

**ACCOUNTING, FINANCIAL AND TAX RISK MAPPING.  
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[simona.brinzaru@usm.ro](mailto:simona.brinzaru@usm.ro)**Abstract**

*This research's main focus is to map the level of knowledge, the evolution of scientific production in relation with spatial and temporal criteria, and the thematic areas that need further research, in relation with accounting, financial and tax risk assessment. From a methodological point of view, an extensive bibliometric analysis was performed on a comprehensive scientific material accessed on the Web of Science platform. The results of the research showed that researchers' attention was mainly directed towards seven thematic clusters, regarding mainly the role of performance analysis in management decisions and the influence of tax rules and regulations on management decisions. Also topics such as financial risk analysis, using analytical accounting procedures, tax risk analysis and accounting and fraud risk mapping at sectoral and microeconomic level were identified. Moreover, there can be noticed an increased scientific production of researches conducted at microeconomic level, that use financial rates in the performance analysis of economic entities, due to the global economic and financial crisis. The conclusion of the research is that there is an amplified need for developing an instrument for maintaining a controlled level of risk exposure in terms of activity, insolvency, tax, accounting and financial risk in the business sector.*

**Keywords:** *accounting risk; bibliometric analysis; financial risk; risk mapping; tax risk.*

**JEL Classification:** *M41, F32, G32*

**I. INTRODUCTION**

The main objective of this article is to map the level of knowledge in the field of accounting, tax, financial, insolvency or activity risks, using bibliometric analysis methods, in order to identify the scientific terminology used by the authors, the temporal evolution of scientific interests, to identify the most influential scientific publications and the most established authors. Moreover, this scientific endeavor is also very useful for grouping the researched topics into clusters of relevance, a scientific approach that is useful for identifying the sub-themes that are of current interest and those that may constitute the premises for future research.

Bibliometrics is a field of research that uses mathematical computing and statistical techniques to study publications and communication patterns in the distribution of information (Diodato & Gellatly, 2013). In other words, bibliometrics refers to mathematical and statistical analyses (word frequency analysis, citation analysis, publication volume, etc.) and patterns related to scientific publications and their use.

**II. LITERATURE REVIEW**

After systematically reviewing the relevant scientific researches on bibliometric analyses conducted in the field of accounting, using Google Academic and Web of Science as research platforms, it can be concluded that such analyses focus mainly on the evolution of scientific production, the most frequently researched topics in the field, as well as classifications of papers, authors, journals, institutions and countries. Of these, some of the earliest research identified was as shown in Table 1 below:

**Table 1.** Overview on researches on bibliometric analysis in the field of accounting

Authors	Title of research	Main findings
McRae (1974)	A Citational Analysis of the Accounting Information Network	- analyses the flow of information between accounting systems and other research systems, and flows within the research accounting system and produces a citation profile for selected accounting journals.
Hofstedt (1976)	Behavioral accounting research: Pathologies, paradigms and prescriptions	- analyzes citations to assess the behavior of accounting research in relation to the quantity and quality of interactions with other social sciences and disciplines;
Brown & Gardner (1985)	Using Citation Analysis to Assess the Impact of Journals and Articles on Contemporary Accounting Research	- analyses citations to identify articles with the greatest impact on contemporary accounting research.
Bricker (1989)	An Empirical Investigation of the Structure of Accounting Research	- the research presents a structure of academic research in accounting using co-citation groups and content analysis, validated by discriminant analysis; - the research results show that there is a partially integrated structure, as there are extensive associations between certain research areas, but there are also separate research areas isolated from the rest of the structure; - the results also show that accounting journals vary in their coverage of research topics, suggesting that they have differing effects on the integration of accounting research.
Brown et al. (1989)	Attributes of articles impacting contemporary accounting literature	- the study presents and describes four dimensions, namely accounting sphere, research methods, schools of thought and geographical focus that have impacted contemporary accounting literature through the use of publication volume and citation analysis.

Source: own processing

More recent research in the field, using scientometric and bibliometric analyses, in relation to the field of accounting is presented in Table 2 as follows:

**Table 2.** Overview on more recent researches on bibliometric analysis in the field of accounting

Authors	Title of research	Main findings
Just et al. (2009)	The Intellectual Structure of Accounting Research - A Bibliometric Analysis	- citation and co-citation analysis with the aim of revealing the references that have most influenced accounting research and to build a map of the intellectual structure of accounting research.
Merigo & Yang (2017)	Behavioral accounting research: Accounting Research: A Bibliometric Analysis	- identification of the most relevant studies in the field, classified by papers, authors, journals, institutions and countries; - the authors identified the most influential journals and demonstrated that US institutions are the most influential globally.
Cordeiro Silva & Niyama (2019)	Análise bibliométrica da evolução da pesquisa científica em contabilidade internacional nos principais periódicos de língua inglesa	- the evolution of scientific production, using Lotka's law to analyse authors' productivity.

Source: own processing

Similar bibliometric analyses have also been identified in relation to research reported on:

- Lobbying on accounting regulations (Ribeiro de Santana Azevedo et al., 2018);
- Business ethics, with a focus on accounting (Uysal, 2010);
- Social and environmental accounting in the public sector (Fusco and Ricci, 2019);
- Income management (Dani et al., 2017);
- Natural resource accounting (Zhong et al., 2016), etc.

Another bibliometric research study in the field of creative accounting is the one conducted by Timofte et al. (2020), which revealed based on the analysis of a number of 150 publications that there are four main themes that are predominantly researched in the field, namely: creative accounting practices, the influence of creativity on the accounting professional's reasoning, and the role and influence of entity management on decisions related to shaping accounting truth. Moreover, it was found that the topic is also studied in close correlation with taxation and tax accounting fraud.

### III. RESEARCH METHODOLOGY

The database used to identify scientific research on the topics related to accounting, tax and financial risks is composed of scientific articles from the Web of Science (WoS) platform – which includes over 34,502 journals, proceedings, books, patents and datasets (Matthews, 2020). Mapping of the most relevant terms within these will be carried out using the VOSviewer software (van Eck and Waltman, 2010, <http://www.vosviewer.com>) to establish a search pattern by reference to the most frequently addressed topics.

Starting from mapping the keywords and the most relevant terms, by use of own deductive reasoning there will be identified the themes that are most frequently addressed in research studies on accounting, tax and financial risks.

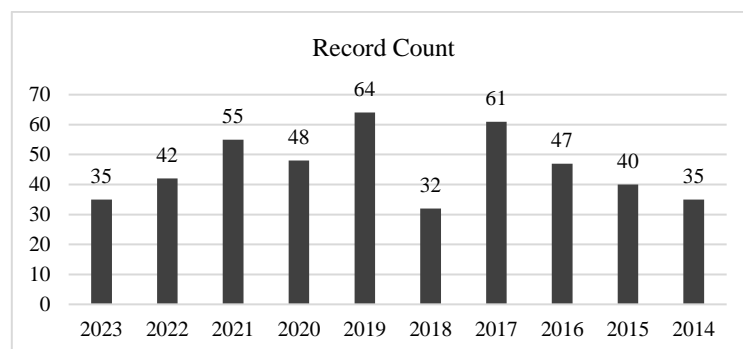
Such a scientific approach is considered timely and necessary, being particularly useful to researchers and academics, as it maps less researched topics and themes for which further research could be undertaken in the future, while helping to establish the state of knowledge in the field by revealing structural and systemic differences in the analyzed studies.

As for the research methodology, with reference to the bibliometric analysis carried out, it involved searching or querying the data, pre-processing them, extracting them, generating the network, analyzing them and visualizing them in the form of maps, according to the steps described by Cobo et al. (2011).

The Web of Science platform was queried, by performing a search by the keywords accounting risk or tax risk or insolvency risk or tax risk profile in the title, for all years. As a result 1,809 scientific materials were obtained, which were then filtered by the categories Business finance, Economics, Management and Business, resulting in 827 publications.

### IV. RESEARCH RESULTS

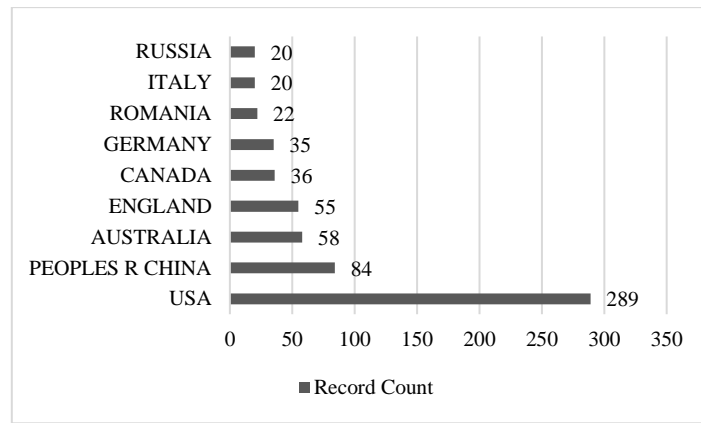
From the analysis of the annual volume of publications, it can be seen that results have been returned from 1975 (7 records) to 2023 (35 records). From the analysis of the time graph of returned publications, shown in Figure 1 below, it can be seen that the highest volume of publications is recorded in 2019, after the financial crisis of 2018, then in the period 2021 - 2023, these publications being on a downward trend in volume.



**Figure 1.** Research results on risk mapping, WoS platform - years of publications trend (2014-2023)

Source: own processing

From a territorial perspective, the returned results show that the United States of America has the highest volume of research in this field (about 35% of the total volume), followed by China (about 10% of the total volume) and Australia (about 7% of the total volume). Romania is also high in the ranking, ranking 7th with about 2.62% of the total volume, as shown in Fig 2 below:



**Figure 2.** Research results on risk mapping, WoS platform - countries of publications  
Source: own processing

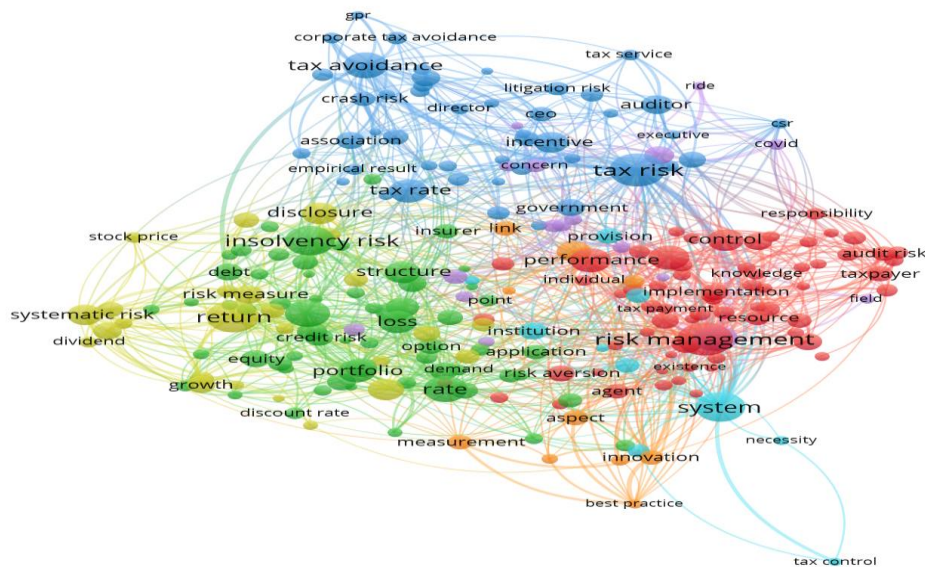
The next step consisted in the export of the 827 results generated by the search protocol on the WoS platform in text format, containing the following information: author(s), title, source and abstract.

The file thus obtained was imported into the VOSviewer software in order to carry out the analysis on the association of terms and the identification of the most frequent words and phrases used in research in the field of tax, accounting, insolvency and financial risk.

**V. MAPPING THE THEMATIC AREAS IN RELATION WITH ACCOUNTING, FINANCIAL AND TAX RISK**

Using the VOSviewer software, a term association map was created (Figure 3), based on the data and information contained in the text file exported from the bibliographic database on the WoS platform, using the total count method (van Eck and Waltman, 2011).

Out of the 12,148 initial terms, the software retained 413 terms that have a minimum of 10 occurrences. Subsequently, from the list of 413 terms, 40% of the terms were eliminated according to the relevance score criterion calculated by the software. Moreover, in the term verification step, some of the terms were deselected, i.e. common terms such as author, study, research, article, year, date, paper, etc., leaving 238 terms, shown in Fig 3 below:



**Figure 3.** Network of the most relevant and frequently used terms in research on accounting, fiscal and financial risk according to the WoS platform query  
Source: own processing in Vosviewer

The network of the most relevant and frequently used terms in research on tax, accounting and financial risk and their association, generated in the VOSviewer software according to bibliographic data extracted from the WoS platform from 1975 to 2023, revealed the field of research studied as correlated with terms such as: risk management (175 occurrences), tax risk (175 occurrences), return (155 occurrences), insolvency risk (140 occurrences), system (137 occurrences), capital (115 occurrences) and tax avoidance (112 occurrences).

The generated map contains 7 groups (clusters) and groups the 238 terms, as shown in Table 3, as follows:

**Table 3.** Matrix of occurrences and links between the most relevant and least used terms in research on accounting, fiscal, financial risk on the WoS platform

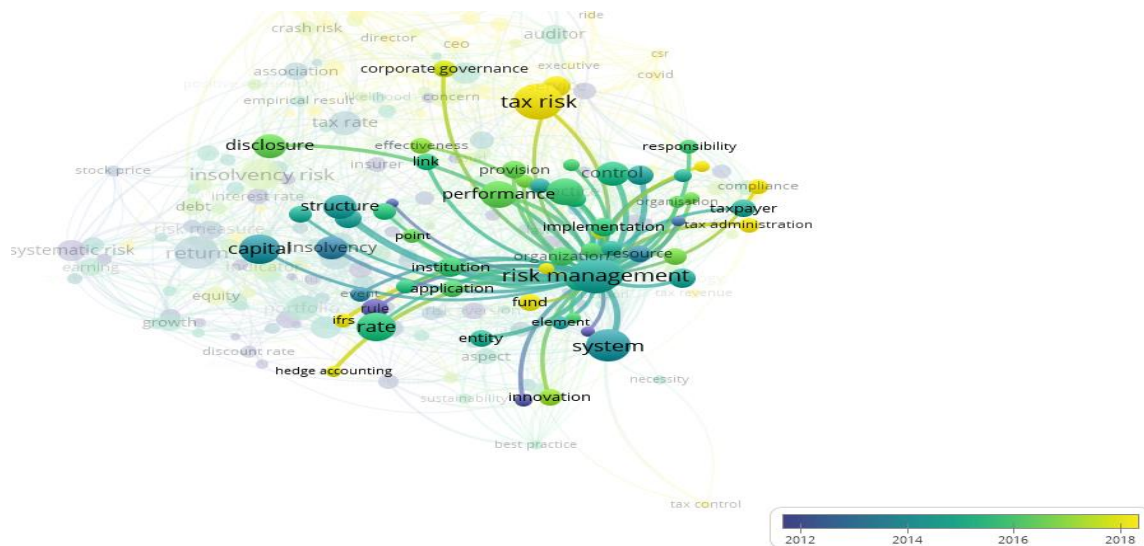
No of clusters	No of terms	The most occurrences/links	The least occurrences/links
1 - 7	238	risk management tax risk return insolvency risk system capital tax avoidance	financial accounting global financial crisis large sample positive association net income accounting measure mental accounting
		risk management performance system rate loss return practice	tax control GPR best practice country risk paradox current account deficit tax service

Source: own processing

Therefore, based on the network analysis, a certain structure can be identified. Existing searches on the Web of Science platform on accounting, fiscal and financial risk from 1975 to 2023 have generated a network of 238 terms, grouped into seven clusters according to their relevance. According to Van Eck and Waltman (2011), each cluster can be considered a theme.

In this case the first cluster, whose keyword is risk management, can be considered to be on the theme of the role of entity performance analysis in management decisions, with subsidiary themes on the influence of tax rules and regulations in management decisions and voluntary compliance in filing and payment decisions.

The keyword risk management, according to the association map below, has links with terms such as: tax risk, performance, rate, suggesting that the majority of risk analyses are concerned with tax risk, with predictive risk analyses being predominantly carried out by use of analytical accounting procedures and statistical tools. From a temporal perspective, it can be seen that research on risk management is mainly carried out in 2015, and research on tax risk later on in 2018 - 2019, as shown in Figure 4 below:



**Figure 4.** Network connectivity of the term risk management with other terms used in accounting, fiscal and financial risk research according to the WoS platform query - temporal perspective

Source: own processing in Vosviewer

The second cluster, with insolvency risk as its central term, also covers topics related to financial risk analysis using analytical accounting procedures. The term insolvency risk has links with terms such as performance, return, association, enterprise, as shown in the map below. From a time perspective, it can be seen in Figure 5 that the most frequent time horizon for the analysis is around 2018.





## VI. CONCLUSIONS

After systematically reviewing the relevant scientific researches on bibliometric analyses conducted in the field of accounting, using Google Academic and Web of Science as research platforms, it was concluded that such analyses focus mainly on the evolution of scientific production, the most frequently researched topics in the field as well as classifications of papers, authors, journals, institutions and countries.

Following the mapping of the research conducted in the field of accounting, tax, financial, insolvency or activity risks, using bibliometric analysis methods, it can be stated that the number of publications related to the research conducted in these areas has increased, in relation to those published on the WoS platform. A significant increase in volume was identified especially in the years following the last major financial crisis, with the highest volume of publications recorded in 2019, then in the period 2021 - 2023, these publications being on a downward trend in volume.

Most research in these areas were carried out in the United States, China, Australia and Romania.

After performing an extensive bibliometric analysis of the scientific material obtained from the WoS platform on the most frequently used terms in accounting, tax and financial risk research, by interpreting based on context-specific deductive reasoning the map on the incidence and association of terms generated through the VOSviewer software, it was determined that there are 7 themes, i.e. research clusters, as follows:

- the first cluster, whose keyword is risk management, can be considered to be on the topic of the role of the performance analysis in management decisions, with subsidiary themes identified relating to the influence of tax rules and regulations on management decisions and voluntary tax compliance;

- the second cluster, with insolvency risk as its central term, also covers topics related to financial risk analysis, using analytical accounting procedures;

- the third thematic cluster can be considered as concentrated around the key term of tax risk, and deals with topics related to risk analysis carried out both by economic entities for management purposes, by auditors and by tax authorities in order to direct institutional efforts in terms of tax controls and inspections in areas of maximum vulnerability;

- the fourth thematic cluster is focused on the anchor themes related to return, as well as disclosure, systematic risk, risk measure, earning, exposure, mainly addressing the business risks of economic entities;

- the next three thematic clusters deal mainly with accounting and fraud risk at sectoral and microeconomic level (terms such as accounting risk, enterprise, industry, fraud, etc.).

From a temporal perspective, it can be seen that the research on risk management is mainly carried out in 2015, and the research on tax risk later on in the period 2018-2019.

The conclusion of the research is that there is an amplified need for developing an instrument for maintaining a controlled level of risk exposure in terms of activity, insolvency, tax, accounting and financial risk in the business sector, as there is a significant scientific interest with regard to these themes.

## VII. ACKNOWLEDGMENT

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## REFERENCES

1. Bricker, R. (1989). An Empirical Investigation of the Structure of Accounting Research, *Journal of Accounting Research* 27, no. 2, 246–62, <https://doi.org/10.2307/2491234>.
2. Brown, L.D. & Gardner, J.C. (1985). Using Citation Analysis to Assess the Impact of Journals and Articles on Contemporary Accounting Research (CAR), *Journal of Accounting Research* 23, no. 1, 84–109, <https://doi.org/10.2307/2490908>.
3. Brown, L.D., Gardner, J.C. & Vasarhelyi, M.A. (1989). Attributes of Articles Impacting Contemporary Accounting Literature, *Contemporary Accounting Research* 5, no. 2, 793–815, <https://doi.org/10.1111/j.1911-3846.1989.tb00739.x>.
4. Cobo, M. J., López-Herrera, A.G., Herrera-Viedma, E. & Herrera, F. (2011). Science Mapping Software Tools: Review, Analysis, and Cooperative Study among Tools, *Journal of the American Society for Information Science and Technology* 62, no. 7, 1382–1402, <https://doi.org/10.1002/asi.21525>.
5. Cordeiro Silva, M. & Niyama, J.K. (2019). Análise bibliométrica da evolução da pesquisa científica em contabilidade internacional nos principais periódicos de língua inglesa, *Revista Ambiente Contábil - Universidade Federal do Rio Grande do Norte - ISSN 2176-9036* 11, no. , 65–87, <https://doi.org/10.21680/2176-9036.2019v11n2ID16195>.
6. Dani, A.C., Dal Magro, C.B. & Klann, R.C. (2017). Earnings Management Through Real Activities: Review Of The Existing Literature And Suggestions For Future Investigations, *Revista de Gestão, Finanças e Contabilidade* 7, no. 2, 102–20, <https://doi.org/10.18028/rgfc.v7i2.2791>.
7. Diodato, V.P. & Gellatly, P. (2013). *Dictionary of Bibliometrics*, Routledge.
8. Fusco, F. & Ricci, P. (2019). What Is the Stock of the Situation? A Bibliometric Analysis on Social and Environmental Accounting Research in Public Sector, *International Journal of Public Sector Management* 32, no. 1, 21–41, <https://doi.org/10.1108/IJPSM-05-2017-0134>.

9. Hofstede, T.R. (1976). Behavioral Accounting Research: Pathologies, Paradigms and Prescriptions,” *Accounting, Organizations and Society* 1, no. 1, 43–58, [https://doi.org/10.1016/0361-3682\(76\)90006-4](https://doi.org/10.1016/0361-3682(76)90006-4).
10. Just, A., Schäffer, U. & Meyer, M. (2009). The Intellectual Structure of Accounting Research - A Bibliometric Analysis, 24.
11. Matthews, T. (2020). LibGuides: Web of Science Platform: Web of Science: Summary of Coverage,” *LibGuides: Web of Science platform*, [//clarivate.libguides.com/webofscienceplatform/coverage](https://clarivate.libguides.com/webofscienceplatform/coverage).
12. McRae, T.W. (1974). A Citational Analysis of the Accounting Information Network, *Journal of Accounting Research* 12, no. 1, 80–92, <https://doi.org/10.2307/2490529>.
13. Merigó, J.M. & Yang, J.B. (2017). Accounting Research: A Bibliometric Analysis, *Australian Accounting Review* 27, no. 1, 71–100, <https://doi.org/10.1111/auar.12109>.
14. Ribeiro de Santana Azevedo, E.P., Silva De Lima, A.C., Neves Tavares, M.F. & Rodrigues, R.N. (2018). Lobbying in Accounting Regulation: A Bibliometric Study in Major International Journals from 2002 to 2015, *Revista Evidenciacao Contabil & Financas* 6, no. 1 (April 2018): 62–82, <https://doi.org/10.18405/recfin20180104>.
15. Timofte, C., Tanasă, S.M. & Coca, D.A. (2020). A Bibliometric Analysis of Creative Accounting Research, *Annales Universitatis Apulensis Series Oeconomica*, 22(1), 96-102, DOI:10.29302/oeconomica.2020.22.1.10.
16. Uysal, O.O. (2010). Business Ethics Research with an Accounting Focus: A Bibliometric Analysis from 1988 to 2007, *Journal of Business Ethics* 93, no. 1 (April 1, 2010): 137–60, <https://doi.org/10.1007/s10551-009-0187-9>.
17. Van Eck, N.J. & Waltman, L. (2011). Text Mining and Visualization Using VOSviewer, *ISSI Newsletter*, no. 7(3): 5.
18. Van Eck, N.J. & Waltman, L. (2010). Software Survey: VOSviewer, a Computer Program for Bibliometric Mapping, *Scientometrics* 84, no. 2, 523–38, <https://doi.org/10.1007/s11192-009-0146-3>.
19. Zhong, S., Geng, Y., Liu, W., Gao, C. & Chen, W. (2016). A Bibliometric Review on Natural Resource Accounting during 1995-2014,” *Journal of Cleaner Production* 139, 122–32, <https://doi.org/10.1016/j.jclepro.2016.08.039>.