A Tale of Ten Years Managerial Accounting Research Journey in SINTA 4-Indexed Indonesian Journals

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A B S T R A C T

Keywords:
Bibliographic research; managerial accounting; SINTA; Indonesian Journal

Research Purposes. This study uses a bibliographical approach to describe managerial accounting research (MAR) intention in Indonesia. The research materials are pertinent publications that appeared in SINTA 4-indexed journals between 2011 and 2022.
Research Methods Relevant articles are filtered based on several selection criteria at the Indonesia National Indexer (SINTA), journals, and articles. The metadata of the articles is tidied via Zotero reference management software. The output is CSV and RIS files. MS Excel and Tableau processed CSV files for visualization and qualitative analysis purposes, and RIS files were analyzed by VOSviewer software to create research network maps based on keyword occurrences. Several reputable international journals are used as a comparison.
Research Results and Findings. In 2011-2022, 21 of 441 SINTA 4-indexed journals contained 129 articles (6% of 2,300) on managerial accounting topics. These topics form six research clusters with highly varied occurrences, links, intensities, and publication periods. Sustainability-related issues are in the first cluster. In general, SINTA 4-indexed journals in Indonesia, including accounting-specific journals, have not placed managerial accounting as a particular priority.

INTRODUCTION

From a conceptual and application standpoint, managerial accounting has periodically undergone various developments (Bromwich and Scapens, 2016; Hesford et al., 2006; Kumar et al., 2020a; Oyewo, 2021). The object of its application is no longer at the product or department level but across departments and even becomes part of a strategic value chain analysis (Li, 2018; Shank, 1989; Wang, 2019). Business issues associated with managerial accounting are also increasingly varied, such as the Balanced Scorecard, business ethics, Corporate Social Responsibility, and Sustainability (Oyewo, 2021; Weygandt et al., 2017). In the context of the industrial sector from 2015 until now, the service industry has increasingly used managerial accounting, even in particular service sub-sectors (Etges et al., 2020; Heaton et al., 2019).

The regional context is another important consideration in managerial accounting research (MAR). A bibliographic study on performance management (PM) practices in Central and Eastern European countries identifies differences in managerial accounting research and practices, especially PM, between post-transition/transition countries and Soviet/non-Soviet countries. This study concludes that using managerial accounting as a PM tool can help companies adopt new methods that align with

market economic systems and replace outdated business management practices and attitudes (Paladi and Fenies, 2016).

In Pakistan, a study revealed that managerial accounting practices (MAP) affect all processes and transform all simple systems in Pakistani industries into complex systems to deal with changes in the external environment (Shahzadi et al., 2018). A bibliographical study of accounting articles published in 22 accounting journals indexed in the Web of Science (WoS) from 2000–2016 found that the United States, United Kingdom, Australia, Spain, and Canada were the five most productive countries throughout all periods, in addition to the top five colleges in some other countries. The analysis reveals that Anglophone countries dominate because most internationally accredited journals publish articles in English (Uyar et al., 2020).

The singularity of the previous research findings in each country is why Indonesia was selected as a regional setting in this bibliographical study. The geographical context of Indonesia, an archipelagic country with a very heterogeneous distribution and composition of businesses (research objects) and universities (research institutions), will be one of the novelties in this study.
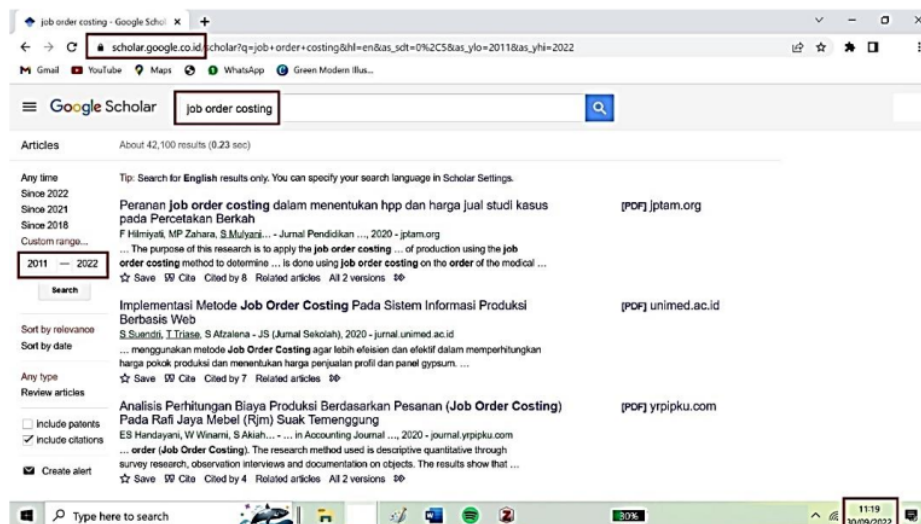
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Figure 1 Google Scholar result on job order costing

Managerial accounting is one of Indonesia's social sciences' popular discussion topics. Based on global and national phenomena, the chances of publishing MAR results in accredited scientific journals in Indonesia are allegedly substantial. This assumption is supported by the number of search results on https://scholar.google.co.id on several keywords related to managerial accounting, such as "job order costing" (42,100 results) with a search period of 2011-2022 (see Figure 1).
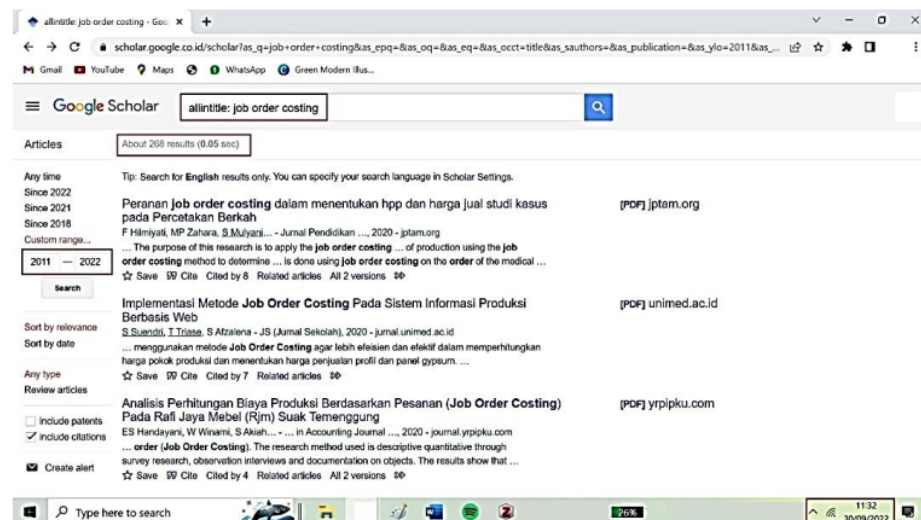

Figure 2 Google Scholar result on job order costing (allintitle)

When the search criteria were reduced to "allintitl," questions were raised. The results for "job order costing" keywords dropped dramatically to 286 articles, even then, with diverse types of publication media such as journals, institutional repositories, and seminar proceedings. If media other than scientific journals are excluded, the research obtained will undoubtedly be less (Uyar et al., 2020) (see Figure 2).

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Search results with previous methods produce a relatively similar phenomenon on several keywords that are relevant to the other managerial accounting, such as process costing (155,000: 223), Balanced Scorecard (42,500: 1,030), cost management (294,000:661), labor costs (167,000: 318), product costs (187,000:755). Quite different ratios occur in search keywords budget (54,000: 14,600), Activity Based Costing (74,800:4,120), profitability (36,700:21,600), and performance (417,000: 83,800). There are indications that the formal acknowledgement of nationally reputable journal publishing institutions in Indonesia regarding managerial accounting topics does not yet reflect the popularity of these topics on Google Scholar. These digital facts are our primary motivation for researching the existence of MAR outcomes in Indonesian scientific journals.

Scientific journals are the leading media for researchers or authors to publish their research results in Indonesia. Universities generally publish these. The credibility and quality of a scientific journal in Indonesia refer to the accreditation level granted by ARJUNA (in: Akreditasi Jurnal Nasional, en: National Journal Accreditation), a digital accreditation system managed by the Ministry of Education and Culture of the Republic of Indonesia. The number of journals in each SINTA (Science and Technology Index) index score or SINTA Grade is as follows:

Table 1 The proportion of SINTA-indexed journals*

SINTA Grade	Number of Journals (general)	Percentage
1	121	2%
2	976	13%
3	1,369	18%
4	2,539	34%
5	2,098	28%
6	305	4%
Amount	7,408	100%

Source: https://sinta.kemdikbud.go.id/#!

Compared to other grades, SINTA Grade 4 and so-called SINTA 4 indexed journals are more numerous. (see Table 1). This proportion became the reason for selecting SINTA 4-indexed journals as the unique context and primary data source for this bibliographic research.

Referring to several previous studies (Dolhey, 2019; Hesford et al., 2006; Kumar et al., 2020a; Shah et al., 2019; Uyar et al., 2020), our bibliographic research on managerial accounting in the 2011-2022 period is expected to answer at least the following eight questions:

Q1. What is the proportion of SINTA 4-indexed journals that published MAR articles?
Q2. What is the proportion of MAR articles in a SINTA 4-indexed journal?
Q3. What is the trend of MAR article proportion in SINTA 4-indexed journals?
Q4. What are the popular MAR topics in SINTA 4-indexed journals?
Q5. What are the popular MAR topics in SINTA 4-indexed journals in certain years?
Q6. What geographical area is frequently studied in MAR published in the SINTA 4 journal indexed?
Q7. What industrial sector is frequently studied in MAR published in the SINTA 4 journal indexed?
Q8. What research method is frequently studied in MAR published in the SINTA 4 journal indexed?

Due to the rarity of such studies in managerial accounting, it is hoped that this bibliographic research will guide future studies (Khlif and Chalmers, 2015). Another novelty is the thoroughness of the analytical approach that uses data visualization techniques (Lombardi and Secundo, 2021; Zhao et al., 2021). Exploration of SINTA 4-indexed journals published in 2011- 2022 is anticipated to describe the state and context of MAR in Indonesia, raise the standard of MAR, and highlight opportunities for expanding managerial accounting applications. Several references from internationally reputable scientific journals are used as additional benchmarks.

LITERATURE REVIEW
Managerial Accounting Research
Functionally, managerial accounting activities provide economic and financial information for managers and other internal information users. Conceptually, managerial accounting is part of the accounting science that addresses costs' role in decision-making, planning, control, and performance evaluation (Etges et al., 2020; Qiu et al., 2022; Weygandt et al., 2017). The role of cost in decision-making is often studied in job order costing, process costing, and Activity-Based Costing (ABC) (Duran and Afonso, 2020; Etges et al., 2020; Mazbayeva et al., 2022). The decision-making process in managerial accounting is associated with applying cost-volume-profit analysis methods, incremental analysis, pricing, and efforts to reduce costs (Shahzadi et al., 2018). Planning and control include budget planning

and control activities, application of standard costs and balanced scorecards, and capital investment planning. Performance evaluation emphasizes state- ments of cash flows and financial analysis (Wey- gandt et al., 2017).

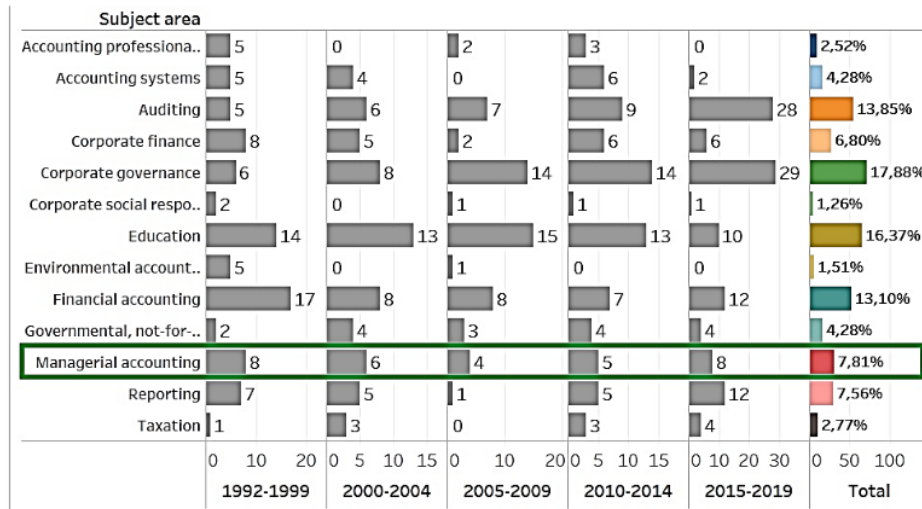| Subject area	1992-1999	2000-2004	2005-2009	2010-2014	2015-2019	Total
Accounting professiona..	5	0	2	3	0	2,52%
Accounting systems	5	4	0	6	2	4,28%
Auditing	5	6	7	9	28	13,85%
Corporate finance	8	5	2	6	6	6,80%
Corporate governance	6	8	14	14	29	17,88%
Corporate social respo..	2	0	1	1	1	1,26%
Education	14	13	15	13	10	16,37%
Environmental account..	5	0	1	0	0	1,51%
Financial accounting	17	8	8	7	12	13,10%
Governmental, not-for-..	2	4	3	4	4	4,28%
Managerial accounting	8	6	4	5	8	7,81%
Reporting	7	5	1	5	12	7,56%
Taxation	1	3	0	3	4	2,77%

Figure 3 Managerial Accounting on Bibliographic Study in Asian Review of Accounting

Although, in general, research published in the Asian Review of Accounting (ARA) increases in terms of productivity and status, a bibliographic study conducted in the ARA (see Figure 3) shows that the proportion of research on managerial accounting topics is insignificant compared to auditing, corporate governance, and financial accounting (Kumar et al., 2020a).

MAR typically follows practice rather than agenda-setting (Bromwich and Scapens, 2016). Even that is not as fast as the practice of its implementation. In recent years, the application of managerial accounting indicated that commercial businesses would heavily rely on strategic management accounting to be competitive by remaining inventive, advancing, and combining methods in accounting processes (Li, 2018; Oyewo, 2021). The results of other studies show that rapid technological changes are one of the environmental factors that significantly affect a company's internal processes, including the management accounting system (MAS) (Ghasemi et al., 2019) and accounting process in general (Marrone and Hazelton, 2019), including reporting and auditing (Lombardi and Secundo, 2021; Marrone and Hazelton, 2019). Although management accounting was developed to solve various practical problems, criticism of MAR is often expressed because the practical impact is minimal (Bromwich and Scapens, 2016; Jansen, 2018).

Journal Indexation

Impact Factor (IF) is a measure to assess the quality of a journal conducted by Web of Science (Clarivate Analytics, formerly Thomson Reuters ISI), including the quality of the research paper, the quality of the researcher or author of the research paper, and even the institution or affiliation of the researcher or author. IF was initiated by Eugene Garfield (1950) and, for the first time, used by the Web of Science (Clarivate Analytics) (Bromwich and Scapens, 2016; Carnegie and Napier, 2017; Hesford et al., 2006). Only journals indexed in the Science Citation Index Expanded (SCIE) or Social Science Citation Index (SSCI) will receive an official Impact Factor (IF) score.

In addition to international indexation, several countries apply local indexation with various criteria and objectives. Malaysia enforces MyCite as a citation index (Zainab et al., 2012). Indian Citation Index (ICI) is a multidisciplinary citation index for Indian-origin journals (Giri and Das, 2011). Taiwan Social Sciences Citation Index (TSSCI), maintained by the National Central Library of Taiwan, is a social sciences index that covers journals published in Taiwan (Chou and Chan, 2016). In Indonesia, SINTA is the government's widely used journal indexation

system. In general, the SINTA score is determined by ARJUNA using the following basic criteria:

1. With an ISSN (International Standard Serial Number), at least in the electronic version (e-ISSN)
2. Include the publication ethics statement on the journal's website.
3. It must be scientific and contain articles containing data and information that advances knowledge, science, technology, and art.
4. Has been published for at least two consecutive years, counting backward from the date or month of accreditation submission.
5. The publication frequency is at least two times per year regularly.
6. The number of articles per publication is at least five articles unless they are in the form of monographs.
7. They are registered at one of the national indexing institutions (Indonesian Scientific Journal Database, Garuda Portal, Science and Technology Library, or other equivalents).
8. With a Digital Object Identifier (DOI).

Furthermore, ARJUNA also set particular criteria according to journal naming, publisher institution, editing and management of publication management, article substance, writing style, appearance, periodicity, and dissemination.

Table 2 SINTA Grade and Score

SINTA Grade	Score
1	85-100
2	70-85
3	60-70
4	50-60
5	40-50
6	30-40

Journals accredited by ARJUNA will get a specific score to determine the SINTA indexation grade (see Table 2). A journal's complete information and accreditation history can be tracked at (http://arjuna.kemdikbud.go.id/).

Bibliographic Studies

Bibliographic research is increasingly carried out because it is efficient and effective for reviewing and summarizing empirical results on specific field research topics (Glass, 1977), including accounting fields and sub-fields (Keel et al., 2017; Khlif and Chalmers, 2015). The unit or material of analysis is a document and its attributes (Kipper et al., 2020;

Lombardi and Secundo, 2021). Bibliographic research is essentially a meta-analytic study, applying statistics to review and summarize empirical results on a particular research topic over a specific timeframe (Block and Fisch, 2020; Glass, 1977; Kipper et al., 2020; Uyar et al., 2020). There is no agreement or specific theoretical rules regarding the research timeframe. A study on entrepreneurial intentions was carried out over 18 years (Dolhey, 2019), in-depth mapping of the issues contained in the Asian Review of Accounting uses data records of 29 years (Kumar et al., 2020a), a bibliographic study on disclosure of Corporate Social Responsibility in Indonesia using 12 years (Firmansyah et al., 2020).

When conducting a bibliographic study, the researcher should follow several processes, generally consisting of five stages: (1) Identification of the research area and formulation of a functional problem; (2) Data collection; (3) Data processing; (4) Data analysis; and (5) Interpretation and discussion of results (Devinney et al., 2013; Dolhey, 2019; Kipper et al., 2020). Bibliometric indicators are a powerful information tool to support scientific development (Dolhey, 2019; Kipper et al., 2020; Smyrnova-Trybulska et al., 2018).

The selection of the proper computer software determines the effectiveness of bibliographic research. Spreadsheet software such as Microsoft Excel or Google Sheets can be used to process numbers, including to process statistical indicators. Business intelligence software such as Tableau or Power BI can visualize data with relatively high relational complexity in various diagrams. Meanwhile, VOSviewer (https://www.vosviewer.com/) can map the relationship between keywords in a set of analyzed articles (Dolhey, 2019; Kipper et al., 2020; Kumar et al., 2020b; Shah et al., 2019; Smyrnova-Trybulska et al., 2018). VOSviewer uses a modularity-based clustering approach in grouping keywords (Yan et al., 2012; Zhao et al., 2021). The outputs from the VOSviewer used in this study are clustering, the number of occurrences on each topic, research network maps based on occurrences and intensity per year, and strength of links (similarity in the number of references cited on two linked topics).

RESEARCH METHOD

This section describes the application of the five-stage bibliographic study (Devinney et al., 2013; Dolhey, 2019; Kipper et al., 2020; Zainuldin and Lui, 2022) in this study. One of the most important preparations before starting a bibliographic study is choosing the journals that will be the data source. The specific criteria of the journals considered in this

study are:
1. The journal was listed in the SINTA 4-indexed journals database (https://sinta.kemdikbud.go.id) in 2022.
2. They are published electronically by publishers domiciled in Indonesia and operating the Open Journal System (having an official website) from 2011-2022.

3. The journal name contains one of the unique keywords used in this bibliographic research.

Notes:
Keywords to search for journal names that have the potential to contain management accounting topics on the SINTA website are accounting (in), accounting (en), management (in), business (in), economics (in), and social (in)

Table 3 The proportion of SINTA 4-indexed journals with special topics

Unique Keywords (written on the journal name)	Number of Journals		Percentage
	General	Contains Special Keywords	
Accountancy	201	64	32%
Accounting	66	22	33%
Management	312	106	34%
Business	232	81	35%
Economy	305	111	36%
Social	167	57	34%
Amount	1283	441	34%

Based on these criteria, 441 journals (34%) potentially containing articles on managerial accounting topics were obtained (see Table 3).
Then, referring to the bibliographic study procedure, we identified the quantity and quality of managerial accounting article topics in SINTA 4 indexed journals according to the scope of the research area and the formulation of the problem, as explained in the introduction section.

The criteria for the articles/documents (Kipper et al., 2020) considered in this study are:
1. Published electronically in a journal according to predetermined journal criteria
2. It can be downloaded manually in PDF format.
3. It has metadata (at least the author's name and year of publication) that can be accessed automatically by Zotero's citation management application.

The article is removed if both metadata (in criteria 3) are not stored in the article. In this study, the process of completing or changing metadata, especially journal names and article titles, was often accomplished manually via the Zotero citation management application. The source is the article's official Uniform Resource Locator (URL). The critical process for the articles used in this bibliographic research is selecting and inserting keywords into the Zotero application. This process also must be done manually because the terms,

writing, and placement vary significantly in each article's structure according to the journal's guidelines (Paladi and Fenies, 2016; Uyar et al., 2020), sometimes they are not listed in the keyword list, or the journal limits the number of entries. The keywords defined as the variables analyzed are based on the article's title, keywords, and several essential parts of the article's contents. Some additional keywords such as industrial context (manufacturing or services), geographical context (the province where research is located), resources (primary or secondary data), analytical methods (qualitative or quantitative), data processing software (MS Excel, SPSS, Lisrel, AMOS, Eviews) and some other important words are deliberately added to obtain more detailed analysis results. The keywords used are translated into English, and the translation results of Indonesian keywords are done manually to maintain scientific relevance. We also describe the difficulties that occurred during the research. In the final section, this study recommends ideas that are conducive to MAR in the Indonesian context in the future. This bibliographic study uses VOSviewer software.

RESULT AND DISCUSSION
This section will describe the implementation of the last stage of the bibliographic study, the interpretation, and the discussion of the results (Devinney et al., 2013; Kipper et al., 2020). The percentage

of articles on managerial accounting topics is calculated based on the number of articles in the volume and publication number of the selected journal as a sample. If there are differences in the number of articles in several volumes and numbers in the same journal, then the smallest number will be used as a divider. Thus the proportion approach used is optimistic.

After going through the selection process for SINTA 4 journals and articles according to the established criteria, 21 journals (4.8% of 441 journals) were obtained containing 129 MAR articles (6% of 2300 articles) in 2011-2022. Although the names of 21 journals that fit these criteria are in Indonesian, five articles identified were published in English (Aulia and Setyorini, 2021; Bawono et al., 2020; Fathurrahmi and Samsiah, 2018; Kuntorini et al., 2022; Purba and Sari, 2022).
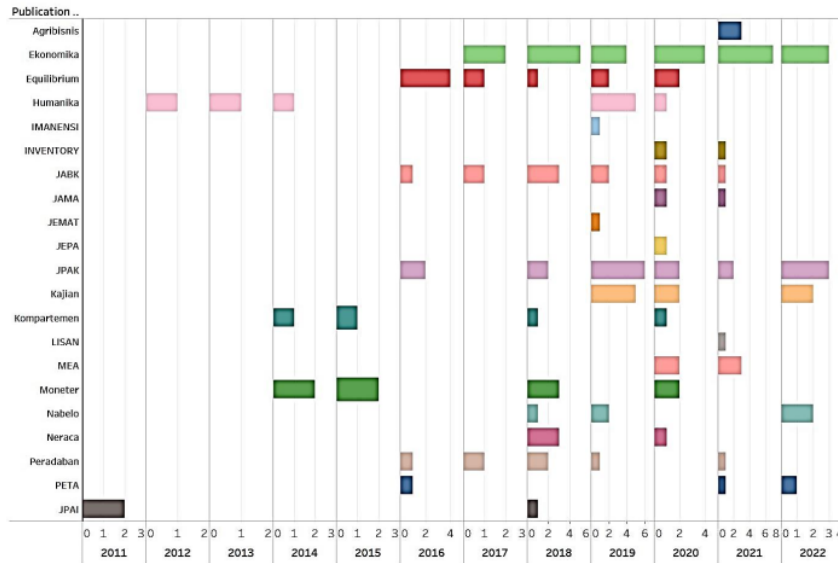

Figure 4 Number of MAR articles/year

In the 2011-2022, it can be seen that the number of journals and the intensity of loading managerial accounting topics have increased since 2016 (five journals/ 24%). The most significant number of publications occurred in 2019 (29 articles). In its development, only the Journal of Accounting and Economics (Ekonomika) provides a relatively consistent proportion of managerial accounting topics (25 articles in 2017-2022). Journal of Accounting & Finance Education (JPAK) is the second most active journal in the range (2016-2022), but the proportion is not as consistent as Economics (see Figure 4).
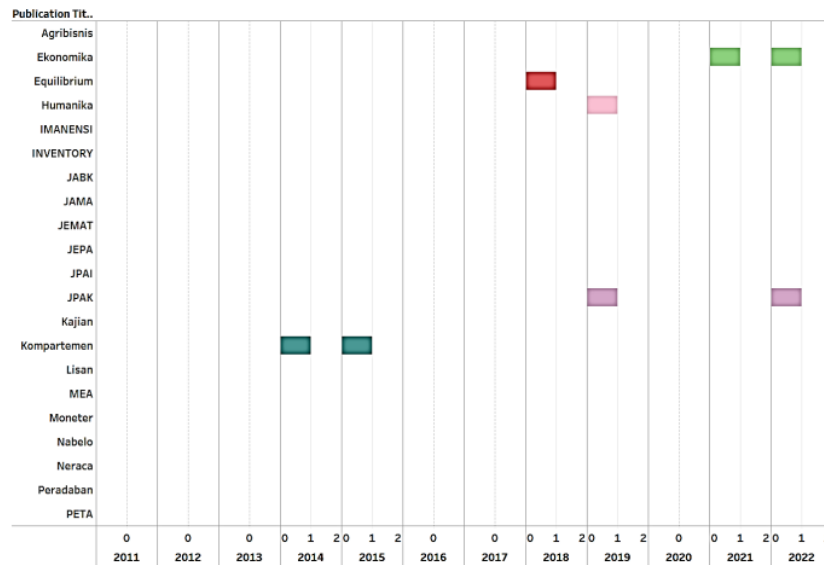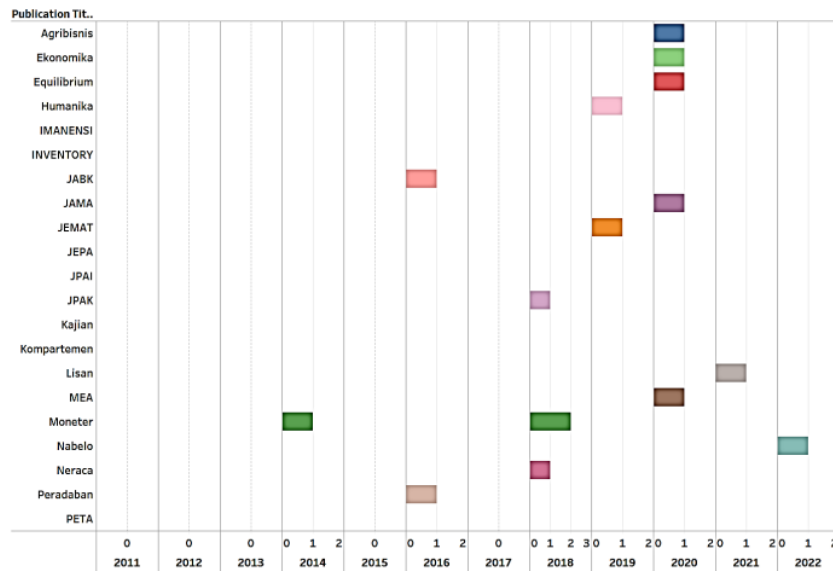
Figure 5 Number of managerial accounting articles on the topic of human resources (cluster 1)/ year

In general accounting, people labeled "labor" have long been included in financial statements as an assigned expense to revenue in calculating profits. In managerial accounting, labor topics are usually associated with the concept of human assets, which is thicker with monetary aspects of human resources, which are more directed at physical or operational aspects (Ejiogu and Ejiogu, 2018). Although research on human resources in managerial accounting is still being carried out, there has been very little progress (Ejiogu and Ejiogu, 2018). This condition was confirmed in this bibliographical study. Only five SINTA 4-indexed journals (24%) published articles on the relationship between human resources and managerial accounting in 2011-2022 (see Figure 5).

The number of articles was only eight. Even though it is small, visualization of partial data in two different years in the same journal (Ekonomika, JPAK, and compartment) indicates that each journal manager has different preferences in raising these topics. One of the articles which actually discussed the influence of human resources on the income of the South Sulawesi borehole business did not even

mention the existence of human resources aspect in the title of the article (Mustafa and Pauso, 2018). There are only four journals that explicitly link human resources to managerial accounting; two articles discuss the measurement of human resource accounting in government-owned companies in Central Java (Darmayanti, 2015; Priyati and Fakhruddin, 2014), the other two articles link human resources to budgeting (Marsontio et al., 2022; Purba and Sari, 2022).

A deeper analysis shows that these studies tend to be descriptive and have not presented practical implications, confirming that MAR generally has not significantly impacted practical interest (Jansen, 2018). Practically speaking, there is no need to doubt the recognition of managers for the contribution of human resources to business performance. Nevertheless, from a managerial accounting point of view, contributions are still needed with a much more significant and real practical impact, not stopping at the analysis of the components in the balance sheet that are considered related to human resources (Ejiogu and Ejiogu, 2018; Flamholtz et al., 2020).

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Figure 6 Number of managerial accounting articles on the topic of the cost of goods sold/ CoGS (cluster 3)/ year

The number of research on the Cost of Goods Sold (CoGS), more extensive than human resources, is not surprising because the CoGS is one of the essential topics of managerial accounting (Weygandt et al., 2017). In the 2011-2022 range, 14 journals (67%) published articles on the CoGS (see Figure 6). At least three interesting phenomena are related to this topic (see figure 3). First, around 63% of articles include the CoGS as part of the article title (Arni, 2018; Dewi, SE., Ak., M.Ak., CA and Hardiyanti, 2018; Gustinya and Melinawati, 2019; Nadia Astuti et al., 2020; Purwanto and Watini, 2020; r and Kusuma,

2020; Rumambi et al., 2022; Sari, 2018; Supriatini et al., 2019; Widyastuti and Mita, 2018; Zen and Widodo, 2016). Second, most research on the CoGS was carried out in manufacturing companies. Only one article discusses the service sector (hotels) (Faishal et al., 2018). Third, in 2020, the publication of the topic of the CoGS will receive a more significant portion (5 journals) compared to previous years. We suspected that COVID-19 would be a contextual factor in these studies. The analyzed articles published in 2021 and 2022 do not include COVID-19 as part of the analysis, even in the introduction section.
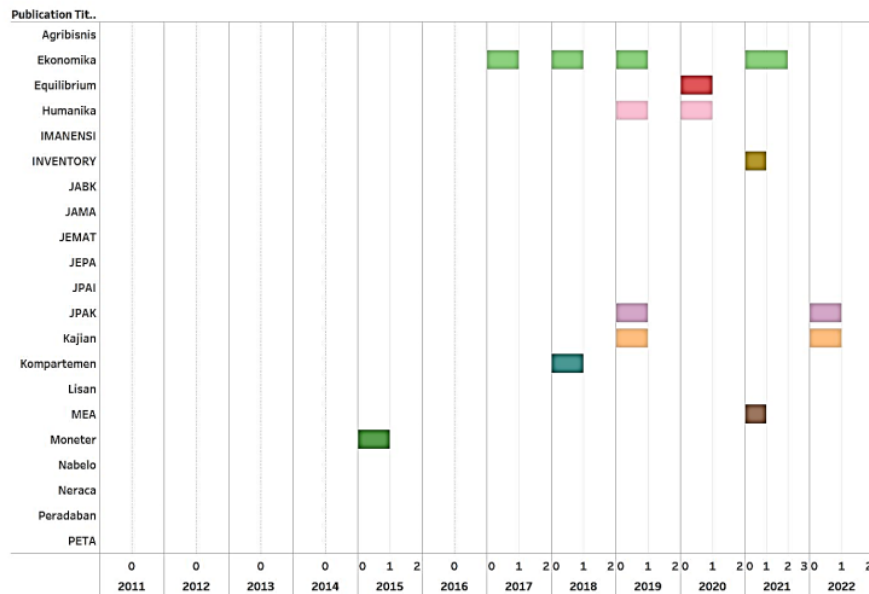
Figure 7 Number of managerial accounting articles on the topic of performance (cluster 3)/ year

Just like the topic of the CoGS, managerial accounting is often associated with measuring or evaluating performance (Etges et al., 2020; Weygandt et al., 2017). Sixteen articles in SINTA 4-indexed journals confirm this (see Figure 7). The topic of the CoGS differs from performance topics in that considerably fewer publications publish performance-related articles (42%). The Economics Journal seems far more active in publishing this topic than others.

Performance is a specific topic of interest to certain journals.

After describing the characteristics of SINTA 4-indexed journals with their uniqueness in publishing managerial accounting articles, the next issue is the complexity and depth of the studies constructed by research network maps. The primary data source is the RIS file, containing 310 keywords processed by Zotero software for 129 articles.

Table 4 Managerial Accounting Research Clusters

Clusters	Topic (Occurrence)	Number of Keywords
1	Corporate Social Responsibility (5), disclosure (3), efficiency (5), financial performance (3), financial statement (3), green accounting (3), human resources (8), profitability (7), sustainability (3), sustainability reporting (3)	10
2	budget participation (3), budgetary slack (3), compensation (3), employee performance (9), job satisfaction (4), Leadership (3), Motivation (6), organizational commitment (6), Total Quality Management (4), work environment (4)	10
3	Activity Based Costing (10), CoGS (16), full costing (4), job order costing (3), product cost (9), profit (5), selling price (6), traditional costing (7)	8
4	Budget (10), budget absorption (4), budgeting (6), competency (4)	4
5	Balance Scorecard (4), competitive advantage (3), human resource management (3), performance (16)	4
6	Accounting information (4), productivity (6), raw materials (4)	3
	Total	39

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We used VOSviewer to identify and select 80 keywords from the initial 310 assessed as having the most significant opportunities as MAR topics (Yan et al., 2012). Next, VOSviewer defines 39 main keywords based on the minimum occurrence conditions three times and groups them into 6 clusters (see Table 4).
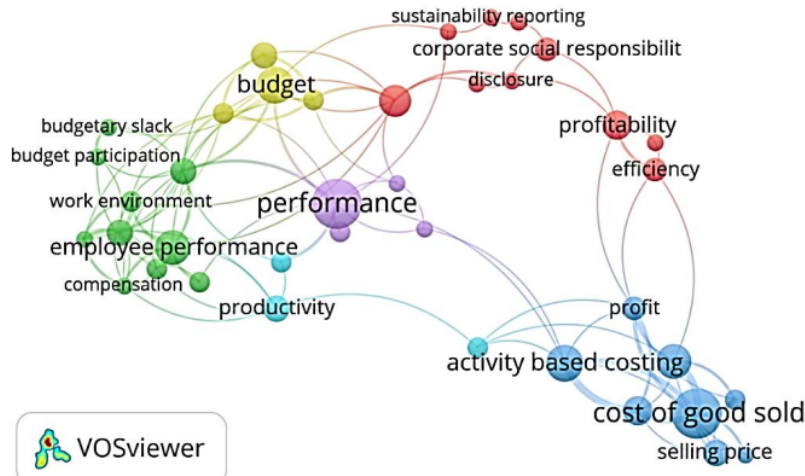

Figure 8 Relationship Map between Topics (6 clusters)

The distance between clusters in the relationship map between topics can be used to visualize the clarity of boundaries between clusters and their proximity to other clusters (Zhao et al., 2021). The position of cluster 5 in the middle of other clusters indicates that topics in cluster 5 (Balance Scorecard, competitive advantage, human resource management, and performance) is relatively often associated with various topics in other clusters. The closer distance between Cluster 5 to Clusters 1,2, or 4 compared to Cluster 3 shows that the topics in Cluster 5 are more often associated with topics in Clusters 1,2, or 4 (see Figure 8). Regardless of the publication period, visually, it is clear that the topics of CoGS (cluster 3) and performance (cluster 5) are the two variables most often researched in Indonesia. Regarding the analytical method used, 51% of the articles explicitly use quantitative methods, 38% use qualitative methods, and the rest use mixed methods or do not specify.

Table 5 Performance (cluster 5) and related topics (other clusters)

Link no	Topic 1		Topic 2		Sector	Province
	Clusters	Topics	Clusters	Topics		
1	5	Performance	1	Financial performance	Government	West Java
2	5	Performance	3	Activity Based Costing	Universities	Riau
3	5	Performance	6	Accounting information	Varies, SME (a) Varies, SME (b)	Yogyakarta (a) Bali (b)
4	5	Performance	2	Total Quality Management	Manufacturing	West Java
5	5	Performance	2	Organizational	Varies, SM	Bali

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Link no	Topic 1		Topic 2		Sector	Province
	Clusters	Topics	Clusters	Topics		
				Commitment		
6	5	Performance	4	Competency	Government	East Java
7	5	Performance	4	Budget	Government (a) Government (b)	East Java (a) West Java (b)
8	5	Performance	5	Balanced Scorecard	High school education (a) Government (b)	Riau (a) Bali (b)
9	5	Performance	5	Competitive advantage	University	Riau
10	5	Performance	5	Human resources management	Varies, SM	East Java

Indonesia consists of 38 provinces. Each province's type, number, and proportion of business sectors vary greatly, and so do the existence of tertiary institutions and study programs that are the motors of MAR publication. Of course, this condition greatly influences the color of MAR publication from a geographical context.

Figure 9 MAR in Indonesia Provinces

Data shows that MAR distribution, intensity, and publication are geographically limited. The MAR activities published in SINTA-4 indexed journals are only exposed in 10 provinces (26%) (see Figure 9). The manufacturing industry is the most researched sector (24%), while the service sector is around 7.2% in contrast to the global trend (Etges et al., 2020). Nonetheless, MAR on profit on profit-oriented businesses is still much smaller than on non-profit-oriented businesses (68.8%).
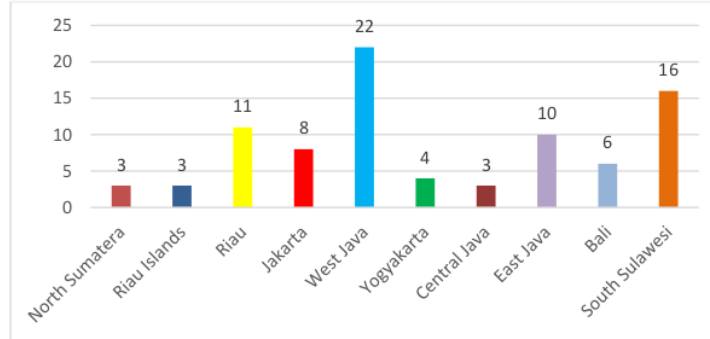
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Figure 10. Geographical Context of Research

Most manufacturing companies are on Java island (which includes the provinces of DKI Jakarta, West Java, Yogyakarta, Central Java, and East Java). Cities in the provinces of West Java and South Sulawesi are among the most frequently used as local-geographical contexts compared to cities in other provinces. Based on the context of the industrial sector, the manufacturing sector is the sector most often researched using case study methods and empirical studies in several provinces (Riau 2 articles, Jakarta 2 articles, West Java 7 articles, Central Java 1 article, East Java 1 article, South Sulawesi 5 articles) (see Figure 10). The propagation of MAR is still far from popular in Indonesia.
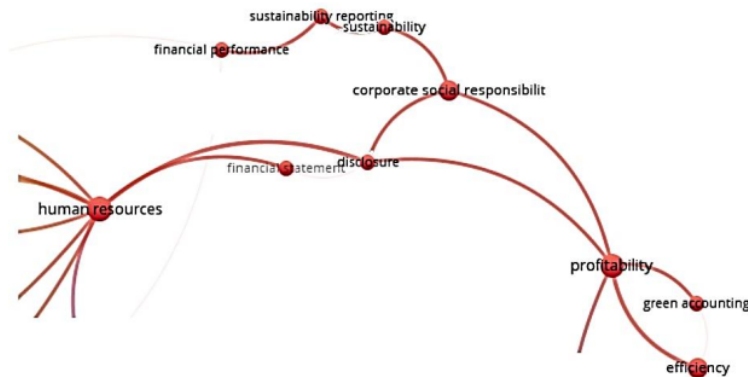

Figure 11. Relationship Map between Topics in Cluster 1

Now, we analyze the bibliography map in detail. Cluster 1 contains several topics related to environmental management, such as green accounting, sustainability, sustainability reporting, and corporate social responsibility (see Table 4). However, this cluster often discusses human resources with special attention. Research on human resources is more related to topics from other clusters, such as competency, budgeting, budgeting, and budget absorption in Cluster 4, employee performance and work environment in Cluster 2, and human resources management in Cluster 5 (see Figure 11). Within the cluster, the link between human resources and disclosure is the only link with the strength of the two (Darmayanti, 2015; Priyati and Fakhruddin, 2014). Even then, the research of the two articles has several similarities. Both were conducted at a state-owned company (municipal water supplies) located in Central Java province (but different cities) and were investigated by researchers from the same university. Still, in cluster 1, sustainability is a topic that is starting to be in great demand in Indonesia even though it is still struggling in the same cluster (with financial performance and sustainability reporting).

In comparison, research on the relationship between sustainability and management control systems (Soderstrom et al., 2017) and the use of digital and

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smart technology (Lombardi and Secundo, 2021; Marrone and Hazelton, 2019) has started to appear in several reputable international journals. An interesting phenomenon is the low frequency of publication of sustainability issues in cluster 1 (see Table 4 and Figure 11). This position confirms a research result indicating environmental accounting researchers' tendency to disseminate their research in non-top-tier journals (Cho et al., 2022). The characteristics of cluster 2 are relatively similar to cluster 1 and therefore are not discussed further.

Figure 12. Relationships Between Topics in Cluster 3

Cluster 3 is unique. Even though the variety of topics is less than in Clusters 1 and 2, the research in Cluster 3 is much more focused. Interestingly, although the intensity of topics in Cluster 3 is less than in Cluster 1, the frequency of studies on the variable CoGS in Cluster 3 is more massive than human resources in Cluster 1 (see Figure 12). Research on Activity Based Costing (ABC) in Cluster 3 is even more numerous than human resources in Cluster 1. The linkage of the ABC topic with traditional costing or traditional cost accounting has six link strengths that were carried out in the 2016-2021 period (El Haqqi and Sukirno, 2018; Faishal et al., 2018; Farihah and Sari, 2016, p.; Kaukab, 2019; Pradipta, 2021). Meanwhile, ABC has four link strengths with the CoGS (Faishal et al., 2018; Kaukab, 2019; Pradipta, 2021; Rahmadani and Wawo, 2016). Respectively, research on the CoGS was published in 14 journals, ABC in 9 journals, and research on human resources

in 6 journals.

Referring to the development 9 the use of ABC in global scope, more specifically the Time Driven Activity Based Costing (TD ABC) method, the study of ABC and its practical use is very wide open (Duran and Afonso, 2020; Etges et al., 2020; Keel et al., 2017). The TDABC can be applied more at the departmental level in specific industries. For example, a bibliographic analysis of 26 of 1066 articles on applying the TDABC was found to address surgical inpatient activities specifically. As a result, most of these studies report the types of activities analyzed at the macro level. Eighteen of the 26 studies reported that TDABC influenced cost-saving initiatives. TDABC can be a strategic performance management tool in practical activities. In the context of medical services, TDABC can provide a clearer picture of costs, allocate resources, reduce waste, and assist managers and doctors in increasing the quality of service (Etges et al., 2020).
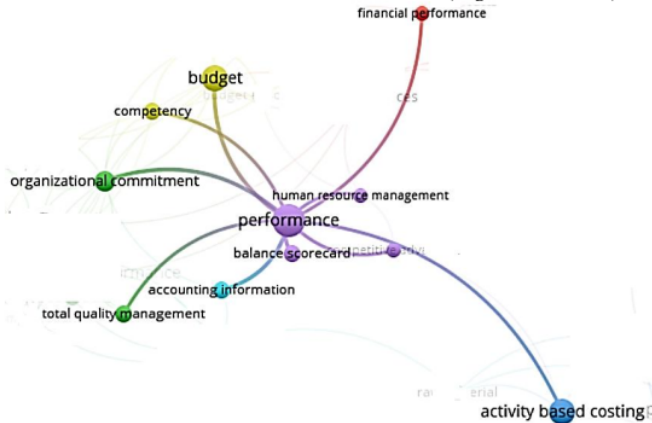

Figure 13. Relationships Between Topics in Cluster 5

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Even though only four topics were frequently studied in cluster 5, performance (with an occurrence of 16) became one of the most frequently MAR in the SINTA 4-indexed journals (see Figure 13). The use of performance as a research topic is still being carried out in various parts of the world. A study has proved a direct relationship between technology and management accounting systems and management accounting systems and managerial performance. This study also confirms the role of the management accounting system as a mediator between technology and managerial performance (Ghasemi et al., 2019). A literature review indicates a growing body of research that combines various organizational-intensive aspects with knowledge elements. The aspect is not only in accounting tools (e.g., performance indicators, budgeting, and reporting) but also concerning individual actors who may have different values and thus act according to some logic. This phenomenon highlights many areas where robust further research is needed to guide the development of hybrid organizations in policy and practice (Grossi et al., 2019; Qiu et al., 2022).

Studies in Pakistan show that the accounting system plays an essential role in the organizational structure of companies. This study reveals that the main factors affecting organizational structure are environmental uncertainty, advanced production technology, just-in-time method strategy, quality management, and integrated structure. The findings reveal that management accounting practices affect all processes and transform all simple systems into complex systems in Pakistani industries (Shahzadi et al., 2018).

Six articles using secondary data from IDX (Indonesia Stock Exchange), 100% examine phenomena in the manufacturing sector, such as the effect of production costs and inventory turnover on net profit in industrial manufacturing companies in the food and beverage sector (Winarto and Haryanti, 2021), the effect of implementing green accounting on the level of profitability manufacturing companies in the consumer goods industry sector (Lestari and Nadira, 2019), the effect of inventory management and accounts receivable management on the working capital of companies in the consumer goods industry sector (Azizah, 2019), the effect of working capital efficiency on profitability in textile and garment companies (Novianty, 2016), the effect of transfer pricing on tax avoidance (Panjalusman et al., 2018), the effect of taxes, and bonus mechanisms, and tunneling incentives on transfer pricing decisions in manufacturing companies (Jannah and Hatimah, 2022).
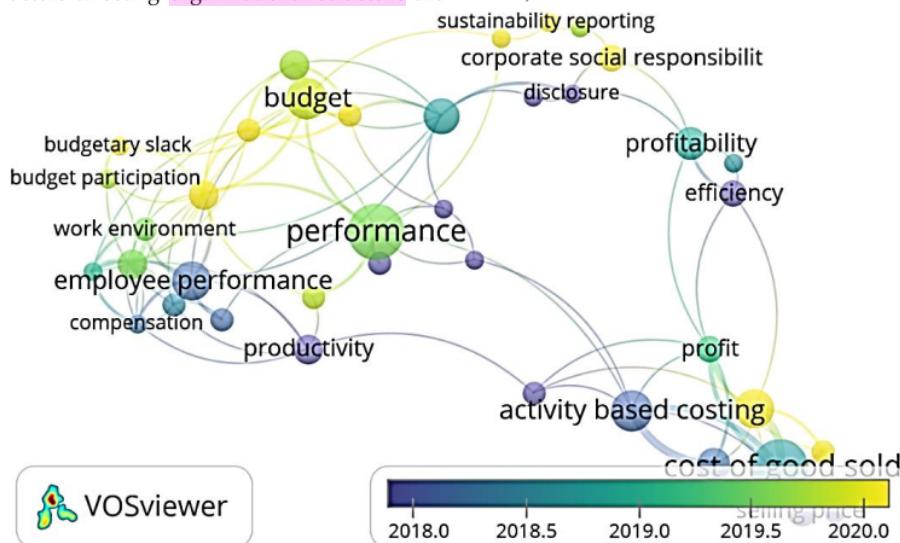

Figure 14. Research Intensity of Various Variables in 2018-2020

Visually, it is clear that each cluster's research topics in the 2010-2022 period vary greatly (see Figure 14). In the 2011-2017 range, there were relatively no dominant special topics or formed particular clusters. These special topics only appeared in 2018-2020.

CONCLUSION

Only 21 (4.8%) of the 441 SINTA 4-indexed journals that potentially contain MAR articles have actually published articles in this field. The proportion of

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MAR articles in these journals is relatively small (6%) compared to other accounting studies in the 2011-2022.

The topics studied form six topic clusters. Issues related to Corporate Social Responsibility, disclosure, efficiency, financial performance, financial statements, green accounting, human resources, profitability, sustainability, and sustainability reporting (cluster 1) are the most frequently published topics in the last ten years. Issues regarding budgeting (cluster 2), sustainability (cluster 1), and costing (cluster 3) tend to increase from time to time. Some managerial accounting topics (e.g., CoGS) are general issues found in almost all journals throughout the year, while some topics (e.g., human resources, performance) were preferred in some journals.

About 51% of MARs in Indonesia apply the quantitative analysis method. Geographically, MAR activities published in SINTA 4-indexed journals are only exposed in 26% of provinces in Indonesia. The preferred industrial sector is manufacturing.

Implications

For managerial accounting researchers, the results of this research, primarily bibliographic maps, can be the basis for research planning in the context of discovery and deepening of studies, including references in choosing research objects and relevant contexts. For accounting journal editors in Indonesia, especially SINTA 4-indexed journals, this research can be a reference for determining issues and various benchmarks for the selection/ assessment of managerial accounting articles. Focus on one cluster can be promoted as one of the journal's uniqueness.

Limitations

This research has limitations. First, even though the metadata processing has been supported digitally by Zotero, the completeness of the data still has to be done manually, so the potential for incompleteness/ duplication still exists. Second, the study is limited by the time frame between 2011 and 2022. Likely, it does not describe phenomena before and after that time frame. Although the source of this bibliographic study data is online, this study does not answer questions about the effectiveness of online studies. Our study hopefully inspires new studies to complement our studies due to these constraints.

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