ACCOUNTING AND BUSINESS MANAGEMENT RESEARCH: TRACKING 50 YEARS OF COUNTRY PERFORMANCE

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ABSTRACT

Professionals working in the academic world live under constant pressure resulting from the management positions they hold in their Higher Education Institution, their pedagogical obligations, the need to be involved in national and international projects and the high and exhausting demand to publish their scientific research in international journals indexed in the best and most prestigious databases. In this sense, accounting and business management knowledge area is no exception to this rule and this pressure. Publishing in this area is considered particularly difficult because of the high demand for journals and a specific area of scientific knowledge where data collection is not always accessible. This study aimed to analyse Portuguese researchers' performance in the last 50 years of Accounting and Business Management research. The analysis carried out may be replicated by other researchers from other countries who wish to study the performance of researchers in their own country. The possibility of making comparisons between countries may also be a contribution to the proposed bibliometric analysis methodology. We found that the most relevant Portuguese researchers belong to the most prestigious universities, involved in more research projects, whose institutions have doctoral courses, connected to prestigious national and international scientific research networks.

Keywords: Accounting, Finance, Bibliometric Analysis, Researchers Performance

INTRODUCTION

Accounting as a science at the service of business management has more than 5 centuries of existence, but scientific research in accounting has only about 60 years of publications (Moreira, 2009; Oliveira, Pereira & Ribeiro, 2009) which becomes more evident when considering the areas of accounting theory, accounting ethics, accounting regulation, financial accounting, management accounting, hospitality management accounting, digital accounting, environmental accounting and the history of accounting.

Currently, the excellence of higher education in accounting and business management is determined by the quality of scientific publications. Portugal has had higher accounting schools since the time of Marquês de Pombal which, in itself, is a testament to the pioneering Portuguese spirit in spreading learning about accounting and business management (Gonçalves, 2010). With regard to public education in accounting, the "Aula do Comércio" was the first Portuguese school and was opened in 1759 (Gonçalves & da Costa Marques, 2011; Lira, 2011) in Lisbon. The Portuguese higher accounting school starts one century later with the Instituto Industrial e Comercial de Lisboa, in 1869, and the Instituto Industrial e

Comercial do Porto, in 1886 (Gonçalves & da Costa Marques, 2011). This was the starting point of a long tradition of theoretical development and practical knowledge of accounting in Portugal.

Despite having adopted and following the standards issued by a supranational accounting organization – IASB - International Accounting Standards Board – Portugal, through its professional order, it is part of accounting organizations at a regional scale, as is the case of CILEA - Latin American Europe-America Integration Committee, from IFAC - International Federation of Accountants, from EFAA - European Federation of Accountants and Auditors for SMEs and from FCM - Fédération des Experts Comptables Mediterranéens (OCC, 2021). The country, along with Brazil, is known as an enthusiastic promoter of accounting convergence and research in financial accounting and management accounting, among the community of Portuguese speaking countries, having ensured the holding of several scientific meetings between academics and professionals from those countries, which allows creating excellent opportunities for international research partnerships. This orientation towards the creation and application of knowledge naturally has a huge impact on Portuguese higher education institutions in Accounting and Business Management (A&BM). In fact, the concept of integrating education, training and practice in the accounting profession, adopted worldwide, is enhanced in Portugal by the close link between the professional order and Portuguese higher education institutions, where mandatory internships were included for the first time as part of student training in the final of the 20th Century.

The greatest tradition in higher education in A&BM began in polytechnic higher education in what was initially called "higher schools of commerce", currently "higher institutes of accounting and administration", but in the 20th years, it became attractive to university higher education with higher studies in accounting and business management. As of 2006, all programs have undergone some adjustments resulting from the adoption and implementation of the Bologna process in Portugal. Consequently, new quality indicators for higher education courses have been adopted, including the quality of research (Durieux & Gevenois, 2010; Eurydice, 2021).

To assess the quality of research in higher education institutions, some authors refer to the difficulties of adopting metrics to measure the impact of the research papers in the A&BM, namely due to differences in the metrics to be used (Harzing & Van der Wal, 2009; Macías, 2016; Rosenstreich & Wooliscroft, 2009; Sangster et al., 2015; Soares & Nova, 2015; Walters, 2017), due to the dangers of the careless use of citations as singular measures of 'quality or 'importance' (Gray & Hoepner, 2011), due to the characteristics of the articles and journals (Aragão et al., 2014; Dumay, 2009; Ndemewah & Hiebl, 2021; Pedroni et al., 2016; Salles et al., 2016; Sangster et al., 2015; Soares & Nova, 2015).

Many bibliometric studies have characterized the research performance of countries, institutions, authors or research topics (Durieux & Gevenois, 2010; Rosenstreich & Wooliscroft, 2009; Walters, 2017). Vital information on the efficiency and productivity of Higher Education Institutions is provided to academic administrators by the research country performance analysis (Park et al., 2011). More specifically, this type of analysis makes it possible to assess the positioning of institutions in performance ratings, providing, in the case of prominence, notoriety and the ability to attract students and research collaborations (Huang et al., 2011).

Since the IAS-IFRS standard was imposed, several authors have studied the impact of the adoption of international accounting and financial reporting standards in different countries as a way of perceiving the alignment of these countries with the desirable comparability of company (Almaqtari et al., 2021; Felski, 2017; Isidro et al., 2020; Palea, 2013; Panagiotis, 2017; Zehri & Chouaibi, 2013) Another current challenge for accounting researchers is to ensure that scientific research in A&BM assumes greater relevance in a world of dematerialized and quickly available information. Management decisions are increasingly made based on reports of accounting information with shorter timelines, with

possible loss of reliability. Recent scientific research tends to try to understand the behaviours regarding the perception and adoption of accounting alternatives included in the standards, doing so with associations with economic theories.

Due to the recognized importance of scientific research in accounting and business management, some studies have dedicated their focus to assessing the performance of countries, institutions and authors in this field of research, as for example, the studies by Cardoso, et al., (2020); Cardoso, et al., (2021) applied to business sciences in tourism and hospitality case. This practice, however, is not as strong in accounting research as in other areas. In the specific case of Portugal, no study has systematically analyzed the country's performance in A&BM so far. To fill this gap, this article aims to assess Portugal country performance in A&BM, which may include management accounting on tourism and hospitality, through the following two objectives:

(1) The Portuguese A&BM research global performance.
(2) The trend topics researched in A&BM by Portuguese researchers.

To achieve this objectives, bibliometric data from nearly fifty years of publications has been retrieved from Elsevier's Scopus database. The data set focused on Q1 and Q2 journals, considering SCImago Journal Rank (SJR) 2019. The final sample included 282 articles published in 58 different journals authored by 759 authors appearances'.

The research results consist of a general characterization of the global performance of Portuguese A&BM scientific research, as well as the performance of its 10 main institutions and authors. In this context, the study is the first to critically analyze the Portuguese performance in A&BM, which implies a relevant contribution for professionals and researchers interested in following the latest trends in this area and achieving competitive and globalization objectives. In addition, the study provides a methodological contribution, as it combines a set of bibliometric indicators and methods of analysis not previously used by bibliometric studies, especially in the area of accounting and business management field, more specifically, this is the first study mapping co-word analysis and Scival topic prominence A&BM scientific research. The study contributes to the replication of the methodology to access country research performance not only in this research field but also in other domains.

The main findings reveal the beginning and the path in this area of research and scientific knowledge in Portugal, identifying Portuguese authors and institutions responsible for placing Portugal among the countries with scientific research in the field of accounting and business management. These are authors who lead rankings of articles, of citations and of effectiveness of research collaboration networks, so they should be followed by their peers. The study also found that these authors published in journals with high impact factor - SJR, h_index, g_index and m_index - and that the higher the prominence percentile, the greater the momentum and visibility of the topic and the more attractive it is to attract funding.

It is a pioneer study in the mixed bibliometric analysis of Portuguese scientific production in A&BM, being the first to apply to this field of research the Scival Topic prominence, the Scival Prominence Percentile and the KeyWord Plus analysis, which provided a more detailed understanding of the state of the art in this area, as well as emerging and trending topics and those with the greatest potential for publication. Innovative, because it is the first study to apply four bibliometric methods to the A&BM research field and to present a new methodology to analyse the performance of countries in the field of accounting and business management, which can be replicated for other topics in this area.

This article consists of five chapters. In the next chapter, literature on bibliometric analysis is addressed, with an emphasis on bibliographic studies on accounting and business management. The next chapter discusses the methodological steps carried out throughout the investigation, including the procedures for collecting, systematizing and analyzing the data. The results are described in detail below. In this section, Portugal's performance metrics in

scientific research in accounting and business management are highlighted. Finally, the results are discussed considering the existing literature. In this context, convergences with previous studies are pointed out, and the theoretical and practical contributions of the investigation are addressed in more detail.

LITERATURE REVIEW

Bibliometrics applied to the A&BM field focuses on a multitude of topics, and Table 1 reveals some of this topics as well as the bibliometric indicators and bibliometric approaches. As referred by Durieux & Gevenois (2010) the bibliometric indicators define the measurement quality and are applied considering the research objectives. The bibliometric studies in A&BM field are very recent as confirmed by the table 1, in which is also possible to see, that the bibliometric studies applied to A&BM focus mainly on junction of two methods, evaluative methods with productivity and impact metrics and, relational methods with word frequency analysis, co-occurrence of keywords, co-citation, co-authorship, etc.

Table 1 BIBLIOMETRIC PRIOR STUDIES IN A&BM			
Bibliometric approaches	**Authors**	**Topic**	**Bibliometric indicators**
Citations Co-citation analysis Network analysis Ranking	(O. O. Uysal, 2010)	Accounting ethics	Network, number of articles, journals, word analysis of titles, abstracts and keywords.
Ranking	(Hülle et al., 2011)	Management accounting and control	Number of articles, ranking journals and authors.
Ranking	(Araújo et al., 2014)	Accounting sciences and tourism	Ranking authors, journals, papers, thematic, institutions, countries, networks.
Co-occurrence of keywords Network analysis Ranking	(Dos Santos Teixeira & De Souza Ribeiro, 2014)	Environmental accounting	Content analysis, title, abstract, keywords, authors, year, accounting area, theories and research methodologies.
Networking Ranking Sociometric	(Beuren et al., 2015)	Managerial accounting	Co-authorship networks, articles produced, journals, titles, abstracts, keywords.
Network analysis Ranking	(de Moraes et al., 2016)	Agribusiness accounting	Networking, articles produced, journals, titles, authors, institutions, references.
Network analysis Ranking	(da Costa & Nogueira, 2016)	Accounting and administration education	Authors ranking, journals, papers, thematic, institutions, networks.
Co-citation analysis Ranking	(J M Merigó & Yang, 2017)	Accounting research.	Number of papers, total citations, h-index papers, authors, journals, institutions.
Ranking	(de Santana Azevedo et al., 2018)	Accounting regulation	Journals, title, abstract, keywords, authors, year, citations, theories and research methodologies.
Content analysis. Citation analysis. Ranking	(Ardianto & Anridho, 2018)	Digital accounting	Content analysis, articles published, citations, authors, universities contribution.
Network analysis Ranking	(V Chiu et al., 2019)	Accounting information systems	Content analysis, title, abstract, keywords, authors, year, accounting area, research methodologies, and emerging technologies contributions.

Co-citation analysis Ranking	(Guimarães et al., 2019)	Accounting costs and agribusiness	Authors, journals, papers, institutions.
Co-citation analysis Network Ranking	(Mohanty, 2019)	Accounting	Authors productivity, degree of collaboration, authorship pattern, citation pattern, productive countries and institutions, prolific author, scholarly publications, and research excellence.
Co-citation analysis Ranking	(Cortés-Sánchez, 2020)	Business, management and accounting	Country, authors, affiliations, year, title, journal name, journal h-index, citations.
Co-citation analysis Ranking	(Balstad & Berg, 2020)	Management accounting	Number of articles; journal name, year, citations.
Bibliometric coupling Network analysis	(Iandolo et al., n.d.)	Business, management and accounting	Articles, journals, titles, authors, institutions, references, keywords, citation, co-citation.

The relational techniques are mostly focused on co-citation networks and co-authorship patterns. This type of technique allows identifying the principal researchers and pioneers as well as the seminal works in a certain area, published in journals of reference and international impact (Benckendorff & Zehrer, 2013). This type of analysis allows to find rankings of publication, using co-citation networks that permit to visualize the relationship between academics and research themes. The aforementioned analysis technique can also be divided into co-citation analysis, co-word analysis, co-authorship networks, co-authorship patterns and bibliographic coupling. The qualitative approach, using the review studies method, is infrequent with the exception of Hülle, et al., (2011); Da Costa & Nogueira, (2016); Merigó & Yang, (2017) which applies a kind of content analysis. However, in A&BM there are no studies of systematic review or meta-analysis just as there are no studies using the 3 bibliometric methods at the same time.

Regarding the country research performance of a scientific area, in this case A&BM, only one article analyses the country's productivity (Victoria Chiu et al., 2019), but very far from what Cardoso, et al., (2020) define as country's research performance. According to these authors, research performance is characterized by elongated group of metrics that measure certain variables and, are supposed to define academic excellence. The term is associated with the productivity of many authors, universities and research centers that are recognized as having high-quality research output. Quantitatively, is common to see research performance assessed by a range of metrics such as number of published papers (Almaqtari et al., 2021; Beuren et al., 2015; Dos Santos Teixeira & De Souza Ribeiro, 2014; Mohanty, 2019; Uysal, 2010) number of citations (Chiu et al., 2019; Cortés-Sánchez, 2020; da Costa & Nogueira, 2016; Guimarães et al., 2019; Merigó & Yang, 2017; Mohanty, 2019) number of papers in top tiers journals, h-index, etc. However, when applied to a country, research performance can be defined by the performance of institutions, that in turn depends on researchers' performance, and is frequently exhibited by rankings (authors, affiliation, journals scores, number of articles published) (Araújo et al., 2014; Ardianto & Anridho, 2018; de Moraes et al., 2016; de Santana Azevedo et al., 2018; Hülle et al., 2011). In other words, country research performance needs a broader approach as well as the combination of various bibliometric methods. This vision, and this new approach to bibliometric studies emerges from Cardoso, et al., (2020); Cardoso, et al., (2021); Lima Santos, et al., (2020) that bring to business sciences the qualitative aspect to the assessment of country research performance. Namely, these authors combine the traditional quantitative variables with the analysis of the pioneering authors in a scientific area or research topic, the consistency of research over time, the number of papers with the first authorship, and Scival topic prominence including top Scival quartile.

In topic prominence analysis case, the indicator applied is percentile-based indicator Klavans & Boyack (2017) and it reflects the proportion of high-impact articles (*i.e.,* articles positioned in 90th and 95th percentiles) and Cardoso, et al., (2020); Cardoso, et al., (2021); Lima Santos, et al., (2020); seeks to identify research topics, trying to capture emerging subjects/topics in a specific area, topics of interest for funding and directing researchers towards more attractive research lines and, propose this new indicator to characterize the country's research performance.

MATERIAL AND METHODS

The present study's objectives were achieved through a set of methodological procedures, including a systematic search on accounting and business management topics and a combination of set of bibliometric analysis techniques. The next sub-sections address each of these procedures in detail.

Data Collection and Procedures

The database was collected on the Elsevier's Scopus database based on Jiang, et al., (2019); that consider this database one of the largest and most renowned online peer-reviewed literature collections. The data collection procedures took place on 3rd August 2020 in the Scimago database with the search criteria explained in step 1 of Figure 1.
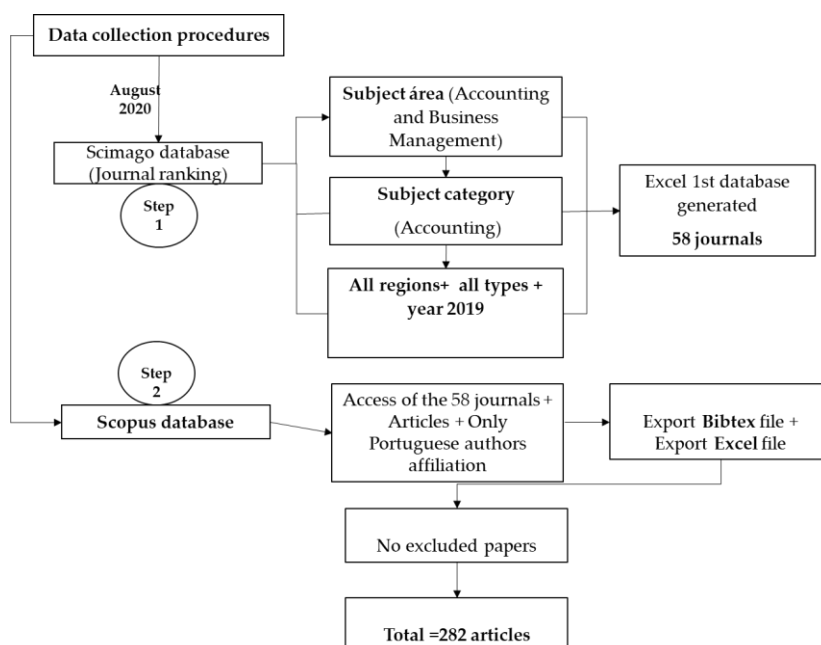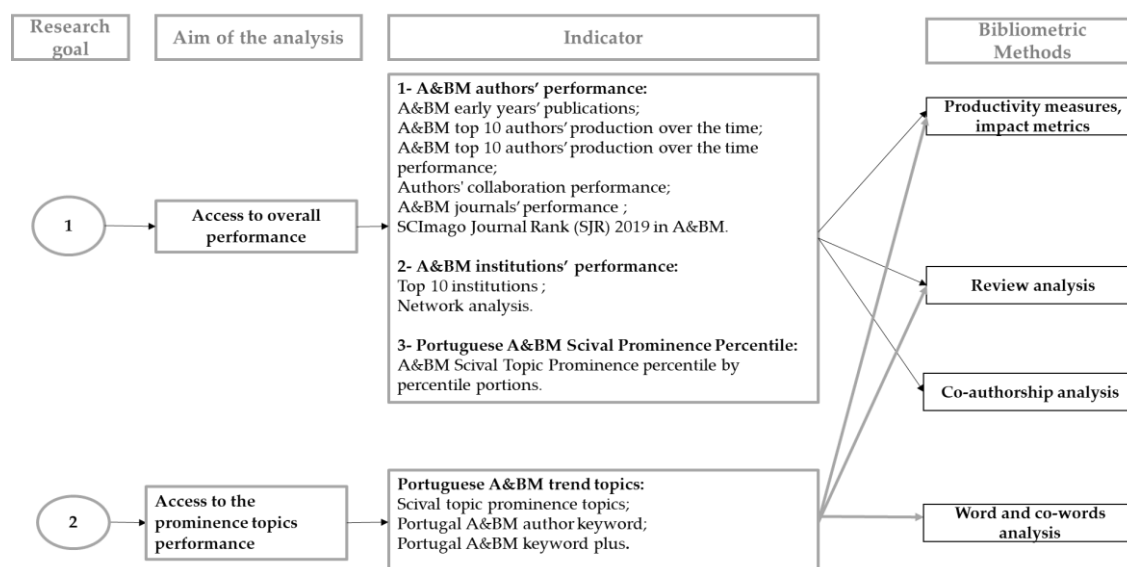

FIGURE 1
DATA COLLECTION PROCESS

Only journals positioned in Scopus quartiles 1 and 2 were identified based in 2019 classification, the last journals classification made by Scimago (Scientific Journal Rankings – SJR, 2019), having been selected 58 journals. The choice of this selection was based in Cardoso's, et al., (2020); Cardoso's, et al., (2021) methodology, according this authors only journals ranked in the two best quartiles (Q1 and Q2) are stables over longer periods of time and there is little fluctuation between quartiles and for these reasons, bibliometric analysis is more accurate. Moreover, the highest impact journals are positioned in these quartiles and, for that, they are considered the most appropriate to characterize the scientific performance and accepted as certified knowledge, as argued by several authors (Cardoso et al., 2021; Koseoglu

et al., 2016; Lima Santos et al., 2020; Mardanov et al., 2017). Based on the search criteria described in step 2 of figure 1, we obtained 282 papers following the search criteria country/territory (Portugal). Finally, in the excel database, we collected from Scopus one by one the topic prominence and prominence percentile as this information is not provided by Scopus directly. Table 2 present the database details.

Table 2 DATABASE DESCRIPTION			
Description Main information about data	Results	Description Main information about data	Results
Timespan	1974:2020	Authors	
Sources (Journals)	58	Authors	456
Average years from publication	7.35	Author Appearances	759
Average citations per documents	23.96	Authors of single-authored documents	33
Average citations per year per doc	2.531	Authors of multi-authored documents	423
References	15,074	Authors Collaboration	
Document Types		Single-authored documents	39
Article	282	Documents per Author	0.671
Document Contents		Authors per Document	1.49
Keywords Plus (ID)	119	Co-Authors per Documents	2.48
Author's Keywords (DE)	889	Collaboration Index	1.58
Topic Prominence	134	Total Institutions 216	
Prominence Percentile	134		

Data Analysis Procedures

Analogous to previous studies on country research performance (e.g., Cardoso et al., 2020; Cardoso et al., 2021; Santos et al., 2020), the Portuguese A&BM research performance was assessed through several indicators by mixing four different bibliometric methods, as summarized in Figure 2.

FIGURE 2
SUMMARY OF RESEARCH GOALS, AIM ANALYSIS, INDICATORS, AND TECHNICS USED

The global A&BM dynamics, with the exception of Scival Topic Prominence analysis and the early years' publications, which were accessed through rankings made by frequency counting in DB Gnosis software (see http://favouritedestinations.com/en/dbgnosis/), the remaining analysis were made in R Bibliometrix software.

As far as indicators are concerned, according to Durieux & Gevenois (2010) they are fundamental to achieving the research objectives. We would like to underline that this study is pioneering in analysing Scival topic prominence and the prominence percentile in A&BM research. To fulfil this purpose, we rely on others studies such as Cardoso, et al., (2021); Klavans & Boyack (2017); Lima Santos, et al., (2020); Small, et al., (2014) and we applied count rank, and we grouped the topics in percentiles.

The A&BM global performance was accessed through 3 main variables, using productivity measures, impact metrics, review analysis and co-authorship analysis. The A&BM top 10 authors' production over time and Authors' collaboration performance structures were performed in R Bibliometrix through Biblioshiny (a shiny app providing a web interface for R Bibliometrix). The parameters used included a graphical Top 20 authors production over time. The normalization by inclusion, the clustering algorithm applied was by betweenness, the number of nodes is 50 and removing isolated nodes. For the output figure, we used min edges 2, opacity 0.7, a number of labels 50, labex cex activated, label size 6, box node shape, edge size 6 and no curved edges.

The authors' keyword network parameters used included normalization by association, the clustering algorithm applied was by betweenness, the number of nodes is 50 and removing isolated nodes. For the output figure, we used min edges 2.

The A&BM top 10 journals' productivity was accessed through productivity measures and impact metrics. For the network analysis of A&BM institutions' performance, in Biblioshiny, we applied the parameters: normalization=none; Automatic network layout; Clustering Algorithm=Louvain; a number of nodes=50 and removing isolated nodes. For the output figure, we used min edges 2 with 0.7 opacity.

To access the Portuguese A&BM trend topics, we used two kinds of keywords analyses, the authors' keywords and keywords plus as they are different and, in a global view of science, it is necessary to both approaches (Aria & Cuccurullo, 2017; Cobo et al., 2011). The author keywords are used by the authors in the paper itself. KeyWords Plus are words that frequently appear in the titles of an article's references but do not appear in the title of the article itself and they are used to increase citation power. Booth using Biblioshiny, in the Portuguese A&BM author keyword analysis and in the Portugal A&BM keyword plus, we used the parameters (number of nodes=50, min edges=1 and removing isolated nodes). In A&BM top 10 network keywords plus cluster topics, we applied count rank, and cluster analysis, the parameters used in Biblioshiny were the same that we used in previous outputs.

RESULTS AND DISCUSSION

Results will be presented and discussed in this section, first related the A&BM global performance and then related the A&BM trend topics.

Portugal A&BM Global Performance

The results and analysis related the Portuguese A&BM global performance are structured in authors' performance, institutions' performance, and Scival prominence percentile.

A&BM Authors' Performance

The Portuguese research in Accounting and Business Management starts in the 1970s with two articles, as illustrated by Figure 3, both published in Astin Bulletin journal and without affiliations. Cabral & Garcia (1974) its article, is an unaffiliated publication and focused on credibility theory, the Oliveira (1977) article as the affiliation of the Center of Applied Mathematics (I.A.C.) Faculty of Sciences, Lisbon and is a discussion about the methodology for large claims.

After a 14-year hiatus, the Portuguese A&BM research was once again boosted, and in the 1990s, two more articles appeared in the same journal. In 1991 Centeno & Simões (1991) both from ISEG, University Nova de Lisboa give new impetus to this research area discussing the reinsurance of n independent risks.
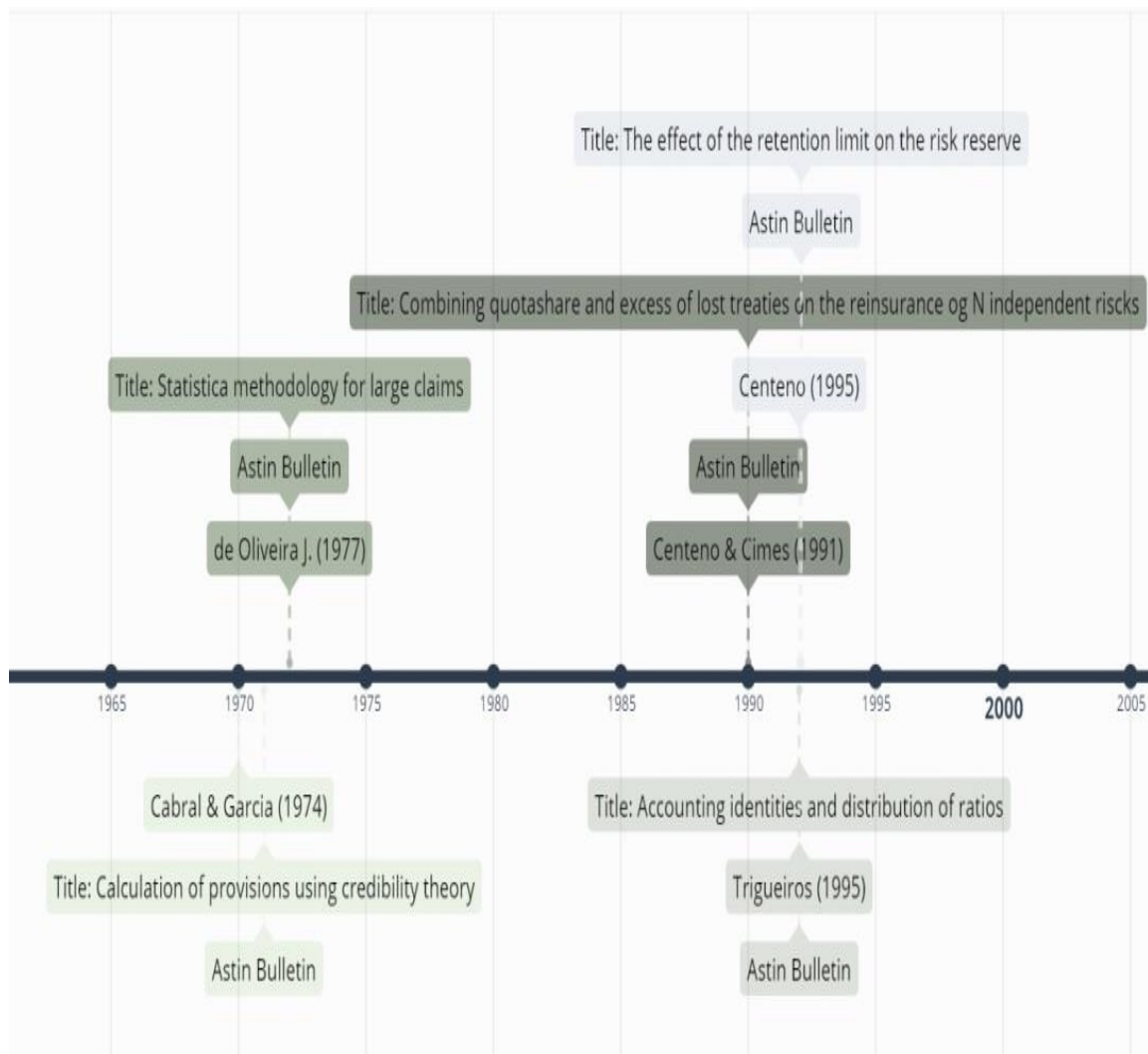
FIGURE 3
A&BM EARLY YEARS' PUBLICATIONS

Thus, we can say that the Portuguese performance in finance and accounting management research in terms of longevity has more than 50 years old and 5 authors affiliated in two institutions are the pioneers in this area of research.

In terms of longevity, four Portuguese authors stand out, as shown by Figure 4, Rodrigues, L. of University of Minho, Ferreira, M. of Nova School of Business and Economics, Craig, R. of the University of Portsmouth (which publishes with Portuguese authors) and Gomes, D. of the University of Minho.
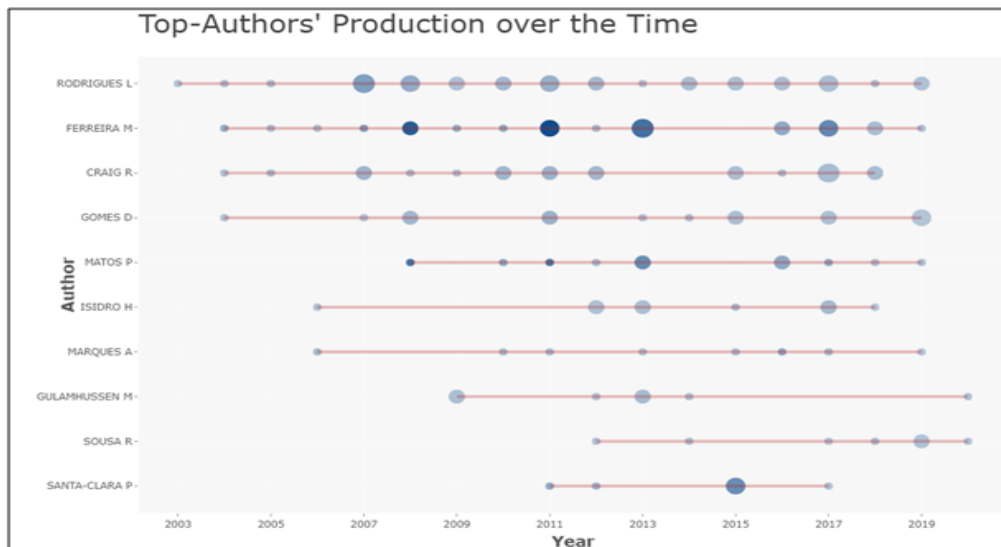
FIGURE 4
A&BM TOP 10 AUTHORS' PRODUCTION OVER THE TIME

The above-mentioned authors and, according to table 3, have publications ranging from 2003 to 2020. Rodrigues, L. from the University of Minho, leads the ranking with 16 published articles, Ferreira, M. from Nova School of Business and Economics, has 14 published works, Craig, R. from the University of Portsmouth, with 12 and Gomes, D. from the University of Minho, with 9 articles. Rodrigues L. is the author with the longest research lifespan, and is also the author with the most consistent scientific production, most of his articles are devoted to Scival topic prominence Accounting History | Double-Entry Bookkeeping | Karl Marx with 94.200 Scival percentile, *i.e.,* positioned in the 10th percentile, meaning papers that generate high interest and citations, papers that are still in the emerging phase and therefore have high potential for funding.

Other authors also relevant in the area of A&BM, with publications between 2006 and 2020, are Matos, P. from the University of Virginia, with 9, Marques, A. from Nova University of Lisbon, with 8, Isidro, H. from ISCTE-IUL, Sousa, R. from University of Minho, and Santa-Clara, P. from Nova School of Business and Economics with 6 articles each, and closing the Top10, we have Gulamhussen, M. from ISCTE-IUL, with 7 papers published in this knowledge field and, of which 4 are high Scival percentile.

Table 3					
A&BM TOP 10 AUTHORS' PRODUCTION OVER THE TIME PERFORMANCE					
Author	**University**	**Publication Years**	**Number of Papers**	**Total Citations**	**TCpY_Mean**
Craig, R.	University of Portsmouth	2004 to 2019	12	477	4,02
Ferreira, M.	Nova School of Business and Economics	2004 to 2019	14	2716	19,36
Gomes, D.	University of Minho	2004 to 2019	9	275	3,02
Gulamhussen, M.	ISCTE-IUL	2009 to 2020	7	82	1,79
Isidro, H.	University of Minho	2006 to 2018	9	101	2,46
Marques, A.	Nova University of Lisbon	2006 to 2019	8	253	4,31
Matos, P.	University of	2008 to 2019	9	1454	17,28

	Virginia				
Rodrigues, L.	University of Minho	2003 to 2019	16	835	4,85
Santa-Clara, P.	Nova School of Business and Economics	2011 to 2017	6	350	11,86
Sousa, R.	University of Minho	2012 to 2020	6	28	0,98

From the publications of Gulamhussen, M., as these are subjects of high research interest, we highlight the topics, Audit Fees | Nonaudit Services | Auditor Independence with 97.815 Scival percentile Bhimani, et al., (2009) Bank Lending Channel | Relationship Lending | Credit Rationing with 98.158 Scival percentile Duarte, et al., (2020), Business Angels | Venture Capital | Private Equity with 98.452 Scival percentile Félix, et al., (2013) and, Bankruptcy Prediction | Credit Scoring | Financial Distress with 98.848 of Scival percentile (Bhimani et al., 2014).

The results of the A&BM authors' collaboration network, which is graphically represented in Figure 5 reveals two strong connections between three groups of authors. The first group revealing a more consistent and direct connection is leaded by Rodrigues L. from the University of Minho, the second group of connectivity is leaded by Ferreira M. from Nova School of Business and Economics and the third group is leaded by Gomes D. from the University of Minho.
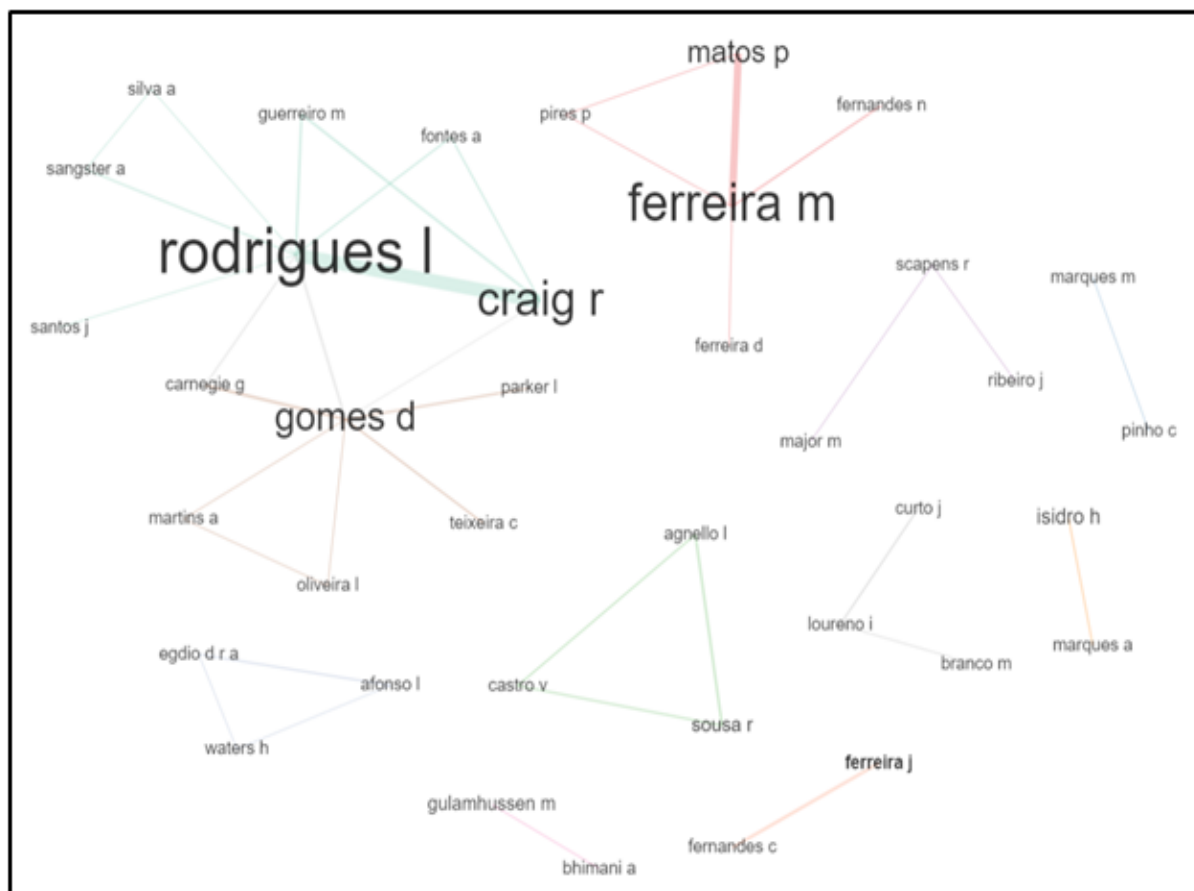
FIGURE 5
AUTHORS' COLLABORATION PERFORMANCE

It is highlighted once again the connection of Rodrigues L., that in addition to the direct links it has with many authors, maintain a strong connection with Craig R. and a subtle link with Gomes D., this author is an excellent collaboration broker. As this author is one of the best performing authors, we can say through the network results that research collaboration is a performance enhancing factor, this result is in line with Cardoso's, et al., (2021) results which argues that collaboration is a factor to be considered in the research performance of institutions and countries.

Regarding journals' productivity, Table 4 reveals that seven journals stand out with over 10 articles, with the Austin journal leading the ranking. The retrieved articles are published in 58 different journals, with a high level of dispersion between them, as verified in Table 4. The most prominent journals are the Austin Bulletin and the Journal of Financial Economics, both with 20 papers published. However, it is worth noting that the Astin Bulletin is the highest impact factor (1.18 SJR) and, also with greater longevity. It seems that this journal works as a reference for the positioning of articles, and future lines of research could study this phenomenon.

Table 4 A&BM TOP 10 JOURNALS' PRODUCTIVITY									
N=58 Rank		Frequency		Journal Impact					
	Journal	Abs.	Rel.	SJR 2019	h_index	g_index	m_index	TC	PY_start
1	Astin Bulletin	20	0.070	1.18	7	11	0.149	135	1974
2	Journal of Financial Economics	20	0.070	12	12	20	0.923	1856	2008
3	Accounting History	16	0.056	0.61	10	16	0.588	294	2004
4	European Financial Management	12	0.042	1	7	12	0.389	379	2003
5	Journal of Money, Credit and Banking	12	0.042	2.4	7	12	0.467	156	2006
6	European Accounting Review	10	0.035	0.97	8	10	0.533	263	2006
7	Revista de Contabilidad-Spanish Accounting Review	10	0.035	0.41	5	7	0.556	55	2012
8	Journal of Financial and Quantitative Analysis	9	0.031	3.5	6	9	0.375	172	2005
9	Review of Financial Studies	9	0.031	12.84	7	9	0.583	604	2009
10	Accounting Education	8	0.028	0.52	4	5	0.222	37	2003
10	Journal of Business Finance and Accounting	8	0.028	0.87	5	8	0.278	198	2003
10	World Economy	8	0.028	0.59	3	5	0.176	34	2004

Regarding SCImago journal rank, Table 5 reveals that 41% of the Portuguese accounting and business management research was published in journals with SJR<1. However, 27% of this scientific research is published in SJR>2.

Table 5 SCIMAGO JOURNAL RANK (SJR) 2019 IN A&BM							
SCIMAGO							
SJR 2019<1				SJR 2019>1		SJR 2019>2	
SJR value	Absolute Frequency	SJR value	Absolute Frequency	SJR value	Absolute Frequency	SJR value	Absolute Frequency
0.41	17	0.48	4	1.18	20	12	20
0.61	16	0.67	4	1.46	7	2.4	12

0.95	12	0.3	3	1.82	7	12.84	9
1	12	0.39	3	1.66	6	3.5	9
0.97	10	0.7	3	1.1	5	17.13	7
0.47	8	0.86	3	1.98	5	2.34	5
0.52	8	0.13	2	1.47	4	2.06	4
0.59	8	0.43	2	1.01	3	1.03	2
0.87	8	0.63	2	1.92	3	3.47	2
0.45	6	0.49	1	1.11	1	7	2
0.42	5	0.58	1	1.15	1	2.21	2
0.69	5	0.62	1	1.63	1	5.45	1
Total papers	**115**		**29**		**63**		**75**

A&BM Institutions' Performance

In Figure 6 we can visualize the collaboration networks between the various Higher Education Institutions to which the most relevant authors are affiliated as well as the institutions to which their co-authors belong. The link networks demonstrate the intensity of collaboration. The greater the thickness of the lines, the greater the intensity of collaboration which is measured by the number of published articles. In the presented network, we verify that the University of Minho, Nova School of Business and Economics and the Nova University of Lisbon are the most relevant institutions in the network. These results are not surprising, as Rodrigues L.'s performance from University of Minho has already been highlighted, the networking institutions' results show that the University of Minho leads the ranking of national and international collaboration. The literature review confirms that Rodrigues L. is the prominent author from this University in A&BM field in terms of producing articles and attracting collaborative networks.
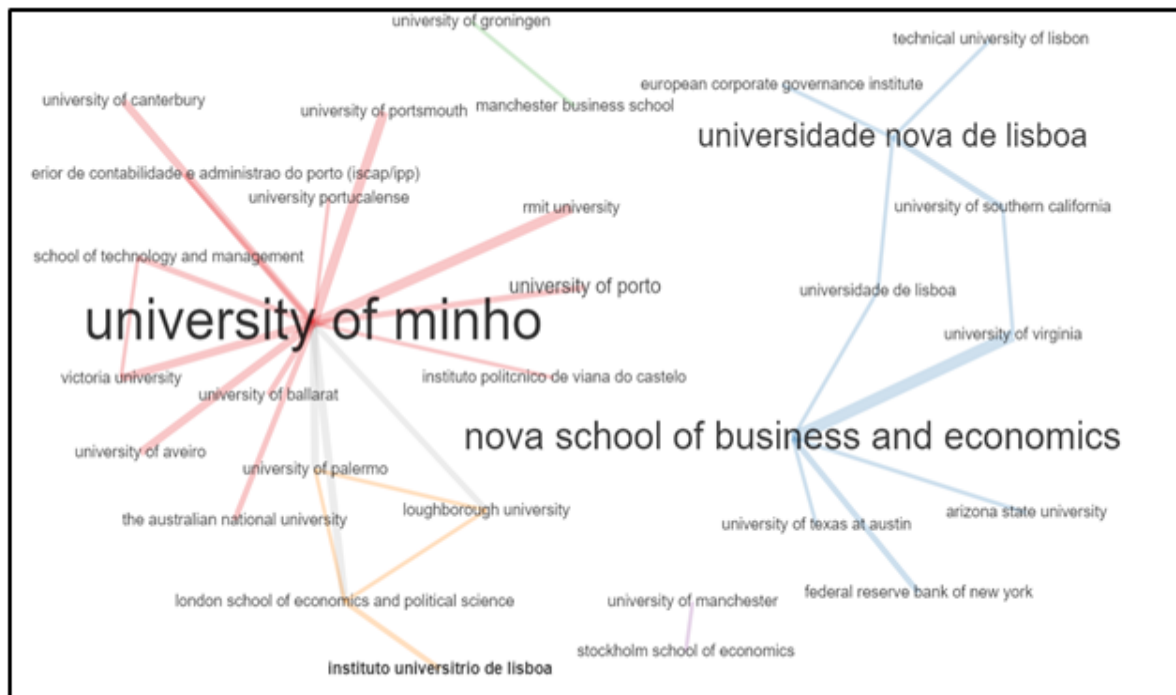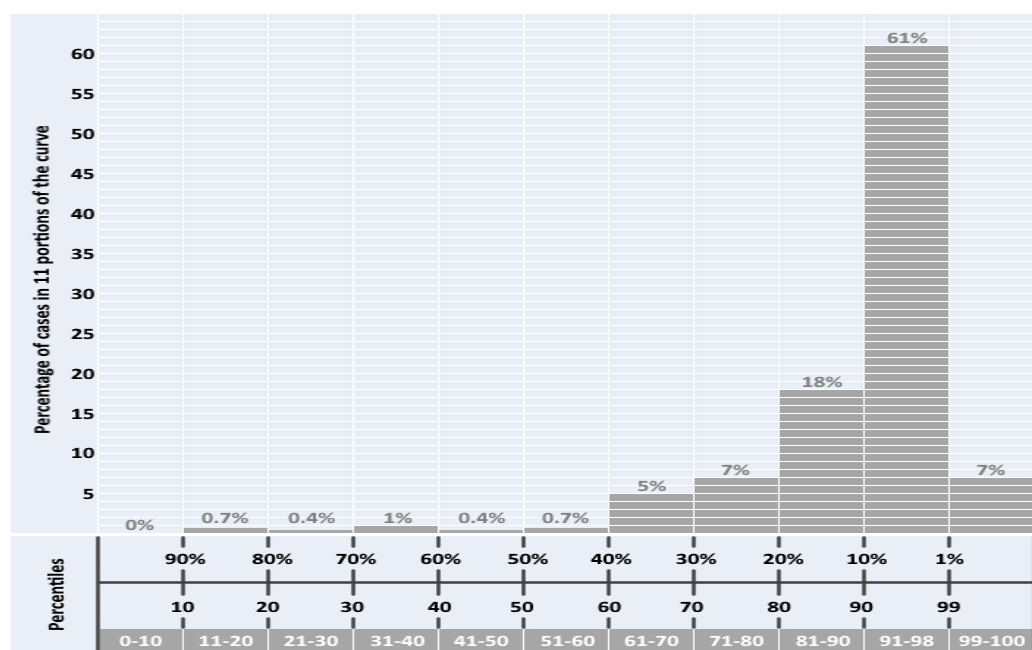

FIGURE 6
TOP 10 INSTITUTIONS' COLLABORATION

The cross-referencing these network results with those of article production longevity it was expected that Universidade Nova de Lisboa and Nova School of Business and Economics are in second place in terms of performance, they are also those that maintain strong collaborative networks. Once again it is confirmed that collaboration improves productivity and therefore improves the performance of institutions as argued by Cardoso, et al., (2021).

Portuguese A&BM Scival Prominence Percentile

The Portuguese' A&BM Scival prominence percentile variable, Figure 6 reveals that 68% of the country's research production in the accounting area is above the 90th percentile. Moreover, 61% of all published papers precisely in the 90th percentile, which is a clear indicator of the quality of the country's publications in this field. When we compare these results with the results obtained by Cardoso, et al., (2020, 2021) applied to tourism and hospitality, we find that in the case of accounting and business management (which includes hospitality management accounting), the percentage of topics in the 10th percentile is much higher, indicating that the A&BM research field is more attractive and raises a higher number of views and citations.

FIGURE 7
A&BM SCIVAL TOPIC PROMINENCE PERCENTILE BY PERCENTILE PORTIONS

The highlight that the 11th percentile topics are of high interest, in case of Portuguese A&BM research field, we highlight the topics Institutional Work | Organizational Field | Microfoundations with 99.556 Scival percentile (Biygautane et al., 2020), Environmental Disclosure | Sustainability Reporting | Global Reporting Initiative with 99.741 Scival percentile De Villiers & Marques (2016) both from Business School & Nova School of Business and Economics, Lisbon. We also hilglight the topics Environmental Disclosure | Sustainability Reporting | Global Reporting Initiative with 99.741 Scival percentile (Branco et al., 2014) and Entrepreneurial University | Academic Entrepreneurship | University Technology Transfer with 99.524 Scival percentile Maia & Claro (2013) both from Porto University.

When we compare these results A&BM with other the results of Cardoso's, et al., (2020, 2021) in tourism field and in the same country, both in business sciences, we found that the performance of A&BM is superior in the articles published in the 10th Scival percentile, 61% in A&BM field and 45% in tourism field. Future research lines using the same methodology will be able to make comparisons with other scientific areas.

Portuguese A&BM Trend Topics

The results and analysis related the Portuguese A&BM trend topics are structured by Scival prominence topics, A&BM author keyword, and A&BM keyword plus.

Scival Topic Prominence Topics

Concerning the results of the analysis focus on the Scival topic prominence analysis, the topic Accounting History | Double-entry bookkeeping | Karl Marx leads the ranking (see table 6) and this topic is positioned in 10th percentile, *i.e.,* among the best 6% in the world of prominence percentile, leads the ranking the University of Minho. The topic best positioned in the Scimago percentile is Environmental Disclosure | Sustainability Reporting | Global Reporting Initiative, *i.e.,* among the best 0.25% in the world of prominence percentile, leads the ranking the University of Porto.

N=134 Rank	Variable Name:	Frequency		Prominence Percentile	Top 1 University
		Abs.	Rel.		
1	Accounting History | Double-entry Bookkeeping | Karl Marx	21	0.076	94.200	University of Minho (8)
2	International Financial Reporting Standards | Accounting Conservatism | IFRS adoption	16	0.058	96.794	Polytechnic Institute of Viana do Castelo (3) University of Minho (3)
3	Budgetary Slack | Management Control Systems | Strategic Management Accounting	10	0.036	97.852	University of Lisbon (2)
4	Bank Lending Channel | Relationship Lending | Credit Rationing	8	0.029	98.158	Beira Interior University (2)
5	Earnings Management | Discretionary Accruals | Real Activity	6	0.021	98.001	University Institute of Lisbon (ISCTE) (2)
6	Environmental Disclosure | Sustainability Reporting | Global Reporting Initiative	6	0.021	99.741	University of Porto (3)
7	Executive Compensation | CEO Pay | Chief Executive Officer	6	0.021	96.684	University Aveiro (1)
8	Loan Loss Provisions | Fair Value | Other Comprehensive Income	6	0.021	91.521	University Institute of Lisbon (ISCTE) (2)
9	Pro Forma Earnings | Accounting Principles | Other Comprehensive Income	6	0.021	68.347	University Institute of Lisbon (ISCTE) (1)
10	Capital Structure | Debt Maturity | Pecking Order Theory	5	0.018	97.329	University Institute of Lisbon (ISCTE) (1) Beira Interior University (1)
10	Idiosyncratic Volatility | Stock Returns | Synchronicity	5	0.018	82.185	University Institute of Lisbon (ISCTE) (2)

<div align="center">

Table 6
TOP 10 SCIVAL TOPIC PROMINENCE IN A&BM

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Portugal A&BM Author Keyword

Concerning author keyword in A&BM, table 7 shows the results of author's keyword analysis and figure 8 the results from keyword plus network. The results show that in both analyses the results are similar. In authors keywords the ranking is led by "accounting", "firms" and "financial".

Table 7 A&BM TOP 40 AUTHOR-KEYWORD FREQUENCY IN ABSTRACTS								
N=35682 Rank	**Word**	**Absolute Frequency**	**Rank**	**Word**	**Absolute Frequency**	**Rank**	**Word**	**Absolute Frequency**
1	accounting	278	21	companies	68	32	reporting	51
2	firms	191	22	international	67	33	there	50
3	paper	168	23	effects	64	34	important	49
4	study	152	23	evidence	64	34	period	49
5	financial	128	23	higher	64	35	corporate	47
6	which	124	23	literature	64	35	economic	47
7	results	119	23	new	64	35	public	47
8	model	113	24	performance	62	36	capital	46
9	between	110	25	change	61	36	IFRS	46
10	research	102	25	data	61	36	through	46
11	institutional	101	26	factors	58	36	time	46
12	Portuguese	99	26	used	58	37	markets	45
13	market	98	27	control	57	38	debt	44
14	value	97	28	price	56	38	first	44
15	using	96	29	analysis	54	38	level	44
16	countries	94	29	impact	54	38	quality	44
17	management	92	29	role	54	39	associated	43
18	risk	79	29	standards	54	39	disclosure	43
19	information	77	30	based	53	39	investors	43
20	earnings	72	31	different	52	39	returns	43
20	findings	72	31	stock	52	40	development	41

Portugal A&bM Keyword Plus

Concerning the keywords plus results, words in the bibliographical references, Figure 8 reveals that a strong link exists between the "Portuguese accounting evidence" and "history". Future lines of research could study this relationship.

Furthermore, it is possible to say that the main research themes are concentrated in five clusters grouped by the main keywords plus, which gave rise to the articles. In special evidence, the word "companies" stands out, which is related to "earnings", "factors" and

"financial" and, when focusing on "financial", there are direct connections with "international", "Portugal", "reporting" and "standards".

FIGURE 8
A&BM TOP 10 NETWORK KEYWORDS PLUS

Even more so, through the main keywords, it is possible to perceive a trend of research themes and propose a general theme that characterizes each cluster. However, there is no one theme that stands out in particular. When compared this results, with the results of keyword analysis of Dos Santos Teixeira & De Souza Ribeiro (2014) where the focus was on "sustainability" and the "environment", we find that our results differ, which is understandable, as the databases are collected from different sources. Thus, of reinforcing, each database offers different outputs, the Scopus database is worldwide and therefore more comprehensive.

The cluster analysis results showed in Figure 9, highlights what was previously mentioned as well as revealing and illustrating the main research clusters of the Portuguese A&BM research.

FIGURE 9
A&BM TOP 10 NETWORK KEYWORDS PLUS CLUSTER TOPICS

CONCLUSION

The purpose of this study was to access the Portuguese research performance in A&BM which was fulfilled through two dimensions and using a new performance analysis approach crossing four bibliometric methods.

The Portuguese A&BM Research Global Performance

The Portuguese A&BM research field began 50 years ago, specifically in the 1970s, with two studies published in the Astin Bulletin journal. Afterwards, there was a break in publications for 14 long years. The publications resumed in the 90s with two studies by researchers from ISEG and University Nova de Lisboa. These researchers were responsible for a resumption of publications by Portuguese authors, who from that moment on never stopped publishing in this relevant area of scientific knowledge, contributing for Portugal to leave its mark in this field of investigation. The authors who started a continuous publication process that lasted and lasted over time were Rodrigues, L. of University of Minho, Ferreira, M. of Nova School of Business and Economics, Craig, R. of the University of Portsmouth (which publishes with Portuguese authors) and Gomes, D. of the University of Minho. It is fair to say that these authors were responsible for putting Portugal on the map of scientific research in the accounting and business management area. Other authors followed their footsteps, leaving their contribution to the evolution of this field of research. They were the researchers who achieved a higher production performance over time, and it is fair to mention them for their importance and contribution to this area of knowledge. Rodrigues, L. of the University of Minho, Ferreira, M. of Nova School of Business and Economics, Craig, R. of the University of Portsmouth, Gomes, D. of the University of Minho, Matos, P. of the University of Virginia, Marques, A. of Nova University of Lisbon, Isidro, H. of ISCTE-IUL, Sousa, R. of the University of Minho, and Santa-Clara, P. of Nova School of Business and Economics and Gulamhussen, M. of ISCTE-IUL. These authors lead the ranking by having more articles, more citations, and a more effective in attracting research collaborations. These authors work supported by research networks that show strong connections and which therefore present a higher performance. These research networks are led by Rodrigues L. from the University of Minho, Ferreira M. from Nova School of Business and Economics and Gomes D. from the University of Minho. Research networks are crucial in any area of research as they allow knowledge sharing and contribute to an increase in research performance resulting from diverse collaborations. This should be followed by current and future researchers to succeed in a given area and gain recognition by their peers, both nationally and internationally.

Also to be noted that the publications of these authors were in journals with high impact factor measured by several indicators such as the SJR impact factor, h_index, g_index and m_index. The most relevant journals where the publications were made were the Astin Bulletin and Journal of Financial Economics, with more than 20 papers published. It is possible to convlude that these journals were the pioneers in this area of research in Portugal and continues to be a reference until today.

Still on global performance, we conclude that 27% the Portuguese A&BM research is published in SJR>2, a high country performance value and an indicator that future lines of research can use to compare with other countries.

Concerning the performance of the institutions, three institutions stand out in terms of article production, best Scival percentile and highest national and international collaboration score, the University of Minho, Nova School of Business and Economics and the Nova University of Lisbon are the most relevant institutions in the network. We conclude that these institutions also have the highest performing authors and that collaboration networks are a factor that increases productivity.

Considering that the higher the prominence percentile, the greater the topic's momentum and visibility, therefore, the more attractive it is to attract funding. The results reveal that 61% of Portuguese A&BM research are published in the 90th percentile which shows that more than half of the research is positioned in the 10th percentile. A high performance indicator for this scientific area. Over time, there have been many discussions about research performance indicators and Cardoso, et al., (2020) brought this indicator to business sciences and underlined the importance of considering this indicator to the country performance research. There are no studies applying this indicator to A&BM research, this study is the first to identify Scival's topics in this field, which can be an opportunity for researchers to identify research partnerships and for scientific journals to identify reviewers.

The Trend Topics Researched in A&BM by Portuguese Researchers

Concerning the trend topics, we conclude that the authors keywords and keywords plus are similar however, a strong link exists between "the Portuguese accounting evidence" and "history" reason why we propose that future lines of research could study this relationship. To add, that the present study identifies five clusters of research, namely: Economic effects in earning disclosure; Firms management, performance and governance; Accounting systems and government development; Strategic factors in financial companies and Large standard reports. Future research lines can take advantage of this indicator.

Research Contributions and Limitations

The present study is the first to conduct a mixed bibliometric analysis on the academic production on Portuguese A&BM research. Moreover, it is the first to apply Scival Topic prominence, Scival Prominece Percentile and KeyWord Plus analysis to this research field. Therefore, it provides a more detailed understanding of the state-of-the-art in this area, as well as of the trending and emerging topics and those with the highest potential for publication. Moreover, this is the first study applying four bibliometric methods to A&BM research field and presents a new methodology to analyze the country performance in accounting domain that can be used other topics of this area.

Like any study, this research has some limitations to be addressed in further research avenues. First, the data were gathered from the Scopus database. Future studies could collect and analyse data from other databases (e.g. Web of Sciences). Second, this paper focused on journals only. Thus, other types of publications (e.g., book series, conferences, and proceedings, etc.) could be studied in future research. Third, this study analysed the Q1 and Q2 Scopus journals based on SJR2019 ranking. Therefore, other quartiles (Q3 and Q4) could be analysed in future research. Finally, this paper focused on Portugal as a case study. Further studies should analyse A&BM scientific productions in other countries. For future research, there is also an opportunity for institutions, journals and accounting researchers to ensure that scientific research in A&BM remains relevant.

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