

FINANCIAL REPORTING AND AUDIT QUALITY – A BIBLIOMETRIC ANALYSIS

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Abstract

Audit is an integrated element in the overall reporting process and contributes to the quality of reporting. As the quality is usually hard to define, the measurement of quality is also debatable. To assess the influence of audit as a factor of reporting quality, we have used bibliometric analysis as research method because it helps us look at the studied subjects from a broad perspective. The analysis was performed using RStudio, and the articles were downloaded from Web of Science database. The analysis covers 2.918 documents, published between 1985 and 2023. The number of studies significantly increased starting with 2007. Gul F. A. published 25 articles regarding the analysed matter, being also the most cited author. More than 200 articles were published in the journal *Auditing: A Journal of Practice & Theory*, followed by the journal *Accounting Review* with more than 160 articles. A high number of articles are affiliated to University of Malaysia (88), but the most cited authors originate from United States of America and China. Earnings management, quality, performance, corporate governance, and ownership are the main keywords used. The aim of this study is to contribute to understanding the matter of audit quality as an element of reporting quality, and to be a guide in structuring the literature review for research in audit and reporting.

Keywords

bibliometric analysis, audit, financial reporting, quality

JEL Classification

M41, M42

Introduction

Audit quality is a research topic that has a long history, beginning before 1985. Over the years, the outlook on audit quality has shifted, moving from audit market, regulators, quality determinants (e.g., auditor's size, industry, non – audit service ratio, accruals) to smaller units analysed (the audit office, audit partner, audit teams and, contractual terms) (Molociniuc et al., 2022).

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This paper's aim is to identify the most appreciated papers which were published over the years, and to give a starting point for literature review selection in future papers in audit quality's field.

The role of auditors in the financial system, as defined by researchers through agency theory, requires them to have solid accounting knowledge. It's likely that Adam Smith was the first to define the concept of agency theory. In the agency theory, an agent is employed to perform certain services in the name of one or more individuals in a contractual relationship.

Accounting is a set of calculation rules that measures the economic activity of an enterprise. The measurement can be attained simply based on factual data, as presented in cashflows, or through estimates and complex forecasts generally known as accrual accounting (Francis, J. R., 2023). An example of accrual accounting is the acquisition of raw materials that have been received but will be paid for in the future. Even if the payment has not been made yet, the cash out is committed and will be considered in preparing the financial reports.

Accrual accounting offers to the financial reporting users more useful information than a register of encashments and payments. The results obtained by analysing the registered earnings according to accrual accounting are less volatile in short time, being a better predictor of financial performance. The economic activity is analysed based on ongoing concern, not only taking into consideration the cash movements (Dechow, 1994). According to IAS 1 – *Presentation of Financial Statements*, the purpose of financial reporting is to provide information tailored to the needs of stakeholders who are not in the position to prepare the reports.

Accrual accounting's flexibility comes with risks, as management can manipulate earnings through presentation techniques. Although the estimating methods comply with the conceptual framework, they can present the results in a better light, which leads to a decrease in financial information quality (Francis, J. R., 2023).

The financial reporting has evolved taking into consideration stakeholder requirements, including alternative measurement models, sources of estimated elements and assumptions. To enhance the assurance level in financial reports, auditors must adapt their audit strategy by testing the elements introduced by the new reporting requirements (IAASB, 2011).

As the quality of audit is dependent on the information presented in financial reports, IAS 1 correlates the quality of accounting information to the qualitative characteristics of financial information: relevance and faithful representation.

The added value of the audit (and the way in which it contributes to the reporting quality) comes from the fact that auditors can require adjustments to the pre-audited financial statements.

1. Review of the scientific literature

DeAngelo (1981) defined the audit quality as the auditor's capacity to identify and highlight the mismatches in the client's accounting system. DeFond, & Zhang (2014) considers that this definition is reducing audit's output to a binary process which only identifies and reports an error or a mismatch in applying the accounting specific framework. Auditor's role is more extensive, because auditors identify and highlights

the degree in which an accounting treatment reflects the economic reality of a company. Audit quality is a subsystem of the reporting quality, according to Simunic, D. A. (1980).

The importance of audit quality has increased over the years because investors lost their trust in assurance services, subsequently to a long history of frauds. According to statistics, in 2004, the percent of audit failures was less than 1%, and audit fees were smaller than 0,1% of client revenue (Francis, J. R., 2004). Even if those statistics are not recent, the economic reality reflected by them remains valid even today. The number of audit failures is not the main issue in loosing investors' trust, but the magnitude of those failures.

Arthur Andersen was the most prestigious audit company at its time, but after its involvement in Enron's fraud scandal, the audit company stopped its activity, even if it was never found guilty in trials. According to Kumar, K., & Lim, L. (2015), before Arthur Andersen's fall, differences in the audit quality among the most prestigious company and the other big audit companies existed, but they weren't significant, facts proved by other fraud scandals in which other audit companies were involved (Xerox - KPMG, HealthSouth - Ernst & Young, Adelphi Deloitte, and Microstrategy - PricewaterhouseCoopers). Anyways, it was more probable that Arthur Anderson won't highlight going concern issues compared with the other big five companies in the years prior to its fall, a fact that can proof Arthur Anderson's independence was impaired.

The credibility of audit firm is a sensitive topic because reputation is essential in assurance services. Auditor's competences are credible according to a study in Great Britain, but the recent reduction in audit fees can generate issues in human resources equitable distribution (De Widt, D., Llewelyn, I., & Thorogood, T., 2022).

Financial information quality is essential for investors as it is the fundament for decision making process. If the financial results are not qualitative, shareholders can impose governance policies to change dynamics in financial performance (Adams T., 2019).

It is difficult to directly observe audit's quality, therefore factors as audit company reputation are taken into consideration at the expense of audit team members experience and expertise.

The quality of the audit is not easy to define because the financial statements must reflect the economic reality of a constantly changing world, thus, a quality audit should provide investors with information on which they can base their decisions. The quality of the audit is influenced by factors such as practical training of auditors, the fair distribution of tasks among the members of the audit team, the planning of working hours, as well as the fee of the audit services. When evaluating the quality of audit services, it is important to consider the rotation, independence, and auditor type (Crucean & Hațegan, 2019).

There are both reputational and criminal liability risks associated with the audit. Providing audit services requires companies to offer quality services, which involves significant effort and results in high audit fees (DeFond & Zhang, 2014).

The audit fee is the product of the audit hourly rate and the amount of hours required to audit the client's financial statements. In simple microeconomic terms, the differences between the audit fees charged by different audit firms for their services are determined either by hourly differences, or variations in the number of hours required for the audit.

In this sense, the audit services are seen by the audited company as an economic good whose consumption is influenced by substitutes or complementary goods (Simunic, 1980). In our opinion, the reputation is more representative for setting the hourly rate than the actual quality of the audit. Big four companies have the reputational advantage in setting the audit fee, and the liquidities necessary to invest in technological resources which can decrease the number of hours spent in the audit process over the financial reports of the client company.

The quality of the audit is not only based on the size of the audit firm, respectively its reputation, but on the availability of intellectual capital (Lo, A. W., Lin, K. Z., & Wong, R. M., 2022).

Due to limited information access, investigating communication in audit is more challenging. The only way to study audit communication is through qualitative research, which is then interpreted using quantitative methods. Carlisle, M., & Hamilton, E. L. (2021), conducted a questionnaire asking whether communication with the client directly, in a physical environment or by email has any effect on the audit process. Email communication as a preferred communication method, is associated with audit assistants with higher levels of anxiety in communicating with the client, while assistants who prefer a more direct method of communication perceive communicating with clients in a more positive manner. According to the results of the study, the most common causes of anxiety in communication is communicating with clients that have more experience and more knowledge. In an experimental situation, developed by Durkin, M. P., Jollineau, S. J., & Lyon, S. C. (2021), in which 199 auditors were placed in front of a case study, it was concluded that during video sessions incomplete information provided by the client tends to lead to fewer requests for additional information than in the case of email communication.

In our need to synthesize the literature, to identify the gaps, and to be able to draw the future direction of our research, we have conducted a bibliometric analysis.

2. Research methodology

Exploring the audit quality as a research topic was initiated in the scientific community starting with 1980. As there has been a rise in the number of articles written about this subject, and the number of factors analysed as determinants of audit's quality has increased (Molociniuc et al., 2022), conducting a bibliometric analysis was necessary to identify the most appreciated and appropriate articles on the subject. We have used "financial reporting quality", "financial statement quality", "audit quality", and "reporting improvement" as key words.

The publications were extracted from the Web of Science database, on August 7, 2023. As our research concerns the external audit and non-financial institutions, for the effectiveness of our analyse, we have decided to eliminate from abstracts "internal audit", from title "banking system", and "bank" from keyword. We have analysed 2.918 results that were returned by our search using the biblioshiny package from the bibliometrix library in R.

3. Results and discussions

The documents analysed were published between 1985 and 2023, in more than 500 sources (journals, books, etc.), and most of them are articles (2.446 in a total of 2.918 documents, more than 80%). 4.803 authors contributed to shaping the field of research in reporting quality and audit quality. Only 407 articles are published by a single author (merely 13 %), and only 352 (about 7%) authors published articles without any collaboration. Even if the reporting and audit quality are not the most modern concerns in accounting research, the interest in the matter increased over the decades. In 38 years of researching the quality of reporting and audit, the average age of documents is 5,14 years and the annual increase rate in documents publications is 15,63%. The main results of the bibliometric analysis are summarised in the Table no. 1.

Table no. 1. Summary of bibliometric analysis main results

Description	Results
Timespan	1985:2023
Sources (Journals, Books, etc)	510
Documents	2918
Annual Growth Rate %	15.63
Document Average Age	5.14
Average citations per doc	21.37
References	71171
Keywords Plus	2489
Author's Keywords (DE)	5360
Authors	4803
Authors of single-authored docs	352
Single-authored docs	407
Co-Autori per doument	2.66
Articles	2446

Source: own processing

As it can be seen in Figure 1, a progressive evolution can be observed in the number of publications. About 15% percents of documents (441 in absolute value) were published in 2022, and more than 50% were published between 2018 and 2023. In 1985, there was only one document that dealt with reporting and audit quality. As the audit profession evolves, it seems that there is an increase in interest in research.

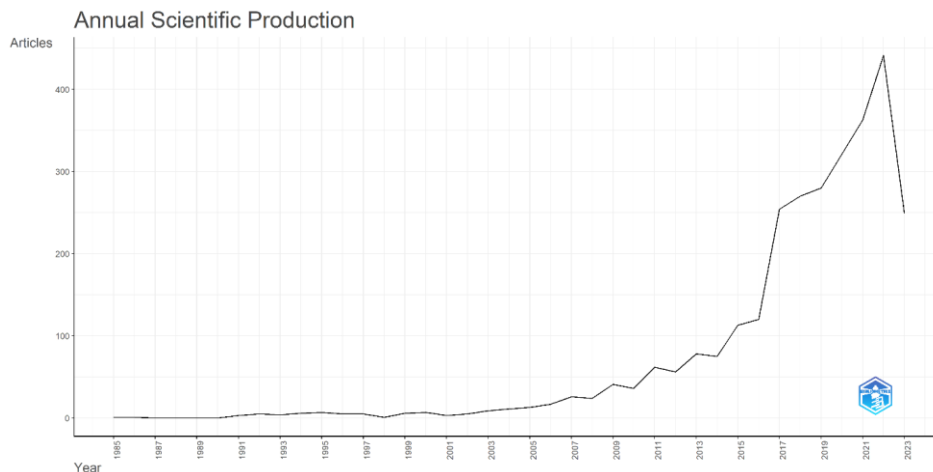


Figure no. 1: Annual Scientific Production

Source: own processing

Out of 510 sources, only 34 have published more than 20 articles about the quality of reporting and audit. The first 15 journals are listed in Table 2 ranked by number of relevant articles. We must mention that the column *Year of first article published* refers only to the documents analysed, and not to the journal's history. Only the first three sources published more than 100 articles (Accounting Review, Auditing: A Journal of Practice & Theory, Contemporary Accounting Research). Most articles are published in Auditing: A Journal of Practice & Theory (206), but most cited articles are published by Accounting Review. The journal with the highest number of citations per document is Journal of Accounting & Economics. An interesting case is Managerial Auditing Journal, which is the fourth Journal by articles number. Articles analysing the quality of reporting and audit theme were published in this journal starting with 2015, compared with the first three journals with a significant history. Also, Journal of Accounting & Economics has only 53 articles published on the researched matter, but there is the highest average of citation per article.

Table no. 2. Top 15 Journals

Journals	Articles	Total citations	Average citations/ document	Year of first article published
Auditing: A Journal of Practice & Theory	206	10,012	49	1986
Accounting Review	162	18,493	114	1992
Contemporary Accounting Research	129	9,138	71	2002
Managerial Auditing Journal	83	2,178	26	2015
Accounting Horizons	75	3,448	46	2008
Journal of Accounting and Public Policy	67	2,058	31	1985
European Accounting Review	62	1,457	24	2006
International Journal of Auditing	62	1,690	27	2017
Journal of Accounting & Economics	53	12,912	244	1991
Journal of Business Finance & Accounting	45	1,224	27	2007
Cogent Business & Management	41	140	3	2018
Journal of Accounting Research	40	5,825	146	2001
Review of Accounting Studies	40	1,984	50	2017
Accounting and Business Research	38	1,008	27	2007
Journal of Business Ethics	38	2,187	58	2000

Source: own processing

In Table 3 are presented the most relevant authors for the researched topic. Gul F. A. is the most relevant author, as he wrote and published 25 articles about the quality in audit and reporting, being the most cited author with the highest H – Index. Authors which published more than 15 articles are: Gul FA, Knechel WR, Salehi M, Krishnan J, Li Y, Habib A, Li L, Omer Tc. Authors with more than 1.500 citations are: Gul FA, Francis JR, Kim JB, Carcello JV, Krishnan J și Zhang J.

Table no. 3. Top 15 most relevant authors

No.	Most relevant authors	Total citation	H-Index
1	GUL FA	GUL FA	GUL FA
2	KNECHEL WR	FRANCIS JR	KNECHEL WR
3	SALEHI M	KIM JB	KRISHNAN J
4	KRISHNAN J	CARCELLO JV	KIM JB
5	LI Y	KRISHNAN J	HABIB A

6	HABIB A	ZHANG J	HOPE OK
7	LI L	DEFOND M	OMER TC
8	OMER TC	KNECHEL WR	CARCELLO JV
9	CHI W	HILARY G	ROMAN KK
10	ROMAN KK	DEFOND ML	CHOI JH
11	ZHANG J	VERDI RS	HOITASH R
12	HOPE OK	KNHURANA IK	HOITASH U
13	LOBO GJ	MYRES LA	MYERS LA
14	ZHANG Y	OMER TC	BEDARD JC
15	BEDARD JC	BIDDLE GC	CHEN H

Source: own processing

In a field extremely explored as accounting, the new authors can encounter difficulties in gaining prestige. If the author's own prestige is not relevant for a new joiner in academic field, affiliations and collaborations can determine their career paths. 88 documents were affiliated to the University Utara Malaysia, followed by universities from Australia and China. The most cited countries are United States of America (33.137 citations), China (7.482 citations), Australia (3.676 citations), Canada (2.876 citations), United Kingdom (1.731 citations), Spain, Korea, Singapore, France, New Zealand, Netherlands, Belgium, Italy, Germany, and Malaysia. The total number of citations is more reliable in predicting prestige than the number of articles published. Measured by the total citations, Malaysia is only the 15th country.

In figure no. 2, are presented the country collaboration map, and the total number of documents produced, divided by the collaboration between the countries. The intensity of colour in each country represented on the map is correlated with the number of citations (the darker the colour, the more cited is the country). The red lines represent the collaboration between states. Below, the documents produced in each country are presented separately for single country product (SCP) and multiple countries product (MPC). United States of America are recognised as an important contributor for scientific community worldwide, being also the most cited country. The highest number of international collaborations can be observed in United States of America (153 in a total of 894) and China (147 in a total of 427). We can observe that China, Australia and United Kingdom are usually producing documents collaborating internationally. Romania is the only country which has only one international collaboration in a total of 24 documents related to the analysed topic, followed by Portugal with two collaborations in a total on 19 documents.

Country Collaboration Map

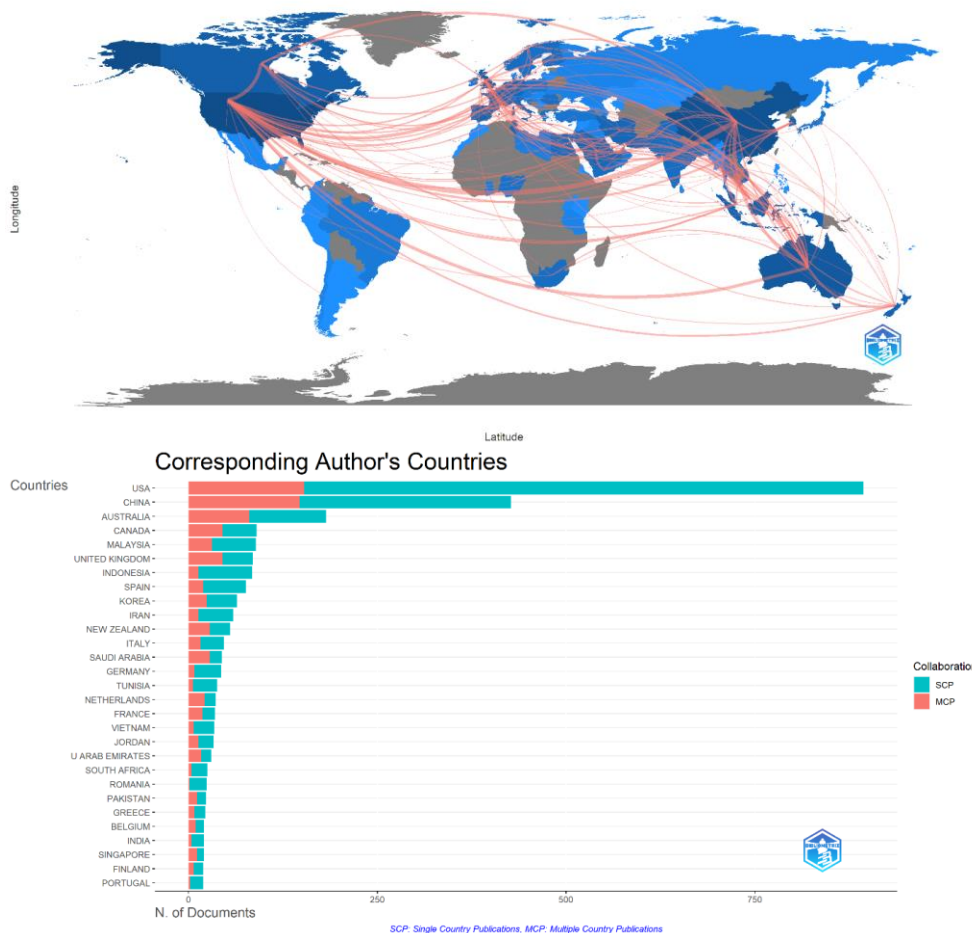


Figure no. 2 – Country collaboration Map

Source: own processing

To gain a comprehensive understanding of the document's content, we generated a list of the most used key words, which were indexed by Web of Science in Keywords Plus. The Figure no. 3 indicates that *earnings management* was mentioned more than 660 times, followed by quality, performance, corporate governance, ownership, industry expertise, fee, accruals, independence, information, disclosure, risk, cost, non- audit services, financial reporting quality, litigation, audit quality, agency cost, incentives, internal control, consequences, Big 4, directors, investor protection, conservative, firm tenure, behaviour, restatements, reputation, committee, office size, earnings quality, decisions, standards, investments, empirical analysis, private, selection, client, corporate social responsibility, partner tenure, evaluation, timeliness. From our analysis we have

excluded synonyms and general terms as: firm, governance, association, earnings, services, model, impact.

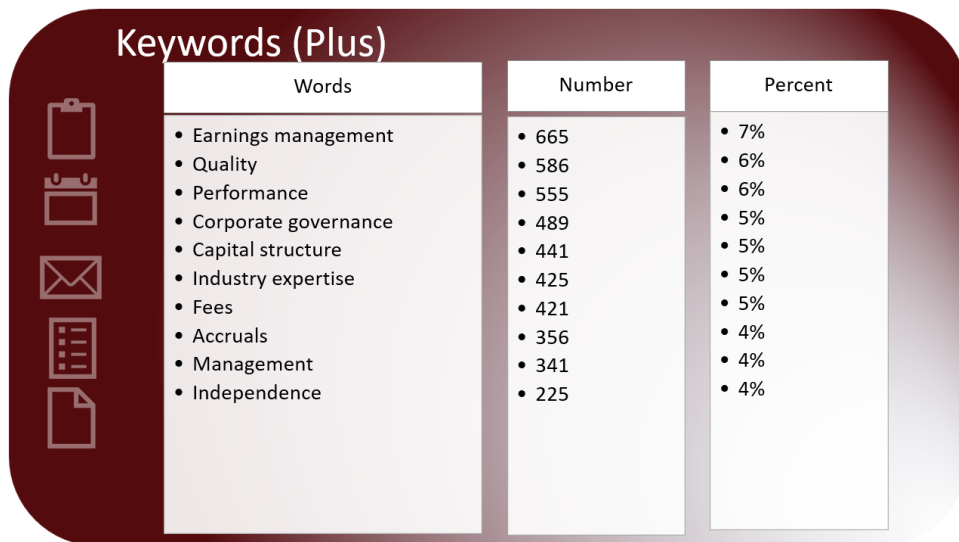


Figure no. 3 – Most used Keywords (Plus)

Source: own processing

According to Figure no. 4, the keywords (Plus) are clustered in three large groups. The cluster highlighted in red can be seen as the managerial component, because it includes decision factors (directors, corporate governance, ownership) and management performance measurement methods (performance, earning management, accruals). The green group contains audit characteristics (independence, litigation, internal control) and the attention is drawn to some quality indicators (industry expertise, size, fee). The blue cluster seems to be a more complex cluster, because it involves the reporting quality (financial reporting quality, reputation, market disclosure, information, conservatism), but also terms which can be attributed to both, audit quality and reporting quality (agency cost, audit quality, risk, perceptions, reputation, consequences).

The documents studying the audit quality significantly increased starting with 2000, and audit quality, audit fees, are subjects of interest in accounting field (Cigar, A. 2020). We extracted the analysed database in Excel and filtered it by title and by keywords and we identified six bibliometric analyses regarding the matter of audit and reporting quality, two being related to the reporting quality (earning management policies and digitalisation impact on audit profession), two are analysing audit quality and the remaining ones are examining the audit fees. The researchers can contribute to the future by focusing on audit quality, office size, industry expertise, and office performance as niche topics according to Molociniuc et al. (2022).

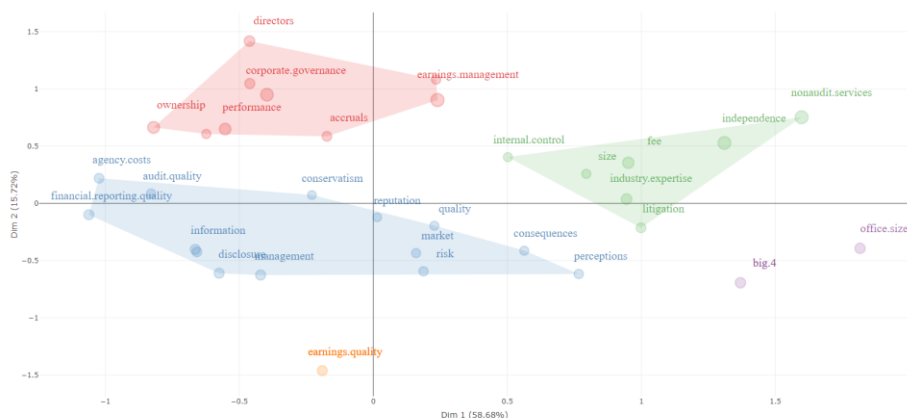


Figure no. 4 – Keywords (Plus) clusters

Source: own processing

Similar bibliometric analysis on quality of audit and reporting were conducted by Cigar (2020) and Molociniuc et al. (2022). Cigar A.'s research was focused only on audit quality. Molociniuc's included documents related to medical field, which we have excluded. The two sources mentioned before were analysing documents indexed in Scopus (and Web of Science for Molociniuc's article) database, while our analysis is based on Web of Science extracts. Our results regarding the top cited countries and most relevant authors are similar to the ones obtained by Cigar. Considering the keywords, there are some similarities and some differences because we choose to analyse Keywords Plus instead of Author's Keywords. *Audit report* and *audit quality* are the most frequently used keywords in similar bibliometric analysis, but as the databases and the number of articles are different, the results were expected to vary.

Conclusions

In accounting field, reporting quality was analysed for more than 30 years, but the conclusions were not defined yet. We don't have a list of generally accepted quality indicators. As audit is a component of reporting process, it's quality can be a determinant of reporting process quality.

Assurance services are economic goods which have complementary and substitute services. The audit service purpose is to enhance trust to financial results, and the reputation is extremely important for audit teams. The importance of technology is growing also in reporting, but it's impact wouldn't be in eliminating risks, but in improving or even disrupting the audit strategy.

In quality research, according to our bibliometric analysis, the most important contributors are United States of America, China, Australia, Canada, Great Britain, and Malaysia at a national level. To an individual level, Gul F.A is the most influential author. Most documents analysed were published in *Auditing: A Journal of Practice &*

Theory, and *Accounting Review*. *Managerial Auditing Journal* and *Journal of Accounting & Economics* are also important sources for understanding the reporting and audit quality. Audit fees and office size are audit quality determinants which were studied intensively until present.

The focus in audit quality research moved from general matters to smaller units of measurement as audit team, and audit partner.

Professional bodies all around the world are taking initiative to define audit quality indicators, but the business side is reluctant in trusting the capacity of defining generally accepted quality indicators.

As the discussions over generally accepted audit quality indicators are still open, researchers can contribute to the growth of the academic research by testing the limits and the value of quality determinant.

While bibliometric analysis offers numerous advantages and valuable insights in accounting fields, it is essential to acknowledge its inherent limitations. First, our research database is limited to the articles included in Web of Science, not considering other databases. Secondly, the year 2023 hasn't been ended at the time of database download. Finally, bibliometric analysis is advantageous for the papers published by experienced researchers, whose widely known preparations will be highlighted, disadvantaging novice researchers or papers recently published. Bibliometric analysis is an extremely useful tool but needs to be enhanced with a manual review of the literature.

References

- [1] Adams, T., & Neururer, T. (2019). "Do Shareholder Activists Care about Accounting and Audit Quality." *SSRN Scholarly Paper No ID, 3361802*.
- [2] Aria, M. & Cuccurullo, C. (2017) „Bibliometrix: An R-tool for comprehensive science mapping analysis”, *Journal of Informetrics*, 11(4), pp 959-975, Elsevier.
- [3] Baker, H. K., Kumar, S., & Goyal, K., (2023) „Publication trends in the Journal of International Financial Management and Accounting: A retrospective review”, *Journal of International Financial Management & Accounting*.
- [4] Bamber, E. M., & Iyer, V. M. (2007). „Auditors' identification with their clients and its effect on auditors' objectivity”. *Auditing: A journal of practice & theory*, 26(2), 1-24.
- [5] Carlisle, M., & Hamilton, E. L. (2021). „The role of communication mode in auditor-client interactions: Insights from staff auditors”. *Current Issues in Auditing*, 15(1), A19-A37.
- [6] Ciger, A. (2020), „Audit Quality: A Bibliometric Analysis (1981-2020)”, *Scientific Annals of Economics and Business*, 67(4), 473-494.
- [7] Colbert, J. L., & Jahera Jr, J. S. (1988), „The role of the audit and agency theory”, *Journal of Applied Business Research (JABR)*, 4(2), 7-12.
- [8] De Widt, D., Llewelyn, I., & Thorogood, T. (2022). „Stakeholder attitudes towards audit credibility in English local government: A post-Audit Commission analysis”. *Financial Accountability & Management*, 38(1), 29-55.
- [9] DeAngelo, L. E. (1981), „Auditor independence, 'low balling', and disclosure regulation”, *Journal of accounting and Economics*, 3(2), 113-127.

- [10] Dechow, P. (1994). „Accounting earnings and cash flows as measures of firm performance: The role of accounting accruals”. *Journal of Accounting and Economics*, 18(1), 3–42. Dechow, P..
- [11] DeFond, M., & Zhang, J. (2014). „A review of archival auditing research”. *Journal of accounting and economics*, 58(2-3), 275-326.
- [12] Durkin, M. P., Jollineau, S. J., & Lyon, S. C. (2021). „Sounds good to me: How communication mode and priming affect auditor performance”. *Auditing: A Journal of Practice & Theory*, 40(1), 1-17.
- [13] Francis, J. R. (2004), „What do we know about audit quality?”, *The British accounting review*, 36(4), 345-368.
- [14] Francis, J. R. (2023). „Going big, going small: A perspective on strategies for researching
- [15] Gul, F. A., Fung, S. Y. K., & Jaggi, B. (2009). „Earnings quality: Some evidence on the role of auditor tenure and auditors’ industry expertise”. *Journal of Accounting and Economics*, 47(3), 265–287.
- [16] Huang, F., No, W. G., Vasarhelyi, M. A., & Yan, Z. (2022), "Audit data analytics, machine learning, and full population testing", *The Journal of Finance and Data Science*, 8, 138-144.
- [17] Jensen, M.C., Meckling, W.H. (1976), „Theory of the firm: managerial behavior, agency costs and ownership structure”, *Journal of Financial Economics* 3 (4), 305–360
- [18] Kumar, K., & Lim, L. (2015), "Was Andersen’s audit quality lower than its peers? A comparative analysis of audit quality", *Managerial Auditing Journal*.
- [19] Lo, A. W., Lin, K. Z., & Wong, R. M. (2022). „Does availability of audit partners affect audit quality? Evidence from China”. *Journal of Accounting, Auditing & Finance*, 37(2), 407-439.
- [20] Molociu, M., Melega, A., Grosu, M., Tulvinschi, M., & Macovei, A. G. (2022). “Evolution of scientific research on audit quality reporting in the global economic context”. *Entrepreneurship and Sustainability Issues*, 10(2), 333.
- [21] Najaf, K., Atayah, O., & Devi, S., (2022), „Ten years of Journal of Accounting in Emerging Economies: a review and bibliometric analysis”, *Journal of Accounting in Emerging Economies*, 12(4), 663-694.
- [22] Palazuelos Cobo, E., Herrero Crespo, A., & Montoya del Corte, J. (2017), "Are credit risk analysts concerned about the audit of the financial statements of SMEs?"
- [23] Panda, B., & Leepsa, N. M. (2017), „Agency theory: Review of theory and evidence on problems and perspectives”, *Indian journal of corporate governance*, 10(1), 74-95.
- [24] Svanberg, J., & Öhman, P. (2016). „Does ethical culture in audit firms support auditor objectivity?”. *Accounting in Europe*, 13(1), 65-79.