows future research to go deeper by considering alternative financing sources, such as the use of cash flow and equity issuance. It is also possible to develop models that consider debt maturity (short-term and long-term debt), debt levels (zero debt, moderate debt, and highly leveraged firms), and debt heterogeneity (bank debt, corporate bonds, leasing, subsidized debt, etc.).

Generally, studies recommending the inclusion of new explanatory factors also advocate for expanding the sample size. This increase can be achieved by extending the time horizon, especially considering periods after previous research. Another possibility is the inclusion of more companies, such as privately-held firms, which are usually not studied due to the greater difficulty in accessing their data in many markets. There are also suggestions to increase the sample scope to include specific events (such as financial crises, drastic changes in monetary policies, ideological shifts in government, sectoral shocks, and changes in bilateral relations between countries, among others).

Additionally, some papers suggest replicating current studies. These articles argue that by making minor methodological adjustments, new research can contribute to the theme and allow for comparisons with previous investigations. In this sense, scientific progress would occur iteratively, revisiting and refining existing findings to corroborate them or gather evidence to refute them.

Some articles did not present explicit suggestions for new investigations. These texts, published in both national and international journals, have become more common in recent years. This may indicate an emerging trend of emphasizing the direct contributions of the studies, leaving the task of identifying literature gaps to future researchers.

To a lesser extent, some suggestions include applying new statistical methods for data analysis, as well as sectoral investigation, either through the analysis of specific sectors or via methodological shifts from a macroeconomic approach to investigations focused on certain business branches. It is also worth mentioning that two articles suggested changing the theoretical basis for future studies. As discussed in this section, a few theories dominate capital structure research. Theoretical foundations based on less common arguments are interesting and may indicate paths yet untrod by research. The key is to provide a solid argument. Research on the determinants of capital structure, for instance, initially focused on financial factors; subsequently, proposals associated with agency conflicts emerged, generating a broad body of research that continues to develop today. In this process, new theories appeared. The proper grounding of new theoretical approaches is what will enable their acceptance.

## V. Conclusion

This study analyzed 151 articles published between 2001 and 2024 in the Scopus and Web of Science (WoS) databases. A significant and encouraging result is the gradual and solid growth in the number of publications, denoting a growing and continuous interest among researchers in the topic of capital structure in Brazil. Parallel to this growth, an assessment according to Lotka's Law found no sharp concentration of scientific production in the hands of a few authors. This is a positive and important result for research in the field, signaling an increasing number of authors investigating the subject.

On the other hand, there are signs of research concentration in certain research centers in the South and Southeast regions. Furthermore, when identifying the journals most receptive to work on capital structure in Brazil, it was observed, as expected, that journals edited in Brazil are the most sought after by researchers. Identifying the main publication channels can help new researchers direct their submissions to specialized journals or explore high-relevance vehicles that have been less targeted by previous studies.

The research also examined the theoretical foundation of the works, observing a predominance of citations from classic studies, especially those seminal to the main theories of capital structure. In this context, the theories most used as a basis for research are also classic, the most recurrent being the capital structure irrelevance proposition, Pecking Order Theory, Agency Theory, Trade-off Theory, and Market Timing.

Finally, perspectives on new studies were mapped based on the trends observed in the analyzed articles. Key suggestions include conducting sectoral analyses, expanding the sample (either by increasing the period analyzed, including privately-held companies, or investigating other countries), applying other data analysis techniques, and replicating methodologies in different contexts.

This study contributes to the field by exploring recent Brazilian scientific production on capital structure. Two decades of articles revealed that characteristics identified in previous studies remain constant (such as preferences for methods, theories, the presence of certain authors, and male dominance), with minor variations occurring in this interval (such as the most productive author becoming a woman, less discrepancy between the use of theories, and new suggested research opportunities).

It must be acknowledged that this research has limitations, such as focusing only on journal articles (conference papers can also foster academic discussion at a faster pace). Additionally, priority was given to data analyzed with statistical tools, such as descriptive analysis and bibliometrics. Although both databases are widely used globally, it must be recognized that some journals are not indexed in them, and articles outside the major scientific databases may lose impact.

Future research can advance through various paths. It is possible to expand the range of analyses, including a study of the references used in the works. In a quantitative effort, one could identify which study characteristics influence the impact of Brazilian research. Qualitatively, it would be interesting to investigate how these studies contribute to the development of one (or more) broad understandings of capital structure. Contrasting how well research findings achieve their objectives could be promising. Investigations into the evolution of scientific research in countries with which Brazil maintains good relations and formal scientific exchange agreements could also be of interest.

## References

- [1]. Ahmed, A. M., Sharif, N. A., Ali, M. N., & Hågen, I. (2023). Effect Of Firm Size On The Association Between Capital Structure And Profitability. *Sustainability*, 15(14), 1–17. <https://doi.org/10.3390/Su151411196>
- [2]. Allini, A., Rakha, S., Mcmillan, D. G., & Caldarelli, A. (2018). Pecking Order And Market Timing Theory In Emerging Markets: The Case Of Egyptian Firms. *Research In International Business And Finance*, 44, 297–308. <https://doi.org/10.1016/J.Ribaf.2017.07.098>
- [3]. Alves, F. I. A. B., & Crisóstomo, V. L. (2018). Perfil Da Pesquisa Em Estrutura De Capital No Brasil. *Observatorio De La Economia Latinoamericana*, 10, 1–16.
- [4]. Aria, M., & Cuccurullo, C. (2017). Bibliometrix: An R-Tool For Comprehensive Science Mapping Analysis. *Journal Of Informetrics*, 11(4), 959–975. <https://doi.org/10.1016/J.Joi.2017.08.007>
- [5]. Bajaj, Y., Kashiramka, S., & Singh, S. (2021). Application Of Capital Structure Theories: A Systematic Review. *Journal Of Advances In Management Research*, 18(2), 173–199. <https://doi.org/10.1108/JAMR-01-2020-0017>
- [6]. Baker, M., & Wurgler, J. (2002). Market Timing And Capital Structure. *The Journal Of Finance*, 57(1), 1–32.

- <https://doi.org/10.1111/1540-6261.00414>
- [7]. Barclay, M. J., & Smith, C. (2020). The Capital Structure Puzzle: Another Look At The Evidence. *Journal Of Applied Corporate Finance*, 32(1), 80–91. <https://doi.org/10.1111/jacf.12390>
  - [8]. Bawack, R. E., Wamba, S. F., Carillo, K. D. A., & Akter, S. (2022). Artificial Intelligence In E-Commerce: A Bibliometric Study And Literature Review. *Electronic Markets*, 32(1), 297–338. <https://doi.org/10.1007/s12525-022-00537-z>
  - [9]. Berens, J. L., & Cuny, C. J. (1995). The Capital Structure Puzzle Revisited. *The Review Of Financial Studies*, 8(4), 1185–1208.
  - [10]. Birkle, C., Pendlebury, D. A., Schnell, J., & Adams, J. (2020). Web Of Science As A Data Source For Research On Scientific And Scholarly Activity. *Quantitative Science Studies*, 1(1), 363–376. [https://doi.org/10.1162/QSS\\_A\\_00018](https://doi.org/10.1162/QSS_A_00018)
  - [11]. Boateng, P. Y., Ahamed, B. I., Soku, M. G., Addo, S. O., & Tetteh, L. A. (2022). Influencing Factors That Determine Capital Structure Decisions: A Review From The Past To Present. *Cogent Business & Management*, 9(1), 1–19. <https://doi.org/10.1080/23311975.2022.2152647>
  - [12]. Brusov, P., & Filatova, T. (2023). Capital Structure Theory: Past, Present, Future. *Mathematics*, 11(3), 1–30. <https://doi.org/10.3390/math11030616>
  - [13]. Büyükkidik, S. (2022). A Bibliometric Analysis: A Tutorial For The Bibliometrix Package In R Using IRT Literature. *Eğitimde Ve Psikolojide Ölçme Ve Değerlendirme Dergisi*, 13(3), 164–193. <https://doi.org/10.21031/epod.1069307>
  - [14]. Chueke, G. V., & Amatucci, M. (2022). Métodos De Sistematização De Literatura Em Estudos Científicos: Bibliometria, Meta-Análise E Revisão Sistemática. *Internext*, 17(2), 284–292. <https://doi.org/10.18568/Internext.V17i2.704>
  - [15]. Coelho, A. L. D. A. L., Pavão, Y. M. P., Sehnem, S., Alberton, A., & Marcon, R. (2013). Estrutura De Capital: Um Estudo Bibliométrico Em Produções Do Brasil E Do Exterior. *Revista De Informação Contábil*, 7(1), 73–93. <https://doi.org/10.34629/RIC.V7I1.73-93>
  - [16]. Dantas, L. A. De O., & Oliveira, E. C. De. (2021). Revisão Sistemática Sobre A Aplicabilidade Dos Modelos De Trade-Off E Pecking Order Na Estrutura De Capitais: Um Estudo Bibliométrico Utilizando O Software Rstudio. *FTT Journal Of Engineering And Business*, 7, 28–48.
  - [17]. De Jong, A., Verbeek, M., & Verwijmeren, P. (2011). Firms' Debt–Equity Decisions When The Static Tradeoff Theory And The Pecking Order Theory Disagree. *Journal Of Banking & Finance*, 35(5), 1303–1314. <https://doi.org/10.1016/j.jbankfin.2010.10.006>
  - [18]. Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How To Conduct A Bibliometric Analysis: An Overview And Guidelines. *Journal Of Business Research*, 133, 285–296. <https://doi.org/10.1016/j.jbusres.2021.04.070>
  - [19]. Farias, R. A. S., & Hoffmann, V. E. (2018). Analysis Of Scientific Production On Interorganizational Networks Study Field. *Innovation & Management Review*, 15(1), 92–115. <https://doi.org/10.1108/INMR-02-2018-006>
  - [20]. Ferreira, L. B. G. R. (2022). Liberdade Econômica E Estrutura De Capital: Características Bibliométricas Na Área De Negócios, Gestão E Contabilidade. *Contabilometria*, 9(2), 126–140.
  - [21]. Fukui, T., Mitton, T., & Schonlau, R. (2023). Determinants Of Capital Structure: An Expanded Assessment. *Journal Of Financial And Quantitative Analysis*, 58(6), 2446–2488. <https://doi.org/10.1017/S0022109022001405>
  - [22]. Harris, M., & Raviv, A. (1991). The Theory Of Capital Structure. *The Journal Of Finance*, 46(1), 297–355. <https://doi.org/10.1111/j.1540-6261.1991.tb03753.x>
  - [23]. Jensen, M. C., & Meckling, W. H. (1976). Theory Of The Firm: Managerial Behavior, Agency Costs And Ownership Structure. *Journal Of Financial Economics*, 3(4), 305–360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)
  - [24]. José-García, C., & Herrero, B. (2021). Female Directors, Capital Structure, And Financial Distress. *Journal Of Business Research*, 136, 592–601. <https://doi.org/10.1016/j.jbusres.2021.07.061>
  - [25]. Khan, A., Goodell, J. W., Hassan, M. K., & Paltrinieri, A. (2022). A Bibliometric Review Of Finance Bibliometric Papers. *Finance Research Letters*, 47, 1–9. <https://doi.org/10.1016/j.frl.2021.102520>
  - [26]. Kraus, A., & Litzenger, R. H. (1973). A State-Preference Model Of Optimal Financial Leverage. *The Journal Of Finance*, 28(4), 911–922. <https://doi.org/10.2307/2978343>
  - [27]. Modigliani, F., & Miller, M. H. (1958). The Cost Of Capital, Corporation Finance And The Theory Of Investment. *The American Economic Review*, 48(3), 261–297.
  - [28]. Modigliani, F., & Miller, M. H. (1963). Corporate Income Taxes And The Cost Of Capital: A Correction. *The American Economic Review*, 53(3), 433–443.
  - [29]. Myers, S. C. (1984). The Capital Structure Puzzle. *The Journal Of Finance*, 39(3), 574–592. <https://doi.org/10.1111/j.1540-6261.1984.tb03646.x>
  - [30]. Myers, S. C., & Majluf, N. S. (1984). Corporate Financing And Investment Decisions When Firms Have Information That Investors Do Not Have. *Journal Of Financial Economics*, 13(2), 187–221. [https://doi.org/10.1016/0304-405X\(84\)90023-0](https://doi.org/10.1016/0304-405X(84)90023-0)
  - [31]. Nakamura, E. A. M. V., Jones, G. D. C., & Nakamura, W. T. (2017). Panorama Da Produção Científica Brasileira Sobre Estrutura De Capital E As Principais Teorias Abordadas: Um Estudo Bibliométrico. *Revista De Administração De Roraima*, 7(2), 310–330. <https://doi.org/10.18227/2237-8057rarr.V7i2.4383>
  - [32]. Oliveira, M. E. A. D., Alves, F. I. A. B., & Souza, J. L. (2019). The Female Participation In The Academic Production On Capital Structure In Brazilian Journals. *HOLOS*, 4, 1–24. <https://doi.org/10.15628/Holos.2019.8255>
  - [33]. Otlet, P. (1934). *Traité De Documentation: Le Livre Sur Le Livre: Theorie Et Pratique*. Mundaneum. [https://libstore.ugent.be/Fulltext/BIB-038A006\\_2006\\_0001\\_AC.Pdf](https://libstore.ugent.be/Fulltext/BIB-038A006_2006_0001_AC.Pdf)
  - [34]. Prancutė, R. (2021). Web Of Science (Wos) And Scopus: The Titans Of Bibliographic Information In Today's Academic World. *Publications*, 9(1), 1–59. <https://doi.org/10.3390/publications9010012>
  - [35]. Pritchard, A. (1969). Statistical Bibliography Or Bibliometrics. *Journal Of Documentation*, 25(4), 348–349. <https://doi.org/10.1108/Eb026482>
  - [36]. Rajan, R. G., & Zingales, L. (1995). What Do We Know About Capital Structure? Some Evidence From International Data. *The Journal Of Finance*, 50(5), 1421–1460. <https://doi.org/10.1111/j.1540-6261.1995.tb05184.x>
  - [37]. Ribeiro, J. E., Maciel, C. F., Carvalho, G. A. De, Carmo, L. J. O., & Assis, L. B. De. (2019). Estrutura De Capital: Bibliometria Sobre A Produção Científica Brasileira No Período 2007-2016. *Revista De Administração Da UEG*, 10(2), 36–50.
  - [38]. Romanelli, J. P., Gonçalves, M. C. P., Pestana, L. F. D. A., Soares, J. A. H., Boschi, R. S., & Andrade, D. F. (2021). Four Challenges When Conducting Bibliometric Reviews And How To Deal With Them. *Environmental Science And Pollution Research*, 28(43), 60448–60458. <https://doi.org/10.1007/s11356-021-16420-x>
  - [39]. Rousseau, S., & Rousseau, R. (2021). Bibliometric Techniques And Their Use In Business And Economics Research. *Journal Of Economic Surveys*, 35(5), 1428–1451. <https://doi.org/10.1111/joes.12415>
  - [40]. Teixeira, L. C., Nogueira, L. S., Faria, E. R. De, Silva, F. C. Da, & Dias, W. B. (2020). Análise Bibliométrica Das Publicações Nacionais De 2008 A 2016 Sobre Estrutura De Capital. *Revista Da Universidade Vale Do Rio Verde*, 18(1), 651–660.

- <https://doi.org/10.5892/Ruvrd.V1i18.5850>
- [41]. Titman, S., & Wessels, R. (1988). The Determinants Of Capital Structure Choice. *The Journal Of Finance*, 43(1), 1–19.  
<https://doi.org/10.1111/J.1540-6261.1988.Tb02585.X>
- [42]. Veiga-Del-Baño, J. M., Cámara, M. Á., Oliva, J., Hernández-Cegarra, A. T., Andreo-Martínez, P., & Motas, M. (2023). Mapping Of Emerging Contaminants In Coastal Waters Research: A Bibliometric Analysis Of Research Output During 1986–2022. *Marine Pollution Bulletin*, 194, 1–10. <https://doi.org/10.1016/J.Marpolbul.2023.115366>
- [43]. Yumnam, G., & Singh, Ch. I. (2023). An Application Of Bradford's Law Of Scattering And Leimkuhler Model: Identification Of The Core Journals Of India Cancer Research Productivity. *Science & Technology Libraries*, 43(2), 188–201.  
<https://doi.org/10.1080/0194262X.2023.2237997>