Bibliometric Analysis: Performance Measurement From 2003-2023 Using Vosviewer

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Abstract

Performance measurement has become a very important topic in modern business management. This study aims to determine the research trends around performance measurement in general and specifically in Indonesia and Malaysia from 2003-2023. As well as to determine opportunities or potential for future research. The method used is bibliometric analysis in the form of literature review related to performance measurement. Data was collected from the Scopus database using the keywords "performance AND measurement AND (Indonesia OR Malaysia)" and obtained 2,358 publications from 2003-2023. However, researchers took 205 documents that were appropriate and relevant to the criteria of this study. Then the researcher used VOSviewer software and Microsoft Excel assistance to analyze and visualize the database obtained. The results showed that the trend of research on performance measurement from 2003-2023 showed significant dynamics. The keyword "performance measurement" is divided into 7 clusters. The publisher that publishes the most publications is Inderscience Publishers, while the most productive author is Kusrini, E. The most common type of publication in scientific publications on "performance measurement" is journal articles. The most productive country/region conducting research is Malaysia with a total of 101 documents published. This research also identified the top ten articles with the most citations, with Agus, A., Hajinoor, M.S. being the most cited article. Potential or future research opportunities could focus on new topics that are beginning to emerge in the literature, such as "Supply chain performance", "Competitive advantage", and "Financial performance". As well as the analysis of the literature that discusses performance measurement in Indonesia and Malaysia shows that there are differences in trends and research focus in the two countries.

Keywords: Bibliometric Analysis, Performance Measurement, VOSviewer.

Abstrak

Pengukuran kinerja telah menjadi topik yang sangat penting dalam manajemen bisnis modern. Penelitian ini bertujuan untuk mengetahui tren penelitian seputar pengukuran kinerja secara umum dan secara khusus di Indonesia dan Malaysia dari tahun 2003-2023. Serta untuk mengetahui peluang atau potensi penelitian di masa depan. Metode yang digunakan adalah analisis bibliometrik berupa tinjauan literatur terkait pengukuran kinerja. Data dikumpulkan dari database Scopus dengan menggunakan kata kunci "performance AND measurement AND (Indonesia OR Malaysia)" dan diperoleh 2.358

publikasi dari tahun 2003-2023. Namun, peneliti mengambil 205 dokumen yang sesuai dan relevan dengan kriteria penelitian ini. Kemudian peneliti menggunakan perangkat lunak VOSviewer dan bantuan Microsoft Excel untuk menganalisis dan memvisualisasikan basis data yang diperoleh. Hasil penelitian menunjukkan bahwa tren penelitian tentang pengukuran kinerja dari tahun 2003-2023 menunjukkan dinamika yang signifikan. Kata kunci "pengukuran kinerja" terbagi menjadi 7 cluster. Penerbit yang paling banyak menerbitkan publikasi adalah Inderscience Publishers, sedangkan penulis yang paling produktif adalah Kusrini, E. Jenis publikasi yang paling banyak muncul pada publikasi ilmiah tentang "pengukuran kinerja" adalah artikel jurnal. Negara/wilayah yang paling produktif melakukan penelitian adalah Malaysia dengan total 101 dokumen yang dipublikasikan. Penelitian ini juga mengidentifikasi sepuluh artikel teratas dengan kutipan terbanyak, dengan Agus, A., Hajinoor, M.S. sebagai artikel yang paling banyak dikutip. Potensi atau peluang penelitian di masa depan dapat berfokus pada topik-topik baru yang mulai muncul dalam literatur, seperti "Kinerja rantai pasokan", "Keunggulan kompetitif", dan "Kinerja keuangan". Serta analisis literatur yang membahas tentang pengukuran kinerja di Indonesia dan Malaysia menunjukkan adanya perbedaan tren dan fokus penelitian di kedua negara tersebut.

Kata Kunci*: Analisis Bibliometric, Pengukuran Kinerja, VOSviewer.*

Introduction

Changes in the global economy require every company to improve its operational effectiveness. As an organization, the company has long-term goals to be achieved through a clear vision, mission, and strategy. Measuring company performance is important to assess whether these goals are achieved, given the increasingly fierce business competition in the era of globalization. To remain competitive, companies need to innovate and bring quality products to the market. In addition, rapid adaptation to changes in the business environment is key to dealing with various obstacles that can hinder the company's development. Efforts that can be made to improve success is to understand the differences in company performance between countries. Differences in company performance can be caused by various factors, such as different cultures, organizational structures, and business policies between countries (Putera et al. 2019). Indonesia and Malaysia, two countries that share history and culture, have significant differences in business context.

The different business contexts between Indonesia and Malaysia play an important role in performance measurement. The two countries have different economic, cultural and political characteristics, which influence business practices and corporate strategies. Indonesia tends to have a more centralized organizational structure and regulated business policies, while Malaysia is more market-oriented with flexible policies. These differences impact business performance and organizational success. In addition, economic differences, where Indonesia is dominated by the manufacturing and agricultural sectors, while Malaysia is more diversified with the services and tourism sectors.

Performance measurement has become an important topic in modern business management, especially in the face of increasing global competition (Neely and Bourne, 2000). These measurements allow companies to evaluate the effectiveness of achieving goals and identify areas that need improvement. Research in this area has resulted in various frameworks and methods that are more effective for different types of organizations, covering financial, non-financial, internal, and external performance indicators (Bourne et al, 2003). Performance measurement also serves as a strategic tool for managers to monitor performance and manage progress. When used appropriately, performance measurement

provides a significant advantage, but if not, it can be ineffective (Spitzer in Cvetkoska and Eftimov, 2021: 52). Overall, performance measurement is important for strategic decision-making that supports continuous improvement in the organization. Research on performance measurement is growing, both theoretically and empirically, to analyze how companies design performance measures and implement them so as to enable them to gain competitive advantage (Bourne et al., 2000). This study contributes to filling the research gap related to the literature review on performance management by using bibliometric analysis which is still rarely researched.

Bibliometric analysis is a quantitative method used to analyze scientific literature through statistical techniques, which allows the identification of publication patterns, citations, and collaborations between researchers or institutions. This method is very useful for understanding research trends and identifying gaps in the literature. In the context of performance measurement, bibliometric analysis provides valuable insights into recent trends and developments, and helps identify key factors that influence performance measurement. VOSviewer is a software tool that is often used in bibliometric research. VOSviewer is used to visualize or map research data based on available networks.

This research was inspired by Agustina's (2021) study, which systematically reviewed the literature related to performance measurement in the 1986-2020 period using bibliometric analysis from the Scopus database. The study showed an increase in the number of publications related to performance measurement and changes in research issues every period, with the benchmarking approach as the dominating topic. To understand the growth trend of topics related to performance measurement and observe issues related to performance measurement, the author is interested in conducting research with the title Bibliometric Analysis: Performance Measurement from 2003-2023 Using VOSviewer.

Theoritical Background
Definition of Performance

Performance comes from the notion of performance. There are also those who give the definition of performance as the result of work. However, performance actually has a broad meaning, not just the results of work, but including how the process takes place. Performance is the quality and quantity of work that an employee can do in carrying out his main duties and functions as an employee in accordance with the responsibilities given or delegated (Mangkunegara, 2007).

According to Moeheriono (2012: 95), performance is a description of the level of achievement of the implementation of an activity program or policy in realizing the goals, objectives, vision, and mission of the organization as outlined in an organization's strategic planning. Meanwhile, according to Hussein (2017: 10) performance is work behavior, which means what employees do. According to Whitmore (in Hamzah and Nina, 2012: 59) performance is the implementation of the functions required of a person. Performance is an action, an achievement, or what a person shows through real skills. According to Rismawati and Mattalata (2018: 2) performance is a condition that must be known and confirmed to certain parties to determine the level of achievement of the results of an agency in relation to the vision carried out by a company or company and to determine the positive and negative impacts of an operational policy.

Based on this explanation, it can be concluded that performance is the work of a person or group of people in carrying out their work in accordance with the responsibilities given, based on experience, skills and time and criteria that have been set together.

Definition of Performance Measurement

Performance measurement can be defined as the process of calculating actions that lead to performance (Neely et al., 1995). According to Whittaker in Moeheriono (2012), performance measurement is a management tool used to improve the quality of decision making and accountability and to evaluate the achievement of goals. Meanwhile, according to Moeheriono (2012), performance measurement refers to a process of assessing the progress of work towards goals and objectives in the management of human resources to produce goods and services, including information on the efficiency and effectiveness of actions in achieving organizational goals and effectiveness of actions in achieving organizational goals.

According to Stout (1993: 33) quoted from LAN and BPKP (2000), performance measurement is a process of recording and measuring the achievement of the implementation of activities in the direction of achieving the mission through the results displayed in the form of products, services, or a process. From several definitions that have been stated, it is concluded that performance measurement is a process of assessing the progress of work achieved by a person or group of people in an organization in accordance with their respective authorities and responsibilities in an effort to achieve organizational goals.

Goals and Benefits of Performance Measurement

Performance measurement has the main objective of providing accurate and relevant information about the effectiveness and efficiency of various processes and activities in the organization. According to Johnson et al. (2021), performance measurement assists management in identifying areas that require improvement and ensuring that resources are used optimally. According to Moeheriono (2012), the purpose of performance measurement is to provide accurate data to management so that they can make the right decisions to improve company performance. In addition, performance measurement also serves as a tool to evaluate the achievement of strategic goals set by the organization (Smith & Brown, 2022).

Performance measurement has various significant benefits for organizations. According to Mardiasmo (2009), performance measurement is useful as a tool for making decisions. Performance measurement is needed to determine whether there are deviations from the predetermined plan in the implementation of a performance, whether the performance can be carried out according to the specified schedule, or whether the performance results achieved are as expected (Wibowo, 2011).

Characteristics of Performance Measurement System

In this context, the characteristics of an effective performance measurement system must have certain requirements, such as the ability to provide both financial and non-financial accountability to the government and society (Sumarni, 2017). In addition, an effective performance measurement system must be able to measure performance from various perspectives, including customer perspectives, internal business processes, growth and learning, and finance (Rita Wiyati, 2014).

Characteristics of an effective performance measurement system also include the ability to provide useful feedback to employees and management, as well as the ability to identify employee training and development needs. In addition, the characteristics of an effective performance measurement system also include the ability to manage organizational operations effectively and efficiently, and to provide maximum employee motivation (Srimindarti, 2004). Thus, an effective performance measurement system must be able to provide accurate and relevant information for proper decision making and to improve overall organizational performance (Mulyadi, 2001).

Company Performance Measurement Methods

There are several methods used in measuring company performance. One of them is the Balanced Scorecard (BSC), which considers both financial and non-financial aspects. Other methods are the Performance Pyramid System (PPS) and The Tableau de Bord (TdB), which also consider financial and non-financial aspects. In some studies, the method of measuring company performance used is not only limited to financial aspects. For example, research by Widyawati et al. (2013) used the Performance Prism method which considers the interests of all relevant stakeholders as well as the interests of the company concerned. Another study by Adianto et al. (2014) used the Performance Prism and OMAX methods.

Research conducted by Xiong et al. (2021) proposed the use of the Data Envelopment Analysis (DEA) method to measure company efficiency and performance. DEA is a non-parametric method that can be used to measure the relative efficiency of companies in utilizing inputs to produce outputs. In addition, there is also research by Chen et al. (2020) which proposes a method of measuring company performance based on Artificial Intelligence (AI). This research uses Machine Learning algorithms to analyze company performance data and provide recommendations for improving performance.

Research Methodology

This study uses bibliometric analysis method to identify trends and evaluate research productivity related to the topic of performance measurement in Indonesia and Malaysia during the period 2003-2023. The bibliometric method is a quantitative approach that measures scientific literature using bibliographic data from the Scopus database, which was chosen for its credibility and broad coverage. The selection of articles was based on inclusion criteria such as peer-reviewed publications, relevance to the topic, and availability in English or local languages with English abstracts. Articles that did not meet the criteria or were duplicates were excluded from the analysis.

Data were collected using the keywords "*performance AND measurement AND (Indonesia OR Malaysia)*" through a search on Scopus. The initial search resulted in 2,358 documents which were then filtered using Mendeley until 205 relevant documents remained. The metadata was then exported in RIS format and converted into CSV and then processed using Microsoft Excel for statistical analysis, as well as VOSviewer to analyze and visualize bibliometric networks, such as collaboration relationships between authors (co-authorship) and interrelationships between keywords (co-occurrence).

In this study, bibliometric analysis was also carried out using Microsoft excel (CSV data format) to analyze several aspects, including publication growth analysis by year, publication analysis by source/publisher, publication analysis by author, publication analysis by country, publication analysis by document type, publication analysis by citation, and publication performance measurement trend analysis in Indonesia and Malaysia.

Results and Discussion

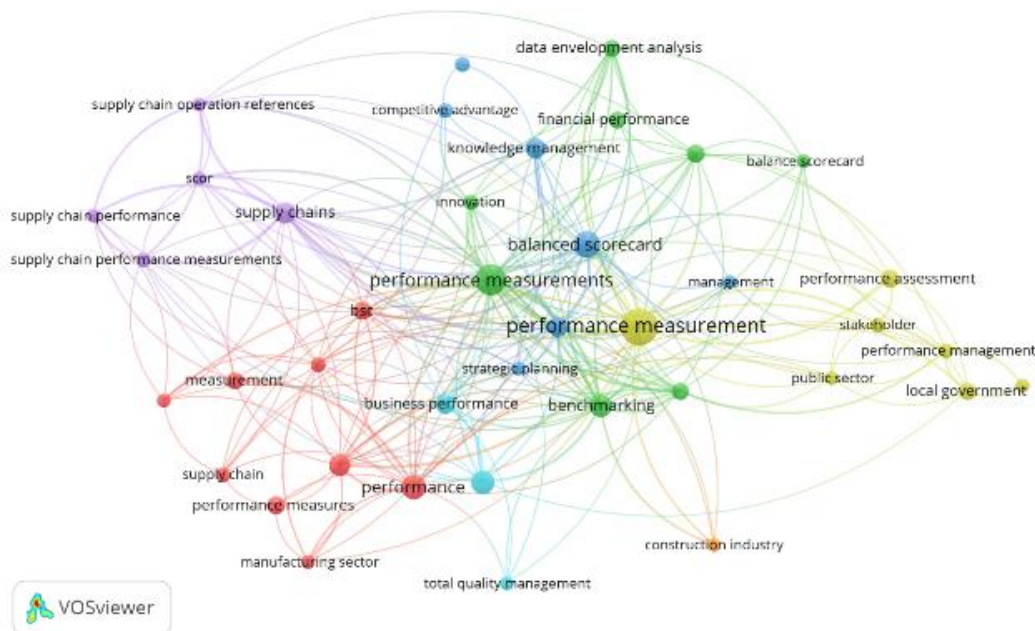**Analysis Based on Keywords (Co-Occurrence)**

In this analysis, the minimum number of keyword occurrences in the title and abstract was set at 4. With a minimum number of keyword occurrences of 4 out of 894 keywords, there were 46 keywords that met the threshold. Then 4 keywords namely "malaysia", "indonesia", "malaysians", and "surveys" were excluded because these words are general and do not meet the criteria as keywords related to performance measurement, resulting in 42 keywords. However, of these 42 keywords, the largest set of interconnected keywords consisted of 40 keywords. These 40 keywords are divided into 7 clusters (marked

by the colors red, green, dark blue, yellow, purple, light blue and orange) that show the relationship between one cluster and another.

Table 4.1 Top 10 most frequently appearing keywords

No	Keywords	Total Link Strength	Occurrences
1	Performance measurements	92	25
2	Performance measurement	89	39
3	Benchmarking	51	12
4	Supply chains	51	11
5	Balance scorecard	48	18
6	Balance scorecards	43	9
7	Performance	33	15
8	Supply chain management	33	10
9	Key performance indicators	31	6
10	Data envelopment analysis	23	6

Source: Vosviewer, 2024

Source: Vosviewer (2024)

Figure 4.1 Analysis based on keywords using network visualization in VOSviewer

From the analysis results, information can be obtained that of the 40 keywords that have been found, divided into 7 clusters, including the following: Cluster 1 which is marked in red consists of 9 topics. The largest keyword or the one that appears the most is performance with 15 occurrences, 18 links and a total link strength of 28. In addition, this cluster also includes other keywords such as: bsc, manufacture, manufacturing sector, measurement, performance measures, scor model, supply chain, and supply chain management.

Cluster 2 marked in green consists of 8 topics. The largest keyword or the one that appears the most is performance measurements with 25 occurrences, 29 links and a total link strength of 78. In addition, this cluster also includes other keywords such as: balance
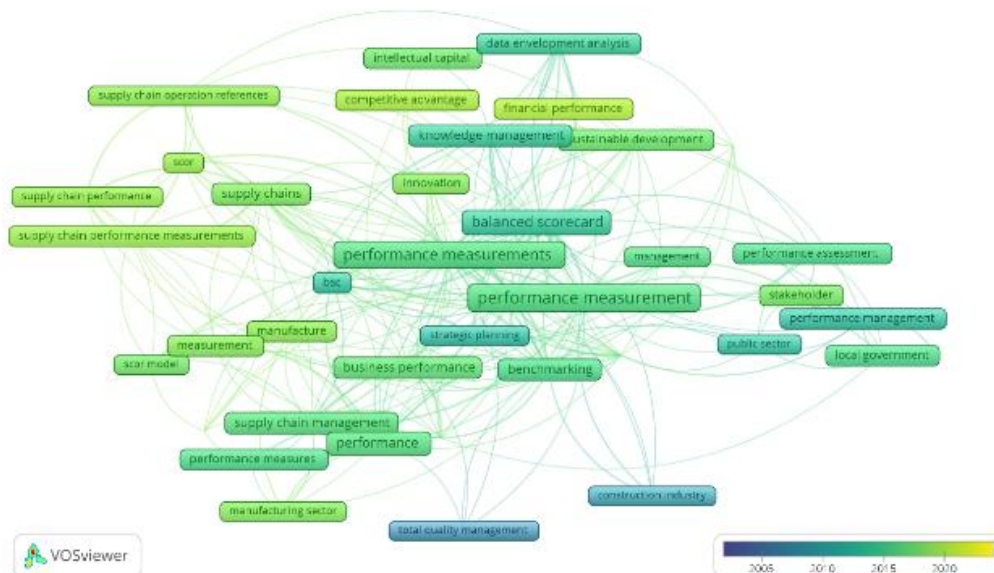
scorecard, benchmarking, data envelopment analysis, financial performance, innovation, key performance indicators, and sustainable development.

Cluster 3 marked in dark blue consists of 7 topics. The largest keyword or the one that appears the most is balanced scorecard with 18 occurrences, 22 links and a total link strength of 41. In addition, this cluster also includes other keywords such as: balanced scorecards, competitive advantage, intellectual capital, knowledge management, management, and strategic planning.

Cluster 4 marked in yellow consists of 7 topics. The largest keyword or the one that appears the most is performance measurement with 39 occurrences, 27 links and a total link strength of 69. In addition, this cluster also includes other keywords such as: local government, performance assessment, performance management, performance measurement system, public sector, and stakeholder.

Cluster 5 which is marked by purple color consists of 5 topics. The largest keyword or the one that appears the most is supply chains with 11 occurrences, 22 links and a total link strength of 49. In addition, this cluster also includes other keywords such as: scor, supply chain operations references, supply chain performance, and supply chain performance measurements. Cluster 6 marked in light blue consists of 3 topics. The largest keyword or the one that appears the most is performance measurement system with 13 occurrences, 13 links and a total link strength of 19. In addition, this cluster also includes other keywords, namely: business performance and total quality management. Cluster 7, marked in orange, consists of only 1 topic, namely the construction industry with 4 occurrences, 5 links and a total link strength of 7.

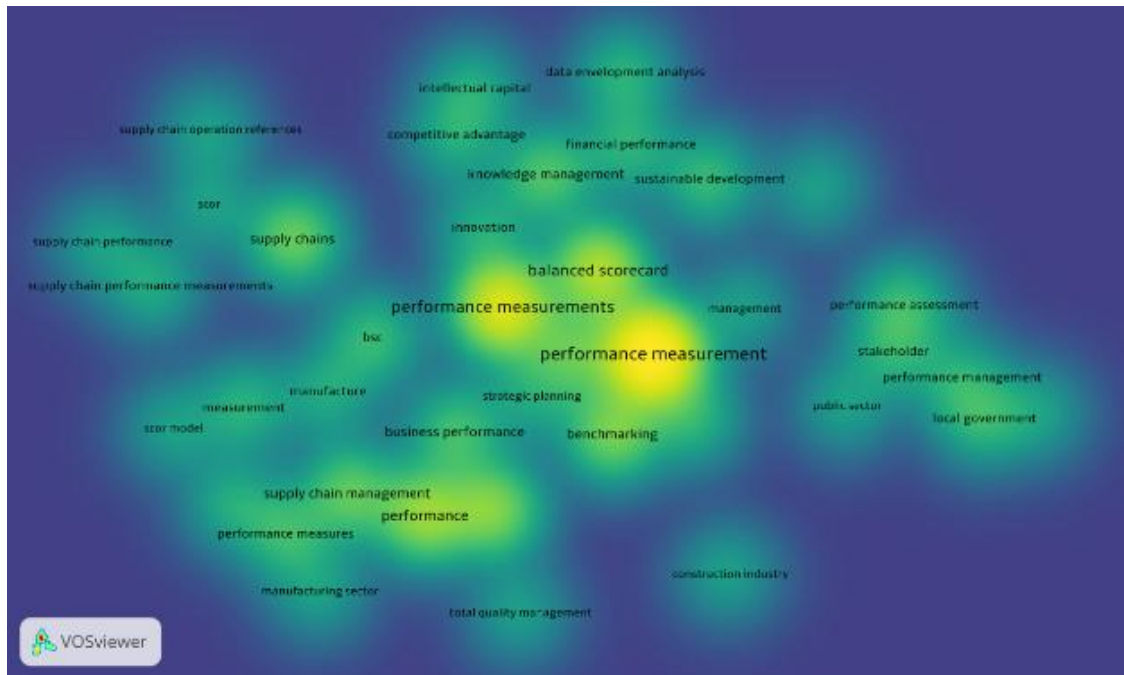**Keyword Trends in Performance Measurement**

Source: Vosviewer (2024)

Figure 4.2 Keyword-based analysis using overlay visualization in VOSviewer

The results of keyword analysis using overlay visualization show (figure 4.2) the trends from year to year related to this research. It can be seen that research on "performance measurement" on Scopus can be said to be dynamic, because it has increased from year to year. In this case, the color shows the average number of publications per year. The bluish

color shows the keywords used in the early years such as the keywords "Total quality management" and "Construction industry" which appeared in 2008 and 2009, while the yellow color shows keywords that appear in recent publications such as the keyword "Financial performance" which appeared in 2020. The keywords "Supply chain", "Supply chain performance", "Supply chain performance measurements", "Competitive advantage", and "Financial performance" are some of the emerging research areas in performance measurement with an average number of publications in 2019 and 2020.
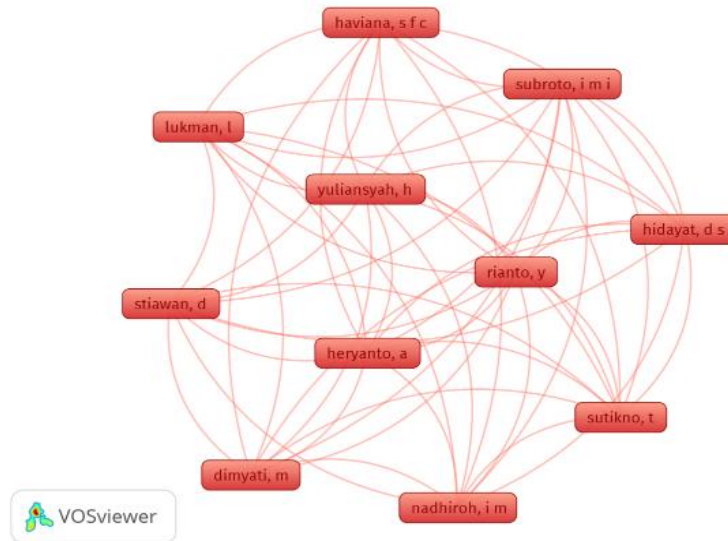

Source: Vosviewer (2024)

Figure 4.3 Keyword-based analysis using density visualization in VOSviewer

Based on Figure 4.3 above, the results of keyword analysis using density visualization are obtained. Each point in the density visualization has a color that indicates the density of the item at that point. By default, colors range from blue to green to yellow. The results of analysis based on keywords using density visualization show the depth of research, the more intense and brighter the color that appears in the circle indicated by yellow, the more research is produced related to the keyword. Meanwhile, the fainter and darker the color that appears in the circle shown by the bluish green color, the more rare or little research is produced related to the keyword.

It is known that the keywords regarding "performance measurement", "performance measurements" and "balanced scorecard" have a bright color density marked by yellow. Thus, it can be understood that there are many studies on these keywords. Meanwhile, keywords regarding "supply chain performance", "total quality management', and "supply chain operation references" have a dark color density marked by a bluish green color. Thus, it can be understood that there are few or rare studies on these keywords.

Analysis by Co-Authorship

Co-authorship analysis is used to look at authorship networks, which is to find relationships between different studies based on research documents created by researchers. In this study, a total of 509 authors of scientific papers on "performance measurement" are divided into 509 Scopus search results. Of these 509 authors, only 11 authors have an authorship relationship as shown in Figure 4.4 below.
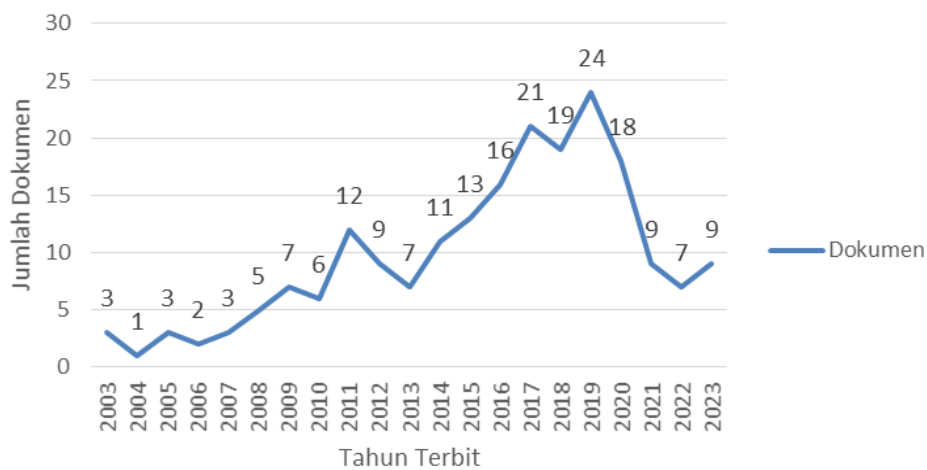
Source: Vosviewer (2024)

Figure 4.4 Analysis by author using network visualization in VOSviewer

Based on Figure 4.3. It is obtained that there are 11 authors (co-authorship) who have a collaborative relationship in writing scientific papers on "performance measurement" which are divided into 1 cluster. Authors who are known to have an authorship relationship include Dimyati, M., Haviana, S.F.C., Heryanto, A., Hidayat, D.S., Lukman, L., Nadhiroh, I.M., Rianto, Y., Stiawan, D., Subroto, I.M.I., Sutikno, T. and Yuliansyah, H.

Analysis of Publication Growth by Year

Source: Data processed (2024)

Figure 4.5 Number of Publications by Year of Publication

The growth of publications related to "performance measurement" fluctuates from year to year (figure 4.5). In the period 2003 to 2023, the number of publications increased and decreased alternately. Significant increases occurred in 2011, 2017, and 2019, driven by increased researcher interest and the influence of a competitive business environment.

Meanwhile, a sharp decline occurred in 2012, 2018, 2020, and 2021. The highest number of publications was recorded in 2019 with 24 documents, while the other years recorded more moderate fluctuations.

Analysis of Publications by Source/Publisher

Based on the results of data analysis, there are 75 publishers who publish scientific publications on the topic of "performance measurement" in Scopus. The top 10 sources/publishers that publish the most scientific publications on "performance measurement" can be seen in table 4.2 below.

Table 4.2 Total Publications by Source/Publisher

No	Publisher	Total Document
1	*Inderscience Publishers*	11
2	*Emerald Group Publishing Ltd.*	10
3	*Institute of Physics Publishing*	10
4	*Institute of Electrical and Electronics Engineers Inc.*	6
5	*Korea Distribution Science Association (KODISA)*	6
6	*American Scientific Publishers*	5
7	*Emerald Group Holdings Ltd.*	5
8	*Asian Research Publishing Network*	4
9	*Blue Eyes Intelligence Engineering and Sciences Publication*	4
10	*EDP Sciences*	4

Source: Data processed, 2024

Based on table 4.2 above, information is obtained that Inderscience Publishers ranks first with a total of 11 documents, followed by Emerald Group Publishing Ltd. and Institute of Physics Publishing, each with 10 published documents. Other prominent publishers include Institute of Electrical and Electronics Engineers Inc. and Korea Distribution Science Association (KODISA), which have 6 documents each. American Scientific Publishers and Emerald Group Holdings Ltd. published 5 documents each. While Asian Research Publishing Network, Blue Eyes Intelligence Engineering and Sciences Publication, and EDP Sciences published 4 documents each.

The following are the results of publications from Inderscience Publishers that focus on the topic of performance measurement in table 4.3 below

Table 4.3 Inderscience Publishers Publication Documents

No	Title	Author	Year
1	*Integrated model-driven business evaluation methodology for strategic planning*	Lim, A.-H.-L., Lee, C.-S.	2008
2	*Dynamic and static corporate liquidity measurement: A case of Malaysian small and medium enterprises*	Zakaria, N B	2009
3	*Business strategy-balanced scorecard measures alignment: An empirical test of its performance implications using systems approach*	Jusoh, R., Ibrahim, D N., Zainuddin, Y	2009

No	Title	Author	Year
4	*Role of organisational culture on performance measurement practice: The case of Malaysian manufacturing firms*	Mohamad, M H S., Ali, F., Amir, A M.	2013
5	*Performance measurement link between the balanced scorecard dimensions: An empirical study of the manufacturing sector in Malaysia*	Krishnan, A., Ravindran, R., Joshi, P L	2014
6	*Performance measurement system in Malaysian public research universities: Is it contemporary?*	Janudin, S E., Maelah, R.	2016
7	*Designing performance measurement procedure for supply chain actors and regulator base on a modified model of balanced scorecard and data envelopment analysis*	Kusrini, E., Masruroh, N.	2016
8	*Performance measurement system using balanced score card and tracking tool - A case study in a pharmaceutical company*	Oey, E., Mulianti, N.	2017
9	*The effect of environmental performance and disclosure on financial performance*	Haninun, H., Lindrianasari, L., Denziana, A.	2018
10	*Sustainability drivers, strategies and performance measurement in a Malaysian organisation*	Kasim, E S., Md Zin, N., Sulaiman, S., Hamid, S. F. A., Zainuddin, Z. N.	2018
11	*SCOR model for measuring performance of halal supply chain*	Lestari, F., Diniaty, D.	2023

Source: Data processed, 2024

Analysis of Publications by Author

Based on the results of data analysis, there are 509 authors who published scientific publications on the topic of "performance measurement" in Scopus. The top 10 most productive authors who published scientific publications on "performance measurement" can be seen in table 4.4 below.

Table 4.4 Top 10 Authors with the Most Publications

No	Author's name	Total Document
1	Kusrini, E	8
2	Akbar, R	5
3	Masruroh, N A	5
4	Ong, T S	5
5	Jusoh, R	4
6	Krishnan, A	4
7	Sorooshian, S	4
8	Teh, B H	4
9	Wong, K Y	4
10	Mohamad, M H S	3

Source: Data processed, 2024

The results of the analysis show that Kusrini, E. has the greatest productivity of 8 published documents. Then, followed by Akbar, R., Masruroh, N. A., and Ong, T. S. who

each published 5 documents. Other authors such as Jusoh, R., Krishnan, A., Sorooshian, S., Teh, B. H., and Wong, K. Y. each published 4 documents, while Mohamad, M. H. S. had 3 documents published. Table 4.5 below shows publications by Kusrini, E. that focus on supply chain performance measurement.

Table 4.5 Kusrini's Publication Documents

No	Title	Year	Publisher
1	*Good criteria for supply chain performance measurement*	2014	*InTech Europe*
2	*Combining balanced scorecard and data envelopment analysis to design performance measurement for supply chain actor and regulator: A case study in innovative product in Indonesia*	2015	*Springer Verlag*
3	*Designing performance measurement procedure for supply chain actors and regulator base on a modified model of balanced scorecard and data envelopment analysis*	2016	*IEOM Society*
4	*Designing Performance Measurement for Supply Chain's Actors and Regulator Using Scale Balanced Scorecard and Data Envelopment Analysis*	2016	*Institute of Physics Publishing*
5	*A new approach to design supply chain key performance indicator for actors and regulator: A case study in innovative product in Indonesia*	2016	*Inderscience Publishers*
6	*Applying triangulation method to strengthen validity of integrated balanced scorecard's performance measurement model for supply chain's actors and regulators*	2017	*Springer Verlag*
7	*Performance measurement using supply chain operation reference (SCOR) model: A case study in a small-medium enterprise (SME) in Indonesia*	2019	*IOP Publishing Ltd*
8	*Supply Chain Performance Measurement Using Supply Chain Operation Reference (SCOR) in Sugar Company in Indonesia*	2019	*IOP Publishing Ltd*

Source: Data processed, 2024

Analysis of Publications by Country/Region

The purpose of this publication analysis by country/region is to determine which countries have published the most and most influential articles on this topic. Based on the 205 documents selected, there are 10 countries that produce scientific publications on the topic of "performance measurement" in Scopus. The 10 most productive countries publishing scientific publications on "performance measurement" can be seen in table 4.6 below.

Table 4.6 Publications by Country or Region

No	Country or Region	Total Document
1	Malaysia	101
2	Indonesia	93
3	United Kingdom	3
4	Australia	2
5	India	1
6	Netherlands	1
7	New Zealand	1
8	Singapore	1
9	Sweden	1
10	Taiwan	1

Source: Data processed, 2024

Based on table 4.6 above, information is obtained that Malaysia ranks first with a total of 101 documents, followed by Indonesia with 93 published documents. Then, the United Kingdom published 3 documents and Australia published 2 documents. Meanwhile, other countries such as India, Netherlands, New Zealand, Singapore, Sweden, and Taiwan each only published one document. The dominance of Malaysia and Indonesia may indicate a greater focus and intensity of research in relevant topics in the region.

Analysis of Publications by Document Type

Table 4.7 Publications based on Document Type

No	Type	Total Document
1	*Article Journal*	153
2	*Conference Paper*	49
3	*Book Chapter*	3

Source: Data processed, 2024

Table 4.7 above shows the distribution of publications by document type. From the data, it can be seen that Article Journal is the most dominant document type with a total of 153 published documents. This shows that Article Journal is the main media chosen to disseminate research results. Then, the document type in the form of Conference Paper amounted to 49 published documents, which shows the importance of conferences as a platform to share preliminary findings and get feedback from the scientific community. Meanwhile, the Book Chapter document type has the least number of publications with only 3 published documents.

Analysis of Publications by Citation

Citation analysis provides information regarding the number of articles cited and how much influence they have on global publications. Citations can be defined as works that are referred to or used as bibliography in an article or book. Citation is a key indicator in all research performance measurement metrics (Usra and Hanoum, 2023). Citation refers to an author's recognition of previously published work. 205 relevant articles with the highest citation value published between 2003-2023 were taken on July 29, 2024). The results were obtained as in Table 4.8. below.

Table 4.8 Total Most Cited Articles (As of July 29, 2024)

No	Year	Author	Title	Publisher	Total Citation
1	2012	*Agus, A., Hajinoor, M.S.*	*Lean production supply chain management as driver towards enhancing product quality and business performance: Case study of manufacturing companies in Malaysia*	*Emerald Group Publishing Ltd.*	180
2	2007	*Tayles, M., Pike, R.H., Sofian, S.*	*Intellectual capital, management accounting practices and corporate performance: Perceptions of managers*	*Emerald Group Publishing Ltd.*	151
3	2008	*Jusoh, R., Parnell, J.A.*	*Competitive strategy and performance measurement in the Malaysian context: An exploratory study*	*Emerald Group Publishing Ltd.*	115

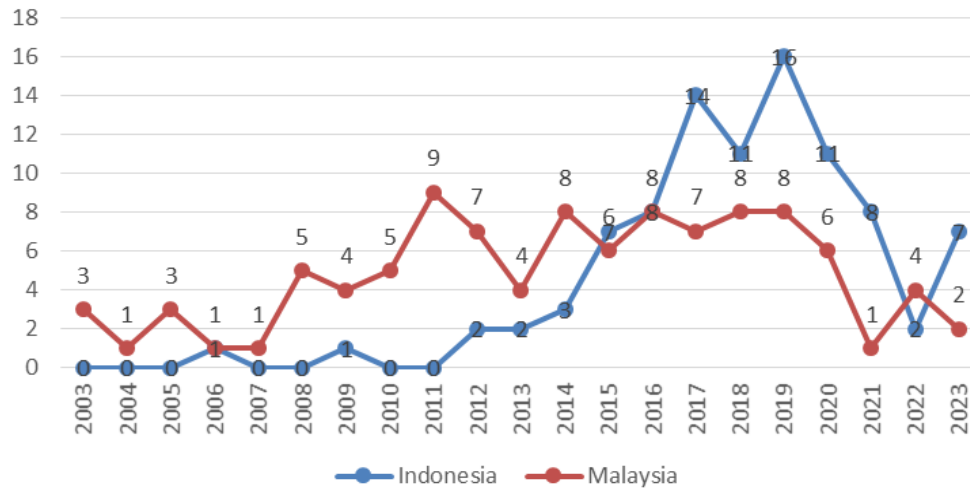| No	Year	Author	Title	Publisher	Total Citation
4	2018	*Nomran, N.M., Haron, R., Hassan, R.*	*Shari'ah supervisory board characteristics effects on Islamic banks' performance: Evidence from Malaysia*	*Emerald Group Publishing Ltd.*	102
5	2015	*Lee, C.S., Wong, K.Y.*	*Development and validation of knowledge management performance measurement constructs for small and medium enterprises*	*Emerald Group Holdings Ltd.*	102
6	2005	*Agus, A.*	*The structural linkages between TQM, product quality performance, and business performance: Preliminary empirical study in electronics companies*	*Singapore Management Review*	89
7	2016	*Dalimunthe, D.M.J., Fadli, Muda, I.*	*The application of performance measurement system model using Malcolm Baldrige Model (MBM) to support Civil State Apparatus Law (ASN) number 5 of 2014 in Indonesia*	*Serials Publications*	88
8	2008	*Jusoh, R., Ibrahim, D.N., Zainuddin, Y.*	*The performance consequence of multiple performance measures usage: Evidence from the Malaysian manufacturers*	*Emerald Group Publishing Ltd.*	79
9	2003	*Sadiq Sohail, M., Hoong, T.B.*	*TQM practices and organizational performances of SMEs in Malaysia some empirical observations*	*MCB UP Ltd*	67
10	2011	*Elyna Myeda, N., Nizam Kamaruzzaman, S., Pitt, M.*	*Measuring the performance of office buildings maintenance management in Malaysia*	*Emerald Group Publishing Ltd.*	64

Source: Data processed, 2024

Based on table 4.8, it is obtained that the most cited article is "Lean production supply chain management as a driver towards enhancing product quality and business performance: Case study of manufacturing companies in Malaysia" by Agus, A., Hajinoor, M.S. (2012) published in Emerald Group Publishing Ltd. with 180 citations. This study shows that lean-based supply chain management can improve product quality and business performance. They conducted a case study on a manufacturing company in Malaysia and found that the implementation of lean production can improve efficiency and product quality.

Meanwhile, the least cited article was Measuring the performance of office buildings maintenance management in Malaysia by Elyna Myeda, N., Nizam Kamaruzzaman, S., Pitt, M. (2011) published in Emerald Group Publishing Ltd. with 64 citations. This study examines the performance measurement of office building maintenance management in Malaysia. They found that effective performance measurement of office building maintenance management can help improve office building maintenance performance.

Trend Analysis of Performance Measurement Research Publications in Indonesia and Malaysia

The trend of research publications on the topic of performance measurement in Indonesia and Malaysia from 2003-2023 can be seen in Figure 4.6 below.

Figure 4.6 Trends in Research Publications per Year in Indonesia and Malaysia

The publication trend of research on "performance measurement" in Indonesia fluctuates from year to year. No publications were published in the 2003-2005 period, while the peak of publications occurred in 2019 with 16 documents. A decline occurred in 2018 and 2020-2022, with only 2 documents published in 2022. However, there was an increase in 2023 with 7 documents.

In Malaysia, the publication trend also fluctuates. In 2003 there were 3 documents, with a significant peak in 2011 when 9 documents were published. After experiencing a decline in the following years, the number of publications rise again in 2018 and 2019, each with 8 documents. In 2020-2023 there was a decline, with only 2 documents published in 2023. Overall, the trend in both countries shows fluctuations, with an increase and decrease in publications at certain periods.

The literature analysis shows that there are differences in performance measurement research trends between Indonesia and Malaysia. In Indonesia, research is more diverse in sectors and approaches, covering the construction sector, Islamic banking, local government, and SMEs, with methods such as Balanced Scorecard (BSC), SCOR, DEA, and Smart PLS. The main focus in Indonesia is the development of systems that improve productivity and organizational effectiveness. Meanwhile, in Malaysia, research has focused more on the use of BSC and technology adoption to improve performance, especially in the manufacturing sector. Research in Malaysia also highlights the role of corporate governance, such as CEO duality, as well as the use of KPIs to effectively monitor organizational performance. Overall, both countries show a strong commitment to the development of effective performance measurement systems, but with different focuses.

Conclusion

Based on the results of the analysis that has been carried out in this study, the following conclusions can be drawn:

Research trends on performance measurement from 2003 to 2023 show significant dynamics. Initially, the number of publications was relatively low, but over time, interest in this topic increased. A significant increase occurred in 2011 with 12 publications, 2017 with 21 publications, and peaked in 2019 with 24 published documents. Factors influencing this trend include increased business competition that encourages more effective performance measurement practices. After 2019, there was a decline in publications until 2022, but it increased again in 2023. The keyword "performance measurement" is divided into 7 clusters. The publisher who publishes the most on "performance measurement" is Inderscience Publishers, while the author who publishes the most is Kusrini, E. The type of publication most made in scientific publications on "performance measurement" is journal articles. The most productive country/region conducting research on the topic of "performance measurement" is Malaysia with a total of 101 documents published. The study also identified the top 10 articles with the most citations, with Agus, A., Hajinoor, M.S. being the most cited article with 180 citation.

Potential or future research opportunities could focus on new topics that are beginning to emerge in the literature, such as "Supply chain performance", "Competitive advantage", and "Financial performance". Keyword trends show that performance measurement research is dynamic and evolving. The topic has shown an upward trend in publications in 2019 and 2020. This indicates the potential for further research, especially in more specific contexts or practical applications in certain industries. These topics are expected to remain popular and important research areas going forward. Future research could further explore the relationship between performance measurement and business innovation, the use of new technologies in performance measurement as well as integration with the concepts of sustainability and sustainable development.

Based on the trend analysis of research publications on performance measurement in Indonesia and Malaysia from 2003 to 2023, there are fluctuations in the number of publications in both countries. In Indonesia, this trend can be seen from the significant increase in the number of publications from 2015 to 2017 which then reached its peak in 2019 with a total of 16 published documents. However, there was a decline thereafter until 2022, before rising again in 2023. In Malaysia, the same pattern is seen, with the peak of the most publications occurring in 2011 with a total of 9 published documents before decreasing in the following years. These fluctuations reflect the dynamics of academic interest and may be influenced by various factors, such as government policies, industry needs, and methodological developments in performance measurement. An analysis of the literature on performance measurement in Indonesia and Malaysia shows that there are differences in the trends and focus of research in the two countries. In Indonesia, research is more diverse in terms of sectors and approaches used, while in Malaysia, research tends to focus more on the use of balance scorecard and technology adoption as performance measurement tools.

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