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Internal Auditor's Perspective on Accounting Complexity and Gender Equality: A Bibliometric Analysis

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ABSTRACT
This study aims to analyze the development of research on internal auditors, accounting complexity, and gender equality using a bibliometric approach. The study utilized 103 scientific articles obtained from the Dimensions database using keywords related to internal auditor, accounting, auditing and accountability, and gender equality. Data were analyzed using VOSviewer software through network visualization, overlay visualization, density visualization, and mapping of collaborations among authors, organizations, and countries. The results indicate that publications related to internal auditors, governance, audit quality, and gender diversity have increased significantly, particularly during the 2023–2025 period. The keywords governance, audit quality, auditor, committee, and board diversity emerged as dominant themes within the research network. The overlay visualization analysis reveals a shift in research focus from traditional themes toward issues such as female leadership, gender effect, diverse board, and lower earnings management. Furthermore, international collaboration analysis shows that the United Kingdom, the United States, and China are the most dominant countries within the research network. This study concludes that internal auditors, accounting complexity, and gender equality are strongly interconnected in the development of modern governance and have become important themes in the field of accounting, auditing and accountability

***Keywords**: internal auditor; accounting complexity; gender equality; bibliometric analysis.*

ABSTRAK (bahasa Indonesia)
Penelitian ini bertujuan untuk menganalisis perkembangan penelitian mengenai auditor internal, kompleksitas akuntansi, dan kesetaraan gender menggunakan pendekatan bibliometrik. Data penelitian diperoleh dari 103 artikel ilmiah yang bersumber dari basis data Dimensions dengan menggunakan kata kunci terkait *internal auditor, accounting, auditing* and *accountability*, serta *gender equality*. Analisis data dilakukan menggunakan perangkat lunak VOSviewer melalui *network visualization, overlay visualization, density visualization*, serta pemetaan kolaborasi penulis, organisasi, dan negara. Hasil penelitian menunjukkan bahwa publikasi terkait auditor internal, *governance, audit quality,* dan *gender diversity* mengalami peningkatan signifikan terutama pada periode 2023–2025. Kata kunci *governance, audit quality, auditor, committee,* dan *board diversity* menjadi tema dominan dalam jaringan penelitian. Analisis *overlay visualization* menunjukkan adanya pergeseran fokus penelitian dari tema tradisional menuju isu *female leadership, gender effect, diverse board,* dan *lower earnings management*. Selain itu, hasil kolaborasi internasional memperlihatkan bahwa United Kingdom, United States, dan China menjadi negara dengan jaringan penelitian paling dominan. Penelitian ini menyimpulkan bahwa auditor internal, kompleksitas akuntansi, dan kesetaraan gender memiliki keterkaitan yang kuat dalam perkembangan *governance* modern dan menjadi tema penting dalam bidang *accounting, auditing* and *accountability*.

Kata Kunci: auditor internal; kompleksitas akuntansi; kesetaraan gender; analisis bibliometrik.

INTRODUCTION

Developments in the global business environment, the digitization of accounting systems, and increasing demands for transparency and accountability have driven significant changes in the role of internal auditors within modern organizations. Internal auditors are no longer viewed merely as tools for compliance oversight; they have evolved into a strategic component of organizational governance, providing assurance and consulting functions that support the effectiveness of internal controls, risk management, and organizational decision-making (Cantù et al., 2024). The increasing complexity of accounting due to advancements in information technology, data integration, the implementation of environmental, social, and governance (ESG) considerations, and the dynamics of global regulations has led internal auditors to face new challenges that require multidimensional competencies and a high degree of adaptability. Various studies indicate that internal auditors serve as the "third line of defense," safeguarding the integrity of financial statements and enhancing the quality of organizational governance through audit independence and objectivity (Shuwaili et al., 2023; Wisdana et al., 2024).

From the perspective of agency theory, internal auditors are positioned as a mechanism to mitigate conflicts of interest between management and organizational owners by strengthening accountability and the independent evaluation of internal controls (Pramukti, 2024; Surya et al., 2023). Furthermore, institutional theory explains that internal audit practices are also influenced by regulatory, normative, and mimetic pressures emerging within modern organizational environments, thereby driving the harmonization of audit practices and organizational governance (Haapamäki, 2022; Vuko et al., 2024). This complexity underscores that internal auditors hold a central role in maintaining organizational stability amidst an increasingly dynamic and complex business environment.

On the other hand, the issue of gender equality in auditing and accounting has also emerged as a key focus of research on modern corporate governance. The presence of women in internal audit structures, audit committees, and organizational leadership positions is considered capable of improving oversight quality, strengthening audit independence, and promoting transparency in financial reporting. Furthermore, studies by Mishra et al. (2024) and Arıoğlu & Ocak (2024) show that gender diversity in audit and governance functions contributes to improved audit quality, reduced earnings management, and increased accuracy of financial statements and corporate forecasts. Furthermore, Dellai (2023) study indicates that the presence of a female Chief Audit Executive can strengthen the relationship between internal audit quality and firm performance, making gender an important moderating factor in internal audit effectiveness. Additionally, gender diversity on audit committees has been shown to improve the effectiveness of communication between auditors and management and to accelerate the audit reporting process, thereby enhancing corporate governance efficiency (Kazim et al., 2021; Hazarika & Madhukullya, 2024).

However, the findings of Grau et al. (2025) and Koh et al. (2022) indicate that the impact of gender on audit quality varies across institutional contexts, organizational cultures, national regulations, and levels of corporate governance adoption in each country. These conditions indicate that the relationship among internal auditors, accounting complexity, and gender equality remains a dynamic issue and requires further scientific exploration to understand the direction of global research comprehensively.

The growing academic interest in internal auditors, accounting complexity, and gender equality is also evident in the rise of bibliometric studies that map publication trends, collaborative networks, and the evolution of research themes in the fields of audit and governance (Mustikarini & Adhariani, 2021). Bibliometric studies are important because they provide a systematic overview of the intellectual structure of a research field, including the identification of dominant themes, influential authors, productive countries, and future research opportunities. Bibliometric research related to internal auditors indicates an increasing focus on audit independence, corporate governance, the use of computer-assisted audit techniques, data analytics, and the integration of environmental, social, and governance (ESG) considerations into modern audit practices (Sahu & Deb, 2024; Mashayekhi et al., 2023).

Research on internal auditors, accounting complexity, and gender equality has indeed seen significant progress. However, studies that combine these three topics into a single integrated bibliometric mapping remain limited, so the intellectual relationships among these themes have not yet been fully mapped out. Previous studies generally still address these topics separately, focusing on specific aspects, such as the effectiveness of internal auditors, corporate governance mechanisms, or gender diversity within organizational governance systems. This situation has resulted in the interconnections between these fields not being analyzed comprehensively. Furthermore, previous studies have not deeply explored the impact of the growing complexity of modern accounting—driven by digitalization, cyber risks, the integration of environmental, social, and governance (ESG) aspects, and global regulatory dynamics—on the evolving role of internal auditors within the context of gender diversity and organizational governance. These limitations highlight a significant research gap that warrants examination through a broader and more integrated bibliometric mapping.

This study was conducted to address these limitations by employing a bibliometric approach to systematically analyze global research developments on internal auditors in the context of accounting complexity and gender equality. This study integrates the themes of internal auditors, modern governance, accounting complexity, and gender equality into a single bibliometric analytical framework, thereby providing a more comprehensive overview of intellectual developments in this field. Through bibliometric analysis, this study identifies publication trends, patterns of collaboration among researchers and across countries, developments in research methodology, networks of research themes, and opportunities for future research. This approach is expected to reveal interconnections among concepts previously scattered across standalone studies, while also making theoretical and practical contributions to the development of the literature on internal audit and modern organizational governance.

Based on the above discussion, this study aims to analyze the development of research on internal auditors in the context of accounting complexity and gender equality through a bibliometric approach. This study also aims to identify publication trends, researcher and country collaboration networks, major research themes, and methodological developments in the literature related to internal auditors, accounting complexity, and gender equality. Furthermore, this study is expected to identify research gaps that could serve as opportunities for future studies, particularly regarding the integration of the internal auditor's role, modern governance, and gender diversity within organizations. By employing bibliometric analysis, this study seeks to provide a comprehensive overview of the intellectual structure and dynamics of global research development in this field.

METHOD

This study employs a descriptive quantitative approach, using bibliometric methods, to analyze the development of research on internal auditors, accounting complexity, and gender equality. The bibliometric approach was chosen because it can systematically map intellectual structures, publication trends, collaborative networks, and the evolution of research themes by analyzing scientific publication metadata (Hermaputi & Chen, 2024). The research data were obtained from the Dimensions database, which served as the primary source for scientific articles due to its extensive coverage of international publications in accounting, auditing, governance, and gender. The data search was conducted using the keywords "internal auditor," "complexity," "accounting," "auditing and accountability," and "gender equality." The initial search yielded 103 scientific articles relevant to the research topic. All articles were selected based on the relevance of their titles, abstracts, keywords, and the alignment of their research content with the themes of internal auditors, accounting complexity, and gender equality. The data obtained was then exported in a bibliographic data-compatible format for further analysis using VOSviewer software (Yang, 2025).

The analysis was conducted in stages, beginning with data cleaning to remove duplicate articles, author-name errors, and keyword inconsistencies. After the data validation process was completed, the data was analyzed using VOSviewer to generate network, overlay, and density visualizations. The use of VOSviewer in bibliometric research enables systematic visual mapping of the intellectual structure of research on governance, audit, and gender, thereby helping to identify patterns of research relationships and directions for future research development.

Network analysis was used to identify co-authorship relationships among authors, collaborations between organizations, and relationships between countries in research on internal auditors and gender equality. Overlay visualization analysis was used to examine the development of research themes based on publication year, thereby revealing current research trends and the evolution of research topics over time. Furthermore, density visualization is used to identify the density of research on specific themes, allowing us to identify the most dominant topics as well as those that are still rarely studied.

This study also analyzes trends in publication numbers over time to examine the growth dynamics of research on internal auditors, accounting complexity, and gender equality globally. Additionally, analyses of author productivity, organizational collaboration, country collaboration, and keyword co-occurrence were conducted to identify the most productive authors, the most active institutions, the countries with the largest contributions, and the interconnections among research themes. Through these analytical stages, this study is expected to provide a comprehensive overview of the development of intellectual structures, the dynamics of scientific collaboration, and the direction of future research related to internal auditors, accounting complexity, and gender equality.

RESULTS AND DISCUSSION

Research Findings

Analysis of Trends in Research Publications

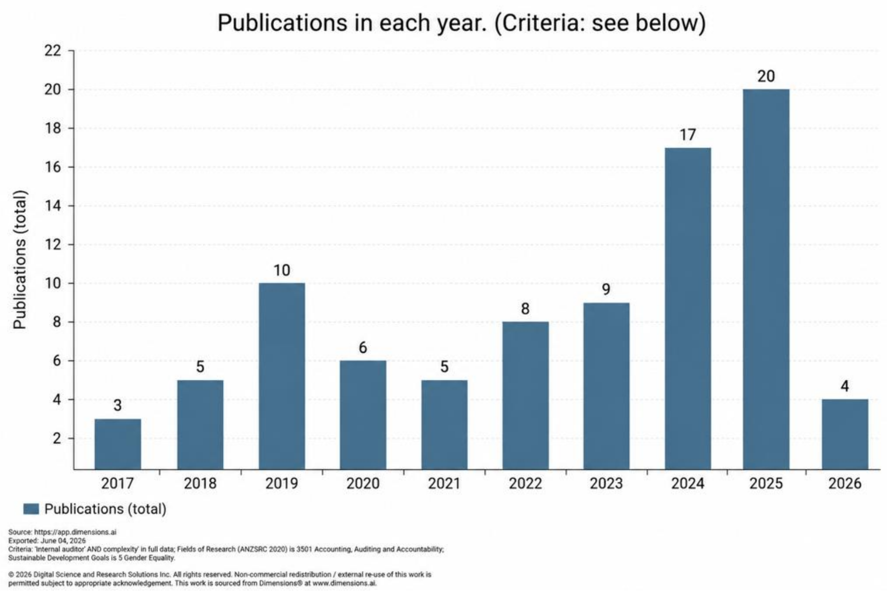

Figure 1. Number of Articles Published
Source: Dimensions, 2026 (data compiled)

Based on Figure 1, which shows the trend in annual publications, the number of articles in 2017 was 3 and increased to 5 in 2018. In 2019, there was a significant increase to 10 publications. Subsequently, the number of publications decreased in 2020 to 6 and again in 2021 to 5. This decline can be attributed to shifts in global research focus during the pandemic, which slowed many studies in the fields of audit and governance. However, the publication trend rebounded in 2022, with 8 articles, and in 2023, with 9 articles. The highest increase occurred in 2024, with 17 publications, peaking in 2025 at 20 publications. Meanwhile, data for 2026 show 4 publications, as the indexing process for the current year has not yet been completed. The significant increase in publications during the 2022–2025 period indicates that issues such as internal auditors, audit quality, board diversity, and governance are becoming increasingly relevant themes in modern accounting research.

Overall, the results of this study indicate that research on internal auditors in the areas of accounting complexity and gender equality has increased significantly, particularly over the past three years. This suggests that the integration of internal auditors, modern governance, audit quality, and gender equality has become a key focus in the development of global accounting and audit literature. These findings also demonstrate that bibliometric research can provide a comprehensive overview of the dynamics of research development, intellectual structure, and future research directions in the fields of internal auditing, accounting complexity, and gender equality.

Network Visualization Analysis

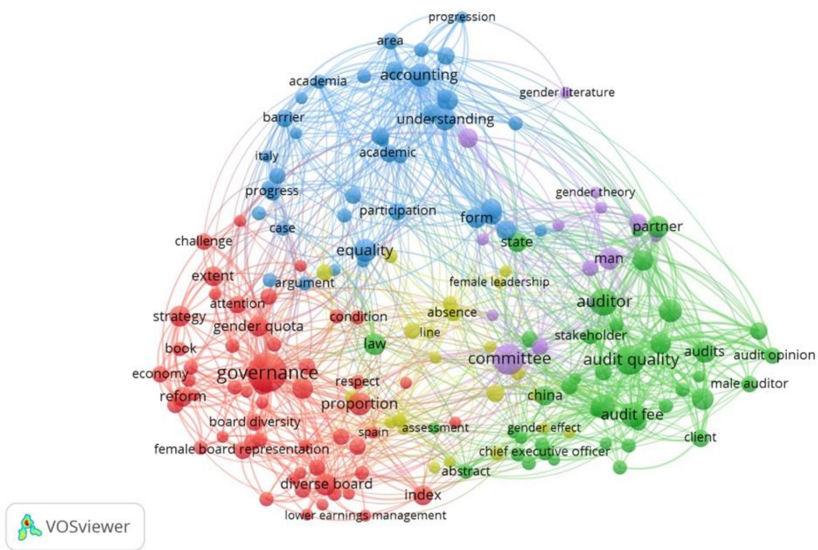

Figure 2. Network Visualization
Source: VOSviewer, 2026 (data compiled)

The results of the network visualization in Figure 2 using VOSviewer show strong connections among keywords related to internal auditors, accounting complexity, and gender equality. The keyword “governance” appears as one of the largest nodes with extensive connections to other keywords such as “audit quality,” “auditor,” “committee,” “audit fee,” “board diversity,” “gender quota,” and “equality.” Additionally, the keyword “audit quality” forms a large network connected to terms such as “audits,” “audit opinion,” “male auditor,” “client,” and “stakeholder.” The term “auditor” has direct connections to “partner,” “man,” “gender theory,” and “committee.” The network visualization also shows that the keyword “accounting” is connected to “understanding,” “academic,” “progression,” and “participation.” The keywords “gender quota,” “female board representation,” and “diverse board” form a distinct cluster related to governance and board diversity. Additionally, the terms “China,” “chief executive officer,” and “audit fee” are strongly associated in the context of research on corporate governance and audit quality. The network visualization also demonstrates that research on governance is linked to aspects of economic reform, organizational strategy, and women’s representation within corporate organizational structures. The relationships among nodes indicate a high degree of topic interconnection in research on internal auditors and gender equality.

Overall, Figure 2 shows that research on internal auditors, accounting complexity, and gender equality has an intellectually integrated structure that is evolving toward a more complex governance approach. The interconnections between nodes indicate that the issues of audit quality, board diversity, governance, and gender equality are central themes that continue to evolve in the global audit and accounting literature. These findings demonstrate that research on internal auditors no longer stands alone as a traditional oversight function but has evolved into a strategic component in strengthening organizational governance, transparency, and the sustainability of modern companies.

Visualization Overlay Analysis

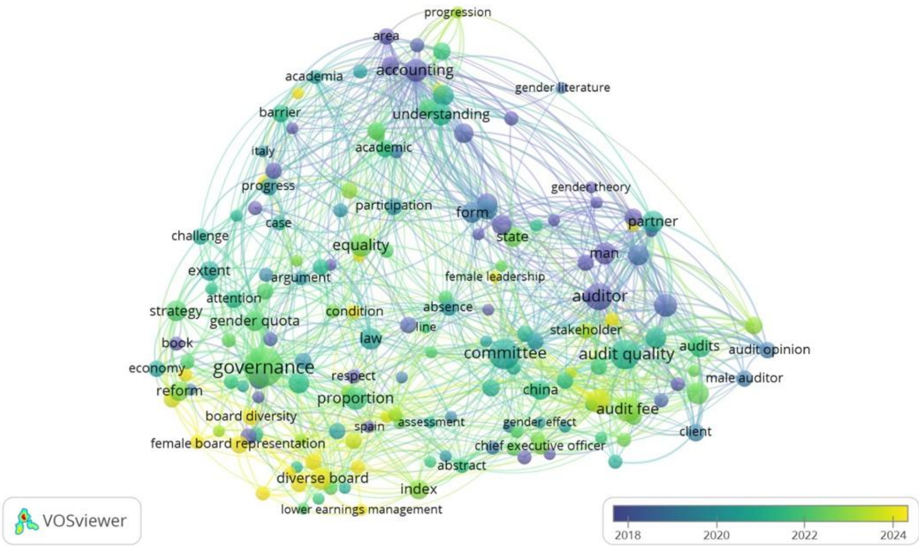

Figure 3. Overlay Visualization
Source: VOSviewer, 2026 (data compiled)

The overlay visualization in Figure 3 shows the temporal development of the research, with node colors indicating the year of publication. Dark blue indicates topics that were more frequently studied in the early period around 2018–2020, while green to yellow indicate themes that emerged during the 2022–2024 period. Keywords such as "accounting," "understanding," "form," "progress," and "academic" were dominant in the early research period. Subsequently, topics such as "governance," "audit quality," "committee," "auditor," and "stakeholder" developed consistently during the middle period. In the most recent period, keywords such as "audit fee," "female board representation," "gender effect," "diverse board," "lower earnings management," and "female leadership" appear in yellow, indicating increased research intensity in recent years.

Additionally, the keywords "gender quota" and "board diversity" also show a growing trend in research during the current period. The overlay visualization shows that the research focus has shifted from the core themes of accounting and governance toward issues of audit quality, board gender diversity, and organizational governance effectiveness. This development indicates growing attention to integrating gender equality into auditing practices and accountability. The temporal visualization also shows that issues of gender diversity and audit quality have become increasingly dominant research areas in recent years.

Overall, the results in Figure 3 indicate that research on internal auditors, accounting complexity, and gender equality has undergone significant shifts in focus over time. The shift in research focus from accounting toward governance, audit quality, and gender diversity suggests that modern audit research is increasingly moving toward inclusive, transparent, and sustainable organizational governance. These findings demonstrate that gender diversity and audit quality are emerging as strategic issues in the global audit and governance literature and hold great potential to become focal points for future research.

Visualization Density Analysis

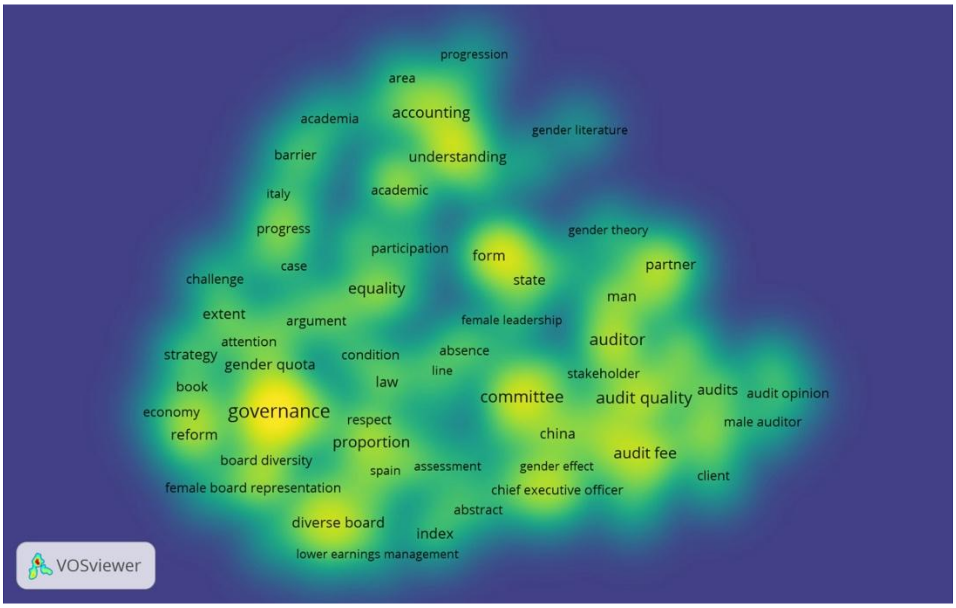

Figure 4. Density Visualization
Source: VOSviewer, 2026 (data compiled)

The density visualization in Figure 4 shows the density of research based on color intensity in VOSviewer. Bright yellow indicates research areas with the highest frequency and connectivity, while green and blue indicate areas with lower density. The keyword "governance" is the center of the highest density in this study and has strong connections with various other themes. Additionally, the keywords "audit quality," "audit fee," "committee," "auditor," "form," and "accounting" exhibit high keyword density. Research areas related to "board diversity," "female board representation," and "gender quota" are at medium-to-high density levels, indicating increased attention to the theme of gender equality.

Meanwhile, keywords such as "male auditor," "gender theory," "chief executive officer," and "lower earnings management" are in lower-density areas but remain connected to the main research themes. The density visualization also shows that the themes of governance and audit quality are central to research in accounting, auditing, and accountability. The strong relationship between governance and audit quality indicates the dominance of organizational governance research in the internal audit literature. Additionally, the area related to gender diversity shows an expanding presence within the bibliometric research network.

Overall, the results in Figure 4 indicate that governance and audit quality are central to the development of internal auditor research across accounting, auditing, and accountability. The high density of relationships among the themes suggests that modern audit research is increasingly moving toward organizational governance that is complex, multidimensional, and integrated with issues of gender diversity. Gender diversity has also emerged as a key component of the modern governance literature and holds great potential as a direction for future research by internal auditors.

Analysis of International Collaboration

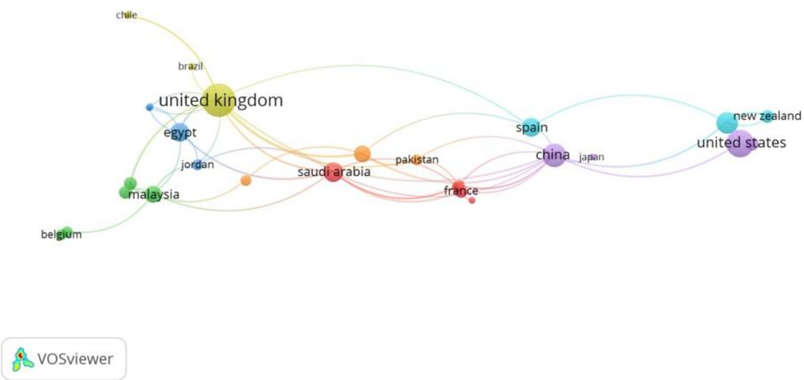

Figure 5. Co-authorship by Country
Source: VOSviewer, 2026 (data compiled)

The results of the country-based co-authorship analysis in Figure 5 reveal international collaboration networks in research on internal auditors, governance, and gender equality. The United Kingdom appears to have the largest network and maintains collaborative relationships with various countries, including Saudi Arabia, Malaysia, Egypt, Brazil, and Spain. The United States is also among the countries with extensive networks of collaboration and has direct ties with New Zealand, China, and Japan. China emerges as a country with a central position in the Asian collaboration network and has ties with France, Spain, Japan, and the United States. Saudi Arabia maintains collaborative relationships with Pakistan and France in research on audit and governance. Malaysia has collaborative ties with Belgium, Jordan, Egypt, and the United Kingdom.

Additionally, Spain serves as a bridge between European and Asian research networks. The visualization of country collaboration indicates that research on internal auditors and gender equality is developing across national borders and involves various international regions. Nodes with larger sizes indicate a more dominant contribution to publications in bibliometric research. Country collaboration data also reveal that countries with strong developments in governance and accounting research have higher levels of research connectivity than other countries.

Overall, the results in Figure 5 indicate that research on internal auditors, governance, and gender equality is evolving within a complex, multidimensional network of international collaboration. Interconnections among countries reveal that audit quality, board diversity, and governance are emerging as global themes in the literature on accounting, auditing, and accountability. These findings also indicate that international collaboration plays a crucial role in advancing internal audit research and expanding the integration of modern governance perspectives in a global context.

Analysis of University-Author Collaboration

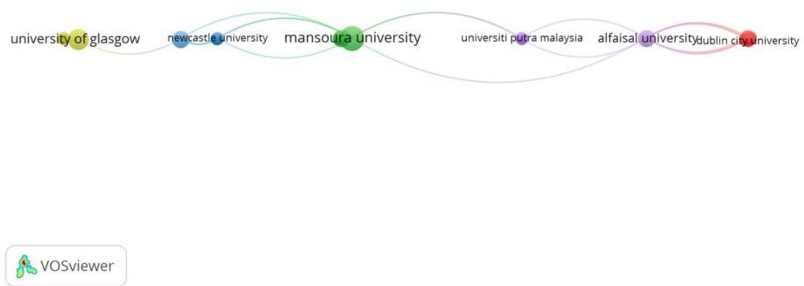

Figure 6. Co-authorship by University
Source: VOSviewer, 2026 (data compiled)

The university visualization in Figure 6 shows that Mansoura University has the largest collaborative network in this study. The organization is connected to Newcastle University, the University of Glasgow, Universiti Putra Malaysia, Alfaisal University, and Dublin City University. This visualization demonstrates cross-institutional academic collaboration in research on governance, audit quality, and gender diversity.

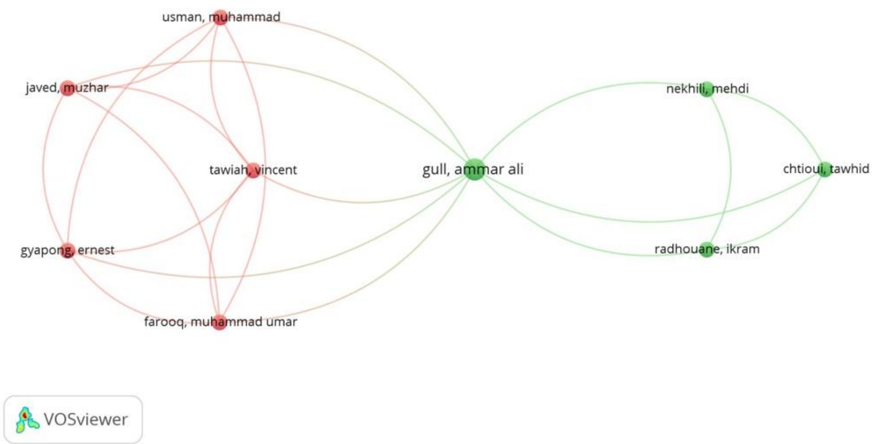

Figure 7. Co-authorship by author
Source: VOSviewer, 2026 (data compiled)

In addition, the author network in Figure 7 shows that Ammar Ali Gull is a central author with collaborative ties to several other authors, including Mehedi Nekhili, Tawhid Chtioui, Ikram Radhouane, Vincent Tawiah, Muhammad Umar Farooq, Ernest Gyapong, and Muhammad Usman. The author collaboration network also reveals two main clusters that are interconnected through central authors. The first cluster consists of authors focusing on governance and audit quality, while the second cluster is more closely related to board diversity and gender effects. The size of the author nodes indicates the level of productivity and the intensity of research collaboration. Furthermore, the relationships among authors reveal a fairly strong pattern of co-authorship in research on internal auditors and gender equality. This visualization also shows that research in the fields of accounting, auditing, and accountability is largely developed through cross-institutional and cross-national collaboration. The data reveal global academic connectivity in research on governance, audit quality, and gender diversity.

Overall, Figures 6 and Figures 7 show that research on internal auditors, governance, audit quality, and gender diversity is evolving within a strong, interconnected network of international academic collaboration. The connections among institutions and authors indicate that developments in the literature on accounting, auditing, and accountability are increasingly moving toward multidisciplinary and collaborative approaches. These findings also indicate that governance, audit quality, and gender equality are emerging as key themes through global academic collaboration and hold significant potential as directions for future research.

DISCUSSION

Trends in Research on Internal Auditors, Accounting Complexity, and Gender Equality

The research findings indicate that the number of publications related to internal auditors, accounting complexity, and gender equality has increased significantly, particularly during the 2023–2025 period. These findings indicate that issues of governance, audit quality, and gender diversity are gaining increasing attention in the literature on accounting, auditing, and accountability. This rise in publications aligns with the evolution of the modern business environment, which is becoming increasingly complex due to digitalization, the integration of ESG, and growing demands for organizational transparency.

The studies by Cantù et al. (2024) and Wisdana et al. (2024) explain that internal auditors are no longer viewed merely as tools for compliance oversight but have evolved into strategic mechanisms in organizational governance through their assurance and advisory functions. The growing number of studies on audit quality and governance indicates that modern organizations require internal oversight systems that are more adaptable to technological and reputational risks, as well as demands for public accountability. These findings also support the Agency Theory perspective, which positions internal auditors as a mechanism for mitigating conflicts of interest between management and organizational owners by strengthening internal controls and audit independence (Pramukti, 2024; Surya et al., 2023). Additionally, the rising trend in research on gender equality indicates that gender diversity in governance has become a critical focus in modern audit practices. This aligns with research by Mishra et al. (2024), which finds that the representation of women in audit structures and corporate boards can improve oversight quality and strengthen the transparency of financial reporting. Thus, the increasing trend in publications reflects growing academic attention to integrating governance, audit quality, and gender diversity into modern organizational governance systems.

This study addresses the first research question regarding how trends in internal audit research on accounting complexity and gender equality are evolving globally. The results of the overlay visualization show that early research focused more on accounting, understanding, academia, and governance. In contrast, recent research has shifted toward audit quality, audit fees, female board representation, the gender effect, and board diversity. This shift in focus indicates that research on internal auditors is undergoing a transformation from traditional internal control issues toward strategic governance and organizational diversity.

This is consistent with research by Al-Okaily et al. (2022) and Vuko et al. (2024), which confirms that developments are increasing the complexity of modern audits in information technology, data analytics, ESG, and cyber risk, requiring internal auditors to possess multidimensional capabilities. In this context, the growing body of research on board diversity and female leadership indicates that gender diversity is viewed as part of a governance mechanism that can enhance audit quality and the quality of accounting decision-making. These findings also support the research by Arıoğlu & Ocak (2024) and Mohamed & Metwally (2024), which shows that gender diversity is associated with reduced earnings management, improved forecast accuracy, and enhanced corporate reporting quality. Thus, emerging research trends indicate that gender equality is no longer viewed as purely a social issue but has become an integral part of the discourse on governance and accountability.

Network Visualization and the Intellectual Structure of Research

The results of the network visualization show that the keyword “governance” is at the center of the research network, with very strong links to audit quality, committees, auditors, audit fees, board diversity, and gender quotas. These findings indicate that governance is a dominant theme that connects various issues in research on internal auditors and gender equality.

The study by Bonrath & Eulerich (2024) also explains that governance is the cornerstone of internal audit practice, with internal auditors functioning as part of a governance mosaic that includes the board, the audit committee, management, and external auditors. The prominence of the keyword “governance” in the network visualization indicates that organizational governance remains a primary focus in modern audit research.

Furthermore, the strong relationship between audit quality and auditors indicates that audit quality remains a key indicator of internal auditors' effectiveness and the success of corporate governance. This is in line with research by Taha (2023) and Rumasukun (2024), which explains that audit quality is closely related to auditor independence, professional competence, audit skepticism, and the effectiveness of internal controls. The connection between governance and board diversity also indicates that gender diversity is increasingly being integrated into the framework of modern corporate governance. Based on this, Hazarika & Madhukullya (2024) state that women on audit committees and corporate boards can strengthen monitoring, improve the quality of audit communication, and enhance the quality of financial reporting. Therefore, the intellectual framework of this research indicates that governance, audit quality, and gender equality form a unified set of interrelated themes in the literature on accounting, auditing, and accountability.

The network visualization also reveals relationships among the keywords “audit fee,” “client,” “stakeholder,” and “audit opinion.” This relationship indicates that modern audit research focuses not only on the quality of internal audits but also on stakeholders’ perceptions of report quality and the organization’s credibility. This is supported by the research of Pramukti (2024) and Rajabalizadeh (2024), which explains that internal auditors play a crucial role in maintaining the organization's legitimacy by providing assurance over internal controls and validating both financial and non-financial reports. Within the context of Stakeholder Theory, internal auditors are positioned as a mechanism that maintains the balance of interests among various parties within the organization, including investors, regulators, the public, and management (Alhumoudi, 2024; David, 2022). Thus, the interconnections among keywords in the network visualization indicate that research on internal auditors is evolving toward a broader governance perspective and is no longer limited to traditional oversight functions.

Overlay Visualization and the Development of Research Themes

The results of the overlay visualization show that recent research has focused more on female board representation, diverse boards, the gender effect, and lower earnings management. These findings indicate that gender diversity has been the fastest-growing theme in recent years.

Research by Mishra et al. (2024) explains that the presence of women on corporate boards and audit committees is associated with improved reporting quality, enhanced oversight independence, and reduced earnings management. These findings also support Dellai's (2023) research, which demonstrates that female Chief Audit Executives strengthen the relationship between internal audit quality and corporate performance. The growing body of research on female leadership indicates that gender equality is increasingly viewed as a strategic factor in corporate governance and accountability. Additionally, the emergence of the "lower earnings management" theme suggests that modern audit research is increasingly emphasizing the importance of ethical quality and transparency in organizational management. This is supported by the research of Mohamed & Metwally (2024), which confirms that gender diversity can increase accounting conservatism and strengthen the quality of organizational decision-making. Therefore, developments in research themes indicate a paradigm shift from traditional auditing toward more inclusive and sustainability-oriented governance.

The significance of this study lies in its ability to demonstrate a shift in the direction of global research on accounting, auditing, and accountability. The findings indicate that gender equality is no longer on the periphery of audit research but has become a central component of discussions on modern governance. This is important because gender diversity is related to the quality of oversight, financial statements, and the effectiveness of internal auditors. This study also shows that the themes of ESG, board diversity, and female leadership are becoming an important part of the evolution of modern internal audit research. Thus, this study contributes to expanding our understanding of how internal auditors are evolving in the context of contemporary governance, which is becoming increasingly complex and inclusive.

Collaboration Between the Country, Universities, and Authors

The results of the co-authorship analysis indicate that the United Kingdom and the United States serve as hubs for international collaboration in research on internal auditors, governance, and gender equality. These findings suggest that developed countries continue to dominate global research development in accounting, auditing, and accountability.

Research by Chhillar & Arora (2023) indicates that research on governance and auditing has flourished in countries with robust corporate governance systems and academic infrastructure. Additionally, China has emerged as one of the countries with high research connectivity, particularly in audit quality and board diversity. This aligns with research by Kazim et al. (2021), which indicates that China is a key context for studies of audit fees, gender diversity, and audit report lag. These findings demonstrate that research on governance and gender diversity is rapidly advancing in countries undergoing dynamic economic transformation and corporate governance reforms. Furthermore, the presence of Malaysia, Saudi Arabia, and Pakistan in the collaborative network indicates that research on internal auditors and gender equality is beginning to develop in developing countries and the Asian region. Thus, this study demonstrates that the development of governance and audit literature is becoming increasingly global and involves various institutional contexts.

At the university level, Mansoura University has the largest collaborative network. These findings indicate that the development of research governance and audit quality is significantly influenced by cross-institutional academic collaboration. Furthermore, the author network indicates that Ammar Ali Gull holds a central position within the research collaboration network. This aligns with the research by Mustikarini & Adhariani (2021) and Hermaputi & Chen (2024), which confirms that bibliometric research can identify intellectual structures and academic collaboration networks within a field of study. These findings indicate that research development in internal auditing and gender equality is largely conducted through international and multidisciplinary collaboration. Thus, this study contributes to the understanding of patterns of development within the global academic community in the fields of accounting, auditing, and accountability.

CONCLUSION

This study concludes that research on internal auditors, accounting complexity, and gender equality has increased significantly in recent years, particularly during the 2023–2025 period. The results of the bibliometric analysis indicate that the themes of governance, audit quality, and gender diversity are the primary focus of modern research in accounting, auditing, and accountability. The keyword “governance” emerges as the central hub of research connectivity, exhibiting strong links to audit quality, auditors, committees, board diversity, audit fees, and gender quotas. Additionally, the results of the overlay visualization reveal a shift in research focus from traditional themes such as accounting and financial reporting toward more strategic issues like female board representation, the gender effect, diverse boards, and reduced earnings management. This study also indicates that the development of the internal auditor literature is increasingly influenced by issues of organizational governance, transparency, ESG, and gender diversity within corporate structures. These findings demonstrate that internal auditors are no longer viewed merely as tools for compliance oversight but have evolved into a critical component of modern governance, emphasizing accountability, audit quality, and organizational sustainability.

This research makes a significant contribution to the field of accounting, auditing, and accountability by mapping the intellectual structure, the development of research themes, international collaboration patterns, and the dynamics of scientific publications related to internal auditors and gender equality. The theoretical contribution of this research lies in strengthening the relevance of agency theory, institutional theory, stakeholder theory, and organizational learning in explaining the development of internal auditors in addressing the complexities of modern organizations. Furthermore, this research shows that gender diversity is strongly associated with audit quality, board diversity, and the effectiveness of corporate governance, thereby broadening the perspective of internal auditor research, which has previously focused more on the technical aspects of internal control. The methodological contribution of this research lies in the use of a VOSviewer-based bibliometric approach that systematically maps relationships among research themes and collaboration networks among authors, organizations, and countries. This research also provides practical contributions to organizations and regulators by demonstrating the importance of strengthening internal auditor independence, improving technology-based audit competencies, and increasing gender representation in corporate governance structures. Thus, the results of this research demonstrate that integrating governance, audit quality, and gender equality is an important direction for the development of modern audit research globally.

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