# THE CURRENT STATE OF RESEARCH ON THE TOPIC OF FINANCIAL AND ACCOUNTING INFORMATION – BIBLIOMETRIC ANALYSIS

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**Abstract:** The need for a performance analysis of scientific publications is determined by the rapidity with which research evolves in all areas of life, but also by the social responsibility of the researcher to provide added value by conducting quality studies (Mateş & Pordea, 2021)

In the specialized literature, three terms are used in this sense: accounting information, financial information and financial-accounting information. In the opinion of some authors, these three terms are similar, while from the perspective of other authors, the term financial-accounting information is more comprehensive, including the other two terms. In the current era, also called the era of digitalization, in which immense resources are put into motion to collect, transmit and process huge amounts of data of any nature, economic and financial decisions still remain dependent on the ability of financial statements to represent the reality of economic transactions and events. Although the field of accounting meets the characteristics of an exact science, accounting information is not a precise notion and rarely meets the decision-making needs of all its users (Mateş & Pordea, 2021)

Key words: accounting information, financial information, financial-accounting information, bobliometric.

### 1. Introduction: Review of specialized literature on financial and accounting information

The two international bodies: The International Financial Reporting Standards Foundation (The International Financial Reporting Standards Foundation - IFRS) and the International Accounting Standards Board (International Accounting Standards Board) Standards Board -IASB) have formulated as their mission to deal with the development of financial reporting standards through which to provide transparency, accountability and efficiency in financial markets, globally (Stoenoiu, 2014). Bibliometric analysis of scientific publications is not new in research activity, being currently intensively used throughout the world. The method quantitatively evaluates relevant literature on certain topics of interest and provides results through information extracted from specific databases (such as Thompson Reuters – Web of Science, Scopus, ScienceDirect, etc.) (Mates & Pordea, 2021). This method of studying literature encompasses two main purposes: on the one hand, scientific mapping (science mapping), which aims to determine the structure and dynamics of scientific fields, and on the other hand, performance analysis, which aims to evaluate the research and performance of institutions and authors of research papers (Abdullah et al., 2017). Bibliometric research, citation analysis is a basic element, since it aims to expose scientific knowledge, recognizing the value of a previous publication. Garfield (Garfield, 1972) stated that one of the most important uses of such an analysis is found in political science and in the evaluation of scientific research. Citation analysis encompasses several research techniques, from determining the number of citations to studying the connection between authors through the prism of simultaneous citations (Lord, 1984). Although citation analysis is a technique that can provide consistent information on research performance and productivity, (Luukkonen, 1990) points out that planning such studies and interpreting the results obtained from them requires expertise in the fields analyzed.

Bibliometric studies have seen an upward trend in several disciplines. In the economic field we find the use of this research methodology both in terms of the relevance of scientific journals (Card & DellaVigna, 2013) (Laband, 2013), as well as through the prism of the importance of authors and academic institutions (Kocher & Sutter, 2001).

Other authors in the academic literature (Merigó & Yang, 2017) conduct accounting research through a bibliometric analysis methodology, and their results show that the most influential research institutions in this field are American ones and that the most important scientific accounting journals are the Journal of Accounting and Economics, Journal of Accounting Research, The Accounting Review and Accounting, Organizations and Society.

# **2.** Basic content. Methodology for conducting bibliometric analysis of financial and accounting information

For an in-depth analysis of the specialized literature, the Scopus platform was used to determine the current state of knowledge regarding scientific research related to the concept of financial-accounting information.

According to the investigation of the specialized research carried out, no studies were found that included the bibliometric analysis of the concept of financial accounting information, using the Scopus database and the Bibliometrix application. (Aria & Cuccurullo, 2017). This application allows statistical analysis of data, their preprocessing, construction of the co-occurrence matrix, analysis of co-citation and bibliometric coupling, reflection of keywords, analysis of groups of documents, etc. (Aria & Cuccurullo, 2017).

Scopus database was as follows:

- I used the key terms financial accounting information (financial-accounting information) in the documents section article title, summary and keywords;
- then we refined the search to select only information about publications published between 2010-2024 in the categories: business finance, economics, management, business, social sciences interdisciplinary, public administration.

Thus, the statistical sample we obtained contains 1,330 scientific papers, all of which are written in English, as well as a number of 3,283 authors.

The exploration of the specialized literature produced in the last 14 years regarding the concept of financial accounting information and accounting evasion is carried out through the quantitative study of the bibliometric method.

A series of aspects regarding the particularities of the database subject to bibliometric investigation in interdependence with the concept of financial-accounting information can be viewed in Table 1. **Table 1 Description of the database based on the concept of financial-accounting information** 

Description	result
Main information about the data	
Time interval	2010:2024
Sources (magazines, books, etc.)	392
documents	1330
Annual growth rate %	10.48
Average age of documents	4.7
Average citations per document	13.74
reference	65996
Document content	
Keywords plus (ID)	559
Author keywords (DE)	3793
author	
author	3283
Authors of single-author documents	196
Author collaboration	
Documents with a single author	209
Co-authors on the document	2.77
costs %	24.51
Document types	
ware	1330

Source : own processing

One of the bibliometric indicators of the dynamics of research interest identified in the academic sphere and in the business environment is the one referring to the quantity of research materials written and dispersed through multiple dissemination channels (Botar, 2024).

In the chart below, we have graphically represented the dynamic growth in the number of publications on financial accounting information and their annual distribution during the period 2010 -2024, an essential pillar for the in-depth exploration of the concept.



# Chart 1. Financial and accounting information - Annual scientific production in the period 2010-2024

Source: own processing

Thus, it can be seen that the number of publications increases during the period 2019-2024, exceeding the number of 100 publications per year, with 2023 recording a number of 189 publications.

The next step consisted of exporting the 1330 results generated from the Scopus platform in csv format, which contains information regarding the author, title, source and summary (abstract) into the Biblioshiny application.

## Analysis and interpretation of results using Bibliometrix software

Scopus database query, through the Bibliometrix software, thus the data obtained were imported into the Biblioshiny application.

Biblioshiny application allows for relevant bibliometric and visual analysis through an interactive web interface (Botar, 2024). In this research, Bibliometrix and the Biblioshiny software package were used to analyze and visualize the research status, as well as to identify the scientific trend regarding the concept of financial-accounting information. (Botar, 2024).

In Chart 2 We present the list of the most relevant authors who have shown interest in research in the field during the analyzed period. They are presented in descending order of the number of published works in the specialized literature.



Chart 2. The 20 most relevant authors on the topic of financial-accounting information Source: own processing based on Biblioshiny

In relation to the longevity of the authors from the point of view of the interest shown in the research subject, the most significant activity is noted in the case of HUSSAINEY K, followed by THINH TQ, and TUAN DA, aspects that can be visualized in Chart 3.



Source: own processing based on Biblioshiny

Among the most relevant distinctive affiliations in expressing and outlining research interest regarding financial-accounting information and tax evasion in relation to the authors' affiliation to a specific institution, the National Economic University is identified, followed by the University of Pretoria, University of Zaragoza. These aspects are highlighted in the following graph.



Chart 4. The most relevant affiliations in the research process of the concept of financial - accounting information (authors' affiliation to a specific institution) Source: own processing based on Biblioshiny

Among the most cited regions in the systemic analysis of the concept of financial-accounting information in terms of the number of citations are the USA with a number of 2361 citations, the United Kingdom with a number of 2167 citations, Spain with a number of citations of 851, Australia – number of citations 667 and Italy – number of citations 532.



Chart 5. The most cited regions in the systemic analysis of the specialized literature on the concept of financial-accounting information

Source: own processing based on Biblioshiny

The first positions are occupied by developed countries in terms of implementing emerging technologies at the level of organizational processes.

The keywords that outline the universe of knowledge of the concept of financial-accounting information, in English, are related to the concepts of finance, decision making, stock market, commerce, particularities shown in the following graph:



Chart 6. The most relevant keywords used by authors Source: own processing based on Biblioshiny

The top publications in the field of financial and accounting information according to the number of citations analyzed over time is illustrated in the table below:

	Table 2.	The most	cited	publications	in the	field	of financia	l and	accounting	information
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Nr. crt.	Autori	Titlul publicației	Număr de citări
		The Impact of Corporate Sustainability on Organizational	
1	ECCLES RG, 2014, MANAGE SCI	Processes and Performance	1284
	ARMSTRONG CS, 2010, J ACCOUNT	The role of information and financial reporting in corporate	
2	ECON	governance and debt contracting	699
	EVENS D 2010 I DOOD INNOVATION	Technology Alliance Portfolios and Financial Performance:	
	FAEWIS D, 2010, J PROD INNOVATION	Value-Enhancing and Cost-Increasing Effects of Open	
3	MANAGE	Innovation <sup>+</sup>	348
	HORTON J, 2013, CONTEMP ACCOUNT	Does Mandatory IFRS Adoption Improve the Information	
4	RES	Environment?*	327
	MINNUS M 2011 LACCOUNT DES	The Value of Financial Statement Verification in Debt	
5	MINNIS M, 2011, J ACCOUNT RES	Financing: Evidence from Private U.S. Firms	308
	HASANI 2014 LEINANC ECON	Beauty is in the eye of the beholder: The effect of corporate	
6	HASAN I, 2014, J FINANC ECON	tax avoidance on the cost of bank loans	303
	MELLONI G, 2017, J ACCOUNT	Saying more with less? Disclosure conciseness, completeness	
7	PUBLIC POLICY	and balance in Integrated Reports	221
	BHATTACHARYA A, 2014, PROD		
8	PLANN CONTROL	easurement using fuzzy ANP-based balanced scorecard: a collal	216
	SAMAHA Κ 2012 ΑDV ACCOUNT	The extent of corporate governance disclosure and its	
9	SAMATA K, 2012, ADV ACCOUNT	determinants in a developing market: The case of Egypt	206
	GEPP & 2018 LACCOUNTLIT	Big data techniques in auditing research and practice: Current	
10	GETT A, 2010, J ACCOUNT LIT	trends and future opportunities	185

Source: own processing based on Biblioshiny

Therefore, the previous table presents the 10 most cited publications in academic literature that include financial-accounting information, the issue being debated being the role of financial-accounting information presented through annual financial statements, within the company's decision-making processes, in carrying out the company's financial audit and within the framework of fiscal control with the role of combating tax evasion.

The keywords that reflect the universe of research related to financial and accounting information are represented by the following graph:



Terms	Frequency
Finance	11
decision making	8
stock market	8
COMMERCE	7
financial crisis	7
Investments	7
united states	6
cost accounting	5
Costs	5
Environment policy	5

### Chart 7. The main keywords in the field of financial and accounting information Source: own processing based on Biblioshiny

Scientific collaboration at the level of the regions of the globe highlights the merging of research interests in order to solidify the studied issues and to substantiate knowledge in the area of analysis from multiple cultural, social and economic perspectives (Botar, 2024). In the graph below, we have shown the collaborative relationship between different countries on the topic of financial-accounting information.

## Country Collaboration Map



from	In	Frequency	from	In	Frequency
AUSTRALIA	BELGIUM	1	CROATIA	ESTONIA	1
AUSTRALIA	CANADA	1	CROATIA	SLOVAKIA	1
			CZECH		
AUSTRALIA	CHINA	5	REPUBLIC	POLAND	2
			CZECH		
AUSTRALIA	GERMANY	1	REPUBLIC	SLOVAKIA	3
AUSTRALIA	ITALY	2	EGYPT	BELGIUM	1
AUSTRALIA	JAPAN	1	EGYPT	QATAR	1
AUSTRALIA	MALAYSIA	3	FINLAND	DENMARK	1
AUSTRALIA	MAURITIUS	1	French	NETHERLANDS	4
	NEW				
AUSTRALIA	ZEALAND	3	French	NORWAY	1
BANGLADESH	OMAN	1	French	SWITZERLAND	2
BRAZIL	ITALY	2	French	TUNISIA	1
BRAZIL	PORTUGAL	4	GERMANY	AUSTRIA	4
	SAUDI				
BRAZIL	ARABIA	1	ROMANIA	Mexico City	1
BRAZIL	SWEDEN	2	ROMANIA	Moldavia	2
CANADA	ARGENTINE	1	ROMANIA	POLAND	1

Latitude

**Chart 8. Regional collaboration on financial and accounting information** Source: own processing based on Biblioshiny

Figure 1 presents the historiographic analysis of the contributions collected based on the direct citation network, and the circles represent the nodes of the network, and the arrows indicate the citation directions. The links can be traced according to the chronological temporal parameter based on direct citations (Botar, 2024).



Figure 1. The historiographic network of direct citation Source: own processing based on Biblioshiny

The three-field diagram (author, affiliation, and country) is shown in Figure 2. The authors are positioned in the center of the figure with nodes limited to 20, the affiliation part is located on the left (20-node limit), and the regions are placed on the right (20-node limit) (Botar, 2024). Through this diagram, the authors are illustrated by regions from the point of view of interest for research on financial-accounting information. The thickness of the lines, also called arrows or flows, indicates the size or frequency of their appearance, so the greater the amplitude, the greater the flow. The Sankey diagram provides clues regarding the most prolific authors in the research field, the most eloquent affiliations, and the most representative regions for the area of interest related to financial-accounting information research.



Figure 2. Sankey triple diagram (author-affiliation-country) Source: own processing based on Biblioshiny

Figure 3 and Table 3 show the central keywords for the specialized literature on financial-accounting information. The proximity between the terms and the thickness of the lines provide clues about the intensity of the connection between them, the size of a node being determined by the frequency of occurrence of the keyword in the analyzed publications.



**Figure 3. Keyword network map** *Source: own processing based on Biblioshiny* 

Table 5. General characteristics of the Reyword network							
Node	Cluster/ Between Group groups		Near	The rank of the			
ivode			ivai	oagin			
finance	1	207	0.012048193	0.049185379			
united states	1	69	0.009803922	0.02876875			
financial performance	1	105	0.009009009	0.027124774			
environmental impact	1	0	0.009259259	0.015624307			
environmental management	1	120	0.010416667	0.027152336			
Environment policy	2	25	0.007751938	0.034359322			
climate change	2	48	0.009433962	0.023283742			
Environment economics	2	0	0.006493506	0.022695668			
investment	3	48	0.008403361	0.026618545			
financial market	3	0	0.005988024	0.019066402			
price dynamics	3	25	0.007042254	0.032691737			
cost accounting	4	69	0.006802721	0.049146718			
costs	4	88	0.0078125	0.030625346			
design/ methodology /							
approach	4	0	0.005882353	0.033359268			
activity based costing	4	0	0.005882353	0.033359268			
architectural design	4	0	0.005882353	0.033359268			
decision making	5	169	0.012195122	0.040975545			
stock market	5	91	0.010204082	0.053309243			
COMMERCE	5	108.5131579	0.011764706	0.0718553			
investments	5	35.09210526	0.011363636	0.058889982			
financial markets	5	23.39473684	0.011363636	0.052062784			
forecasting	5	25	0.00990099	0.04529377			
risk assessment	5	0	0.007936508	0.01217236			
capital market	5	0	0.008130081	0.012724557			
financial crisis	6	49	0.008130081	0.054124178			
macroeconomics	6	0	0.006756757	0.024889078			
banking	6	0	0.006756757	0.018316857			
European Union	7	0	1	0.034482759			
Europe	7	0	1	0.034482759			

## Table 3. General characteristics of the keyword network

Source: own processing based on Biblioshiny

Mapping the conceptual structure of the research universe contributes to exploring the relationships between representative keywords or to identifying subdomains of knowledge related to the studied issue (Mora-Valentín et al., 2018). The conceptual structure is outlined based on the performance of factor analysis, in this case, the multiple correspondence analysis of the keyword/paper matrix (Le Roux & Rouanet, 2010). Factor analysis helps to visualize by mapping large-scale data into a specific reduced space. In addition, groups are identified based on hierarchical classification (McCain, 1990) (McCain, 1990). The proximity of terms within groups shows their reunion in publications. Words present in the same groups could outline the same concept. The figure related to the multiple correspondence analysis is shown below.



0			decision making
8	stock market	2	decision making
7	COMMERCE	2	decision making
7	Investments	2	decision making
10	Finance	3	Finance
10	• • •	<b>7</b> 1/ <b>1</b>	

Figure 4. Conceptual structure mapping. Multiple correspondence analysis Source: own processing based on Biblioshiny

As can be seen, all keywords are written in English, as we previously presented all selected articles are written in English.

Groups of keywords that are related to each other (occur simultaneously in the same paper) are graphically represented with the same color. The figure shows the relevance of each keyword using nodes whose size highlights the degree of importance: the larger the node, the more important the term it defines is within the sample.

The links between two nodes, represented graphically by curves, describe the frequency of occurrence of the two terms they connect: the thicker the curved connecting line, the more frequent the simultaneous occurrence of the two keywords joined by that line is (Mateş & Pordea, 2021). Also, the shorter the connecting curve, the stronger the relationship between the two terms it joins.

We obtained three groups of keywords, the red one contains the financial crisis (financial crisis) the green one is represented by decision making (decision making), and the purple one is represented by finances.

The so-called Lotka's Law (Lotka, 1926), one of the basic laws of bibliometrics, involves modeling the distribution of authors according to their scientific productivity: specifically, the number of authors who have published n papers on a topic is inversely proportional to the square of n. In a simplistic way, the law assumes that the most numerous papers in a research area are usually a cumulation of a relatively small number of authors (Botar, 2024). Figure 6 shows the Lotka distribution for publications related to the analyzed field. As can be seen, the moderate evolution matches the prediction proposed by Lotka's Law. This aspect may contrast with the initial evolution on the main research topic.



Chart 9. Distribution of publications according to Lotka's Law Source: own processing based on Biblioshiny

## 3. Conclusions, results and discussions

Through the bibliometric analysis carried out with reference to the concept of financial-accounting information, it contributes to the substantiation and consolidation of the specialized literature, an aspect justified as follows:

- provides clues regarding bibliometric analysis through a specific software application;
- presents the most significant aspects of the information content related to the research universe of the concept of financial-accounting information (the most relevant sources, the most productive authors, the most influential publication sources, institutions, countries, etc.);
- cartographic visualization of evolutionary trends regarding the concept of financial-accounting information, an aspect that maps future research directions among scientific communities and provides a comprehensive understanding of research topics that have received significant attention from information researchers globally in the last decade.

Also, the bibliometric analysis of the concept of financial-accounting information represents a reference point for potential researchers in order to identify the most relevant sources for disseminating results and selecting representative articles in the field.

Through the bibliometric analysis we were able to highlight some interesting information:

- the most cited country by number of citations is the USA, followed by the United Kingdom, and Spain;
- the graph showing regional collaboration on the topic of financial and accounting information highlights that Romania has collaborated on articles on the topic of financial and accounting information with countries such as Poland and Moldova;
- keyword analysis reveals strong links between the concept of finance, financial crisis and decision-making;

Bibliometric studies on financial-accounting information is limited in the academic literature, thus highlighting that the bibliometric analysis carried out can contribute to accounting research by providing premises for possible further research and having a starting point regarding relevant bibliographic references on this topic.

As a future research direction, bibliometric analysis can be performed, also based on data extracted from the WEB OF SCIENCE database, and data analysis can be performed using the VOSVIEWER software.

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