

## Bibliometric Analysis of Audit Quality Using Vosviewer: A Study of Publications From 2020 to 2023

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### ABSTRACT

*This study aims to analyze the development of audit quality research from 2020 to 2023 using bibliometric analysis and VOSviewer. The research focuses on identifying publication trends, country contributions, and institutional productivity and citations. A quantitative descriptive method was applied, using Scopus data retrieved via Publish or Perish with the keyword "audit quality." VOSviewer was used to visualize keyword clusters and research gaps. The results show that 2023 had the highest number of publications (288 articles), with the United States leading in total documents (315). Indonesia published 64 articles during the same period, but no institution exceeded three publications. Keyword mapping revealed six clusters, with underexplored topics such as audit report lag and non-audit service. These findings suggest future research opportunities in less-studied areas of audit quality, especially in emerging economies.*

*Keywords: Audit Quality; Bibliometric Analysis; VOSviewer; Audit Report Lag; Non-Audit Service; Scopus*

### INTRODUCTION

Audit quality is a fundamental aspect of financial reporting that ensures the reliability, transparency, and credibility of financial statements. High-quality audits help stakeholders make informed decisions and maintain trust in financial systems. In contrast, poor audit quality can lead to financial misstatements, fraud, and loss of public confidence (1).

The role of auditors is not only to verify financial data but also to provide assurance that the information presented is free from material errors. Auditors act as gatekeepers of financial integrity, and their work influences investor behavior, regulatory oversight, and corporate governance (2). Therefore, audit quality is closely linked to economic stability and institutional accountability.

Audit failure often occurs when auditors are unable to detect or report misstatements due to lack of independence, competence, or ethical

standards. Such failures can result in legal disputes, reputational damage, and financial losses for both audit firms and their clients (3, 4, 5). The effectiveness of an audit depends on the auditor's ability to act objectively and professionally under pressure.

Various proxies have been used to measure audit quality, including auditor size, industry specialization, audit tenure, and legal environment. However, there is no universal agreement on which proxy best represents audit quality. Each proxy has limitations and may not fully capture the complexity of audit performance.

In addition, audit quality outcomes are difficult to observe directly. Unlike financial ratios or performance metrics, audit quality is often inferred from indirect indicators such as restatements, litigation, or market reactions. This makes it challenging for researchers to assess audit quality consistently across different contexts.

To address these challenges, bibliometric analysis has emerged as a useful method for evaluating research trends and identifying gaps in the literature. Bibliometric tools allow researchers to analyze publication patterns, citation impact, and thematic clusters over time. This approach is especially valuable in fields with diverse and evolving research agendas, such as audit quality, fraud prevention, and digital governance (6,7).

VOSviewer is one of the most widely used tools for bibliometric visualization. It enables researchers to map keyword co-occurrence, author networks, and institutional collaborations. VOSviewer's strength lies in its ability to generate interactive visual maps that reveal hidden structures and relationships within large datasets (8).

This study uses bibliometric analysis and VOSviewer to examine the development of audit quality research from 2020 to 2023. The analysis focuses on publication volume, country contributions, institutional productivity, and emerging research topics. The goal is to provide a comprehensive overview of audit quality literature and highlight areas that require further investigation.

By identifying underexplored keywords such as *audit report lag* and *non-audit service*, this study contributes to the understanding of audit quality dynamics and offers direction for future research. Recent bibliometric studies have also emphasized the importance of continuous auditing, fraud forecasting, and governance trends in the digital economy.

These findings support the need for broader bibliometric exploration in audit-related fields, especially in emerging markets (9,10).

Through a bibliometric approach using Scopus data and VOSviewer visualization, this study clearly highlights the importance of mapping existing literature as a foundation for future research in audit quality. It not only presents trends and research gaps, but also provides direction for scholars to explore less-studied audit topics, especially in the context of developing countries.

## METHODS

This study uses a quantitative descriptive method with a bibliometric approach to analyze the development of audit quality research. Bibliometric analysis is a technique used to evaluate scientific publications by measuring patterns such as publication volume, citation frequency, and keyword relationships.

The data source for this study is the Scopus database, which is widely recognized for its comprehensive coverage of peer-reviewed literature (11). Data were retrieved using the Publish or Perish application with the keyword "audit quality" applied to titles, abstracts, and keywords (12,13). The search was limited to the years 2020 to 2023, resulting in 913 articles.

To visualize and analyze the bibliometric data, the study used VOSviewer version 1.6.20. VOSviewer is a software tool that allows researchers to create maps based on network data. It is especially useful for identifying

clusters of keywords, co-authorship patterns, and institutional collaborations.

The analysis applied the binary counting method, which considers the presence or absence of keywords rather than their frequency. A minimum threshold of 10 keyword occurrences was set to ensure relevance and clarity in the visualization. From 2170 keywords, 42 met the threshold, and 20 were selected for detailed analysis.

Keyword mapping was used to identify clusters that represent thematic areas in audit quality research. Each cluster was color-coded and interpreted based on its dominant terms (14,15). Keywords such as *audit report lag* and *non-audit service* were found to be underrepresented, suggesting potential gaps in the literature.

In addition to keyword analysis, the study examined country contributions and institutional productivity. Countries with at least five publications were included in the analysis, resulting in 40 countries. For institutions, a minimum of four publications was required, identifying 15 organizations that met the criteria.

All data were processed and interpreted using VOSviewer's network visualization and density visualization features. These tools helped reveal relationships between keywords, highlight dominant research areas, and identify opportunities for future studies.

This method provides a structured and objective overview of audit quality research

trends. It allows researchers to understand how the topic has evolved over time and where further exploration is needed, especially in regions or institutions with limited contributions.

## RESULTS AND DISCUSSION

The results of this bibliometric study provide a comprehensive overview of audit quality research published between 2020 and 2023. By analyzing publication trends, keyword clusters, country contributions, and institutional productivity, the study reveals patterns and gaps that shape the current landscape of audit scholarship. This section presents the findings in detail and discusses their implications for future research, particularly in developing countries where audit practices are still evolving.

### 1. Publication Trends

From 2020 to 2023, a total of 913 articles related to audit quality were published in Scopus-indexed journals. The number of publications increased each year, with the highest in 2023 (288 articles). This growth reflects the rising academic interest in audit quality as a critical topic in accounting and public sector governance.

The number of publications related to audit quality has increased steadily over the past four years. Table 1 presents the annual distribution of articles indexed in Scopus from 2020 to 2023.

**Table 1: Annual Distribution of Audit Quality Publications (2020–2023)**

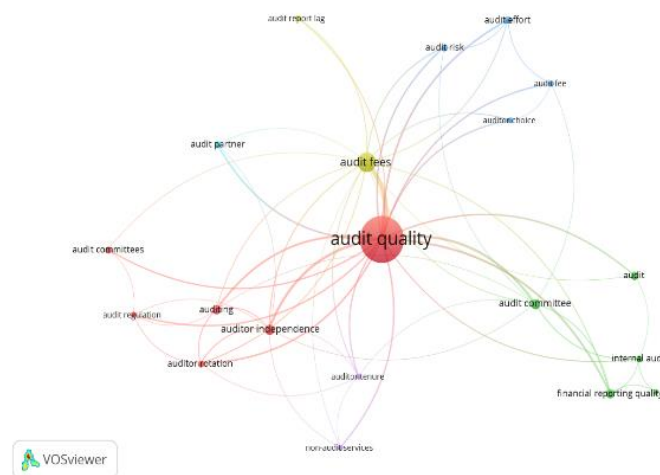
Year	Publications	Percentage
2020	198	22%
2021	205	22%
2022	222	24%
2023	288	32%

Source: Processed Scopus Data, 2024

As shown in Table 1, the highest number of publications occurred in 2023, accounting for 32% of the total. This upward trend indicates growing academic interest in audit quality and its relevance in financial governance.

## 2. Keyword Mapping

Using VOSviewer, the study identified 6 keyword clusters from 20 selected terms. Each cluster represents a thematic group in audit quality research. For example, Cluster 1 includes keywords such as *audit committee*, *audit regulation*, and *audit fees*, indicating a focus on governance and oversight.



**Figure 1: Keyword Network Visualization of Audit Quality Research Using VOSviewer**

This figure shows the connections between keywords in audit quality research. “Audit quality” is positioned at the center, linked to terms like “audit fees,” “auditor independence,” and “audit report lag.” Colors and line thickness represent the strength and direction of relationships.

In addition to the network visualization, VOSviewer also provides a density map that

shows how frequently each keyword appears in the audit quality literature. Which supports literature readability and interpretation through spatial emphasis and color variation (16). This visualization helps identify which terms are most dominant and which ones remain on the periphery of current research.



#### 4. Institutional Productivity

Among 1882 institutions, only 15 met the threshold of four or more publications. Northeastern University (USA) had the highest number of publications (6 articles),

while the University of Florida had the highest citation count (136 citations).

Institutional productivity was measured by the number of publications and total citations. Table 3 highlights the top institutions contributing to audit quality research.

**Table 3: Leading Institutions by Publication and Citation Count**

Institution	Documents	Citations
Northeastern University (USA)	6	88
University of Florida (USA)	5	136
Maastricht University (Netherlands)	5	88
University of Nevada, Las Vegas (USA)	4	99

Source: Processed Scopus Data, 2024

Northeastern University had the highest number of publications, while the University of Florida received the most citations. These findings show that audit quality research is concentrated in a few leading institutions, mostly in developed countries.

#### CONCLUSIONS

This study offers a comprehensive bibliometric assessment of audit quality research from 2020 to 2023, based on Scopus data visualized through VOSviewer, highlighting key trends in publication output, institutional influence, and thematic focus. Findings indicate growing academic attention, with publication peaks in 2023 and thematic dominance in audit regulation and governance, while underexplored areas—such as audit report lag and non-audit services—signal avenues for future inquiry. The United States leads in scholarly productivity, whereas Indonesia shows emerging potential but lacks

consistent institutional presence. Concentrated contributions among select institutions suggest the need for wider collaboration and interdisciplinary engagement to strengthen global understanding. Overall, the study provides strategic insights for scholars and policymakers aiming to enhance audit transparency, regulatory effectiveness, and evidence-based reforms. From a policy perspective, the findings highlight the need for stronger audit oversight, improved auditor independence, and better integration of digital tools in audit processes. Regulators and professional bodies can use these insights to refine audit standards and promote transparency. Practically, the study provides a roadmap for academics and institutions to focus on emerging audit topics and foster collaboration across regions. Future research should explore interdisciplinary approaches, including fraud detection, sustainability auditing, and digital governance. Expanding

bibliometric studies to include regional databases and non-English publications may also enrich the global understanding of audit quality.

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