



Performance Audit in the Public Sector: A Bibliometric Analysis in the International Journal

Andrew Marthin^{1*}, Nurdiono², Fajar Gustiawaty Dewi²
and Rindu Rika Gamayuni²

¹State Civil Apparatus of Regional Government of Lampung Province, Lampung, Indonesia.
²Faculty of Economics and Business, Universitas Lampung, Lampung, Indonesia.

Authors' contributions

This work was carried out in collaboration among all authors. Author AM designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Authors Nurdiono and FGD managed the analyses of the study. Author RRG managed the literature searches. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/AJEBA/2021/v21i130337

Editor(s):

(1) Dr. Fang Xiang, University of International and Business Economics, China.

Reviewers:

(1) Olubunmi A. Ogunode, Babcock University, Nigeria.

(2) Stephen Ndubuisi Nnamchi, Kampala International University, Uganda.

Complete Peer review History: <http://www.sdiarticle4.com/review-history/64521>

Original Research Article

Received 01 November 2020

Accepted 05 January 2021

Published 28 January 2021

ABSTRACT

Aims: This research was conducted to determine the development of research articles on performance audit in the public sector published in international journals over the last 10 years, to find out the map of collaboration between researchers, to figure out the topics of great interest in research, and to present which topics that have the opportunity to investigate in further research.

Study Design: This research is a literature study using the bibliometrics analysis method.

Place and Duration of Study: The Google Scholar database, period 2010 to 2020.

Methodology: In the initial search, there were 503 journals found, the next selection was to look for journal articles that specifically discuss audit performance in the public sector, found as many as 33 journals.

Results: After further observation of the 33 article titles, it was found that eleven articles were published in international journals with Q1-Q3 criteria in Scimago and as many as 22 articles were published in international journals. The topic of audit performance, efficiency, and effectiveness became the most popular topic in articles during the period 2010 to 2020.

Conclusion: Based on the studies that have been carried out, it can be concluded that the growth

*Corresponding author: E-mail: andrewmarthin@gmail.com;

of scientific articles for performance audit researchers in the public sector during the last ten years was on average 3% or as many as 3 to 4 articles per year. Judging from its occurrences, there are still very few topics of interest. The words effectiveness, efficiency, and economy are still very little used in research articles, so this word becomes an opportunity for further research development.

Keywords: Performance audit; public sector; bibliometrics.

1. INTRODUCTION

The development of a government system that changed governance from traditional to the concept of New Public Management (NPM) since the 1980s created better services to the public and gave the government authority to manage budgets loosely based on performance. According to [1], a performance measurement system that is implemented properly and appropriately by the government will make it easier to carry out efficiency and effectiveness of public services, allocation of resources and decision making in the end can increase accountability and organizational performance.

Public sector performance has been at the center of public management debates over the past fifteen to twenty years [2]. Along with the adoption of NPM reforms and the economic and financial crisis, the public sector around the world has been under pressure to improve its performance in pursuit of higher efficiency and to revive citizen confidence in government [3]. Every country experiences different pressure on the government to be held accountable for its performance.

Pressure on the government to provide maximum performance requires close supervision. One of the oversights in the public sector is conducting a performance audit. It is an independent, objective, and reliable examination of whether a government business, system, operation, program, activity, or organization is operating according to the principles of economy, efficiency, effectiveness, and whether there is still room for improvement [4].

Currently, the discussion about performance audit as an instrument to increase accountability is very broad. Many researchers develop it to make them more useful in making policies and implementing them according to conditions in their countries. An increasing number of studies are analyzing the impact and usefulness of performance audit reports on the efficiency and

effectiveness of the public sector [5,6,7,8,9,10]. A performance audit is expected to contribute to broader policy debate, provide policy advice to governments, and provide guidance on how public administration can improve its work [11,8].

Although the discussion of performance audit has increased, the conditions in the field illustrate different things, empirical studies on performance audits are in fact few, especially when compared to studies on the topics of performance management and evaluation [11,2]. There is even less research on the impact of it on public sector organizations [6,8].

Based on the above conditions, this article observe the development of performance audit in the public sector around the world which then tries to map performance indicators that might be suitable to be used as input for changes in policies and regulations regarding performance audit in the public sector. To map its indicators through extensive scientific research observations, the researcher used the Bibliometric method as the analytical tool. Mapping of science is an effort to describe the knowledge observed and then mapping the development of that knowledge. Bibliometric analysis is a study of the bibliographic analysis of scientific activities, which is based on the assumption that a researcher carries out the research and must communicate the results to colleagues [12].

1.1 Purpose and Benefits of the Study

This study aims to determine:

1. The development of articles on performance audit in the public sector during the last ten years,
2. The map of collaboration between researchers,
3. The topics of interest in research, and
4. The opportunities for developing further research on performance audit in the public sector

2. LITERATURE REVIEW

2.1 Performance Audit

According to the Supreme Audit Institutions (SAIs), performance audit is independent, objective, and reliable examinations of government efforts, systems, operations, programs, or organizational activities that have been carried out in accordance with the principles of economy, efficiency, and/or effectiveness which have possibilities to develop [13]. Based on this definition, a performance audit focuses on examining the implementation of government programs or activities that are measured based on economy, efficiency, and effectiveness. In SAI, it aims to contribute to improve the economy, efficiency, and effectiveness in the public sector. One also aims to contribute to good governance, accountability, and transparency. A performance audit is known as Value for Money or 3E's audit (economy, efficiency, and effectiveness audit).

The main objective of a performance audit is to improve the governance and management of public bodies. In addition, improving the monitoring system, promoting accountability, developing better use of resources, increasing productivity, and providing recommendations for correcting deficiencies and irregularities are the main objectives of the performance audit [14].

3. RESEARCH METHODOLOGY

Literature analysis was used in this study, while bibliometric analysis was used to analyze scientific article citations. Literature analysis or literature study is systematic, explicit, and reusable [15]. The population of this research is journal articles on public sector performance audit for the period 2010 to 2020 which are taken from the Google Scholar database through a search using the Harzing's Publish or Perish (PoP) application with the keyword performance audit. All articles found during the search process (November 2020) became the population of this study, then selected to be the sample. The sample of this study is a journal article on performance audit in the public sector for the period 2010 to 2020.

The bibliometric method can be used to evaluate the results of scientific research. One has three functions, namely (1) the description function is a

means to provide a number of publishing activities at the state, province, city, or institution level as a comparative productivity analysis, (2) the evaluation function is used to assess the performance of the research unit, and (3) as part of standard procedures for evaluating and monitoring science and technology [16]. Its indicators can be used to examine the interaction between science and technology which results in the mapping of fields of knowledge and it can track new developments in knowledge in certain fields [17].

In the initial search, there were 503 journals found, the first selection was made by removing 187 journals with citation-link type. This citation type article could not be accessed, according to (Publish or Perish User's Manual Guide). It is a reference to search results from Google Scholar, but the original work is not found online or can also describe references found by Google Scholar that do not meet the details of the original publication or appears in a format that Google Scholar cannot correctly decipher. The next selection was to look for journal articles that specifically discuss audit performance in the public sector, found as many as 33 journals.

The final result of the data selection process was 33 journals (shown in Table 1) which were sampled in this study. The data was downloaded and processed with Microsoft Excel to be used as material for this research. Mendeley applications were also used for library metadata. While the researcher used the VOSviewer application to determine the maps of the development of international publications and the factors used in publications.

4. RESULTS AND DISCUSSION

4.1 The Development of Articles on Performance Audit in the Public Sector during the Last Ten Years

Based on the search results for articles included in the performance audit category in the public sector in international standard journals, only 33 article titles were found from 2010 to 2020. The development of the number of journal publications every year is quite slow. The average is only 3% or only three article titles per year. This illustrates that research on the topic of performance audit in the public sector is still minimal. The development of articles during the last ten years can be seen in Fig. 1.

Table 1. The journal articles data processing

Year	Article Selection Process			
	Early	Citation	Privat Sector	Public Sector
2020	50	10	38	2
2019	62	19	37	6
2018	61	16	40	5
2017	55	21	29	5
2016	42	14	28	0
2015	47	21	25	1
2014	44	15	23	6
2013	37	15	20	2
2012	36	14	18	4
2011	43	28	13	2
2010	26	14	12	0
Total	503	187	283	33

After further observation of the 33 article titles, it was found that eleven articles were published in international journals with Q1-Q3 criteria in Scimago and as many as 22 articles were published in international journals. The name of the journal that published the article is shown in Table 2 and Table 3.

Based on the data above, then observations were made about the name of the publisher, the publisher's country, and the country of origin of the article authors. In international journals, which were found in the Q1-Q3 quartile, it was known that journals that publish articles were mostly published by well-known publishers in the world. Emerald Group Publishing Ltd (United

Kingdom) contributed eight articles, while Taylor & Francis Ltd (United States) contributed one article. In addition, IAEME Publication (India) contributed one article. Then, Econ Journals (Turkey) contributed one article. In Table 4, it can be seen that the author's country of origin other than Europe, America, and Australia, Asia also contributed to performance audit research in the public sector, including Indonesia. Based on these observations, the development of research on performance audit in the public sector was carried out in almost all continents.

4.2 The Map of Collaboration between Researchers on Performance Audit in the Public Sector from 2010 to 2020

When we want to do research, it is very possible that the research topic has been done before. So that to ensure that research has never been or has just been carried out, it is necessary to make a map of the research that has been carried out on this topic. We must make sure that the topics we research are not pre-existing research or avoid plagiarism. One of the tools for conducting research maps using the VosViewer software. This software tries to visualize the map of research data that has been done previously on a particular topic. Maps created, visualized and explored using VOSviewer include topics. Topics can be publications, researchers, or term.

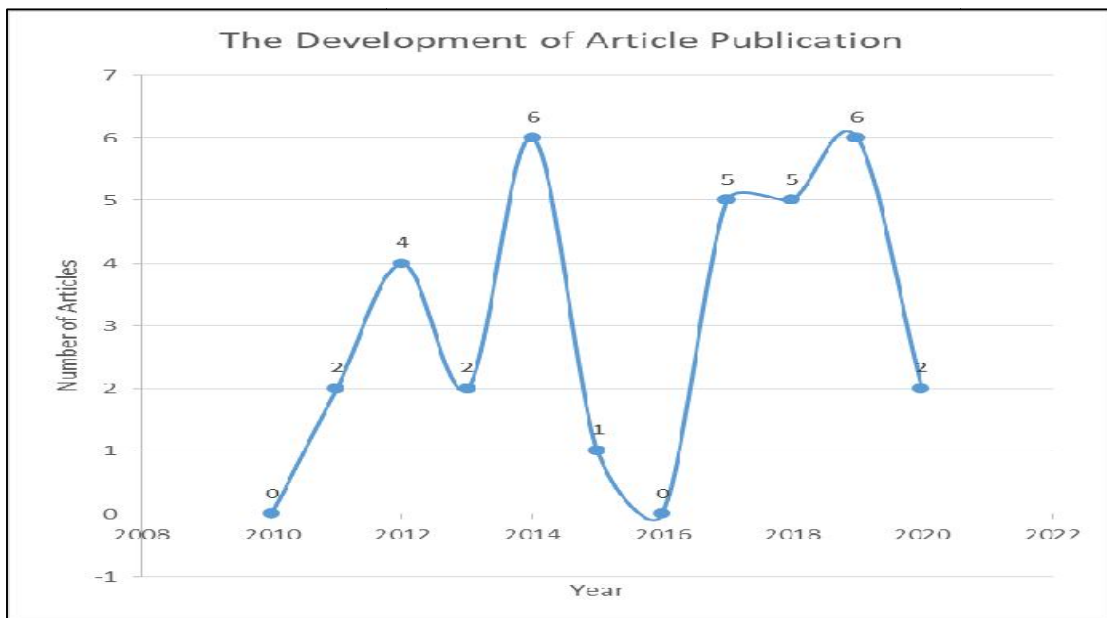


Fig. 1. The development of articles in 2010 to 2020

Table 2. The Names of journals published by quartile in Scimago

No	Nama Jurnal	Artikel	Scopus	Tahun Publikasi
1	Accounting, Auditing and Accountability Journal	1	Q1	2019
2	International Journal of Public Sector Management	1	Q2	2011
3	Managerial Auditing Journal	1	Q2	2017
4	International Journal of Public Administration	1	Q2	2014
5	International Journal of Managing Projects in Business	1	Q2	2013
6	International Journal of Civil Engineering and Technology	1	Q3	2018
7	Journal of Public Budgeting, Accounting and Financial Management	1	Q3	2020
8	Managerial Auditing Journal	3	Q3	2012,2014,2017
9	International Journal of Economics and Financial Issues	1	Q3	2018
Total		11		

Table 3. The names of journals published on an international scale

No	Source	Article	Year of Publication
1	Journal of the South African Society of Archivists	1	2011
2	African Journal of Business Management	1	2012
3	Life Science Journal	2	2012
4	European Online Journal of Natural and Social Sciences 2013;	1	2013
5	Asian Journal of Management Sciences & Education	1	2014
6	Indian Journal of Fundamental and Applied Life Sciences	1	2014
7	International Journal of Management and Sustainability	1	2014
8	Research Journal of Finance and Accounting	1	2014
9	UCT Journal Of Management and Accounting Studies	1	2015
10	The Audit Financiar Journal	1	2017
11	The International Journal of Accounting and Business Society	1	2017
12	International Journal of Business and Management	1	2017
13	African development finance journal	1	2018
14	International Journal of Accounting & Finance	1	2018
15	Journal of Management and Accounting Studies	1	2018
16	International Journal of Innovative Finance and Economics Research	1	2019
17	International Journal of Public Policy and Administration Research	1	2019
18	Journal of Accounting, Business and Finance Research	1	2019
19	Journal of International Conference Proceedings	1	2019
20	Journal of Risk Analysis and Crisis Response	1	2019
21	Asia Pacific fraud journal	1	2020
Total		22	

Table 4. The quartile Q1-Q3 reputable journal country publisher and the authors name

No	Name of Publisher	Country		Year
		Publisher	Authors	
1	Emerald Group Publishing Ltd.	United Kingdom	Australia	2019
2	Emerald Group Publishing Ltd.	United Kingdom	Swedia	2011
3	Emerald Group Publishing Ltd.	United Kingdom	Belgia	2017
4	Taylor & Francis Ltd.	United State	Norwegia	2014
5	Emerald Group Publishing Ltd.	United Kingdom	California	2013
6	IAEME Publication	India	Indonesia	2018
7	Emerald Group Publishing Ltd.	United Kingdom	Finlandia	2020
8	Emerald Group Publishing Ltd.	United Kingdom	Hongkong	2012,2014,2017
9	Econ Journals	Turkey	Indonesia	2018

To map the research, the author used the VOSviewer-3.ris software application. It was based on Bibliographic data; 33 journal articles about performance audit in the public sector.

4.2.1 The researcher collaboration map based on co-occurrence of co-words

Mapping based on the co-occurrence of the index-keywords used by the author was done to see which keywords researchers have used the most during the last ten years. The keywords were performance audit, accountability, performance, effectiveness, efficiency, economy, audit, public sector, administration, internal audit, internal control and local government. From the mapping results, it is known that there are three-word network clusters as in Fig. 2, where the first cluster (red color) has the performance audit, accountability, administration, audit, public sector, while the second cluster (green color) has internal audit, internal control, local government, performance, and the third words cluster (blue color) has an economy, effectiveness, efficiency.

4.2.2 The map of collaboration among researchers based on co-authorship

The mapping of co-authorship was carried out to find out the map of cooperation between researchers. Fig. 3 shows only five researchers

who are members of one cluster of researchers. This shows that collaboration between researchers on the topic of performance audit in the public sector is still very limited. The main factor is the lack of trends in researchers conducting research on this topic.

In the Fig. 3, the five researchers are connected by a line in the same color (red), which means that the five researchers use the same keywords in conducting research so that they are joined in one cluster.

4.2.3 The topics of interest in research

The topic of audit performance, efficiency, and effectiveness became the most popular topic in articles during the period 2010 to 2020. This keyword has the greatest link strength between research articles so that this keyword also has a high rate of occurrences. Table 5 shows the keywords that are ranked based on the collaborative link strength.

4.2.4 The opportunities for developing future research on performance audit in the public sector

In Fig. 4, it can be seen that the collaboration network between the keywords used in performance audit research in the public sector.

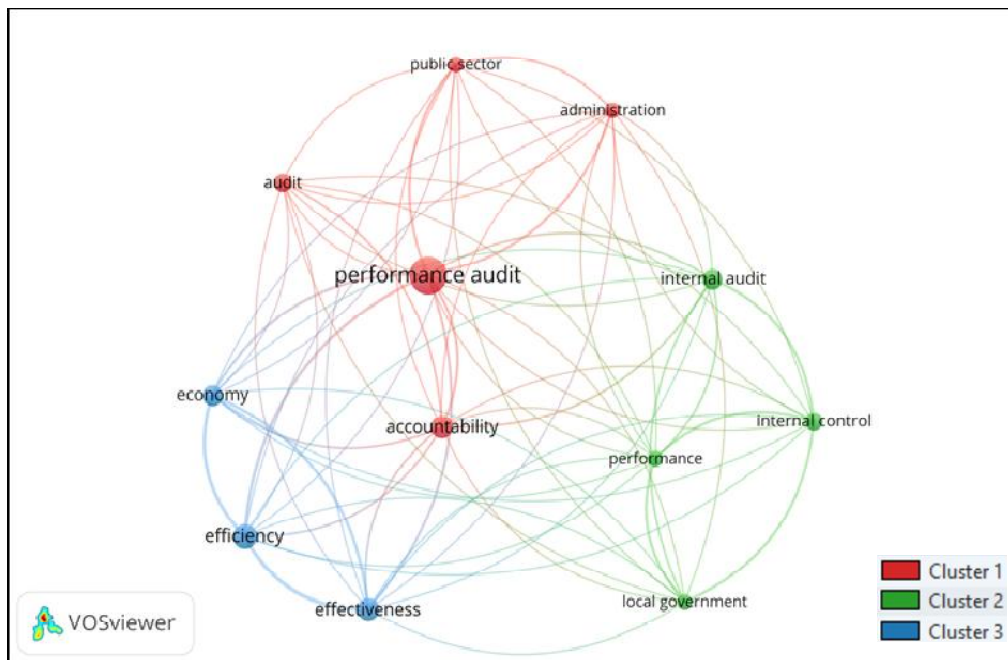


Fig. 2. The collaboration map based on co-words

The difference in the color of the keyword indicates the level of co-occurrence of the word used in the article. It can also be seen in the legend bar which shows darker colors have negative values and vice versa, while the bright colors have positive values. The darker colors tend to be less than light colours. This colour can be interpreted by the authors that keywords marked with darker colors are rarely used in research. networks between dark keywords can be an opportunity for further development of performance audit research in the public sector. The collaborative keywords are; economy, accountability, efficiency, and audit.

Furthermore, in Fig. 5, it is shown that there are three colors that represent the taxonomic clusters of keyword trends that are often used in research. If the number of keywords in the cluster is ranked from the smallest, then blue is the first rank because there are only three keywords, namely economy, efficiency, and effectiveness. The second rank is green which uses four keywords, namely internal audit, internal control, performance, and local government. The third rank is red, namely

performance audit, administration, public sector, and audit. If the future researchers want to contribute research articles on performance audit in the public sector, then the keywords for the blue or green cluster are still minimal.

Table 5. The map of keyword rankings that are widely used in research

No	Keywords	Occurrences	Total Link Strength
1	Performance Audit	17	33
2	Efficiency	7	27
3	Effectiveness	6	25
4	Economy	5	24
5	Accountability	6	23
6	Internal Audit	5	20
7	Internal Control	4	20
8	Administration	3	19
9	Local Government	3	19
10	Performance	3	19
11	Public Sector	3	18
12	Audit	4	16

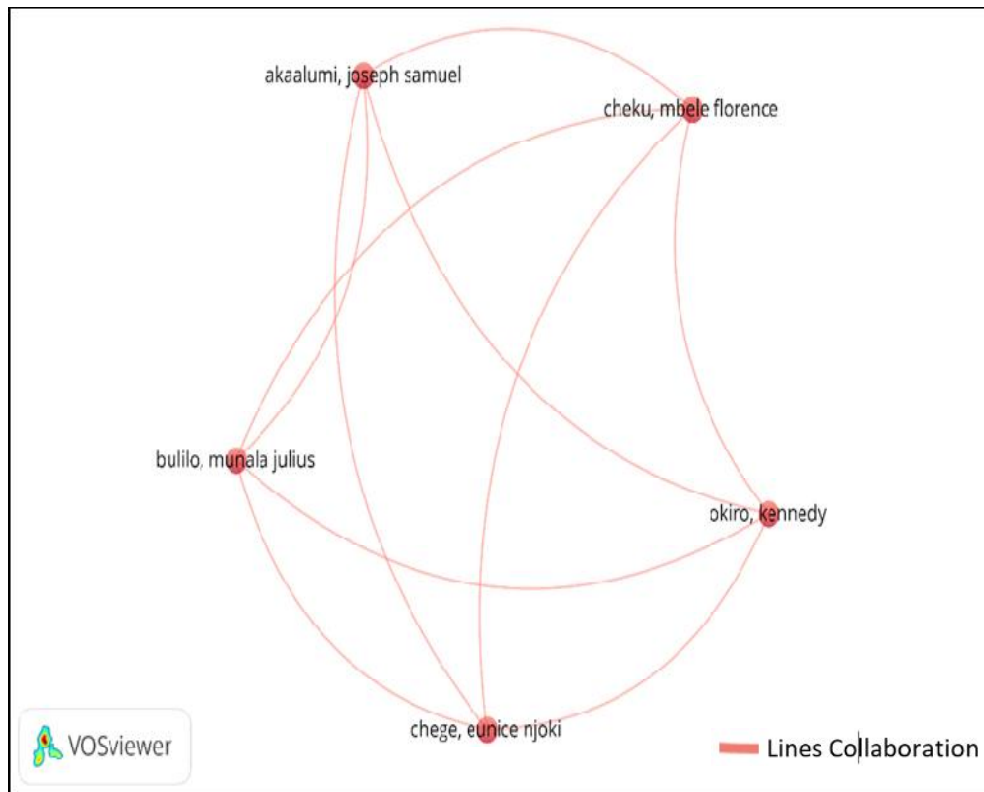


Fig. 3. The map of collaboration among performance audit researchers in the public sector

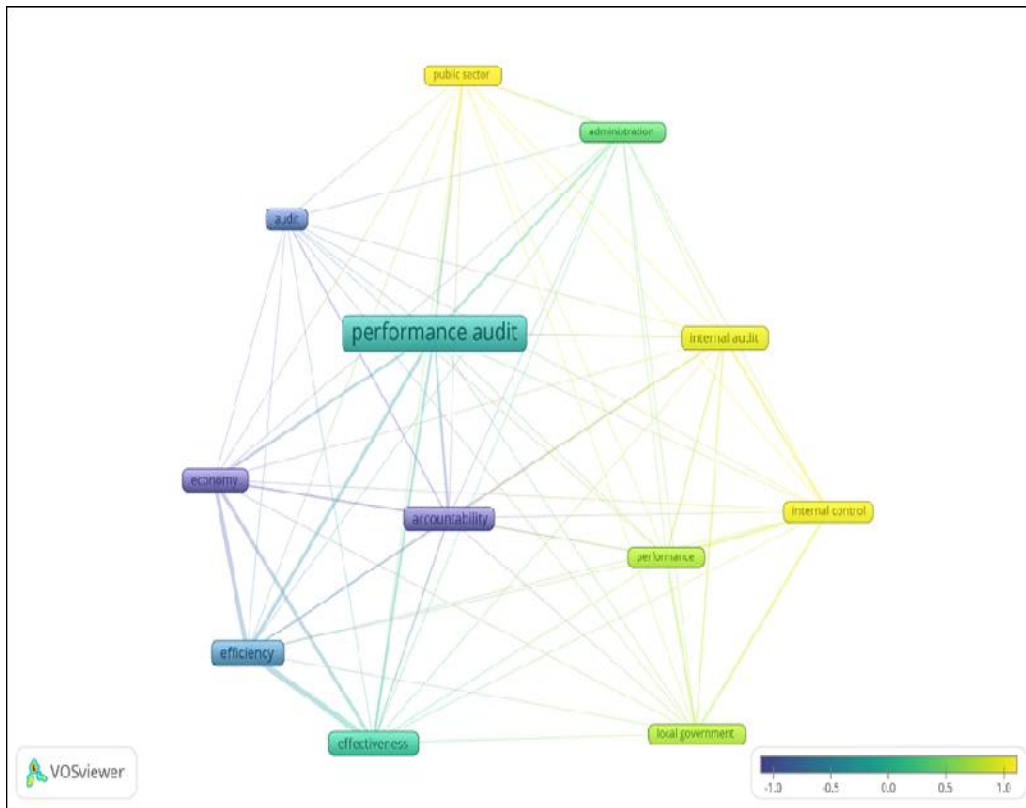


Fig. 4. The keyword map based on overlay for the period 2010 to 2020

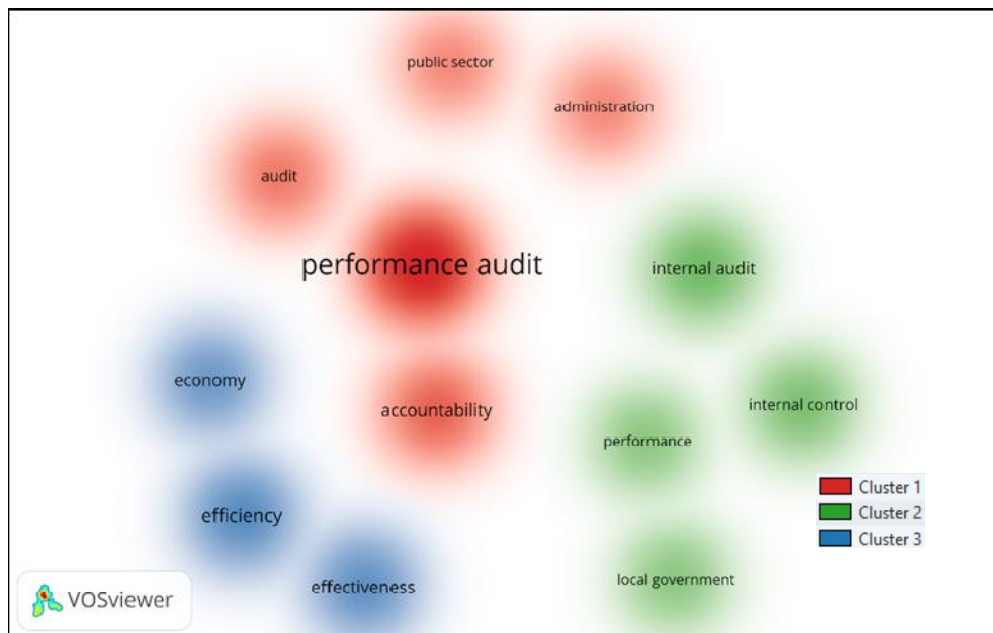


Fig. 5. The keywords map based on research density for the period 2010 to 2020

5. CONCLUSION

Based on the studies that have been carried out, it can be concluded that the growth of scientific articles for performance audit researchers in the public sector during the last ten years was on average 3% or as many as three articles per year. This can be shown in the highest article publication data in 2014 with only six articles, while there are only six articles in 2019. There are 22 articles published in international journals, while there are only eleven articles published in Scopus quartile 1 to 3 reputable journals. There is an agreement from the results of the collaboration mapping carried out, the number of discussions about words that are often used (occurrence) in performance audit research in the public sector is still very minimal. Only twelve general keywords are found which are discussed in three clusters, while the collaboration among authors only takes place in one cluster with five authors.

Judging from the occurrences, the topics of interest are performance audit, accountability, performance, effectiveness, efficiency, economy, audit, public sector, administration, internal audit, internal control, local government. On the other hand, the words effectiveness, efficiency, and economy are still very little used in research articles, so this word becomes an opportunity for further research development. Overall, there are still many opportunities for performance audit research in the public sector for theory development and modeling purposes.

The author realizes that this study has limitations that can be used as an opportunity for further research. First, article collection is still focused on the keyword performance audit for the period 2010 to 2020 so that it has the potential to produce quite a few articles. The next researcher can input a more diverse range of keywords which aim to collect data from research articles on audit performance in the public sector and further expand the period of years. Second, the use of the PoP application is only on the Google Scholar database which allows for data limitations, so further researchers can use other databases from Scopus, Web of Science or other databases.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Christensen T, Lægreid P. Performance and Accountability—A Theoretical Discussion and an Empirical Assessment. *Public Organization Review*. 2015;15(2): 207-225. Available: <https://doi.org/10.1007/S11115-013-0267-2>
2. Pollitt C, Bouckaert G. *Public management reform: A comparative analysis* (2nd ed.). Oxford University Press, USA; 2004.
3. Raudla R, Taro K, Agu C, Douglas JW. The Impact of Performance Audit on Public Sector Organizations: The Case of Estonia. *Public Organization Review*. 2015;16(2):217–233. Available: <https://doi.org/10.1007/s11115-015-0308-0>
4. INTOSAI. Standards and guidelines for performance auditing based on INTOSAI's Auditing Standards and practical experience. ISSAI. 2004;1–70.
5. Morin D. Influence of Value for Money Audit on Public Administrations: Looking Beyond Appearances. *Financial Accountability and Management*. 2001;17(2):99–117. Available: <https://doi.org/10.1111/1468-0408.00123>
6. Morin D. Measuring the impact of value-for-money audits: A model for surveying audited managers. *Canadian Public Administration*. 2004;47(2):141–164.
7. Morin D. Auditors general's universe revisited: An exploratory study of the influence they exert on public administration through their value for money audits. *Managerial Auditing Journal*. 2008;23(7):697–720. Available: <https://doi.org/10.1108/02686900810890652>
8. Reichborn-Kjennerud K. Political accountability and performance audit: The case of the auditor general in NORWAY. *Public Administration*. 2013; 91(3):680–695. Available: <https://doi.org/10.1111/padm.12025>
9. Reichborn-Kjennerud K. Performance audit and the importance of the public debate. *Evaluation*. 2014;20(3):368–385. Available: <https://doi.org/10.1177/1356389014539869>
10. Reichborn-Kjennerud K. Resistance to Control—Norwegian Ministries' and

- Agencies' Reactions to Performance Audit. Public Organization Review. 2015; 15(1):17–32.
Available:<https://doi.org/10.1007/s11115-013-0247-6>
11. Johnsen A, Funkhouser M. Performance Auditing. In Global Encyclopedia of Public Administration, Public Policy, and Governance. Edward Elgar Publishing Limited; 2016.
Available:https://doi.org/10.1007/978-3-319-31816-5_2306-1
 12. Tupan Rochani Nani Rahayu, Rulina Rachmawati ESRR. Bidang Ilmu Instrumentasi. BACA: Jurnal Dokumentasi Dan Informasi. 2018;9008(21):135–149.
 13. INTOSAI. ISSAI 3000 - Standard for performance auditing; 2016.
Available:http://www.issai.org/en_us/site-issai/issai-framework/4-auditing-guidelines.htm
 14. Mohammadi J, Heidari K. Characteristics of a good criterion of the performance audit. European Online Journal of Natural and Social Sciences. 2013;2(3):527–533.
Available:http://european-science.com/eojnss_proc/article/view/3724
 15. De Carvalho ACV, Granja AD, da Silva VG. A systematic literature review on integrative lean and sustainability synergies over a building's lifecycle. Sustainability (Switzerland). 2017;9(7).
Available:<https://doi.org/10.3390/su9071156>
 16. Pattah SH. Pemanfaatan Kajian Bibliometrika sebagai Metode Evaluasi dan Kajian dalam Ilmu Perpustakaan dan Informasi. Jurnal Ilmu Perpustakaan & Informasi KHIZANAH AL-HIKMAH. 2013;1(1): 47–57.
Available:<http://journal.uin-alauddin.ac.id/index.php/khizanah-al-hikmah/article/view/25>
 17. Noer'Aida, Sustini IIs. Pemetaan Pengetahuan Bidang Nuklir Melalui Karya Tulis Ilmiah Peneliti Batan Yang Terindeks Di Scopus. E-Repository BATAN; 2018.
Available:<http://reponkm.batan.go.id/id/eprint/9877>

© 2021 Marthin et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
<http://www.sdiarticle4.com/review-history/64521>