

A Scientometric Analysis of Audit Quality Studies Using VOSviewer

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Article Info	ABSTRACT
Article history: Received July, 2025 Revised July, 2025 Accepted July, 2025 Keywords: Audit Quality; Scientometric Analysis; VOSviewer	This study presents a scientometric analysis of global audit quality research published between 2000 and 2025, employing VOSviewer to visualize and interpret the intellectual and thematic structure of the field. Using bibliographic data from the Scopus database, the study explores co-authorship networks, keyword co-occurrence, country collaborations, and temporal trends. The results reveal a strong concentration of research in developed economies, particularly the United States, Australia, and Germany, while emerging economies are gradually entering the discourse through international collaboration. Core research themes include audit fees, auditor independence, corporate governance, and earnings management, while recent developments highlight the growing relevance of artificial intelligence, corporate social responsibility, and key audit matters. The temporal and density visualizations indicate a shift from traditional audit concerns to more strategic, ethical, and technological dimensions. This study offers a comprehensive roadmap for future research, supporting scholars, practitioners, and policymakers in navigating and expanding the audit quality knowledge base. <i>This is an open access article under the CC BY-SA license.</i> 

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1. INTRODUCTION

Audit quality remains a central theme in accounting and auditing research due to its critical role in ensuring the credibility and reliability of financial statements. High-quality audits reduce information asymmetry, promote investor confidence, and contribute to the efficient functioning of capital markets [1]. The increasing complexity of business transactions, the expansion of international markets, and corporate scandals have prompted stakeholders, including regulators, investors, and scholars, to examine the

determinants and implications of audit quality more closely. Consequently, audit quality has evolved as a multidimensional construct encompassing auditor independence, competence, audit firm characteristics, and regulatory oversight [2], [3]. As the demand for transparency and accountability grows, so too does the need for rigorous academic inquiry into the various factors that shape audit quality.

Over the past two decades, research on audit quality has expanded significantly, both in volume and thematic scope. Scholars have investigated a wide range of related

topics, including auditor tenure, audit fees, audit firm size, industry specialization, and the impact of audit regulations such as Sarbanes-Oxley Act (SOX) and the Public Company Accounting Oversight Board (PCAOB) inspections [4]. Studies have also examined audit quality in various institutional contexts, comparing developed and developing markets, and focusing on how legal, cultural, and economic factors influence auditing practices [5]. As a result, the academic landscape on audit quality has become increasingly complex and fragmented, necessitating a structured overview of the intellectual evolution of the field.

In parallel with the growth of the literature, the tools and methods for analyzing scholarly trends have become more sophisticated. Scientometric analysis, a subfield of bibliometrics, provides a systematic and quantitative approach to map the structure, dynamics, and patterns of scientific literature [6]. Using tools like VOSviewer, researchers can visualize co-authorship networks, keyword co-occurrence, citation patterns, and emerging themes, thereby revealing influential works, research clusters, and collaboration dynamics within a given domain. Applying this methodology to audit quality research offers a powerful means to synthesize vast amounts of bibliographic data and to uncover latent patterns in the literature that traditional literature reviews may overlook.

Recent scientometric studies in accounting and auditing have shed light on various research domains, such as corporate governance, earnings management, and sustainability reporting. However, despite the critical importance of audit quality, comprehensive scientometric investigations specifically targeting this domain remain limited. Existing reviews have primarily adopted narrative or systematic approaches, often lacking the visual, network-based insights that scientometric tools can provide. Given the diversity and dispersion of audit quality research across journals, regions, and thematic areas, a focused scientometric analysis is both timely and necessary.

Moreover, understanding the intellectual structure of audit quality research is essential for guiding future scholarly endeavors, informing policy discussions, and enhancing educational curricula. By identifying prolific authors, influential journals, dominant themes, and emerging trends, this study aims to contribute to the cumulative knowledge-building process in auditing research. In addition, the findings can help early-career researchers identify potential collaborators, suitable publication outlets, and underexplored topics that offer rich opportunities for theoretical development and empirical investigation.

Despite the burgeoning literature on audit quality, there is currently no unified understanding of how the research field has evolved in terms of its intellectual, conceptual, and social structures. The fragmented nature of publications, the interdisciplinary integration with economics, law, and organizational behavior, and the global expansion of audit-related studies complicate efforts to track key trends and identify core themes. Without a systematic mapping of the field, researchers may struggle to navigate the literature, while policymakers and practitioners may miss critical insights derived from academic work. This fragmentation highlights the need for a comprehensive scientometric study to consolidate and visualize the field's development. Therefore, the objective of this study is to conduct a scientometric analysis of global audit quality research from 2000 to 2025 using VOSviewer.

2. METHODS

This study adopts a scientometric analysis approach to systematically explore the evolution and intellectual structure of audit quality research. Scientometric analysis, a branch of bibliometrics, enables the quantitative evaluation and visualization of scientific literature to identify influential authors, key themes, and structural trends in a research field [6]. The method is particularly suited for assessing large volumes of academic publications and uncovering

complex relationships among scholarly entities. The primary tool used in this study is VOSviewer, a well-established software developed by [7], which facilitates the construction and visualization of bibliometric maps, including co-authorship networks, keyword co-occurrences, citation networks, and thematic clusters.

The data for this analysis were retrieved from the Scopus database, one of the largest and most reputable bibliographic sources of peer-reviewed literature across multiple disciplines. The search strategy was designed to capture comprehensive global publications related to “audit quality” between the years 2000 and 2025. The keywords used included “audit quality”, “auditor independence”, “audit firm size”, “audit regulation”, and “audit effectiveness”. The inclusion criteria were limited to journal articles written in English and categorized under subject areas such as accounting, finance, economics, and business. To ensure the relevance of the dataset, only articles with direct topical alignment to audit quality (as judged by title, abstract, or keywords) were retained for analysis. Following data retrieval, the bibliographic information, including titles, abstracts, author names, affiliations, keywords, publication years, and citation counts, was exported in a format compatible with VOSviewer. The software was then used to perform four core analyses: (1) co-authorship analysis, to identify collaborative patterns among researchers and countries; (2) co-occurrence of keywords, to determine prevailing and emerging research themes; (3) citation analysis, to recognize highly cited papers and influential contributors.

3. RESULTS AND DISCUSSION

Co-Authorship Analysis

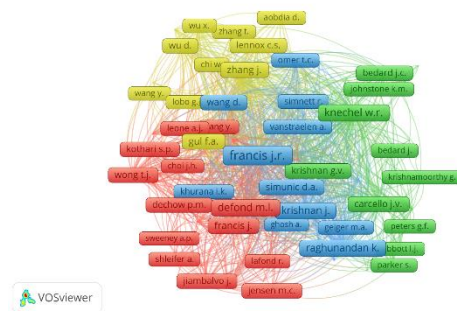


Figure 1. Author Visualization

Source: Data Analysis

Figure 1 illustrates the co-authorship network within the field of audit quality research. The nodes represent individual authors, while the colors indicate distinct clusters or research communities based on collaboration patterns. Larger nodes, such as Francis J.R., DeFond M.L., Krishnan J., and Raghunandan K., denote highly prolific and influential scholars, frequently cited and often serving as intellectual hubs within the network. The tight interconnections and dense links among these authors reveal strong collaborative relationships and a highly integrated scholarly domain. The presence of multiple color-coded clusters (red, blue, green, yellow) suggests the existence of subfields or thematic concentrations, such as audit regulation, auditor independence, or firm-specific audit outcomes. Notably, the central placement of authors like Francis J.R. and DeFond M.L. underscores their bridging role across different clusters, contributing to the cohesion of the broader audit quality literature.

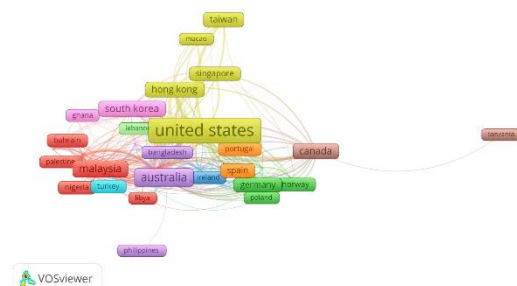


Figure 2. Country Visualization

Source: Data Analysis

Figure 2 illustrates the country collaboration network in audit quality research, highlighting international co-authorship patterns. The United States

emerges as the dominant hub, evidenced by its large node size and extensive linkages with countries across all continents, underscoring its central role in driving global scholarship on audit quality. Countries such as Australia, Germany, Malaysia, South Korea, Canada, and Taiwan also demonstrate significant collaborative activity, forming well-connected regional clusters. Asian countries like Singapore, Hong Kong, and Taiwan appear to be increasingly integrated into global research networks, particularly in connection with the U.S. and each other. In contrast, countries like Tanzania and the Philippines appear more isolated, suggesting limited collaboration or fewer publications in this field. The visualization indicates that while audit quality research has a strong global presence, it remains heavily concentrated in developed economies, with emerging nations gradually becoming more involved through international collaborations.

Co-Occurrence of Keywords

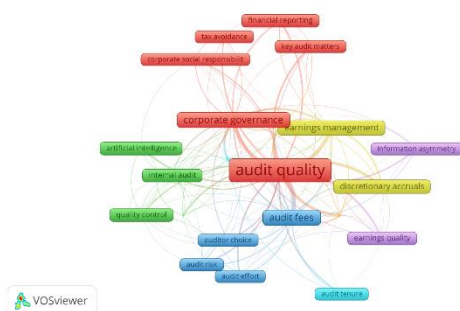


Figure 3. Network Visualization

Source: Data Analysis

Figure 3 reveals the conceptual structure of audit quality research, showcasing how major themes are interrelated based on the frequency with which keywords co-appear in academic publications. At the center of the visualization is “audit quality”, serving as the core node from which multiple clusters radiate. This central placement highlights the foundational importance of audit quality as a pivotal theme that connects to various subdomains in accounting, auditing, and corporate governance literature. The red cluster features topics such as corporate governance, financial reporting, corporate social responsibility (CSR), tax avoidance, and key audit matters.

These terms suggest a dominant stream of literature focused on the intersection of audit quality and governance mechanisms, emphasizing how board effectiveness, transparency, and ethical practices influence the reliability of financial statements. This cluster indicates that audit quality is frequently discussed in the broader context of accountability and stakeholder management, especially in the face of increasing demand for socially responsible and transparent corporate behavior.

The blue cluster centers around terms like audit fees, audit effort, audit risk, auditor choice, and audit tenure. This stream represents the economic and operational dimensions of audit quality. Scholars in this area examine how pricing strategies, resource allocation, auditor-client relationships, and risk assessments affect audit outcomes. The proximity of these terms suggests an integrated discussion about how auditors' decision-making and organizational constraints directly impact the assurance quality provided to stakeholders. The green cluster introduces emerging themes such as artificial intelligence, internal audit, and quality control, indicating a growing interest in the technological and procedural innovations within the auditing domain. The presence of AI in this cluster implies that researchers are beginning to explore how automation, data analytics, and digital auditing tools may influence audit quality, either by enhancing detection capabilities or introducing new challenges related to complexity and oversight. Internal audit and quality control, meanwhile, reflect a focus on organizational systems designed to uphold standards and mitigate audit failures.

The yellow and purple clusters are associated with earnings management, discretionary accruals, earnings quality, and information asymmetry, concepts that capture the informational consequences of auditing practices. These terms suggest that audit quality is often evaluated based on its ability to constrain opportunistic behavior by management and reduce asymmetry between corporate insiders and external users. This perspective aligns with agency theory, where

high-quality audits serve as a monitoring mechanism that enhances the credibility of reported earnings. Together, these clusters affirm that audit quality research spans theoretical, practical, technological, and regulatory dimensions, reinforcing its significance in the evolution of modern financial oversight.

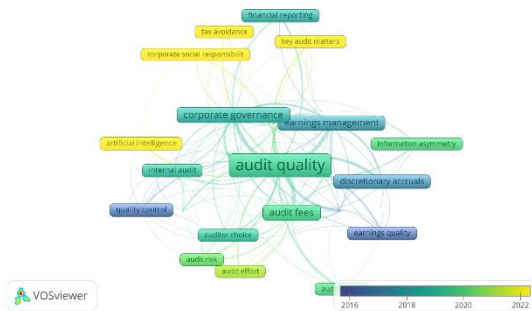


Figure 4. Overlay Visualization

Source: Data Analysis

Figure 4 presents a temporal analysis of keyword co-occurrence in audit quality research from 2016 to 2022. The color gradient, ranging from blue (older topics) to yellow (more recent topics), allows us to identify the evolution of thematic focus over time. Core concepts such as audit quality, audit fees, corporate governance, and earnings management are shown in greenish hues, indicating that these have been enduring themes across the entire timeframe, forming the foundation of the field. Recent developments in the literature are marked in bright yellow, highlighting emergent keywords such as artificial intelligence, corporate social responsibility, key audit matters, and tax avoidance. These topics suggest a shifting scholarly interest toward the intersection of audit quality with technological innovation, ethical governance, and regulatory disclosure. The inclusion of AI reflects the growing exploration of digital tools in auditing processes, while CSR and tax avoidance represent increased attention to the role of auditors in monitoring socially responsible and legally compliant behavior in corporations. On the other hand, keywords such as audit risk, auditor choice, audit effort,

and quality control appear in bluish tones, indicating that while they were important in earlier research, their relative prominence may have declined in recent years. These terms reflect the more technical and operational aspects of audit quality, which have possibly matured in academic exploration.

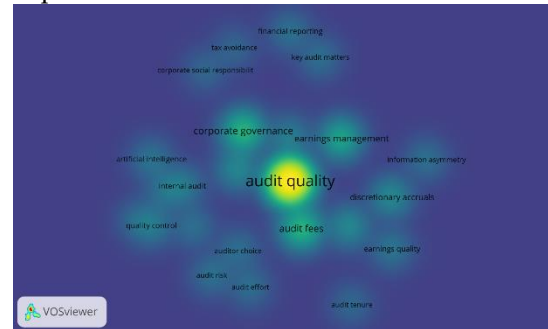


Figure 5. Density Visualization

Source: Data Analysis

Figure 5 illustrates the research intensity and focus areas within the field of audit quality. In this heatmap, brighter colors (yellow) represent areas of high publication density, while darker areas (blue to green) indicate lower frequency or emerging interest. Unsurprisingly, “audit quality” appears at the center with the highest density, confirming it as the core subject anchoring related research themes. Surrounding it, terms like “audit fees,” “corporate governance,” “earnings management,” and “discretionary accruals” also exhibit relatively high densities, reflecting their strong conceptual and empirical ties to audit quality in the literature. Peripheral terms such as “artificial intelligence,” “key audit matters,” “tax avoidance,” and “quality control” appear in cooler, less intense color regions, suggesting that while they are connected to audit quality, they represent newer or less-explored areas of research. This indicates potential for future exploration and highlights emerging intersections between audit practices and technological, regulatory, or ethical dimensions.

Citation Analysis

Table 1. Top Cited Literature

Citation	Author	Title
1778	[8]	A review of archival auditing research

816	[9]	Ownership concentration, foreign shareholding, audit quality, and stock price synchronicity: Evidence from China
744	[10]	Big 4 office size and audit quality
699	[11]	National and office-specific measures of auditor industry expertise and effects on audit quality
677	[12]	Can big 4 versus non-big 4 differences in audit-quality proxies be attributed to client characteristics?
539	[13]	Audit partner tenure and audit quality
508	[14]	A framework for understanding and researching audit quality
472	[15]	Do individual auditors affect audit quality? Evidence from archival data
453	[16]	Audit research after Sarbanes-Oxley
435	[17]	Audit quality: Insights from the academic literature

DISCUSSION

Intellectual Structure and Influential Authors

The co-authorship network map reveals the intellectual backbone of audit quality research. Authors such as Francis J.R., DeFond M.L., Krishnan J., and Raghunandan K. emerge as highly central figures, denoting both their prolific output and extensive collaboration across institutions and regions. The dense interconnections between these scholars suggest a cohesive academic community that has significantly influenced theoretical and empirical advancements in the field. Their work often addresses core themes such as audit firm characteristics, auditor independence, regulatory impacts, and audit market dynamics [18], [19]. This cluster of scholars has shaped foundational understanding while also paving the way for more specialized and interdisciplinary inquiries. The presence of multiple clusters in the co-authorship map further indicates a pluralistic research ecosystem, where distinct but interconnected groups contribute to various subtopics. For instance, one cluster might focus on governance and disclosure, while another explores audit pricing and economics. The observed overlap among these clusters implies frequent cross-fertilization of ideas, reinforcing the notion that audit quality is not a siloed topic but one that spans numerous facets of business accountability and transparency.

Geographic Distribution and Collaboration Trends

The country collaboration visualization highlights the geographic

concentration and internationalization of audit quality research. The United States stands as the dominant hub of knowledge production and global collaboration, closely connected with countries such as Australia, Germany, Malaysia, Canada, and Taiwan. This reflects not only the strong tradition of auditing scholarship in U.S. institutions but also the global influence of U.S.-based accounting regulations such as the Sarbanes-Oxley Act and PCAOB oversight [20]. Interestingly, emerging economies such as Malaysia, Nigeria, Turkey, and Bangladesh have entered the research landscape, often through collaborative partnerships with established academic hubs. While these countries may not yet contribute large volumes of publications independently, their growing visibility suggests increasing relevance of audit quality issues in developing markets. Moreover, the relative isolation of some countries, such as Tanzania and the Philippines, underscores a need for greater inclusion and cross-border engagement, which can enrich the diversity of perspectives in future audit quality research.

Thematic Evolution and Keyword Co-occurrence

The keyword co-occurrence map shows that the conceptual structure of audit quality literature is multifaceted. At the core lies the construct of “audit quality,” which is intricately linked to traditional themes such as audit fees, audit risk, auditor choice, and audit tenure, topics that focus on operational and regulatory determinants of audit outcomes. These terms reflect longstanding

interests in understanding how audit firm attributes and engagement-level decisions influence audit performance. Surrounding the core are clusters of strategic and institutional themes, including corporate governance, earnings management, discretionary accruals, and information asymmetry. These reflect concerns with agency problems and the auditor's role in mitigating managerial opportunism [21]. Audit quality is often evaluated based on its ability to reduce earnings manipulation and enhance the credibility of financial statements. The frequent co-occurrence of these terms suggests a deep integration of audit quality into broader governance discourses. Moreover, emerging themes such as corporate social responsibility (CSR), tax avoidance, and key audit matters (KAMs) have gained traction in recent years, indicating a shift toward ethical, regulatory, and sustainability-oriented research. These topics reflect changing stakeholder expectations, where auditors are increasingly viewed not just as financial watchdogs but also as key agents in promoting corporate integrity and public trust [22].

Temporal Trends and Emerging Frontiers

The overlay visualization adds a temporal dimension to the co-occurrence network, illustrating the evolution of research themes over time. Earlier topics such as audit tenure, audit effort, and audit risk appear in darker tones, indicating their prominence in earlier years. These studies typically focused on auditor behavior, client relationships, and regulatory interventions. While foundational, these areas have seen declining novelty, suggesting they may be nearing theoretical saturation. In contrast, keywords like artificial intelligence (AI), corporate social responsibility, and key audit matters appear in yellow, reflecting their recent emergence and potential for future research. AI, in particular, signifies a transformative shift in audit methodology, with machine learning and big data analytics being explored for fraud detection, risk assessment, and audit planning [14]. The adoption of KAMs under revised ISA 701 also offers a rich avenue for inquiry into how enhanced auditor

disclosures affect investor behavior and audit market dynamics. This temporal progression reflects a broadening of the audit quality discourse, from narrow regulatory and economic inquiries to include sociotechnical, ethical, and strategic perspectives. It also signals an opportunity for future research to integrate digital transformation, sustainability, and cross-cultural governance mechanisms into audit quality frameworks.

Research Intensity and Gaps

The density map reinforces these trends by visually representing the intensity of academic attention to specific keywords. "Audit quality" unsurprisingly appears as the densest term, followed by audit fees, earnings management, and corporate governance. These topics have been the mainstay of audit research and are likely to remain central due to their relevance to regulators, investors, and practitioners. On the other hand, areas such as AI, quality control, and internal audit exhibit lower density, indicating underexplored domains with potential for theoretical and empirical enrichment. For instance, while internal audit has long been recognized as a component of audit quality, its evolving relationship with external audits, especially in light of integrated reporting and ESG audits, remains relatively uncharted. Similarly, quality control systems within audit firms, including ethical training, peer review mechanisms, and automated checks, present valuable but overlooked variables in assessing audit quality. Moreover, geographic and contextual diversity remains limited in the dataset. Much of the literature is concentrated in Anglo-American and developed-market contexts, with less representation from Latin America, Africa, and parts of Asia. Given differences in legal systems, market maturity, and institutional quality, future research should strive for comparative and cross-cultural studies to enrich the global understanding of audit quality.

4. CONCLUSION

This scientometric study provides a comprehensive overview of the intellectual,

thematic, and collaborative landscape of audit quality research from 2000 to 2025. By utilizing VOSviewer to analyze co-authorship networks, keyword co-occurrences, temporal patterns, and density visualizations, the study identifies influential scholars, dominant research themes, and emerging trends. The findings reveal that audit quality remains a central concern in accounting literature, deeply intertwined with governance, regulatory, and financial reporting issues. Recent developments point to a growing

interest in areas such as artificial intelligence, corporate social responsibility, and key audit matters, signaling a broadening of the field's conceptual boundaries. Despite its global relevance, the literature is still concentrated in a few geographic regions, highlighting the need for more inclusive and cross-cultural studies. Overall, this research not only maps the evolution of audit quality scholarship but also offers strategic directions for future inquiries in both academic and professional contexts.

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