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TEN YEARS OF JURNAL AKUNTANSI DAN KEUANGAN INDONESIA: A BIBLIOMETRIC STUDY

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Abstract

This study aims to map articles in the Jurnal Akuntansi dan Keuangan Indonesia (JAKI) published by the Faculty of Economics and Business, Universitas Indonesia, for ten years (2011 to 2020). This study deployed a bibliometric analysis as an investigative method. The data were analyzed with R biblioshiny analytical framework. The findings revealed that JAKI was considerably consistent in publishing articles every period. JAKI publishes six articles each number and two publication numbers annually. In particular, there were 120 articles gained from 2011 to 2020. Based on the analysed articles, the most frequently emerging word from unigrams was ‘study’ and ‘earnings management’ from bigrams. Additionally, the most popular topics during those years (2011 to 2020) were ‘income’, ‘risk’, ‘slack’, ‘foreign’, and ‘direct.’ Moreover, the most closely related words to other words encompassed ‘study’, ‘result’, and ‘research.’ Further, the words ‘study’, ‘result’, and ‘effect’ represented a strong density and centrality of words. Therefore, they should be cultivated.

Keywords: Jurnal Akuntansi dan Keuangan Indonesia, bibliometric, R

Abstrak


Kata kunci: Jurnal Akuntansi dan Keuangan Indonesia, bibliometric, R
INTRODUCTION

The empirical investigation of journals aims to identify the development of the journal itself. Specifically, it describes the contributions of a journal to the development of science. Journals are commonly evaluated based on quality, quantity, and impacts in a similar investigative scope. The evaluation covers several elements, namely assessing the ability to disseminate journal information, the impact of the authors, and the pattern of collaboration between authors from various affiliations.

An investigation tends to be incomplete if the research results have not been published in quality journals (Thomson Reuters 2008), accredited, and indexed in international indexers. With this in mind, the latest information on research results presented in journals remains essential for the development of science and technology. Further, it can provide innovation for the development of a product.

Various investigative attempts on certain journals have been previously been carried out. As an example, Martínez-López et al (2018) scrutinized the European Journal of Marketing for 50 years of publication. Besides, Valenzuela et al. (2017) examined the Journal of Business and Industrial Marketing over 30 years of publication. The scrutiny in such a single journal can ultimately describe characteristics of the journal itself (Nebelong-Bonnevie and Frandsen 2006), including knowing the ranks of the most prolific authors in such a journal (Park 2006).

The analytical tool commonly employed to analyze this literature is bibliometric analysis functioning to map published articles. The bibliometric analysis provides indicators of scientific productivity, researcher preferences, and publication trends (Jacobs 2001). Bibliometric scrutiny analyzes and classifies an overview of bibliographies of the investigated literature (Donthu et al. 2020).

This study employed bibliometric research on the Jurnal Akuntansi dan Keuangan Indonesia (JAKI). One of the most reputable Indonesian journals indexed by Science and Technology Index (SINTA) with the second rank category (SINTA 2). In this case, SINTA 2-indexed journals are considered as journals having good quality since they have been successfully assessed by the Assessor team from the Directorate General of Research and Development Strengthening, Ministry of Research, Technology, and Higher Education of the Republic of Indonesia through National Journal Accreditation portal (Arjuna). More specifically, JAKI was accredited with a value range between 70 and 85 supported by a Decree No. 51/E/KPT/2017 (from 4 December 2017 to 4 December 2022).

JAKI is a peer-reviewed journal published by the Universitas Indonesia at the Department of Accounting, Faculty of Economics and Business in 2004. It consistently publishes articles on accounting both for scientific development, educational development and practical needs. Hence, JAKI has been extensively referred by academicians, researchers, students, regulators, and other stakeholders.

Currently, JAKI has reached its 17 years. It always publishes research articles twice a year (June and December). Its scope encompasses Financial Accounting, Public Sector Accounting, Management Accounting, Sharia Accounting and Financial Management, Audit, Corporate Governance, Ethics and Professionalism, Corporate Finance, Accounting Education, Taxation, Capital Markets, Banking, Information Systems, and Sustainability Reporting.

However, the research articles published in JAKI have not been mapped since its establishment. One of the problems is that the journal has not visualized exciting and pivotal aspects. Hence, the role of JAKI in knowledge development tend to be under mined, notably in accounting. This can be tracked from investigative themes on the JAKI website. Also, JAKI should be able to identify trends or discipline growth patterns
in the accounting-based investigation to predict what novelties can be raised in the accounting studies.

Finally, through the R biblioshiny software-based bibliometric analysis, this article attempts to scrutinize these needs by presenting the most popular published themes and trends, the most frequently applied keywords, and other related information regarding JAKI.

LITERATURE REVIEW

Bibliometric mapping is carried out with software. It offers convenience in understanding the results of mathematical calculations through data visualization without compromising the accuracy of the mathematical calculation results. Data visualization enables people to effortlessly recognize a good overview of existing literature for complex investigative topics. This data visualization also allows analysis for a substantial amount of literature (Rodrigues et al. 2014).

Bibliometric mapping can provide adequate provisions for researchers to search for relevant literature among the abundance of existing information. Also, it helps organize the obtained information. Bibliometric mapping can adequately describe the research conducted in specific scientific fields. Unfortunately, not many researchers have the knowledge and skills to operate this software. As an example, Bandaram et al. (2015) suggest that several types of software can be used. They can be the software for qualitative data analysis (Nvivo, ATLAS.ti, etc.), scientific document management software or note-taking aid software (Endnote, Mendeley, Evernote, etc.), citation-analysis tools (CiteSpace, VosViewer, R, etc.), and literature-sharing tools (Dropbox, OneNote, OneDrive, etc.). Currently, many bibliometric mapping devices have been developed to assist in preparing literature reviews. Technically, this software can be applied to:

1. Identify experts in specific scientific fields. This analysis can identify a list of experts in a particular discipline (Garces et al. 2017; Katrenko 2015). In other words, it is beneficial for searching literature related to a discipline. This occurs because publications produced by an expert commonly revolve around a typical topic based on their expertise. The information of expert profiles enables a researcher to discover other researchers in a similar discipline. Further, this can be a bridge for them to collaborate in an investigative project.

2. Pinpoint the key papers of a subject. Commonly, the quality of documents is directly proportional to the number of citations. The total number of citations reflects the importance of an article by counting cited research articles (Zatorski and Fichna 2017). Thus, citation analysis can identify core documents (key papers). Bibliometrics makes it easier for researchers to explore which research articles are most relevant to their field of study. Relevance is essential because it can affect the quality of their research.

3. Identify which journals are frequently cited. Bibliometrics can be utilized to discover which journals are most frequently cited. The number of journal citations is directly proportional to the influence of a journal in the field of science. Most frequently cited journals are considered more important than journals with a low citation rate (Zatorski and Fichna 2017). This number of citations relates to the Impact Factor. Researchers prefer publishing in journals with high Impact Factors (Katrenko 2015). Knowing which journals have a high Impact Factor will make it easier for researchers to determine which journal targets are the most appropriate for their publications.

4. Explore key terms in certain disciplines. A discipline commonly possesses its scope and complexity. If a researcher can gain an overview of the investigative field, this general description can be obtained. Specifically, it is generated
from a topic or key concepts and the relationships between these topics or keywords can be constructed (Heersmink et al. 2011). Topics (key concepts) of a discipline can be observed from the frequency of their use, such as keywords in a research article an abstract. This can be a starting point to discover the scope of an investigative field by observing the entire keywords utilized to publish research results. This will be very helpful for novice researchers exploring a field.

5. Identify which institutions are most popular in a particular research field. As an example, it helps researchers search for information about institutions investigating a similar research topic. Collaborative research can be conducted through cooperation with other institutions. Technically, it follows the track record of institutions’ research.

6. Recognize the investigative trends on Bibliometrics can map the research topics (Corral et al. 2013). Observing the most frequently investigated topics periodically can determine a research trend of a discipline simultaneously. Moreover, comparisons can also be performed to view investigative trends periodically. As a result, it can be viewed from the stage of developing research in a field. Besides, it reflects the concepts/topics emerging in a period. It also determines the most popular topics/concepts (Heersmink et al. 2011). Further, this trend mapping can be applied to identify directions for future research development (Rodrigues et al. 2014).

**RESEARCH METHOD**

This study adopted the bibliometric analysis, a branch of science related to quantitative studies on the literature (Heersmink et al. 2011). It performs mathematical calculations on published bibliographic data. For publications in the form of articles, this data includes the author’s name, affiliation, article title, journal name, year of publication, journal volume, keywords, abstract, bibliography, and others. These types of data were analyzed with specific counting techniques to outline the quality of the research results.

Bibliometrics was one of the most widely used research methods with a mapping workflow (Börner et al. 2003). Bibliometric mapping was part of bibliometrics that visually represents the relationships between the units under study. The units can be in the form of documents,
Table 1
Number of Documents

<table>
<thead>
<tr>
<th>No</th>
<th>Publication Year</th>
<th>Number of Documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2011</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>2012</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>2013</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>2014</td>
<td>12</td>
</tr>
<tr>
<td>5</td>
<td>2015</td>
<td>12</td>
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<td>6</td>
<td>2016</td>
<td>12</td>
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<td>2017</td>
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<td>8</td>
<td>2018</td>
<td>12</td>
</tr>
<tr>
<td>9</td>
<td>2019</td>
<td>12</td>
</tr>
<tr>
<td>10</td>
<td>2020</td>
<td>12</td>
</tr>
</tbody>
</table>

Amount 120

authors, or keywords. In contrast, the relations between these units can be citations, co-citations, co-authorship, or co-occurrence of keywords (Heersmink et al. 2011).

This study applied R software to analyze data into visual output. This type of output was extensively utilized to analyze bibliometrics, such as in the research of Chen (2003) and Firmansyah and Rusydiana (2021). This research was conducted in the Jurnal Akuntansi dan Keuangan Indonesia (JAKI) published by the Faculty of Economics and Business, Universitas Indonesia. The journal can be accessed on the https://scholarhub.ui.ac.id/jaki/ page. Unfortunately, to facilitate metadata retrieval, the metadata was taken from dimensions.ai. There were 120 articles from 2011 to 2020 collected as the data.

Commonly, the recommended mapping workflow, according to Aria and Cuccurullo (2017) is presented in Figure 1.

Figure 1 represented the original diagram copied from Aria and Cuccurullo (2017) in the Journal of Informatics page 963. The diagram explained that the stages of bibliometric analysis using R software consist of three stages: data collection, data analysis (descriptive analysis for bibliographic data, network creation for coupling analysis, and normalization), and data visualization.

The present study deployed R Studio software in analyzing bibliometrics. It was performed because the produced output was extremely comprehensive. Also, it enabled the researcher to present the data with a simple visualization. Hence, it was easy to read. Therefore, among other software in bibliometric analysis, R studio was considered the most powerful one.

RESULTS AND ANALYSIS

Based on the collected data in JAKI, 120 articles were obtained from 2011 to 2020. Each volume consistently publishes 12 articles with the publication of 2 volumes of 6 documents each.

Word and Thematic

The following figure described the most frequently emerging words in JAKI taken from the abstracts of each article. The emergence was visualized in the forms of Word Cloud, Word TreeMap, and Bar graph Most Relevant Word.
Figure 2
Words that often appear in JAKI in the form of Word Cloud unigrams

Figure 3
Words that often appear in JAKI in the form of Word Cloud bigrams

Figure 4
Words that often appear in JAKI in the form of Word TreeMap Unigrams

Figure 5
Words that often appear in JAKI in the form of Word TreeMap Bigrams
The Word Cloud, Word TreeMap, and Bar graph Most Relevant words above revealed descriptions of the most frequently applied words in JAKI. However, they were presented in different forms. To illustrate, the most frequently emerging words were represented in one syllable (unigrams) and two syllables (bigrams). The presented words in the Word Cloud were based on the size of the displayed letters. Even though they were presented randomly but they were easy to identify. The larger the font size, the more words were used.

On the other hand, the 'Word TreeMap' was grounded in the size of the box. The larger the box size, the more words the article utilized. The size of the largest box was displayed on the left. In a similar vein, Most Relevant Word outlined the number of words based on the length of the bar chart. Specifically, it was regularly presented in order from top to bottom. The higher the diagram was presented, the more words appeared.
The results of research based on Word Cloud, Word TreeMap and Bar Graph Most Relevant Words reported the words 'study', 'disclosure' and 'effect' as the most widely utilized words in the articles. In addition, based on bigrams, the most emergent words were 'earnings management', 'stock exchange', and 'audit quality'.

Word Growth
In this study, the most emergent words were deciphered with an annual development curve and an annual occurrence value. These results reported that the average number of these words appeared in the collected data of JAKI’s articles per year. Figure 8 reflected that the most frequently occurring and developing words increased in the past ten years. The word 'study' became one of them from 2011 to 2020. It made such a word to be the most applied word in JAKI. Similarly, other words indicated an increase though it was relatively different from what occurred in the word 'study'.

Trend Topics
The present study is also concerned with a trend of extensively employed topics annually. As a matter of fact, the development of existing and enduring topics for a few years can be seen clearly. The emergent topics follow the number of words appearing in the JAKI published articles. The bigger the circle (see Figure 9), the more words were used annually. Also, the longer the line in the word, the more consistent the topic was deployed annually.

Based on Figure 9, it is recognized that the topics in JAKI for the last ten years have been considerably diverse. Some only last a short time and some last a long time. To illustrate, the topic 'risk' was used for a long time from 2012 to 2020 and peaked in 2020 alongside other topics, such as 'income', 'slack', 'foreign' and 'direct'. On the other hand, the least used topics were 'internal', 'tax', and 'measure' which only lasted two years. Similarly, the topic of 'mosque' had also only lasted 2 years (from 2019 to 2020). However, there was a possibility to be utilized in the upcoming years.
Co-occurrence network

The co-occurrence network displays words randomly. Each has two colours. The different colours outlined the existing relationship among the words. In addition, the circle size represented multiple related words. Based on Figure 10, the words 'study', 'result', 'research', and 'effect' were the most closely related words in the group. On the other hand, the words 'Indonesia', 'stock', 'financial', and 'company' represented the most closely related words in another group.

Thematic map

This study also analyzed the thematic maps emerging based on centrality and density. In particular, the themes were
Thematic Map

Figure 11

classified into four groups based on the semi-automatic algorithm of each collected article. The classification encompassed reviewing keywords, abstracts, and article titles. Consequently, this analysis reached comprehensive results.

The upper right quadrant is a driving theme characterized by a high density and centrality. In other words, it needs to be developed. Besides, it remains crucial to be investigated in further research. As an example, the words 'study', 'result', and 'effect' are in this quadrant. At the same time, the rarely used and specific themes are discovered in the upper left quadrant. In this quadrant, the existing themes have a good development. This can be viewed from its low centrality. Conversely, it has a high density. The themes in this quadrant are 'Indonesia', 'financial', and 'stock'.

Furthermore, themes denoting low centrality and existing for a long time currently experienced a decline (see the lower left quadrant). In this quadrant, it was detected that the themes of 'management', 'earnings', and 'capital' decreased. Meanwhile, themes indicating low density but high centrality occupied the lower right quadrant. These themes were 'examines', 'quality', and 'evidence'.

Thematic Evolution

The themes adopted in JAKI continue to evolve, especially in the last ten years. Although JAKI has predetermined themes, the published articles should develop sub-themes related to accounting and finance. The left side of figure 12 indicates a number of themes widely employed from 2011 to 2016. In particular, there were five listed major themes with different sizes depending on the quantity of used these themes. To illustrate, the themes were 'Indonesia', 'examines', 'study', 'earnings', and 'results'. Meanwhile, the right section reports a number of themes dominantly deployed from 2017 to 2020. Some emergent themes were an evolution of the themes in previous research (e.g. 'study', 'effect', 'research', and 'relationship').
DISCUSSION

Once the data had been analyzed with R biblioshiny, there were 120 articles published in JAKI from 2011 to 2020. JAKI was highly consistent in publishing six articles per number. Specifically, it publishes two numbers of articles in one year (one volume). This consistency can provide a good assessment from rating agencies (indexers), authors, and readers. Therefore, JAKI is an accredited journal based on Science and Technology Index 2 (SINTA 2).

In its 10-year journey, JAKI has accommodated a lot of writings. One of them is lecturers’ published research articles. The publication productivity can be viewed from a number of published articles in such a journal within a certain period (Rahyudi et al. 2019).

The study also focused on the most emergent words. Over the past ten years, the word 'study' has been the most frequently applied. This word often appears because JAKI is a journal extensively publishing research articles. In other words, the word 'study' in the article is closely related to the research article. In addition, the word 'study' also often appears related to the adopted research method (e.g. case studies). Therefore, the word 'study' indicated a rapid growth from year to year. Its appearance is far from other words. The second most frequently used word is 'earnings'. Although this word regularly emerged, it was not as much as the word 'study'. In particular, the word ‘earnings’ only appears 123 times.

On the contrary, the word 'study' appears 279 times. The emergence of the word 'earnings' is in line with the word 'earning management', which mostly appears in the form of two words (bigrams). This word often appears between 2011 and 2013. Researchers studied many earnings management issues in the accounting realm at that time. Earning management has been discussed quite a lot in the investigation since such words refer to an accounting technique where the accountant will prepare financial reports. In particular, the technique indicated that the company is in very good condition even though the company is not (Tuovila 2020). According to Scott (2009), it is a decision made by managers in determining accounting policies to attain a company's objectives.

Nonetheless, this word has decreased in recent years in line with the dimming theme of earnings and management. Although it showed a decrease in the past few years, the issue of earning management still appeared in JAKI until 2020. Another
word that often appears in the form of bigrams is 'Stock Exchange'. This is due to the large number of articles published on research on the stock exchange. Commonly, the scope of this scrutiny is in the field of financial accounting with secondary data sources retrieved from the Indonesia Stock Exchange.

Various findings were obtained from a bibliometric study in this article so that JAKI began to show its identity. So far, JAKI has maintained its consistency in the scope of accounting and financial articles even though there have been various types of accounting. Nevertheless, the most prominent investigative issues in JAKI are financial accounting and management accounting. Further, the frequent occurrence of the word emerging in the journal was 'effect'. This word frequently appears in JAKI because one of the journal characteristics publishing research articles that adopt regression analysis.

JAKI also shows developments in accounting topics. JAKI reports that the trend of accounting topics is relatively dynamic and it is in line with practice needs. Melnyk et al (2020) argue that accounting trends commonly follow practical needs. It is proven that accounting investigative topics have always changed in the last ten years, except for the word 'risk' though such a word frequently exists from year to year. As a result, these findings can become a reference for researchers and academics to know the development of accounting as a discipline. Further, JAKI has provided such developing information.

**CONCLUSION**

JAKI is one of the best journals in Indonesia in the field of accounting and finance. It is published by the Faculty of Economics and Business, Universitas Indonesia. Its consistency in publishing the number of articles per publication has led JAKI to occupy SINTA 2 from the Ministry of Education, Culture, Research, and Technology due to its proper and focused scope of themes. The present study applied the R biblioshiny analytical framework to analyse the data. It is one of the pivotal frameworks of R Studio. This analytical framework facilitates researchers to identify mappings with simple visualizations.

In the last ten years (2011 to 2020), the findings revealed that the word 'study' became the most frequently appearing word in unigrams and the words 'earnings management'. Viewed from bigrams. The most popular topics during those years (2011 to 2020) were 'income', 'risk', 'slack', 'foreign', and 'direct.' Besides, the most closely related words to other words encompassed 'study', 'result', and 'research'. Further, the words 'study', 'result', and 'effect' represented a strong density and centrality of words. Therefore, they should be developed.

JAKI has constructed its identity as a consistent journal in accounting and finance. It is followed by Management Accounting. Even though miscellaneous accounting themes have been published, only these two themes have emerged most frequently. JAKI has also facilitated the latest trends in accounting developments. With this in mind, academics and researchers can take advantage of the latest articles published by JAKI.

Although the present study has outlined the consistency of investigative trends in JAKI. This study indicated some limitations. First, detecting words, unigrams and bigrams cannot provide the entire words as the data. They only function to detect topics and themes of the research articles. Second, this study has not mapped authors’ affiliations. Briefly stated, future studies can touch the author’s affiliations.

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