

Mapping the Global Landscape of Internal Auditing Research: A Bibliometric Analysis

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ABSTRACT

This study provides a systematic bibliometric review of the worldwide research landscape in internal auditing, emphasizing key trends, major contributors, and emerging topics over the past fifty years (1970-2024). We employed a comprehensive bibliometric methodology to analyze 1,092 peer-reviewed articles from the Web of Science (WoS) and Scopus databases. Using ScientoPy and VOSviewer, we conducted detailed analyses, including citation network mapping, topic visualization, and network analysis, all within a rigorous review process to ensure quality. The results reveal different patterns across databases: WoS continues to expand (AGR: 0.5%, h-index: 62), while Scopus shows a decline (AGR: -2%, h-index: 37). The United States remains a leading research hub (290 publications, h-index: 51), whereas Indonesia is emerging as a growth market (AGR: 4%). The Managerial Auditing Journal contributes the most scholarly work (169 publications; h-index: 35). Thematic analysis uncovers three interconnected research clusters focused on core auditing concepts, governance frameworks, and performance measurement methods. Limitations such as database coverage and language focus may restrict a full understanding of global research, highlighting the need for enhanced international collaboration and diverse theoretical perspectives to address regional research gaps. These findings provide valuable insights for scholars, auditors, and policymakers as they evolve internal auditing from a compliance function to a strategic organizational role in today's global business landscape. This comprehensive review of global internal auditing scholarship identifies institutional biases and key areas for future theoretical development, supporting ongoing research efforts.

Keywords: Internal audit, bibliometric analysis, global research trends, scholarly impact, thematic evolution

INTRODUCTION

Internal auditing has evolved from a basic compliance role to a strategic capability that promotes value creation and risk management across global contexts. As organizations operate in complex, interconnected markets, the scope of internal audit now extends beyond financial oversight to encompass operational efficiency, strategic advice, and governance (Pizzi et al., 2021). This shift highlights the growing recognition that effective internal audit functions are essential for organizational resilience and for maintaining a competitive advantage in today's ever-changing business landscape.

The expansion of global business operations has transformed internal auditing, presenting new challenges such as navigating different legal systems, managing diverse business cultures, and designing audit procedures that are both standardized and flexible to local needs (Marques et al., 2020). These issues have attracted scholarly attention to how internal audit functions adapt globally while remaining effective and relevant. International standards, such as those from the Institute of Internal Auditors (IIA), have helped unify audit practices across nations and cultures (Calvin, 2021).

Technological advancements and digital transformation have greatly influenced modern internal auditing. The integration of data analytics, artificial intelligence, and automated tools has reshaped traditional audit practices, enabling auditors to provide more comprehensive and timely insights to management (Betti & Sarens, 2021). Globally, organizations see the importance of adopting advanced information technology to improve their

internal audit functions, especially in the post-pandemic era when remote auditing and digital collaboration are essential (Weshah, 2021). This technological progress has created new opportunities for internal auditors to add value while also presenting challenges in developing skills and adapting to new technologies (Al-Okaily et al., 2024).

The connection between internal audit effectiveness and organizational performance has garnered considerable interest from researchers and practitioners alike. Research indicates that efficient internal audit departments play a crucial role in organizational success by enhancing risk management, reinforcing internal controls, and enabling more informed decision-making (Hassan et al., 2021). The effectiveness of internal audit functions hinges on factors such as audit committee oversight, management support, auditor competence, and organizational culture (Kaawaase et al., 2021). These aspects have been examined across different sectors and regions, revealing both universal principles and specific differences in internal audit effectiveness.

Risk-based internal auditing has risen to prominence in contemporary audit practices, transitioning from traditional checklist approaches to more strategic, risk-oriented methods. This strategy ensures that internal audit efforts are aligned with an organization's risk landscape and strategic objectives, enabling auditors to provide more pertinent and valuable insights to stakeholders (Levytska et al., 2022). Implementing risk-based audits is particularly vital in sectors such as banking and financial services, where complex operations and strict regulations necessitate advanced risk assessment capabilities (Ardianingsih et al., 2022).

The public sector offers both challenges and opportunities for internal auditing, influenced by distinct regulatory frameworks, accountability standards, and performance metrics that set it apart from private organizations. Government internal auditors face specific pressures related to transparency, public accountability, and political considerations that affect their audit decisions and recommendations (Zakaria et al., 2021). The adoption of international public sector accounting standards has increased the complexity of the internal audit environment within government entities, requiring auditors to navigate complex technical and political contexts (Marques et al., 2020).

Corporate governance frameworks increasingly recognize internal audits as essential components of oversight and control mechanisms within organizations. The dynamics among audit committees, external auditors, and internal audit functions have become a central focus of both research and practice, with scholars examining how these relationships influence audit quality and organizational outcomes (Garcia-Meca et al., 2021). The effectiveness of these governance structures varies widely across different institutional and cultural contexts, highlighting the need to understand global variations in governance practices (Tumwebaze et al., 2022).

The digital age has created both opportunities and challenges for internal audit functions around the globe. While technology enables more sophisticated audit procedures and real-time oversight, it also introduces new risks, including cybersecurity threats, data privacy concerns, and increased technological complexity (Lois et al., 2020). Internal auditors must acquire new skills to effectively evaluate digital systems and processes, all while maintaining their traditional oversight responsibilities. The COVID-19 pandemic has accelerated digital transformation across industries, highlighting the urgent need for internal audit teams to adapt to rapidly evolving technological landscapes (Al-Dhubaibi et al., 2022).

Internal audit quality management is increasingly crucial as organizations strive to ensure their audit functions deliver consistent, meaningful results. Implementing quality frameworks and continuous improvement measures has been shown to enhance both audit effectiveness and stakeholder satisfaction (Singh et al., 2021). Organizations face ongoing challenges in measuring and assessing the value of internal audits, using a mix of traditional metrics and advanced methods to evaluate value creation, risk reduction, and strategic impact (Garven et al., 2021). Additionally, emphasis on professional development and competency management for internal auditors has grown, requiring a broad skill set that includes traditional auditing expertise, technological skills, and business acumen (Bonrath et al., 2024).

The integration of sustainability into internal audit practices highlights a rising organizational emphasis on environmental, social, and governance (ESG) issues. Fraud detection remains a core component of internal audits worldwide, with advanced detection techniques and data analytics enhancing auditors' ability to spot and prevent

fraud (Al-Dhubaibi et al., 2022). Internal audit teams are increasingly applying root cause analysis to offer deeper insights beyond conventional findings and recommendations (DeZoort et al., 2023). Technologies from the Fourth Industrial Revolution, including artificial intelligence, blockchain, and the Internet of Things (IoT), are transforming internal audit processes globally. These innovations present new opportunities to improve accuracy and effectiveness, although they also pose challenges related to implementation and skills development (Al-Khasawneh & Al-Khasawneh, 2023).

Given the increasing significance and complexity of internal auditing globally, there is an urgent need for a comprehensive bibliometric analysis to map the field's intellectual structure and pinpoint key research trends and gaps. While many studies have investigated specific facets of internal auditing, a systematic overview of the global research landscape remains lacking. This study addresses that gap by performing a detailed bibliometric analysis of internal auditing research, emphasizing international perspectives and recent developments.

This study uses comprehensive bibliometric techniques to tackle these complex challenges and analyze the global academic literature on internal auditing. It focuses on five primary research questions (RQs):

RQ1: How have publication volumes and growth patterns changed in internal auditing research across global contexts, as documented in WoS and Scopus databases?

RQ2: Which academic journals show the most significant scholarly impact and productivity in publishing internal auditing research globally, based on bibliometric indicators and citation performance?

RQ3: Who are the most prolific and influential scholars in global internal auditing research, and what are their key theoretical and empirical contributions as evidenced by citation analysis?

RQ4: Which countries have become leading contributors to global scholarships in internal auditing that define this research landscape?

RQ5: Which thematic clusters, conceptual frameworks, and emerging research frontiers can be identified through systematic keyword co-occurrence analysis of the global internal auditing literature?

This thorough analysis contributes to the expanding field of internal auditing by providing a structured overview of existing research and identifying avenues for future exploration. Its findings will assist academics, practitioners, and policymakers in understanding the current landscape and potential future developments in internal auditing research, especially in the context of a more globalized and complex business environment.

METHODOLOGY

This study explores internal auditing functions worldwide, distinct from external financial audits. It uses systematic bibliometric analysis to evaluate research on internal auditing from 1970 to 2024. This method offers a quantitative and visual summary of publication patterns, main contributors, key themes, and emerging research trends in this growing area (Donthu et al., 2021). The process involves three stages: data collection, pre-processing, and analysis, employing tools like ScientoPy and VOSviewer for performance evaluation and visualization.

This study employs the Bibliometric-Systematic Literature Review (B-SLR) framework proposed by Marzi et al. (2025) to ensure a comprehensive review and contribute to existing knowledge in our bibliometric analysis. The B-SLR offers a structured 10-step process that guides research from initial question formulation through data collection, analysis, and theoretical synthesis. This approach allows us to go beyond basic descriptive analysis and generate valuable theoretical insights through a systematic review of the literature (Hassan et al., 2021). Each stage follows B-SLR guidelines: our search query (Step 2) was developed through repeated refinement and scholarly feedback; dataset collection and refinement (Steps 4-5) were based on clear inclusion and exclusion criteria; and our analysis and visualization (Steps 6-8) employed standard parameters to ensure reproducibility. For VOSviewer, we set the resolution to 1.0 and the minimum items per cluster to 5. We normalized the data using the association-strength method to obtain clearer thematic clusters. This transparency

enhances the validity and reproducibility of our results, providing a solid basis for meaningful theoretical synthesis (Ahmi, 2022).

Data Collection

Two prominent academic databases, WoS and Scopus, were chosen for their broad coverage and dependable citation metrics (Ahmi, 2022; Echchakoui, 2020). The search queries were meticulously designed to capture publications on internal auditing research, using keywords such as "internal audit" and "internal auditing."

The refined search string used for WoS was TITLE ("internal audit*" OR "internal auditing*") AND (Publication Years: 1970-2024) AND (Document Types: Article) AND (Web of Science Categories: Business, Finance, Management, or Economics) AND (Languages: English).

For Scopus, the refined search query was TITLE ("internal audit*" OR "internal auditing*") AND PUBYEAR > 1970 AND PUBYEAR < 2025 AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "ECON")) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (LANGUAGE, "English")) AND (LIMIT-TO (SRCTYPE, "j")) AND (LIMIT-TO (PUBSTAGE, "final")).

Our development of search queries followed a thorough validation process to ensure complete coverage while maintaining accuracy. We began by selecting initial keywords through a preliminary review of key papers on internal auditing, as Abbaszadeh et al. (2019) did. These keywords were tested in pilot searches across both databases, and their relevance was assessed. Terms that yielded mostly irrelevant results were refined or removed, and additional synonyms were added for concepts that returned relevant but limited results. This iterative process ensured our final search approach balanced sensitivity (capturing pertinent literature) with specificity (minimizing irrelevant results). Using both the WoS and Scopus databases allows us to verify our findings by understanding each database's scope and uncovering unique information, thereby improving the completeness and reliability of our dataset (Echchakoui, 2020). Focusing on title searches guarantees that studies directly related to internal auditing are identified.

The data were collected on July 2, 2025, and restricted to journal articles to ensure inclusion of high-quality, peer-reviewed research. The 1970–2024 timeframe was deliberately chosen to capture the evolution of internal auditing research before and after major regulatory shifts, particularly the 2002 Sarbanes-Oxley Act (SOX), which significantly elevated the strategic role of internal audit functions globally. An initial dataset of 1,570 publications was compiled, comprising 682 from WoS and 888 from Scopus.

Data Pre-Processing

We implemented a comprehensive pre-processing procedure to improve the dataset for analysis. Duplicate entries were detected and removed by matching titles and authors, resulting in 1,092 unique publications. To ensure consistency, author names were standardized, and discrepancies between WoS and Scopus records were addressed (Ruiz-Rosero et al., 2019). The finalized dataset was considered reliable, backed by multiple studies spanning from 1970 to 2024.

Analysis Tools

This study employed ScientoPy and VOSviewer for bibliometric analysis and visualization. ScientoPy, an open-source Python tool, evaluated performance metrics such as publication growth trends, author productivity, and contributions from different institutions (Abdullah et al., 2023). Meanwhile, VOSviewer created visual maps illustrating co-citation patterns, keyword co-occurrence, and collaboration networks among authors and institutions (Li et al., 2022). These tools facilitated a comprehensive examination of the field's thematic evolution and cognitive structure.

Scope and Metrics

Table 1 presents the initial data analysis details. The analysis utilized performance metrics such as the h-index, Average Growth Rate (AGR), and Average Documents per Year (ADY) to evaluate academic influence and

productivity. Science-mapping techniques were employed to identify thematic clusters and emerging trends, helping to define the research framework in internal auditing. By integrating both quantitative and qualitative methods, this study provides a comprehensive view of the discipline's past, present, and future directions. The initial findings of the data analysis are shown in Table 1.

Table 1: Information On Initial Data Analysis

(Source: ScientoPy v2.1.3)

Information	Number	Percentage
Original data:		
Loaded papers	1570	
Omitted papers by document type	0	0.00%
Total papers after omitted papers removed	1570	
Loaded papers from WoS	682	43.40%
Loaded papers from Scopus	888	56.60%
Duplicated removal results:		
Duplicated papers found	478	30.40%
Removed duplicated papers from WoS	1	0.10%
Removed duplicated papers from Scopus	477	53.70%
Duplicated documents with different citations	400	83.70%
Total papers after removing duplicates	1092	
Papers from WoS	681	62.40%
Papers from Scopus	411	37.60%

Our inclusion criteria focused on peer-reviewed journal articles that thoroughly examine internal auditing functions in different global contexts. We excluded conference proceedings, book chapters, and non-peer-reviewed sources to ensure scientific quality. Articles that only briefly mentioned internal auditing or solely covered external or financial auditing, without relevant internal audit content, were also removed using specific exclusion terms in our search. During screening, we reviewed titles and abstracts for relevance, followed by full-text evaluations for ambiguous cases. This multi-step process ensured that only studies pertinent to our research questions were included in the final dataset. Metadata was standardized by manually verifying author names to resolve inconsistencies across databases, ensuring accurate attribution for subsequent analysis.

METHODOLOGICAL LIMITATIONS

While our bibliometric approach offers valuable insights into internal auditing research, it has several methodological limitations. First, although two major databases were used, the study may not have covered all relevant literature, particularly publications in languages other than English or in journals not indexed by WoS or Scopus. Second, citation counts serve as indicators of scholarly impact but have limitations: they do not always reflect research quality and can be skewed by self-citations and citation cartels. Third, understanding the

field effectively requires combining qualitative interpretation with bibliometric analysis, which primarily highlights numerical trends and connections (Donthu et al., 2021). Although helpful for illustrating research topics, the co-occurrence networks and clustering algorithms in VOSviewer rely on careful parameter selection, which can influence results, and different settings may produce different groupings. Lastly, our analysis only examines formal scholarly publications, excluding significant gray literature, practitioner-focused content, and unpublished studies that could provide valuable insights into current trends in internal auditing practices. Readers should keep these limitations in mind when interpreting our findings and considering their relevance to the global field of internal auditing.

FINDINGS

The investigation's findings comprehensively answer the research questions specified in the methodology. Results are clearly laid out with visualizations generated using ScientoPy and VOSviewer, providing empirical backing for the analysis of each question.

Note for the results figures:

1. AGR = average growth rate,
2. ADY = average documents per year.
3. PDLY = Percentage of documents from the past years
4. h-index = a standard scholarly metric that relates the number of published papers to the number of citations they receive.

RQ1: How have publication volumes and growth patterns changed in internal auditing research across global contexts, as documented in WoS and Scopus databases?

Figure 1 and Table 2 illustrate the bibliometric analysis of internal auditing research publications from the WoS and Scopus databases, covering the period from 1970 to 2024. The analysis highlights notable differences in database coverage and growth trajectories, with WoS showing considerably stronger research activity than Scopus.

WoS has 681 publications, showing steady growth with an annual rate of 0.5% and an average of 50.5 per year. It accounts for 15% of recent publications and boasts an h-index of 62, indicating strong scholarly influence. This underscores WoS's importance as a primary source for influential research in internal auditing, especially from top academic institutions and leading journals.

Scopus includes 411 publications but shows worrying trends, with a yearly decline of 2% and an average of 25.5 documents annually. Only 12.4% of these are recent, and the h-index is 37. The negative growth suggests fewer submissions to Scopus journals in this area or a shift toward publishing in WoS-indexed outlets.

The dataset of 1,092 publications offers a broad overview of internal auditing research over more than five decades. The significant difference in h-index values (62 vs 37) indicates that publications listed in WoS on internal auditing receive many more citations, implying they have greater impact and quality. This pattern highlights the field's emphasis on publishing in influential business and accounting journals, which WoS typically indexes.

The publication trends illustrate how internal auditing research has developed from a niche area within accounting to a recognized academic discipline with substantial scholarly work. The consistent rise in WoS publications, even as contributions from Scopus decline, reflects heightened research sophistication and higher quality standards.

Figure 1: Trends in Publication Growth

(Source: Author, using ScientoPy v2.1.3)

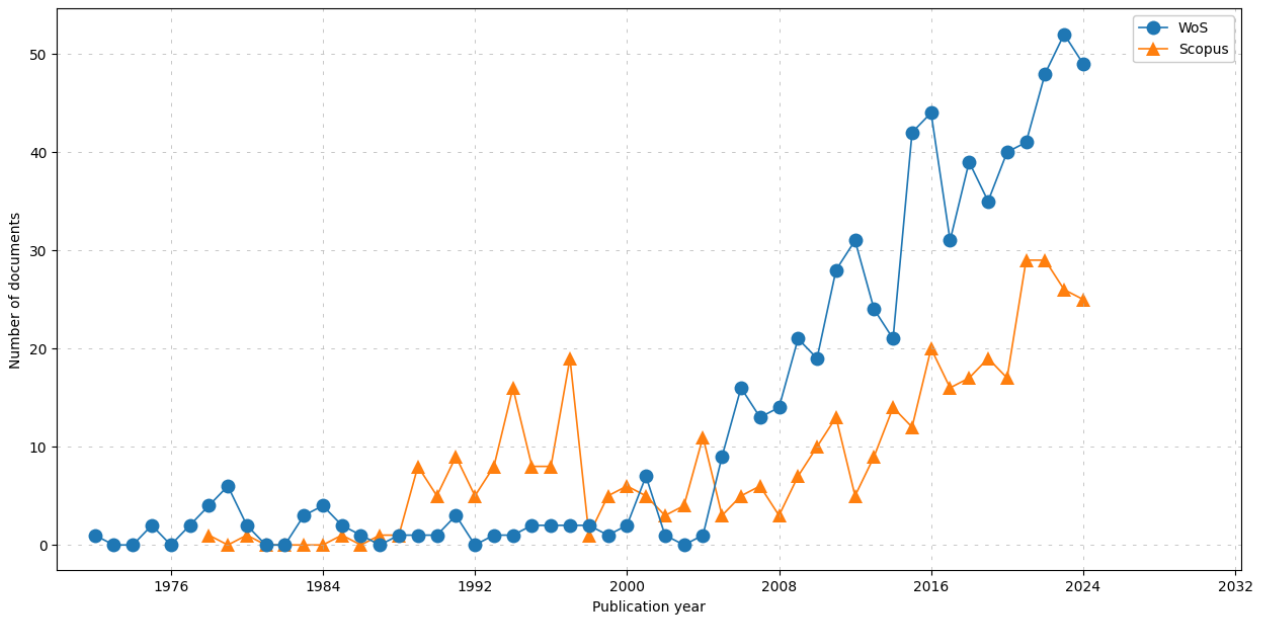


Table 2: Total Publications in WoS and Scopus Databases by AGR, ADY, PDLY, and h-index

(Source: Author’s figure generated via ScientoPy v2.1.3)

Rank	Data Base	Total	AGR	ADY	PDLY	h-Index
1	WoS	681	0.5	50.5	15	62
2	Scopus	411	-2	25.5	12.4	37

RQ2: Which academic journals show the most significant scholarly impact and productivity in publishing internal auditing research globally, based on bibliometric indicators and citation performance?

Table 3 presents a bibliometric analysis of top journals publishing internal auditing research, highlighting the 10 leading sources by article count and academic impact. This analysis underscores the concentrated presence of high-quality internal auditing studies within specialized academic outlets.

The Managerial Auditing Journal dominates the field with 169 publications and an h-index of 35, though it has experienced a slight decline, reflected by an AGR of -0.5%. It still represents 3% of recent publications. Its leadership underscores its specialized focus on auditing research and its reputation as the leading platform for internal auditing scholarship. The journal's substantial publication volume and citation impact underscore its crucial role in advancing both the theoretical and practical aspects of internal auditing.

The International Journal of Auditing ranks second, with 49 publications and an h-index of 22. It demonstrates steady growth, with an AGR of 2% and 10.2% for recent publications. This upward trend suggests increasing recognition and submission rates, highlighting the expanding international presence of internal auditing research. Meanwhile, the Southern African Journal of Accountability and Auditing Research (SAJAAR) has published 45 papers, with a modest h-index of 6. Although it shows no recent growth, it continues to hold regional significance in auditing scholarship.

Notable growth patterns are observed among newer entrants to the field. Cogent Business and Management exhibits substantial expansion, with 21 publications and a strong growth rate (AGR: 2.5%, ADY: 7), along with a recent publication rate of 66.7% and an h-index of 8. This swift growth is likely driven by the journal's open-

access model and interdisciplinary focus, which attracts diverse research in internal auditing within business management and governance.

Established accounting journals include influential contributions. Auditing: A Journal of Practice and Theory publishes 30 papers with an h-index of 20, while Accounting Horizons features 18 papers with an h-index of 13. The Academy of Accounting and Financial Studies Journal publishes 17 papers, and The Accounting Review, though it publishes only 13, has a notable h-index of 9, reflecting the high citation potential of articles in leading accounting journals.

The journal landscape demonstrates how research on internal auditing has expanded from specialized auditing journals to broader business and management outlets. This trend indicates an increased recognition of internal auditing's strategic importance, extending beyond conventional accounting into fields such as risk management, corporate governance, and organizational behavior.

Table 3: Total Publications By Source Title: AGR, ADY, PDLY, and h-index

(Source: Author's figure generated via ScientoPy v2.1.3)

Rank	Source Title	Total	AGR	ADY	PDLY	h-Index
1	Managerial Auditing Journal	169	-0.5	2.5	3	35
2	International Journal of Auditing	49	2	2.5	10.2	22
3	Southern African Journal of Accountability and Auditing Research-SAJAAR	45	-0.5	0	0	6
4	Auditing- A Journal of Practice and Theory	30	0	0.5	3.3	20
5	Cogent Business and Management	21	2.5	7	66.7	8
6	Accounting Horizons	18	0	0.5	5.6	13
7	Academy of Accounting and Financial Studies Journal	17	0	0	0	5
8	Brink's Modern Internal Auditing: A Common Body of Knowledge, 8th Edition	14	0	0	0	1
9	Accounting Review	13	0	1	15.4	9
10	Contemporary Accounting Research	12	-0.5	0	0	12

RQ3: Who are the most prolific and influential scholars in global internal auditing research, and what are their key theoretical and empirical contributions as evidenced by citation analysis?

Table 4 presents a bibliometric analysis of leading authors in internal auditing research, highlighting the top 10 most-cited papers and their key contributions. This review uncovers the theoretical foundations and empirical advancements that have influenced internal auditing scholarship in recent years.

Prawitt et al. (2009) lead with 350 citations for their influential study on internal audit quality and earnings management, published in The Accounting Review. This research identified key connections between the characteristics of the internal audit function and the quality of financial reporting, showing how internal audit competence and objectivity affect management's earnings manipulation. Their findings offered important evidence of the internal audit's value beyond mere compliance tasks.

Goodwin-Stewart and Kent (2006) are ranked second with 233 citations for their study on how external audit fees relate to audit committee features and internal audit, published in Accounting and Finance. Their influential research showed that internal audit functions can replace some external audit work, thereby reducing external audit fees and highlighting the economic advantages of strong internal audit practices.

Felix et al. (2001) have 217 citations for their study, published in the Journal of Accounting Research, on how internal audits influence external audit fees and related factors. This research clearly shows that internal and external audit functions work well together, thereby shaping theories that continue to influence studies on audit fees and the value of internal audit.

Raghunandan et al. (2001) have received 212 citations for their study in Accounting Horizons, which examines audit committee composition, "gray directors," and their interaction with internal auditing. Their research highlights how governance mechanisms enable audit committees to oversee internal audit functions and explores the role of director independence in enhancing the effectiveness of internal audits.

Arena and Azzone (2009) have been cited 203 times in their study published in the International Journal of Auditing. Their research identifies organizational factors that influence the effectiveness of internal audits and develops comprehensive frameworks to understand them. This work provides guidance on improving the design and execution of internal audit functions by highlighting key organizational drivers that can enhance or hinder performance.

Abbott et al. (2016) ranked sixth with 197 citations for their research on the combined importance of independence and competence in internal audit quality and financial reporting quality, published in the Journal of Accounting Research. This study deepened the theoretical understanding of the dimensions of internal audit quality and how each uniquely affects organizational outcomes.

The citation analysis shows how the field has evolved from simple cost-benefit studies of internal audit functions to more sophisticated analyses of internal audit's role in areas like corporate governance, risk management, and the quality of financial reporting. Collectively, these key works illustrate that internal auditing is essential to an organization, playing a critical role in governance and in protecting stakeholders.

Table 4: Publication By Authors

(Source: Author's figure generated via ScientoPy v2.1.3)

Rank	Authors	Title	Source title	Cited by	Document Type	Source
1	Prawitt et al. (2009)	Internal audit quality and earnings management	Accounting Review	350	Article	WoS
2	Goodwin-Stewart and Kent (2006)	Relation between external audit fees, audit committee characteristics and internal audit	Accounting and Finance	233	Article	WoS
3	Felix et al. (2001)	The contribution of internal audit as a determinant of external audit fees and factors influencing this contribution	Journal of Accounting Research	217	Article	WoS
4	Raghunandan et al. (2001)	Audit committee composition, "gray directors," and interaction with internal auditing	Accounting Horizons	212	Article	Scopus
5	Arena and Azzone (2009)	Identifying organizational drivers of internal audit effectiveness	International Journal of Auditing	203	Article	WoS
6	Abbott et al. (2016)	Internal audit quality and financial reporting quality: The joint importance of independence and competence	Journal of Accounting Research	197	Article	WoS

7	Lin et al. (2011)	The role of the internal audit function in the disclosure of material weaknesses	Accounting Review	196	Article	WoS
8	Soh and Martinov-Bennie (2011)	The internal audit function perceptions of internal audit roles, effectiveness and evaluation	Managerial Auditing Journal	174	Article	WoS
9	Coram et al. (2008)	Internal audit, alternative internal audit structures and the level of misappropriation of assets fraud	Accounting and Finance	167	Article	WoS
10	Carcello et al. (2005)	Factors associated with U.S. public companies' investment in internal auditing	Accounting Horizons	166	Article	Scopus

RQ4: Which countries have become leading contributors to global scholarships in internal auditing that define this research landscape?

Table 5 presents a bibliometric analysis of how different countries contribute to internal auditing research, showcasing the top 10 nations and illustrating unique geographical patterns worldwide. This analysis underscores the global nature of internal auditing scholarship while pinpointing regional hubs of expertise and emerging research markets.

The United States leads with 290 publications, demonstrating modest growth with an AGR of 1%. It averages 9.5 documents annually, accounts for 6.6% of recent publications, and has the highest h-index of 51. This dominance stems from the country's well-developed internal auditing sector, strong regulatory system, and solid academic research infrastructure. The high h-index reflects both a substantial number of publications and notable global influence as evidenced by citations.

Malaysia ranks as the second-largest contributor with 90 publications. However, it faces a decline in growth (AGR: -4%) and has only 14.4% of its publications from the past five years, with an h-index of 22. Despite this negative trend, Malaysia's substantial contribution underscores its focus on corporate governance reforms and the advancement of professional auditing standards, particularly following regional financial crises that emphasized the importance of internal control systems.

Australia ranks third with 77 publications, exhibiting consistent growth (AGR: 0.5%), a high recent publication rate (7.8%), and an h-index of 30. This strong performance highlights a well-developed auditing industry and an active academic community, especially in fields such as corporate governance and risk management.

South Africa has authored 73 publications but exhibits a decreasing trend (AGR: -1.5%), with no recent outputs and an h-index of 11. Despite this decline, its historical contributions highlight the country's important role in shaping internal auditing practices and professional standards in emerging markets.

Indonesia ranks fifth with 63 publications, showing notable recent growth (AGR: 4%, ADY: 12.5%) and representing 39.7% of recent publications, despite an h-index of only 8. This trend highlights Indonesia's growing emphasis on governance and internal control systems as part of broader economic development and regulatory reforms.

The geographical distribution highlights both established research centers in developed countries and growing contributions from developing nations. Countries like Saudi Arabia (50 publications, AGR: 2%), Jordan (35 publications), and other Middle Eastern and Asian nations are showing increasing research activity in internal auditing, reflecting a regional focus on governance improvements and economic diversification efforts.

The variation in h-index values across countries, from 51 in the United States to lower figures in emerging research markets, underscores opportunities for international knowledge exchange and collaboration. Such

efforts can boost the global influence of research and facilitate the practical implementation of internal auditing principles across institutions.

Table 5: Publication By Country

(Source: Author’s figure generated via ScientoPy v2.1.3)

Rank	Country	Total	AGR	ADY	PDLY	h-Index
1	United States	290	1	9.5	6.6	51
2	Malaysia	90	-4	6.5	14.4	22
3	Australia	77	0.5	3	7.8	30
4	South Africa	73	-1.5	0	0	11
5	Indonesia	63	4	12.5	39.7	8
6	United Kingdom	53	-0.5	2	7.5	18
7	Saudi Arabia	50	2	8.5	34	16
8	Jordan	35	-0.5	5.5	31.4	11
9	Italy	28	0.5	1.5	10.7	15
10	Canada	27	0	2	14.8	16

RQ5: Which thematic clusters, conceptual frameworks, and emerging research frontiers can be identified through systematic keyword co-occurrence analysis of the global internal auditing literature?

Figure 2 shows a bibliometric analysis of authors' keywords through network mapping, illustrating the intellectual structure and emerging trends in internal auditing research. This co-occurrence analysis identifies main thematic clusters and indicates how research emphasis within the field has evolved.

The network visualization highlights distinct thematic clusters that capture various facets of internal auditing research.

The Core Internal Auditing Cluster, characterized by tightly connected central nodes, includes key terms such as "internal audit," "internal control," "audit quality," and "assurance." This cluster represents the fundamental concepts and traditional focus areas within internal auditing research. The strong interconnections within this cluster indicate well-established theoretical frameworks and a consistent emphasis on core auditing principles.

The Governance and Risk Management Cluster includes terms like "corporate governance," "risk management," "compliance," and "risk assessment." This cluster highlights the growing importance of internal audit within organizational governance frameworks and the increased emphasis on risk-based auditing approaches. The strong links between governance and internal audit terms illustrate the field's shift toward strategic organizational functions.

The Performance and Quality Cluster includes concepts like "audit effectiveness," "performance measurement," "audit committee," and "independence." This cluster emphasizes the growing focus on evaluating and improving the performance of internal audit functions, as well as the vital role of organizational factors in supporting audit effectiveness.

The Emerging Technology and Innovation Cluster (located in peripheral areas) includes terms such as "digitalization," "continuous auditing," and "data analytics." Although it is currently smaller, this cluster signals emerging research directions that are likely to grow as technological advancements continue to reshape auditing practices.

indicating that more impactful studies are increasingly published in WoS-indexed journals. The substantial difference in h-index values (62 versus 37) suggests that WoS publications are cited more frequently, possibly due to systemic biases that favor well-established journals over newer ones. The ongoing growth of WoS reflects a rising recognition of internal auditing's strategic significance, while the decline in Scopus may point to issues related to research accessibility and regional diversity in knowledge dissemination. While our analysis quantifies these trends, it remains primarily descriptive; we do not claim causal explanations for database shifts, nor do we interpret the underlying qualitative reasons for Scopus's decline

This analysis of publication trends builds on existing theories by showing how academic fields tend to favor prestigious publication venues. The focus on WoS-indexed journals aligns with the predictions of institutional theory's isomorphic pressures (DiMaggio & Powell, 1983), in which researchers conform to established hierarchies to gain legitimacy. However, this focus might restrict theoretical diversity by excluding ideas from emerging research areas, thereby reinforcing Western-centric theories and overshadowing innovative approaches from developing countries. The results challenge the notion that research is becoming more open in the digital age, suggesting that quality-control efforts may unintentionally limit the diversity of global knowledge.

For Research Question 2 (RQ2), the journal analysis reveals that most publications are concentrated in specific journals, with the *Managerial Auditing Journal* leading at 169 publications and an h-index of 35. There has been a slight decline in publication growth (AGR: -0.5%). This pattern shows established publication trends that could limit innovative ideas, possibly due to editorial conservatism. The emergence of interdisciplinary journals like *Cogent Business and Management* suggests evolving perspectives, but their low h-indexes (8) suggest they lack significant influence in academic circles. The focus on high-impact research in traditional accounting journals may create theoretical silos, making it harder to integrate broader management and governance discussions.

From a theoretical standpoint, this pattern of journal distribution reflects fragmentation in knowledge development, potentially hindering the synthesis of theories. The predominance of specialized auditing journals strengthens disciplinary silos, which restrict cross-disciplinary exchange with fields such as organizational behavior, strategic management, and public administration. This fragmentation opposes the push for interdisciplinary research on complex organizational issues (Detzen & Gold, 2021). The variation in citation metrics among journals (h-index range: 35–1) indicates that well-established theories tend to be favored over newer ideas emerging from research in nascent areas.

The analysis for Research Question 3 (RQ3) highlights notable changes in research emphasis, with Prawitt et al. (2009) being the most cited, 350 citations for their work on earnings management, followed by Goodwin-Stewart and Kent (2006) with 233 citations for their study on audit fees. Citation trends show a shift from focusing on technical audit functions to governance-related research. Nonetheless, the concentration of highly cited works published mainly between 2001 and 2016 suggests a potential stagnation in new ideas. Additionally, the predominance of US-based authors among the top citations raises concerns about possible geographical bias in knowledge development and theoretical advances.

This advancement in the field enhances contingency theory by demonstrating how internal audit research has adapted to new regulations and governance environments (Lawrence & Lorsch, 1967). The importance of governance-related articles highlights the impact of rules on institutions, while the emphasis on audit quality and effectiveness supports the notion that resources are essential for internal audit capabilities (Barney, 1991). Nonetheless, the limited geographic diversity among highly cited works suggests that theory development may be constrained by cultural and institutional biases, potentially hindering the global applicability of established frameworks.

The analysis of publication sources for Research Question 4 (RQ4) reveals that the United States leads with 290 publications and an h-index of 51. Countries like Indonesia are experiencing rapid growth, with a 4% annual increase in publications and a 39.7% rise in h-index. Malaysia has contributed notably with 90 publications, although its growth rate is declining (AGR: -4%). This suggests that established research communities may face sustainability issues. The wide variation in h-index values between countries (ranging from 8 to 51) indicates significant differences in research impact and quality, likely due to disparities in resources and institutional development rather than intelligence.

Geographical analysis questions the idea that internal audit theories are universally applicable, revealing that research foci and methods differ across contexts. Insights from Asian countries highlight the need to move beyond Western-centric theories to better understand internal audits in various governance settings. Nonetheless, the ongoing dominance of developed countries in research raises concerns about knowledge colonialism, in which Western-developed theories may be inappropriately applied to other institutional contexts (Mitra et al., 2023; Trotman & Duncan, 2018).

The keyword network analysis (RQ5) uncovers intricate links among research topics, forming three primary clusters: core internal auditing concepts (red), governance and risk management (blue), and performance measurement techniques (green). These clusters illustrate the shift of internal auditing from merely ensuring compliance to creating strategic value. Nonetheless, the peripheral positioning of emerging themes such as digital transformation and sustainability suggests a lag in theoretical development on current issues. The network's structure highlights clear divisions between traditional audit methods and strategic management ideas, which hinder the integration of these theories.

Network analysis helps empirically map the landscape of internal auditing research, enriching theoretical understanding. Identifying related themes enables the development of comprehensive models that integrate agency, institutional, and resource-based views (Barney, 1991; DiMaggio & Powell, 1983; Jensen & Meckling, 1976). Nonetheless, the strong focus on traditional audit concepts and the limited emphasis on innovation suggest resistance to change, which may hinder adaptation to the fast-changing organizational environment. This pattern indicates opportunities for new ideas, especially at the crossroads of different fields, such as exploring how technological and environmental shifts impact internal audit functions.

This critical analysis emphasizes substantial progress alongside persistent challenges in the field. Although research output and citation influence have notably increased in well-established venues, issues persist regarding theoretical innovation, global diversity, and adaptation to contemporary organizational challenges. The results suggest that internal auditing research may be growing more rigid in its theoretical frameworks, potentially problematic unless there are intentional efforts to incorporate diverse perspectives and emerging ideas.

Implications for Theory and Practice

Theoretical Implications

The bibliometric analysis shows a notable shift in theory that challenges traditional disciplinary boundaries and reveals ongoing limitations in conceptual development. Citation analysis points to a clear transition from models that focus solely on rule-following to those that incorporate governance, with influential studies such as Prawitt et al. (2009) and Arena and Azzone (2009) linking audit quality, organizational governance, and performance outcomes. This challenges conventional agency theory by highlighting that internal audit functions are more than just compliance checks; they serve as key strategic tools for organizations. Nevertheless, this emerging theory mainly addresses Western countries and may not fully capture the governance issues faced by developing economies, underscoring the need to develop theories that incorporate diverse institutional viewpoints.

Our network visualization uniquely maps the evolution of the intellectual structure, uncovering patterns that traditional literature reviews overlook. It identifies three interconnected thematic clusters that challenge isolated theories and highlight how the strategic value of internal audit emerges from their intersections. Yet, positioning digital transformation and sustainability at the periphery reveals significant gaps in understanding how technology and environmental issues influence internal audit capabilities. These gaps present opportunities for innovation, particularly in developing integrated models that demonstrate how internal audit can turn technical assurance into valuable organizational assets, while considering the intersection of global technological trends and local differences.

Practical Implications

Organizations should strategically expand their internal audit functions beyond mere compliance by embedding them into strategic planning and risk management activities (Polizzi & Scannella, 2023). Achieving this

integration demands organizational structures that promote effective communication among internal audit, risk management, and leadership, along with governance frameworks that define the changing roles and responsibilities. Internal audit teams must acquire new skills, blending traditional auditing with strategic advisory roles in areas like digital governance, sustainability, and integrated risk management (Lenning & Gremyr, 2022). The predominance of high-quality research in developed nations suggests that existing knowledge-transfer mechanisms may be insufficient to advance internal auditing in emerging markets. Organizations in these regions may face difficulties adapting frameworks from different institutional contexts without proper mechanisms. For example, the rapid growth in Indonesia (AGR: 4%) suggests an urgent need for localized training modules on risk-based auditing, while the US dominance (h-index: 51) indicates that Western frameworks may require contextual adaptation before application in emerging markets. The slower growth in well-established research markets (e.g., Malaysia, with AGR of -4%) suggests that mature internal audit communities could face sustainability challenges, necessitating renewal strategies.

Policymakers and professional organizations should consider these emerging trends when developing regulatory frameworks and standards (Asnaashari & Khodabandehlou, 2024). Instead of implementing uniform standards, governance models ought to focus on flexible principles that accommodate local institutional differences while ensuring consistent quality. Professional development programs need to incorporate strategic thinking, technological skills, and cross-cultural governance expertise to prepare internal auditors for a globalized environment. Moreover, initiatives should be created to facilitate knowledge sharing and idea exchange across regions, allowing both veteran and new internal audit teams to learn from one another (Steyn, 2020). The practical effects also influence academic institutions and research groups, which should foster collaborative frameworks promoting global knowledge exchange while respecting intellectual diversity. Research collaborations should aim to work inclusively, valuing different institutional contributions equally and avoiding the imposition of Western concepts onto local contexts.

LIMITATIONS AND FUTURE RESEARCH RECOMMENDATIONS

Limitations

This bibliometric analysis acknowledges several key limitations that require careful attention. Although it broadly covers data from the WoS and Scopus databases, it might overlook significant research published in local journals from developing regions that are not indexed in these international sources. The focus on English-language publications excludes valuable insights from non-English research traditions that could offer alternative theoretical perspectives on internal audit functions across different cultural contexts. The chosen timeframe of 1970-2024 captures long-term trends but may not fully reflect the rapid advancements in internal audit practices influenced by technology and changing governance requirements. Additionally, while the bibliometric method is comprehensive and well-structured, it cannot fully capture the nuanced theoretical or practical developments beyond formal academic publications. Furthermore, reliance on prominent research sources may bias the findings toward traditional theories and limit recognition of innovative ideas from emerging research groups. Additionally, we did not employ co-citation or bibliographic coupling analyses, which could have revealed deeper intellectual structures and research fronts beyond our keyword co-occurrence mapping.

FUTURE RESEARCH RECOMMENDATIONS

Future research should overcome these limitations by exploring several key areas that enhance both the theoretical understanding and practical use of internal auditing worldwide. Researchers are encouraged to test the concepts from this analysis in different settings, with a particular focus on how internal audit methods, governance structures, and performance management interact across various cultures and regulatory frameworks. The field would benefit from a mixed-methods approach that combines quantitative bibliometric analysis with qualitative approaches such as ethnography, case studies, and participatory action research. Additionally, longitudinal studies that follow the development of internal audit over time in diverse organizations and cultural contexts could provide new insights into capability growth. The current focus on digital transformation underscores the urgent need to examine how emerging technologies, such as artificial intelligence, blockchain, and data analytics, are reshaping traditional audit roles and creating new organizational

value. Future studies should intentionally include input from underrepresented regions, moving beyond Western-centric theories to develop globally relevant frameworks. Research should also explore how internal audit functions contribute to sustainability and stakeholder value, emphasizing how these capabilities can support environmental, social, and governance (ESG) goals alongside traditional assurance functions.

CONCLUSION

This bibliometric analysis of 1,092 publications (1970-2024) traces the shift in internal auditing from primarily ensuring compliance to supporting strategic governance. It highlights database trends, noting growth in WoS and a decline in Scopus, with significant research contributions from the US (290 publications, h-index 51). The study identifies three main themes: primary auditing methods, governance frameworks, and performance measurement. Despite rapid growth in emerging markets like Indonesia (AGR: 4%), significant geographical disparities persist, with most influential research concentrated in Western countries and specialized journals.

The findings emphasize both advances in theory and persistent challenges requiring attention. Focusing on well-established research areas may hinder the development of new ideas and limit the diversity of knowledge. At the same time, emerging topics like digital transformation are often neglected, despite their importance in practical applications. Future research should aim for global theoretical integration, adopt varied methodologies, and foster inclusive knowledge creation to keep internal auditing relevant across different institutional contexts. By addressing geographical biases and incorporating diverse viewpoints, the field can evolve from narrow theories to universally applicable frameworks that align with the modern demands of global organizational governance.

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