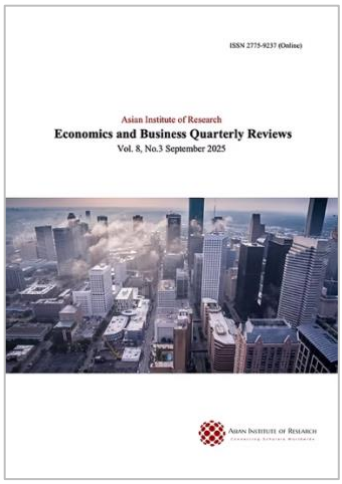

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Analyzing Trends and Insights from Research on the Relationship Between Input Elements and Audit Quality: A Bibliometric Analysis

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Abstract
Audit quality can be considered good if it succeeds in detecting fraud. However, in reality, audit quality through internal and external audits has not been an effective tool for detecting fraud, which becomes a problem. Some theories and evidence from previous research show that audit quality is influenced by audit quality input factors, such as auditor values, ethics, and attitudes. Therefore, this study aims to identify trends and findings related to audit quality input factors using a bibliometric analysis. The data used included 290 documents published from 1996 to 2025, which were analyzed using the PRISMA protocol. The results of the analysis found that the number of publications with the most analysis topics occurred in 2020, although there has been a decline in recent years. The United States had the highest number of publications. In addition to the co-occurrence network, several input factors and audit quality were in Cluster 4, which shows the relationship between the two. This study provides insights into emerging topics and directions for future research, especially those that examine the interaction between input factors and audit quality in greater depth.

Keywords: Input Elements, Audit Quality, Bibliometric

1. Introduction

Audit quality plays an important role because it adds value to the credibility and accuracy of financial statements, reduces information discrepancies, and serves as a tool or technique to detect and report violations (Dusadeedumkoeng et al., 2023; Hubais et al., 2023; Lannai et al., 2025; Mahieux, 2024; Zainudin et al., 2021). However, in reality, several violations have occurred. The Association of Certified Fraud Examiners (ACFE) (2022, 2024) reports the number of fraud cases, the number of losses, and the method of fraud detection in several countries in the period 2022 and 2024, as depicted in figures 1 and 2. Although the number of cases in 2024 will be less, namely 1921 compared to 2022 amounting to 2,110. However, the number of losses caused by fraud in 2024 does not differ significantly, reaching 3.1 billion compared to 2022, which was 3.6 billion. The most widely used method for detecting fraud is illustrated in Figure 2.

Figure 1: Number Of Fraud Cases

Source: ACFE Reports

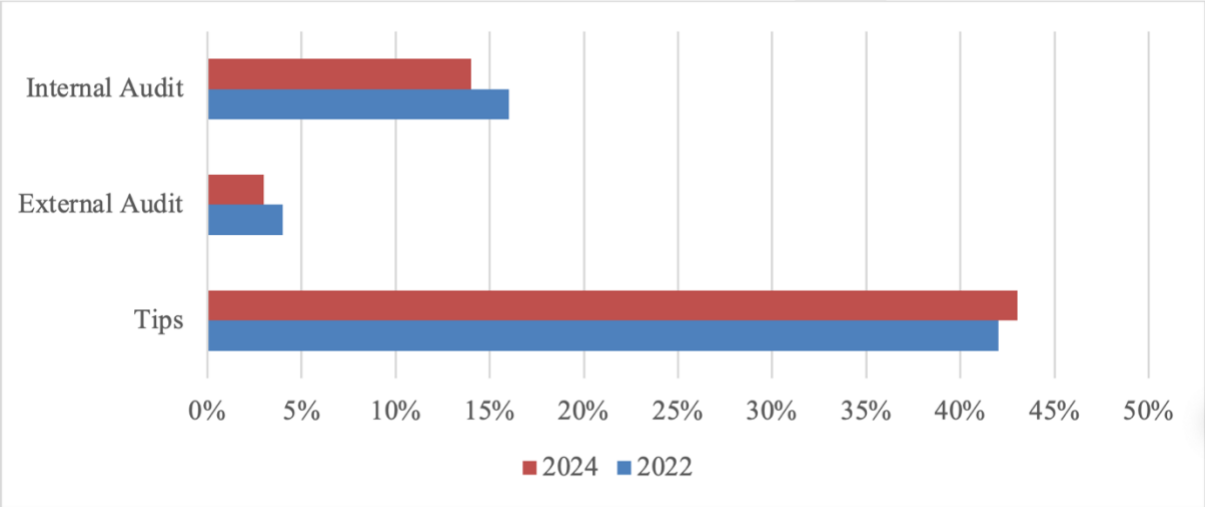

Figure 2: Fraud Detection Methods

Source: ACFE Reports

Although internal and external audits are used to detect fraud, these two methods are not as effective in detecting fraud as tips. According to DeAngelo (1981), the initial value of an audit for parties who need audit services, such as owners, managers, or consumers of a company's products, is highly dependent on the auditor's ability to detect errors or violations in the accounting system and his or her ability to withstand pressure from clients to disclose only certain information in the event of a breach. International cases such as Enron, Toshiba, WorldCom, and Ernst &Young illustrate the failure of the audit process conducted by auditors in detecting fraudulent financial reporting, inflating profits, and failing to detect fraud within four years (Edwards & Wilks, 2023). These cases have a wide negative impact on public trust, especially stakeholders, in the quality of the audits produced.

The International Auditing and Assurance Standards Board (IAASB) (2014) explained that there are five elements that support the creation of audit quality: input factors, process factors, output factors, key interactions, and contextual factors. Furthermore, of the five elements, input factors are the first element that supports the formation of audit quality. This element is related to the values, ethics, and attitudes of auditors, which are influenced by the culture within the audit company. In addition, the auditor's knowledge, skills, and experience play an important role in the process. Regarding input factors, international rules also emphasize the importance of fundamental principles that auditors must possess, such as integrity, objectivity, professional competence and thoroughness, professional conduct, and confidentiality (International Ethics Standards Board for Accountants (IESBA), 2019). In line with this principle, the International Organization of Supreme Audit Institutions (INTOSAI) (2020) regulates the general principles of auditors, namely ethics, independence, professional judgment, prudence, and skepticism. Some of these statements show the importance of input factors in realizing audit quality. The importance of factor input is also supported by evidence from previous empirical research that

input factors such as competence, independence, objectivity, due professional care, skepticism, ethics, experience, and integrity have a positive effect on audit quality (Lannai et al., 2025; Mahdi et al., 2024; Zainudin et al., 2021).

Research on audit quality using bibliometric methods has been conducted before, but these studies have a general research scope, namely on audit quality without focusing on audit quality input factors (Ciger, 2020; Nurachman et al., 2025; Sulistyo et al., 2025; Taqi et al., 2021). As for Syalwa et al. (2024) Audit quality input factor research has been conducted using a systematic literature method, but research with this method has not provided an overview of research trends and themes or topics that have not been explored much. Therefore, this study uses the bibliometric analysis method to provide empirical evidence related to the research of audit quality factor inputs with the following research questions:
1. What are the research trends related to input factors affecting audit quality from a bibliometric perspective?
This study hopes to improve the understanding of the elements of input factors and audit quality and can be used by future researchers to conduct research with the same theme.

2. Method

This study uses bibliometric analysis as a basic method to deepen the understanding of the elements of input factors and audit quality. The source of the article used comes from the Scopus database because it has a wider range of literature than WoS (Frenchwoman, 2021). Nonetheless, both Scopus and WoS have the advantage of providing bibliometric details that are useful for analysis and avoiding predatory journals that may appear in Google Scholar (Paul et al., 2021).

Article selection was carried out using the PRISMA protocol (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), which is the process of selecting articles through identification, screening, eligibility, and inclusion, which can increase transparency in reporting systematic reviews (Moher et al., 2009). The literature selection process using the PRISMA protocol was as follows:

1. In the first stage, 475 articles were identified by entering keywords in the Scopus database, namely (TITLE-ABS-KEY (("auditor characteristics" OR "auditor personality" OR "auditor professionalism" OR "auditor independence" OR "auditor objectivity" OR "auditor competence" OR "auditor experience" OR "Auditor Objectivity" OR "Auditor Integrity" OR "Due Professional Care" OR "Scepticism" OR "Ethics")) AND TITLE-ABS-KEY ("Audit Quality")).
2. Tahap kedua, sebanyak 104 dieliminasi dalam proses limitasi sebagai berikut : (TITLE-ABS-KEY (("auditor characteristics" OR "auditor personality" OR "auditor professionalism" OR "auditor independence" OR "auditor objectivity" OR "auditor competence" OR "auditor experience" OR "Auditor Objectivity" OR "Auditor Integrity" OR "Due Professional Care" OR "Scepticism" OR "Ethics")) AND TITLE-ABS-KEY ("Audit Quality")) AND (LIMIT-TO (SUBJAREA , "BUSI") OR LIMIT-TO (SUBJAREA , "ECON")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (PUBSTAGE , "final")) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (LANGUAGE , "English"))).
3. In the third stage, 81 articles were issued in the eligibility process by limiting keywords relevant to the research topic.
4. In the fourth stage, 290 articles were used for the bibliometric analysis of input factors and audit quality.

Regarding the eligibility and included stages, this study completed the search stage (July, 2025) by conducting the following keywords : (TITLE-ABS-KEY (("auditor characteristics" OR "auditor personality" OR "auditor professionalism" OR "auditor independence" OR "auditor objectivity" OR "auditor competence" OR "auditor experience" OR "Auditor Objectivity" OR "Auditor Integrity" OR "Due Professional Care" OR "Scepticism" OR "Ethics")) AND TITLE-ABS-KEY ("Audit Quality")) AND (LIMIT-TO (SUBJAREA , "BUSI") OR LIMIT-TO (SUBJAREA , "ECON")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (PUBSTAGE , "final")) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (EXACTKEYWORD , "Audit Quality") OR LIMIT-TO (EXACTKEYWORD , "Auditor Independence") OR LIMIT-TO (EXACTKEYWORD , "Independence")

OR LIMIT-TO (EXACTKEYWORD , "Ethics") OR LIMIT-TO (EXACTKEYWORD , "Competence") OR LIMIT-TO (EXACTKEYWORD , "Auditor Competence") OR LIMIT-TO (EXACTKEYWORD , "Perceived Audit Quality") OR LIMIT-TO (EXACTKEYWORD , "Professional Skepticism") OR LIMIT-TO (EXACTKEYWORD , "Quality") OR LIMIT-TO (EXACTKEYWORD , "Auditor Characteristics") OR LIMIT-TO (EXACTKEYWORD , "Auditor Experience") OR LIMIT-TO (EXACTKEYWORD , "Professional Ethics") OR LIMIT-TO (EXACTKEYWORD , "Professional Scepticism") OR LIMIT-TO (EXACTKEYWORD , "Professionalism") OR LIMIT-TO (EXACTKEYWORD , "Internal Audit Quality") OR LIMIT-TO (EXACTKEYWORD , "Independence In Appearance") OR LIMIT-TO (EXACTKEYWORD , "Objectivity") OR LIMIT-TO (EXACTKEYWORD , "Integrity") OR LIMIT-TO (EXACTKEYWORD , "Experience") OR LIMIT-TO (EXACTKEYWORD , "Due Professional Care") OR LIMIT-TO (EXACTKEYWORD , "Experience Gap") OR LIMIT-TO (EXACTKEYWORD , "Auditor's Independence") OR LIMIT-TO (EXACTKEYWORD , "Auditors' Independence") OR LIMIT-TO (EXACTKEYWORD , "Auditor Professional Skepticism") OR LIMIT-TO (EXACTKEYWORD , "Auditor Personality") OR LIMIT-TO (EXACTKEYWORD , "Auditor Objectivity") OR LIMIT-TO (EXACTKEYWORD , "Auditor Ethics") OR LIMIT-TO (EXACTKEYWORD , "Auditor Conservatism") OR LIMIT-TO (EXACTKEYWORD , "Auditor") OR LIMIT-TO (EXACTKEYWORD , "Auditors") OR LIMIT-TO (EXACTKEYWORD , "Motivation") OR LIMIT-TO (EXACTKEYWORD , "Individual Auditors") OR LIMIT-TO (EXACTKEYWORD , "Conservatism") OR LIMIT-TO (EXACTKEYWORD , "Auditor Industry Specialization") OR LIMIT-TO (EXACTKEYWORD , "Internal Audit") OR LIMIT-TO (EXACTKEYWORD , "Knowledge Spillover") OR LIMIT-TO (EXACTKEYWORD , "External Audit") OR LIMIT-TO (EXACTKEYWORD , "Audit Independence")).

The stages of bibliometric analysis in this study were based on the research of Setiawan et al. (2023) Namely, through the stages of data collection, data preprocessing, data analysis, and visualization and interpretation of results. This method makes it possible to identify research patterns, collaboration between authors, and the development of topics that are the focus of academic research. The analysis tools used were R Studio, Vosviewer, and Scopus analysis to support this research stage.

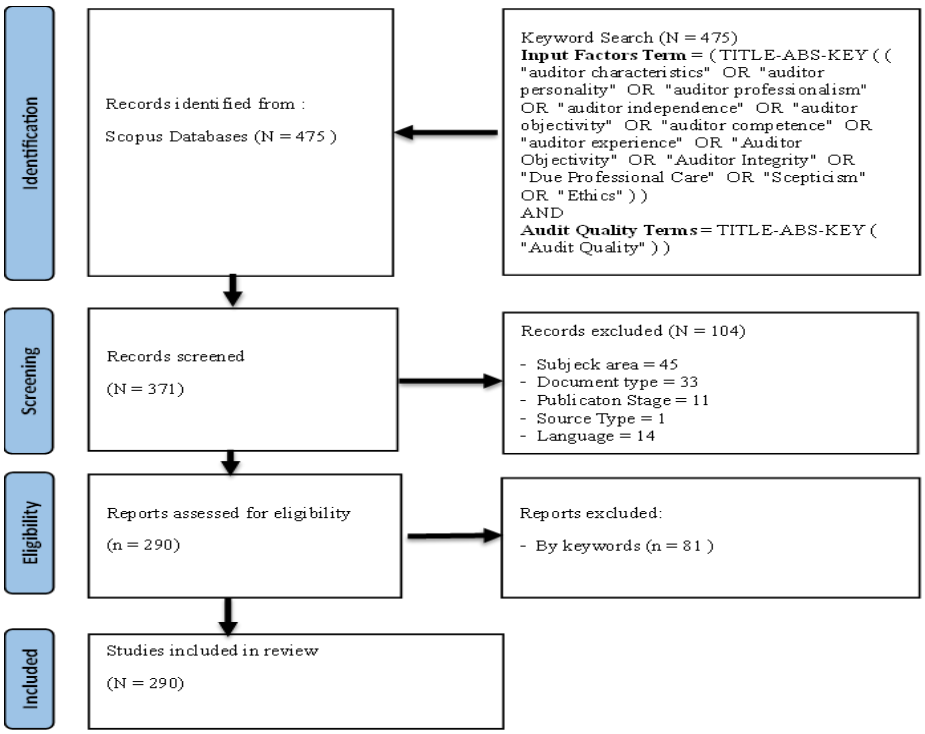

Figure 3: PRISMA Protocol

Source: Data Processing, 2025

3. Results and Disscusion

Table 1 presents the main results of the analysis using Biblioshiny, providing in-depth information about the data used in the study. The time period analyzed covers the years 1996 to 2025, with a total of 132 sources, including journals, books, and others. During this period, 290 documents were issued, with an annual growth rate of 9.25%. The average age of the analyzed documents was 7.23 years, and each document obtained an average of 27.74 citations per year. In addition, the number of references used in the document was 14,925.

In terms of document content, no additional keywords (Keywords Plus) were found, but there were 740 keywords used by the author (Author's Keywords). The number of authors involved in the document was 679, with 39 writing the document alone. Documents written by one author recorded a number of 41, while the average number of authors per document was 2.69. International collaboration was detected in 20.34% of the total documents analyzed. All recorded documents were articles.

Table 1: Key Document Information

Description	Result
MAIN INFORMATION ABOUT DATA	
Timespan	1996:2025
Sources (Journals, Books, etc)	132
Documents	290
Annual Growth Rate %	9.25
Document Average Age	7.23
Average citations per doc	27.74
References	14925
DOCUMENT CONTENTS	
Keywords Plus (ID)	0
Author's Keywords (DE)	740
AUTHORS	
Authors	679
Authors of single-authored docs	39
AUTHORS COLLABORATION	
Single-authored docs	41
Co-Authors for Doc	2.69
International co-authorships %	20.34
DOCUMENT TYPES	
article	290

Source: Biblioshiny Data Processing, 2025

3.1 Distribution Across Global Regions and organizations

Figure 4 presents the trend of article production from 1996 to 2025, which shows significant fluctuations in the number of articles published. At the beginning of the period, between 1996 and 2006, article production tended to be low, with several years without publication. Although there was a small increase in 2007, the overall period showed stagnation, which could be influenced by various factors, such as limited research facilities. The first peak of the increase occurred from 2007 to 2015, with the number of articles continuing to grow, reflecting a change in the intensity of research and efforts to increase the number of scientific publications.

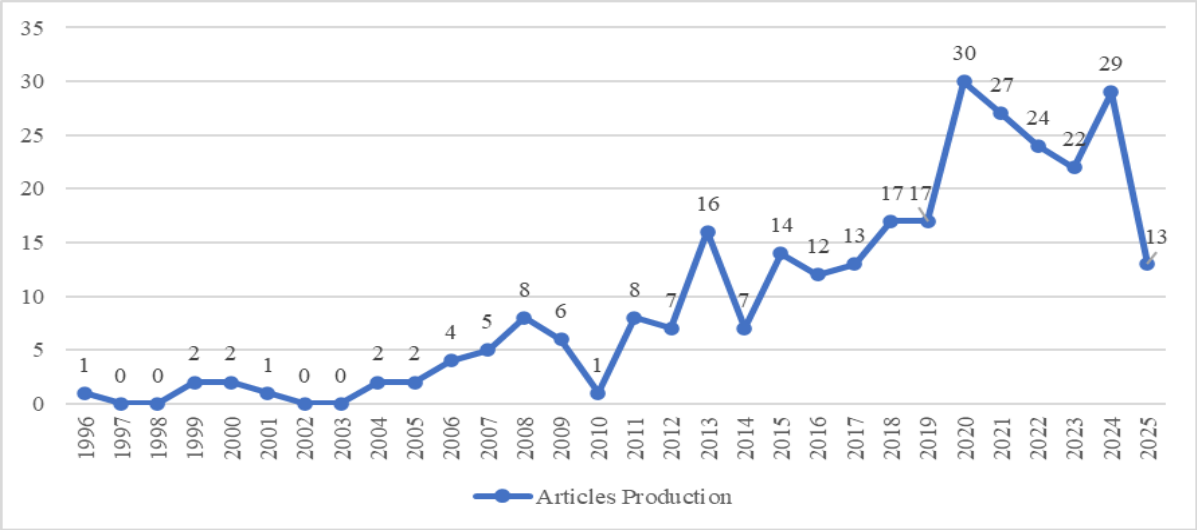

Figure 4: Articles Production

Source: Biblioshiny Data Processing, 2025

Entering the period 2016 to 2020, there was a significant surge in the number of articles produced, reaching the highest number in 2020 with 30 articles. This increase indicates greater support for the research and development of scientific publications. However, after the peak, there was a sharp decline in 2024 and 2025, with the number decreasing to 13 articles. This decline is likely due to a change in the focus of research, which is now more concentrated in other areas. Overall, this picture reflects the interesting dynamics in the world of scientific research on audit quality input factors over the past three decades.

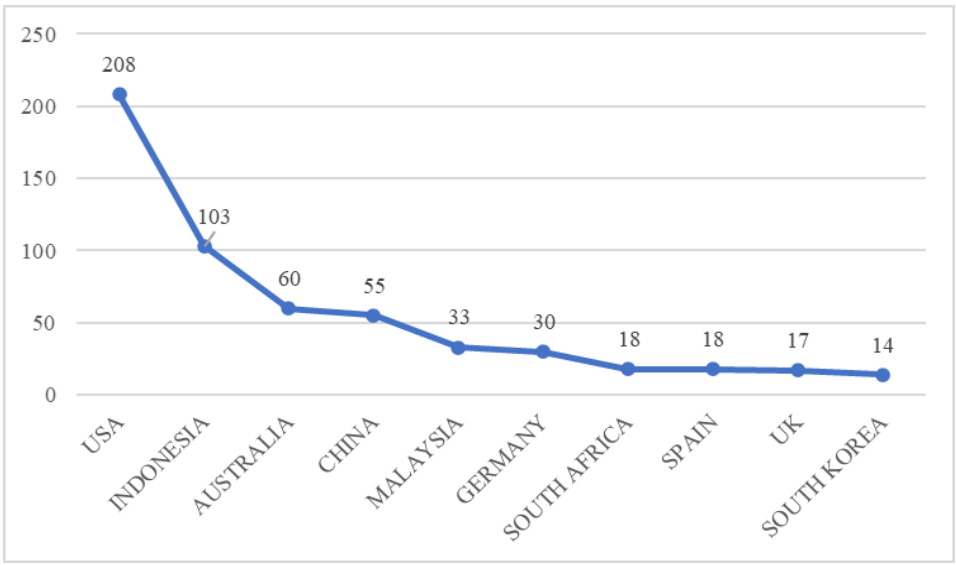

Figure 5: Contributing Countries

Source: Biblioshiny Data Processing, 2025

Figures 5 and 6 describe the global distribution of scientific contributions and research production, showing significant differences between large and smaller countries in terms of scientific production. Countries such as the United States and Indonesia dominated, with a huge contribution of publications related to the audit quality input element, reaching 208 and 103 publications, respectively, which was reflected in the dark blue color on the map, indicating a high level of scientific production. Countries such as Australia, China, and Malaysia also made substantial contributions, with 60 and 55 publications, respectively. However, after the top four countries, there was a sharp decline in the number of publications, as seen in countries such as Germany, South Africa, and Spain, which recorded between 30 and 18 publications. Countries with smaller contributions, such as the United Kingdom and South Korea, had even lower numbers, with approximately 14 publications each. Overall, these

data highlight the dominance of several countries in scientific contributions to audit quality input elements globally.

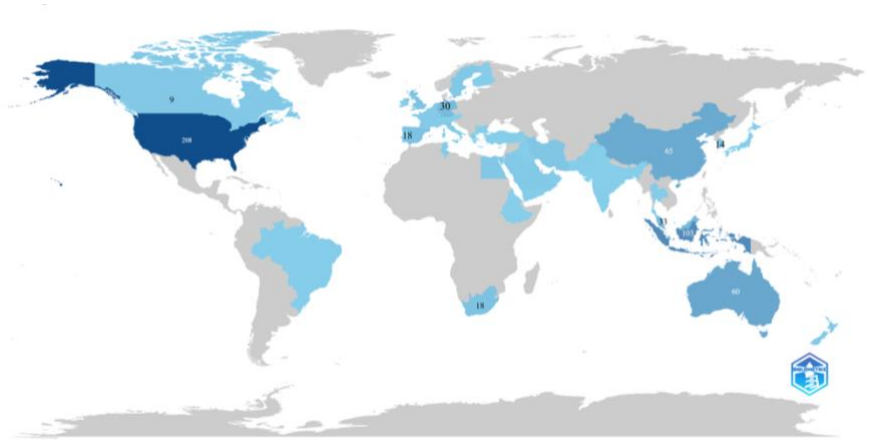

Figure: 6 Global Distribution of Publication Density

Source: Biblioshiny Data Processing, 2025

Regarding the number of publications by organization, Technische Universität Darmstadt (Germany), UNSW Sydney (Australia), and the University of Wisconsin-Milwaukee (United States) have contributed to the research on input factors and audit quality over the past three decades, producing 9,9, and 8 articles, respectively, as shown in Table 2. Table 2 also shows that in the United States and Australia, there are organizations, namely universities, that have a high interest in research related to input factors and audit quality. In addition, Table 2 shows that universities are centers of study related to input factors and audit quality.

Table 2: Top 10 Organizations That Contribute to Audit Quality Input Factor Research

Organization	Region	Number of Publications
Technical University of Darmstadt	Germany	9
UNSW Sydney	Australia	9
University of Wisconsin-Milwaukee	United States	8
MARA University of Technology	Malaysia	6
UNSW Business School	Australia	6
University of the Witwatersrand, Johannesburg	South Africa	5
University of South Florida, Tampa	United States	4
University of Antwerp	Belgium	4
Florida Atlantic University	United States	4
Kennesaw State University	United States	4

Source: Biblioshiny Data Processing, 2025

As shown in Table 3, four organizations (research funding programs) originated in China, with a total of 16 publications, followed by the United States with nine publications from three funding sponsoring institutions. The National Natural Science Foundation of China sponsored nine documents, or 7% of the 90 funding institutions that researched the input, factors, and quality of audits.

Table 3: Top 10 Organizations (Funding Sponsors) That Contribute to Audit Input Factor and Quality Research

Funding Sponsor	Region	Numbers
National Natural Science Foundation of China	China	9
American Accounting Association	United States	4
Ministry of Education of the People's Republic of China	China	3
University of Wisconsin-Madison	United States	3
China Postdoctoral Science Foundation	China	2
Deakin University	Australia	2
Erasmus University Rotterdam	Netherlands	2
Florida Atlantic University	United States	2
Fundamental Research Funds for the Central Universities	China	2
Korea Advanced Institute of Science and Technology	South Korea	2

Source: Scopus Analysis, 2025

Figure 7 shows the countries with the highest number of citations. The United States had the highest number of citations (2,110), followed by Australia (283) and Germany (174). This shows that articles from these countries are the main sources of research on input factors and audit quality. According to Setiawan et al. (2023), authors whose articles are often used as references by other researchers are those who have published many works on a particular topic and generally have a deeper understanding of the field of research. In this case, the fields in question are the input factors and audit quality.

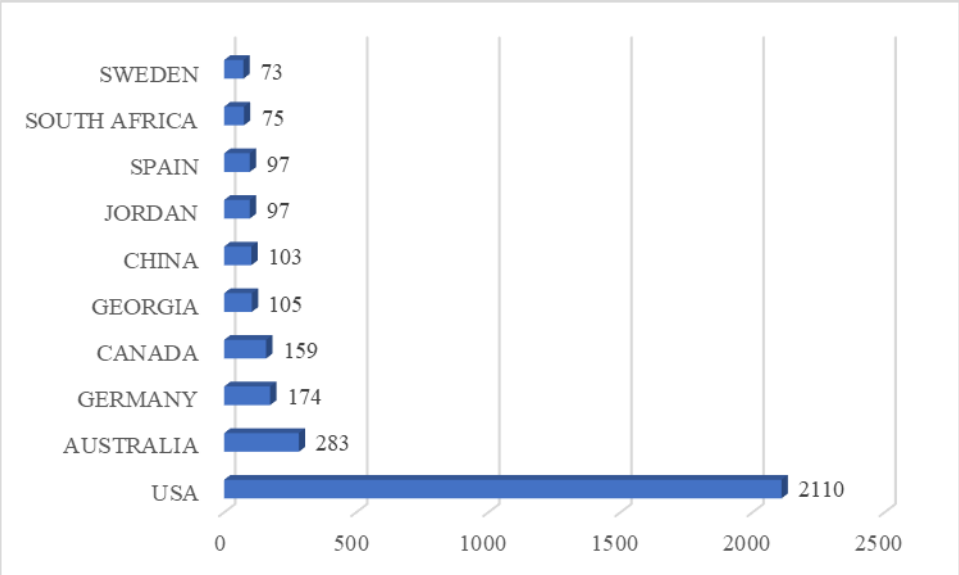

Figure: 7 Most Cited Countries

Source: Biblioshiny Data Processing, 2025

3.2 Journal Analysis

Figure 8 shows the top 10 journals with the highest number of publications on audit input factors and quality between 1996 and 2025. The Managerial Auditing Journal leads the list of publications with 21, followed by Auditing and the International Journal of Auditing, which each have 17 publications.

Figure 8: Top 10 Most Relevant Source

Source: Biblioshiny Data Processing, 2025

In addition, accounting and other business journals contributed to less than 10 publications. On the other hand, the local impact journal represented in Table 4 shows that the articles published in the Auditing journal have a wide quality and impact, as well as new findings about input factors and audit quality that are often used as references by other researchers. The Managerial Auditing Journal, Accounting Review, and International Journal of Auditing each have an h-index of 11 and 8. H- This index shows that articles published in these journals have a wide impact, and new findings on input factors and audit quality are often used as references by other researchers.

Table 4: Top 10 Local Impact Journals

Source	h_index
Auditing	12
Managerial Auditing Journal	11
Accounting Review	8
International Journal Of Auditing	8
Journal Of Accounting Research	6
Journal Of Accounting And Public Policy	5
Journal Of Business Ethics	5
Contemporary Accounting Research	4
Academy Of Accounting And Financial Studies Journal	3
Accounting, Organizations And Society	3

Source: Biblioshiny Data Processing, 2025

3.3 Author's Analysis

Table 5 shows the leading authors on input factors and audit quality. Quick Reiner led the way in the most publications (N = 8) but did not lead in the most citations (N = 116), the second position was occupied by Michael Harber and Warren Maroun with 5 publications each. In terms of citations, Ferdinand A. Gul had the highest number (N = 610). Furthermore, the article on the most influential input factors and audit quality written by Ferdinand A. Gul was published in 2013 and has been cited 475 times. This study discusses the influence of individual auditors on audit results by analyzing approximately 800 auditors. The findings show that the quality of audits produced by auditors varies, and this variation has economic and statistical effects. Furthermore, it was

also found that audit quality can be influenced by who conducts the audit regardless of the size of the firm, in addition to auditor characteristics such as education, experience at Big N, position within audit firms, and political affiliation explain the variation in audit quality (Gul et al., 2013). Although in the total citations Ferdinand A. Gul has the highest number of citations, in terms of citations from the aspect of link strength, this author has 0 link strength, this may be because Ferdinand A. Gul's publications have not established a significant or strong enough relationship or connection to influence the literature on the topic of internal factors and audit quality.

Table 5: Most Relevant Author

Authors	Articles	TC	h_index
Quick, Reiner	8	116	5
Harber, Michael	5	48	4
Maroun, Warren	5	74	4
Abbott, Lawrence J.	4	364	4
Yellow, Ferdinand A.	4	610	4
Higgs, Julia L.	4	109	4
Hossain, Sarwar	4	63	4
Brown, Veena L.	3	46	2
Daugherty, Brian E.	3	301	3
Krauß, Patrick	3	60	3

Source: Biblioshiny Data Processing, 2025

Figure 9 shows that this bibliometric network is formed from elements in the form of nodes and connections between nodes that are connected through lines (Van Eck & Waltman, 2014). Further, it can be seen that Reiner Quick has a strong number of citations from collaborations with lead authors in the areas of input factors and audit quality.

Figure 9: Author Citation Network

Source: Vosviewer Data Processing, 2025

3.4 Keyword Analysis

Figure 10, illustrating Figure 11, illustrates a co-occurrence network consisting of nodes (dots) and edges (connecting lines) that connect keywords. The thicker the connecting line between the nodes, the more often the keywords appear together. Each color indicates a thematic cluster, where the nodes and connecting lines within the cluster can be used to illustrate how the theme (cluster) includes the topics (nodes) and the relationships between the topics (nodes) present in the theme (cluster) (Donthu et al., 2021). As expected, audit quality and auditor independence, which are elements of factor input, have the largest node size, which is a major topic in this study. Some nodes may not appear because their occurrence frequencies are too small. In this case, there are four clusters, each represented by a different color, each cluster has several keywords and the same theme (cluster 1 = red; cluster 2 = blue; cluster 3 = green; and cluster 4 = purple). A keyword can be related to other keywords that belong to different clusters. Cluster 1 contains the same number of nodes as cluster 3. In contrast, clusters 2 and 4 have larger nodes, such as ethics and auditor independence (which is part of factor input), that represent the underlying themes in this review.

Figure 10: Co-Occurance Network
Source: Biblioshiny Data Processing, 2025

Donthu et al. (2021) explain that several network metrics are used to describe the structure and influence within a network, such as degree of centrality, centrality of betweenness, centrality of eigenvector, centrality of closeness, and PageRank. The centrality of betweenness measures the ability of a node to connect a group of unconnected nodes, whereas the centrality of closeness indicates how quickly a node can disseminate information through its proximity to other nodes in the network. PageRank, which was originally used to prioritize web pages, is also used to assess the prestige of a publication by looking at its influence on publications that are more cited, even if the publication itself is not cited as much. In addition, PageRank can be applied to group and identify important themes in a research domain.

Table 6: Co-Occurance Network

Node	Cluster	Betweenness	Closeness	PageRank
Independence	1	47,53	0,011	0,023
Competence	1	0	0,007	0,01
Auditor	1	0	0,01	0,007
Auditing	2	40,015	0,011	0,039
Auditors	2	63,275	0,011	0,029
Ethics	2	0,733	0,011	0,019

Quality	2	0	0,008	0,008
Australia	2	0,637	0,009	0,012
Jordan	2	0	0,007	0,005
Sweden	2	0	0,01	0,01
Perceived Audit Quality	3	10,226	0,009	0,014
Audit Firm Rotation	3	36,915	0,01	0,012
Germany	3	0	0,007	0,009
Audit Quality	4	906,885	0,019	0,27
Auditor Independence	4	149,714	0,014	0,138
Audit Fees	4	6,271	0,011	0,039
Discretionary Accruals	4	0,592	0,011	0,029
Non-Audit Services	4	0,148	0,011	0,028
Earnings Management	4	0,038	0,011	0,023
Corporate Governance	4	0	0,01	0,01
Auditor Competence	4	0,306	0,01	0,015
Internal Audit	4	0,216	0,01	0,012
Auditor Rotation	4	0	0,011	0,017
Auditor Tenure	4	0	0,01	0,012
Financial Reporting Quality	4	0	0,01	0,01
Mandatory Audit Firm Rotation	4	0	0,011	0,015
Non-Audit Fees	4	0	0,01	0,013
Professional Skepticism	4	0	0,01	0,007
Auditor Characteristics	4	0	0,01	0,008
Going Concern	4	0	0,01	0,011
Knowledge Spillover	4	0	0,01	0,013
Audit Committees	4	0	0,01	0,007
Audit Failure	4	0	0,01	0,007
Auditor Experience	4	0	0,01	0,007
Client Importance	4	0	0,01	0,012
External Audit	4	0	0,01	0,008
Nonaudit Services	4	1,14	0,01	0,011
Regulation	4	0	0,01	0,006
Audit	4	0	0,01	0,006
Audit Fee	4	0	0,01	0,008
Audit Tenure	4	0	0,01	0,006
Auditor Change	4	0	0,01	0,008
Earnings Quality	4	0	0,01	0,009
Non-Audit Service Fees	4	0,36	0,01	0,012
Performance	4	0	0,01	0,006
Professional Ethics	4	0	0,01	0,005
Professional Scepticism	4	0	0,01	0,005
Sarbanes-Oxley	4	0	0,01	0,007
Vietnam	4	0	0,01	0,006

Source: Biblioshiny Data Processing, 2025

Based on Table 6, audit quality and auditor independence are the most influential factors. These two topics had the highest scores for betweenness, closeness, and pagerank metrics, indicating their important role in connecting information and significantly influencing the network. In contrast, nodes such as professional ethics and professional skepticism showed low centrality on all metrics. This indicates that the influence and

connectivity of the two nodes in the network are low. As additional information in terms of centrality, there are keywords that have lower values than professional ethics and professional skepticism, such as Jordan, Germany, and Vietnam. However, this refers to a place where research is conducted that has no connection to the research topic, as well as professional ethics and professional skepticism. Meanwhile, the quality of the audit has a high betweenness and pagerank, demonstrating the significance and importance of this topic.

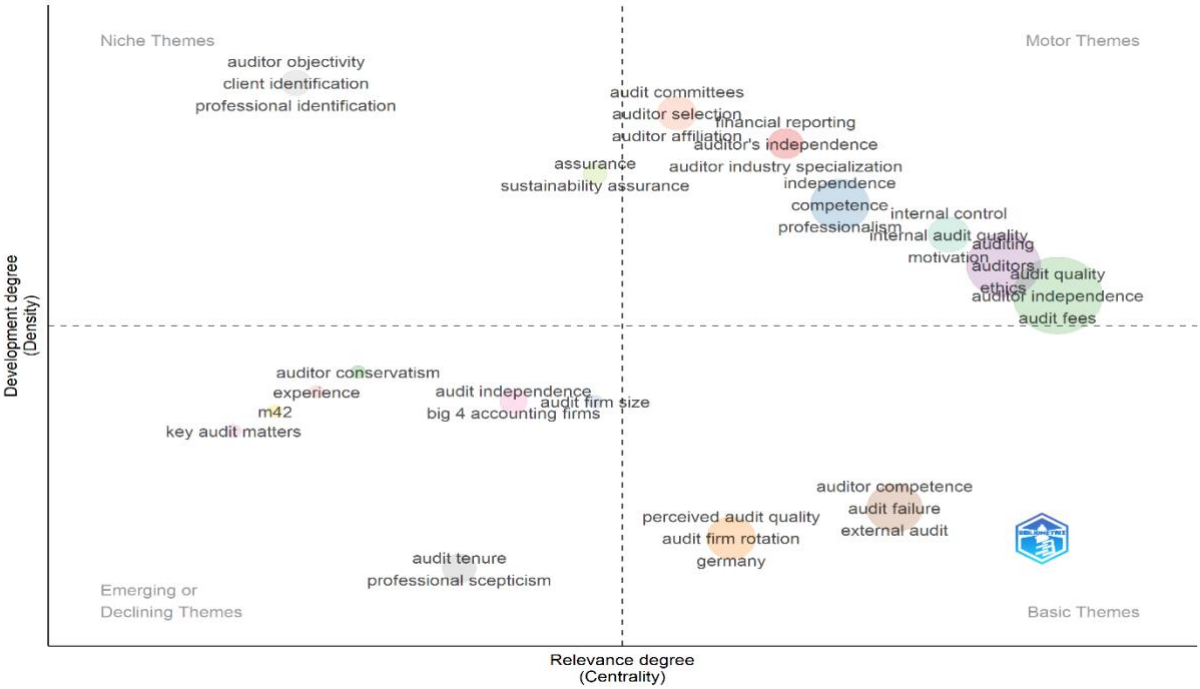

Figure 11: Thematic Map Based on Keywords

Source: Biblioshiny Data Processing, 2025

Figure 11 shows a graph maps various audit-related themes based on two dimensions: Development Degree and Relevance Degree. Themes in the upper left quadrant, such as "auditor objectivity" and "client identification," indicate more niche or specific themes with a low level of development. On the top right side, there are themes with a high level of relevance and good development, such as "audit committees," "auditor independence," and "audit quality," which show the main topics that are very relevant in the world of auditing and are constantly evolving.

In the lower left quadrant, we find themes that are developing more slowly and have lower relevance, such as "auditor conservatism" and "key audit matters." These themes may appear in certain contexts but do not receive widespread attention. Meanwhile, in the lower right quadrant, themes such as "auditor competence" and "audit failure" reflect themes that are quite relevant and have developed well, but are not as popular as the themes in the upper right quadrant. Overall, this graph illustrates how the various themes within the audit field are placed based on how far they have evolved and how important or relevant they are in the context of audits.

Figure 12 describes the development of the main topics in audit quality research from year to year, divided into three periods: 1996-2016, 2017-2021, and 2022-2025. In the first period, the main focus was on audit costs, audit quality, auditor tenure and non-audit services. For example, research shows that cutting audit costs in the first year of auditor involvement does not necessarily negatively impact audit quality, although there is a difference in audit costs between the first year and subsequent years. These cost cuts are often considered auditors' natural response to competitive market conditions, which do not necessarily threaten auditor independence (Krauß et al., 2014). In addition, economic factors, such as the financial attachment between the auditor and the client, influence the auditor's behavior more than the amount of fees received. Research also reveals that although audit costs are higher, audit quality can be lower, indicating that economic attachment dominates auditors' behavior more than their concern for their reputation (Hoitash et al. 2007).

Figure 12: Thematic Evolution Based on Keywords

Source: Biblioshiny Data Processing, 2025

For example, an auditor's tenure is a study that tests the influence of auditor tenure on audit quality, which is measured by the auditor's tendency to provide a going-concern opinion. The auditor's tenure was measured based on the duration of the auditor-client relationship, and the results of this study showed that the longer the auditor's tenure, the less inclined the auditor was to give a going-concern opinion (Junaidi et al., 2012). In the second period, attention shifted to audit firm rotation, auditor characteristics, auditor competencies, and new themes such as corporate governance, profit management, and auditor independence. An example of research in period 2 is audit firms; some studies in this period found that the implementation of audit firm rotation does not significantly improve auditor independence or audit quality (Aschauer & Quick, 2018; Quick & Schmidt, 2018).

In the latter period, research focused more on discretionary accruals, the quality of financial reporting, and professional skepticism, with a strong emphasis on auditor competence and auditor independence. An example of a study on discretionary accruals found that the absolute value of discretionary accruals decreased as the proportion of audit costs to the total audit costs received by audit partners from all their clients increased, suggesting that the higher the audit costs, the lower the tendency to conduct discretionary accruals. In contrast, negative abnormal audit costs are negatively correlated with the absolute value of discretionary accruals, which means that when audit costs are lower than they should be (negative abnormal audit costs), companies tend to have more discretionary accruals (Hossain et al., 2023; Hossain & Wang, 2023). Overall, the lines in Figure 11 connecting these themes show the interconnectedness between the various issues, reflecting the more complex developments in audit research over time.

4. Conclusion

The conclusion of this study shows that input factors such as auditor independence, auditor experience, auditor competence, auditor characteristics, auditor experience, professional ethics, and professional skepticism have a close relationship with audit quality, as shown by the same cluster category in the co-occurrence network analysis. This can provide insight to improve or control audit quality based on an understanding of the factors that play a role. in it. Furthermore, regarding publications, although there has been an increasing trend in publications related to audit quality since 2016, this study also found a sharp decline in 2024 and 2025, which reflects a change in focus in research that is more concentrated on other aspects of audit quality. The dominance of publications comes from countries such as the United States and Australia, while the contribution of other countries remains limited. In addition, the thematic evolution by keyword found that one author had multiple

publications on the same topic, indicating that some authors have a research focus on a particular field. This study suggests that future studies should further explore the interaction between input factors in audit practices, especially in the context of fraud detection. Further research is expected to explore the role of these factors in under-reported areas in the literature to enrich the understanding of audit quality globally.

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