

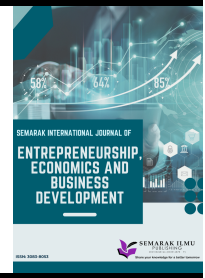


Semarak International Journal of Entrepreneurship, Economics and Business Development

Journal homepage:

<https://semarakilmu.my/index.php/sijeebd/index>

ISSN: 3083-8053



Central Bank Mandates and Accountability Mechanisms: A Bibliometric Study

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ARTICLE INFO

Article history:

Received 22 March 2026

Received in revised form 18 May 2026

Accepted 30 May 2026

Available online 16 June 2026

Keywords:

Central bank; bank; accountability; bibliometric analysis; VOSviewer

ABSTRACT

Debates over responsibility and legitimacy have intensified as central banks have broadened their powers beyond price stability to include financial stability, crisis management, and sustainability goals. Using information from the Scopus database, this study offers a thorough bibliometric analysis of studies on central bank responsibility conducted between 1975 and 2026. Using R and VOSviewer, 444 journal articles were examined using performance analysis and scientific mapping methods. The results show a consistent increase in publications, especially during global financial crises, with Sweden showing the highest average citation impact and the United States dominating in research production. Important journals, prominent writers, and prevailing theme clusters like monetary policy, accountability, central bank independence, and the European Central Bank are noted. The entire amount of study is still little despite growing scholarly interest, indicating important gaps. The paper emphasizes that in order to maintain central bank credibility in the face of growing mandates, stronger and more flexible accountability structures are required.

1. Introduction

The Central banks occupy a pivotal role in modern economies, entrusted with mandates that range from maintaining price stability to ensuring financial system soundness. Over recent decades, the scope and complexity of central bank mandates have expanded, particularly in response to global financial crises and evolving economic challenges. This expansion has brought renewed attention to the mechanisms by which central banks are held accountable for their actions and decisions. The relationship between central bank independence and accountability is at the heart of contemporary debates, as these institutions wield significant power over monetary policy, financial regulation, and increasingly [1]. Broader economic objectives such as sustainability and climate risk management.

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The legitimacy of central banks, especially in democratic societies, depends not only on their technical competence but also on the robustness of their accountability frameworks.

The traditional rationale for central bank independence is rooted in the desire to insulate monetary policy from short-term political pressures, thereby fostering price stability and economic credibility. However, as central banks have assumed broader mandates including crisis management, macroprudential supervision, and, in some cases, the promotion of green finance the boundaries between technocratic decision-making and political accountability have blurred [4,5,24,25]. This shift has prompted scholars and policymakers to reconsider the adequacy of existing accountability mechanisms. The challenge lies in balancing the need for central banks to act decisively and independently with the imperative to ensure transparency, responsiveness, and democratic oversight, which [1,6-8].

Accountability mechanisms for central banks are multifaceted, encompassing legal, procedural, and political dimensions. Legal accountability refers to adherence to statutory mandates and the possibility of judicial review, while procedural accountability emphasizes transparency, reporting, and the provision of information to stakeholders, which [6,7, 9]. Political accountability, meanwhile, involves interactions with parliaments, governments, and, ultimately, the public. The effectiveness of these mechanisms varies across jurisdictions and is influenced by the specific institutional arrangements governing each central bank, which "was also undertaken by, [10-14]". The European Central Bank (ECB), for example, is often cited as one of the most independent central banks, yet its accountability arrangements have been criticized as underdeveloped compared to national counterparts [4,6,13-15].

Recent developments, such as the ECB's expanded role during the euro crisis and the growing emphasis on sustainability objectives, have intensified scrutiny of central bank mandates and accountability. The introduction of new tasks and the reinterpretation of existing mandates have raised questions about the legitimacy and transparency of central bank actions [4,14,16,24,25]. In response, there have been calls for more robust accountability frameworks that can adapt to the evolving roles of central banks without undermining their operational independence. This ongoing evolution underscores the importance of understanding both the theoretical foundations and practical applications of central bank accountability.

In sum, the study of central bank mandates and accountability mechanisms is both timely and essential. As central banks navigate new frontiers whether in monetary policy, financial supervision, or climate action their legitimacy will increasingly depend on the effectiveness of the mechanisms that hold them to account. This introduction sets the stage for a comprehensive review of the literature, which explores the historical evolution, conceptual debates, and practical challenges associated with central bank mandates and accountability mechanisms.

This study's objective is to present a thorough bibliometric analysis of central bank accountability research, charting its conceptual framework, publication trends, and topic development between 1975 and 2026. In order to assist academics in navigating the growing breadth of central bank duties, which now encompass crisis management and sustainability, the research uses tools such as R and VOSViewer to identify significant nations, notable authors, and high-impact publications. One of the key goals is to fill the present research gaps by emphasizing the need for more regular yearly investigations. Despite the field's increasing complexity, the current amount of research is still relatively modest. Additionally, the study intends to investigate weak accountability structures for organizations like the European Central Bank (ECB), especially in response to contemporary concerns like climate risk and financial system soundness, going beyond conventional focuses on price stability.

The literature on central bank mandates and accountability mechanisms is extensive and multifaceted, reflecting the evolving roles of central banks and the diversity of institutional

arrangements across countries. Early scholarship emphasized the importance of central bank independence as a means to achieve price stability, with accountability mechanisms often viewed as secondary considerations [13,14,17]. However, the global financial crisis and subsequent expansions of central bank mandates have prompted a re-examination of this relationship, highlighting the need for more nuanced and robust accountability frameworks [1,5-8].

One strand of the literature focuses on the legal and institutional foundations of central bank accountability. Comparative studies have shown significant variation in the statutory mandates of central banks, the clarity of their objectives, and the mechanisms for parliamentary oversight and judicial review [10-14]. For example, the ECB's legal framework is characterized by a narrow mandate centered on price stability, coupled with high independence and relatively limited avenues for political or judicial accountability [4,6,13-15]. In contrast, some national central banks operate under broader mandates and are subject to more direct forms of democratic control, such as government override mechanisms or explicit reporting requirements [10,11,13,14,17].

A second body of research examines the procedural aspects of accountability, particularly the role of transparency and information disclosure. Scholars argue that transparency is a central property of accountability, enabling stakeholders to monitor central bank actions and assess their compliance with stated objectives [6,7,14,18]. However, the relationship between transparency and accountability is not straightforward. While increased transparency can enhance legitimacy and trust, it may also obscure substantive accountability if it is not accompanied by meaningful opportunities for contestation or sanction [6,7,18]. The literature highlights the limitations of procedural accountability, especially when it becomes an end in itself rather than a means to ensure substantive oversight [6,18].

The expansion of central bank mandates into areas such as financial supervision and sustainability has generated new challenges for accountability. Studies document how central banks, particularly the ECB, have taken on additional responsibilities in response to crises, often without corresponding enhancements to their accountability frameworks, which "was also undertaken by, [4,8,16,24-25]". This has led to concerns about the legitimacy of central bank actions, especially when they have significant distributive or political implications, which "was also undertaken by, [1-2,5,24]". Scholars call for the development of more comprehensive accountability mechanisms that can accommodate the complexity and breadth of modern central bank mandates [4,5,8,24,25].

Political accountability remains a contested and evolving dimension. While central banks are typically insulated from direct political control to preserve their independence, they are nonetheless subject to various forms of parliamentary scrutiny and public engagement [7,11,12,19,20]. The effectiveness of these mechanisms depends on the willingness and capacity of legislatures to hold central banks to account, as well as the transparency and responsiveness of the central banks themselves [7,11,19,20]. The literature notes that, in practice, political accountability is often limited by confidentiality rules, the technical complexity of central bank operations, and the absence of meaningful sanctions for poor performance [7,18-20].

Finally, recent scholarship has explored the implications of new policy domains such as climate change and green finance for central bank mandates and accountability. As central banks incorporate sustainability objectives into their policy frameworks, questions arise about the legitimacy of these expanded roles and the adequacy of existing accountability mechanisms [16,24,25]. The literature suggests that effective governance in these areas requires a synthesis of monetary, macroprudential, and sustainability considerations, supported by transparent and adaptable accountability arrangements [16,24,25]. This ongoing evolution underscores the need for continued research and policy innovation to ensure that central banks remain both effective and democratically legitimate in a rapidly changing world.

2. Methodology

In order to do the bibliometric analysis, the bibliometric toolbox will be used. The toolbox has two methods: the basic technique and the enrichment technique. There are two main parts to the method, and they are performance analysis (A) and science mapping (B). Although the main methodologies have many potential applications, this study will narrow its focus to just a handful. R and VOSViewer were two programs that were useful for the bibliometric analysis. In bibliometric analysis, a large body of data is quantitatively studied and then shown as themes, networks, research components, and descriptive analysis. Bibliometric analysis like this one, may help researchers examine how a subject has developed and how its themes have been organized. The research is also objective and devoid of bias. The trends and research direction were derived using science mapping and performance analysis. Performance analysis is a method for examining the roles played by various stakeholders in a research project, such as participating authors, counties, publishers, journals, and institutions in the study area. The purpose of science mapping is to create connections among the components of research [21,22]. Combining scientific mapping and enrichment approaches gives us the conceptual framework of a study area and the fundamental topics of the issue, establishing a connection between different research parts.

2.1 Bibliometric Search

A bibliometric analysis database is compiled from the Scopus database. The Scopus database, is considered the most rigorous and systematic database for bibliometric analysis [22,23]. Scopus is acknowledged as the premier database for bibliometric analysis, supported by prior research. Scopus is recognized as the most comprehensive database, encompassing a diverse array of information on articles, with the stipulation that papers must adhere to stringent criteria for inclusion. Several keywords are recognized for the optimal search, including "Bank", "Central bank accountability", and "Central bank". The optimal keyword was "Central bank accountability". This article was analyzing central bank accountability. A search was performed on the Scopus database using the phrase "Central bank accountability," resulting in the retrieval of 444 papers.

2.2 Filtration

The language publications were not chosen for to having other language publications. Journal articles were subsequently chosen for publication. For this investigation, 444 papers were ultimately selected. We did not use any sorting criteria beyond these two since doing so may reduce the number of publications and impact the bibliometric analysis.

3. Results

3.1 Total Publication and Number of Active Years of Publication

The sum of each publication is an approach for performance analysis. The total amount of articles published on the subject of the research is considered. An integral part of the annual scientific output are the sixty-three conclusions drawn from the published papers. Year of publication in the journals served as the criterion for grouping the articles. Figure (1) suggests that research on the central bank accountability is increasing on a yearly basis. One publication was made in 1975, but by 2021 there were 26 in total, and by 2022 and 2023 there were 27 and 37, respectively. We will continue to count 38 papers until December 2025. Has 1 publication to made in 2026. The "active years of publishing"

measure how long the phenomenon has been the subject of field investigation. The active year started in 1975, and groundbreaking research is currently ongoing. Given the pattern shown in Figures (1) and (2), there are still comparatively fewer studies conducted annually; as a result, there is need for further study on this subject.

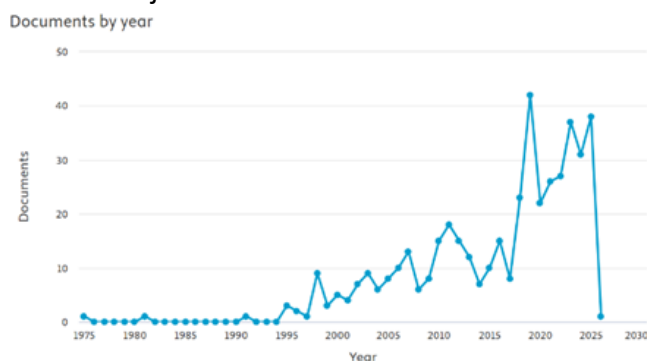


Fig. 1. Includes publications over the years 1975-2026

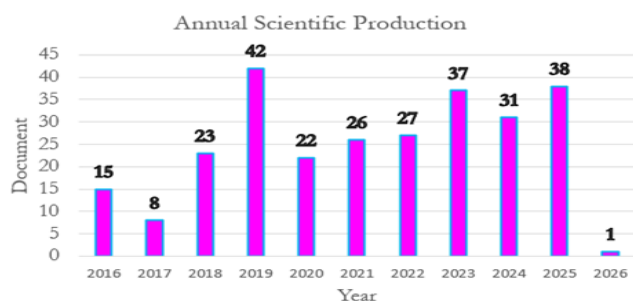


Fig. 2. Includes year-to-year publications from 2016 to 2026

3.2 Most Promising Journals

Promising journals are those that publish the highest number of papers on a certain field. In order to find potential publications, we used R software to apply Bradford's rule. There are a number of potential publications covering the topic of central bank accountability, but the ones that stand out most are listed in Table (1). Maastricht Journal of European and Comparative Law have a leg up on the competition with 19 articles on the subject of central bank with utilising a central bank accountability. The following journals have an advantage over others: European Journal of Political Economy, Politics and Governance, Journal of Common Market Studies, European Law Journal, Journal of European Integration, and Open Economies Review, which has up to 4 articles in the field of central bank accountability. When compared to other journals, Accounting Economics and Law A Convivium, Canadian Public Policy, and Common Market Law Review has the upper hand with less than 3 articles on the topic of central bank accountability. As can be seen in Table (1), certain journals offer benefits over others. Publications that shown potential was selected for the purpose of examining Bradford's law. The outcome was a graph showing the number of articles published by a journal together with the name of the source. The graph was transformed into a table, as seen in Table (1). Researchers studying central bank accountability will benefit greatly from Bradford's law analysis, which identifies the most relevant journals publishing content about the topic and allows them to quickly find and select a few journals to support their study. If a journal publishes several articles on a certain subject, it will have a greater chance of influencing the work of academics in the future.

Table 1

The name of the journal along with the number of a paper published

No.	Name of journals	No. of published
1.	Maastricht Journal of European and Comparative Law	19
2.	European Journal of Political Economy	8
3.	Politics and Governance	7
4.	Journal of Common Market Studies	6
5.	European Law Journal	4
6.	Journal of European Integration	4
7.	Open Economies Review	4
8.	Accounting Economics and Law A Convivium	3
9.	Canadian Public Policy	3
10.	Common Market Law Review	3

3.3 Preeminent Nations

The countries that have the most citations and publications are considered to be the leaders in the area of research. The analytical job involves examining the database using R software. Finding the top countries in terms of central bank accountability is achieved by analysing the findings using the countries' scientific productivity and citations. The dominance of certain countries may be inferred from both the number of publications and the number of citations. For this reason, we will be looking at the top 10 countries from both perspectives. Figures (2) and (3) reveal that, while Sweden has the highest average article citations (119.75), United States has more documents than any other country (92). Despite not having a single document in the top ten, Kazakhstan surprisingly comes second in terms of average document citations. Germany ranked far behind in terms of citations than a number of other countries, notably the United States, while having more published articles overall but only placed in top 8 of average article citations. A like predicament has befallen United Kingdom. This country's counterpart more having document overall, even though it did rank in the top 7-8 of average article citations, in contrast to Germany. To make the study easier to understand, the data from figures (3) and (4) were translated into a tabular format in Table (2). Based on the data, it seems that Sweden and United States are leading the way when it comes to central bank accountability. In terms of average article citations, the Sweden, Kazakhstan, Oman, Lebanon and Chile are notable nations.

Country Scientific Production

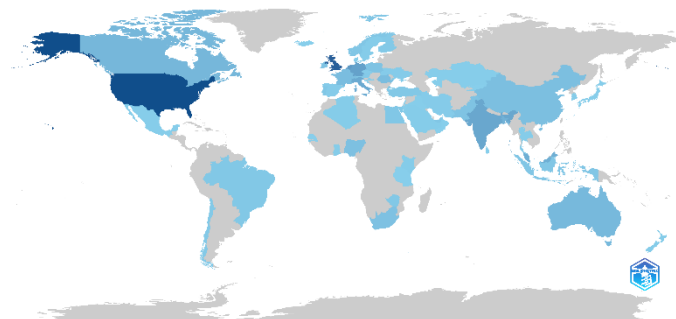


Fig. 3. Represents a world map illustrating the number of documents published by each country

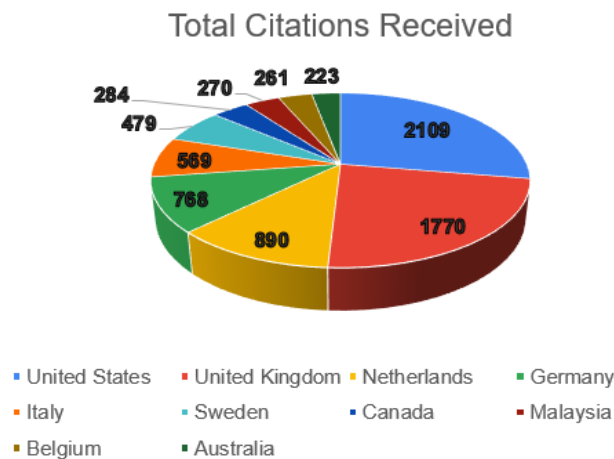


Fig. 4. The number of citations received by each country’s documents

Table 2

The countries' names, the total number of published documents, and the corresponding citation counts

Rank	Country	Document	Rank	Country	Average Article Citations
1	United States	92	1	Sweden	119.75
2	United Kingdom	76	2	Kazakhstan	58
3	Netherlands	39	3	Oman	38
4	Germany	36	4	Lebanon	28
5	Italy	28	5	Chile	27
6	Belgium	18	6	Malaysia	24.55
7	Canada	17	7	United Kingdom	23.29
8	India	16	8	United States	22.92
9	Australia	14	9	Netherlands	22.82
10	France	12	10	Germany	21.33

3.4 Most Essential Authors

Whether authors are most relevant is determined by the number of articles published by each. The R software tallied up all the articles they had published about worldwide and the amount of people central bank accountability to get the result. The results show that the more papers an author has authored, the more significant they are. Figure 5 displays the 10 authors who are most relevant (5). It is clear that De Haan Jakob have 10 published. Second by Amtenbrink Fabian have 6 published. Third by Alam MD Kausar until Tuori Klaus with 5 published, whereas remaining authors has shown in the Figure 5. Reading about the top 10 authors referenced might provide light on their contributions and areas for improvement.

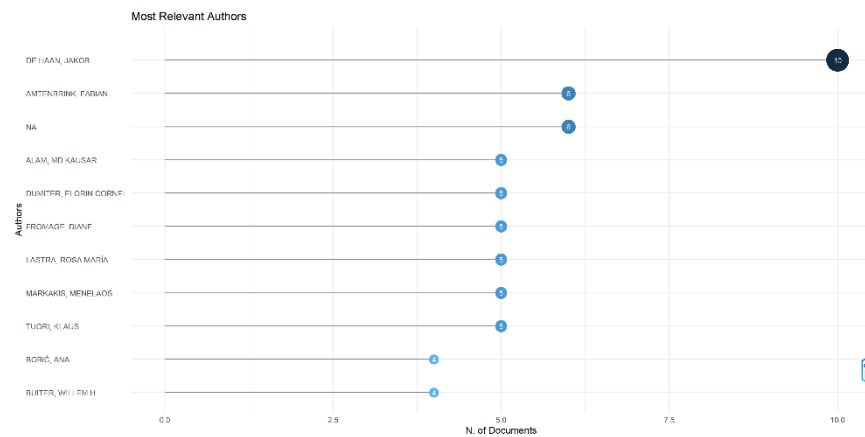


Fig. 5. Authors' names and the number of papers published by them

3.5 Notable Authors

The most cited authors on any topic are those who have published the most academic publications. All that is necessary are citations. As a result, the total document count was utilised to identify notable authors. The most famous writers will have the most cited documents in their accounts, while the least notable authors will have less citations. At 388 documents, author Ahmad Junaid K, Brid Richard M, and Litvack Jennie I, head and shoulders above the others. Second place goes to writers Bergman Torbjorn, Muller Wolfgang C, and Strom Kaar Wallace have 354 documents. Third by De Haan Jakob have 347 documents. Figure 6 displays the remaining writers with more than 3000 plus cited document.

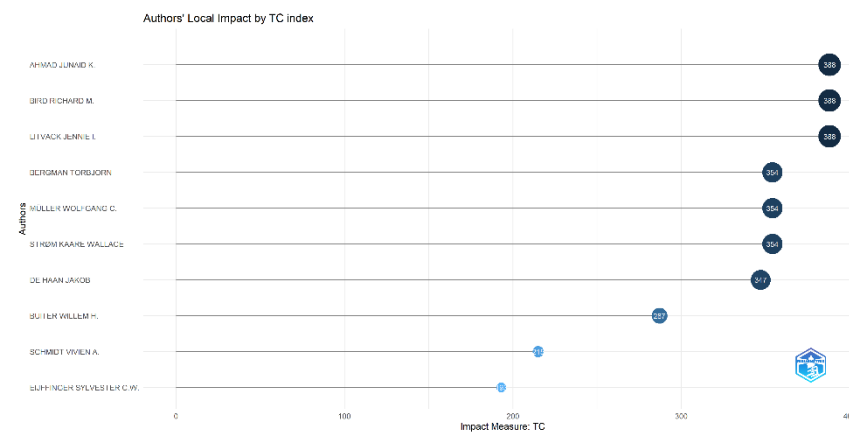


Fig. 6. Names and total cited document numbers of the writer

3.6 Citation Analysis

One method for scientific mapping is citation analysis. A reference is a connection to a publication when it appears in another publication. This was likewise done, which "was also undertaken by, [22-23]". Global citation and local citation are the two main criteria utilised in citation analysis. In citation analysis, the number of citations a piece of writing receives from readers is one way to measure its influence.

3.6.1 Most global cited documents

The term "most internationally cited texts" is used to describe the publications that have having the most citations in the field without any kind of filtering. One definition of "global citations" is a publication's impact factor, which includes citations from both inside and beyond its subject area. Other authors' decisions to incorporate citations in their works may be significantly influenced by the top ten most referenced publications in the world. All articles mentioning or discussing the topic of "Central bank accountability " cite these sources. The 10 most impactful publications are shown in Figure 7, and their analysis is in table 3. Figure (7) was used to determine the top ten most cited publications on a worldwide level. Table (3) includes the names of the articles, authors, and citation counts for these ten publications.

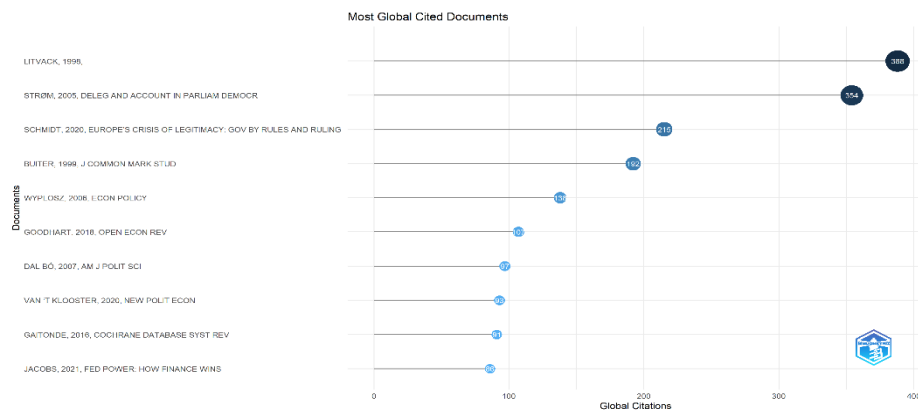


Fig. 7. Represents the works with the highest number of citations worldwide

Table 3

Lists the top 10 most referenced articles in the world along with their titles, authors, and number of citations

No.	Article Title	Authors	Global citation
1.	Litvack 1998	Litvack, 1998	388
2.	Deleg And Account in Parliam Democr	Strom, 2005	354
3.	Europe’s Crisis of Legitimacy: Gov by Rules and Ruling by Numbers in The Eurozone	Schmidt, 2020	215
4.	Common Mark Stud	Buitter, 1999	192
5.	Econ Policy	Wyplosz, 2006	138
6.	Open Econ Rev	Goodhart, 2018	107
7.	Am J Polit Sci	Dal B0, 2007	97
8.	New Polit Econ	Van ‘T Klooster, 2020	93
9.	Cochrane Database Syst Rev	Gaitonde, 2016	91
10.	Fed Power: How Finance Wins	Jacobs, 2021	86

3.6.2 Most local cited documents

Citations from other articles within the same subject area are called "local cited documents." For instance, if an article states that it is citing a publication within the same domain [22,23]. Local citations, otherwise stated, are ones that are unique to the subject area of the resources. As an illustration, a paper about “Central bank accountability” is referenced in another work about Central bank accountability. Consequently, most articles that are cited locally focus on works that are often discussed or referred in the field. To learn more about the subject, look at the documents shown in figure (8). These materials are particularly pertinent to the subject of Satisfaction in using online food

delivery app and can be considered trustworthy sources for obtaining first papers. It should be highlighted that, for the clear reasons stated in their definition, local citations are always lower than global citations. The analysis of Figure (8) is completed in Table (4).

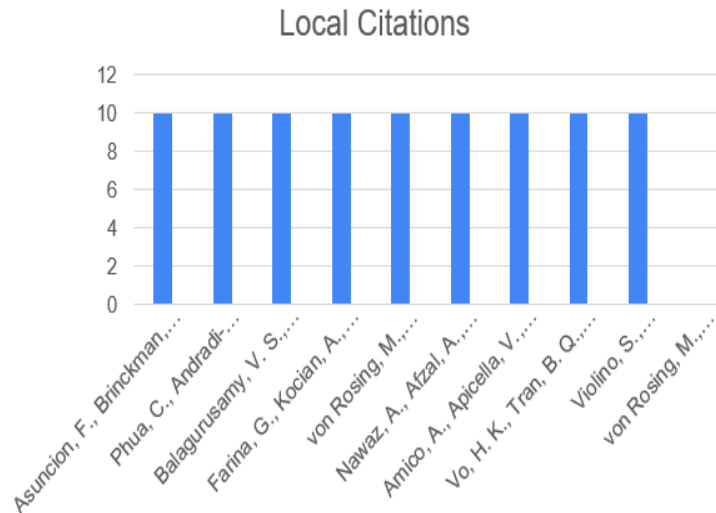


Fig. 8. Displays papers indicating the aggregate count of local citations received

Table 4

Article title, authors' names, and citations of the ten most locally referenced documents

No.	Article Title	Authors	Local Citations
1	Rethinking decentralization in developing countries	Litvack, J.I., Ahmad, J. and Bird, R.M., 1998	388
2	Delegation and Accountability in Parliamentary Democracies	Strom, K., 2000	354
3	Europe's Crisis of Legitimacy: Governing by Rules and Ruling by Numbers in the Eurozone	Schmidt, V.A., 2020	215
4	Alice in Euroland	Buiter, W.H., 1999	192
5	European monetary union: The dark sides of a major success	Wyplosz, C., 2006	138
6	Populism and Central Bank Independence	Goodhart, C. and Lastra, R., 2018	107
7	Bribing voters	Dal Bo, E., 2007	97
8	The Myth of Market Neutrality: A Comparative Study of the European Central Bank's and the Swiss National Bank's Corporate Security Purchases	Van't Klooster, J. and Fontan, C., 2020	93
9	Interventions to reduce corruption in the health sector	Gaitonde, R., Bjorndal, A., Oxman, A.D., Okebukola, P.O. and Ongolo-Zogo, P., 2010	91
10	Fed power: How finance wins	Jacobs, L. and King, D., 2021	86

3.7 Co-citation Analysis

Collaborative citation analysis is one way to map scientific literature. It is often assumed that two references that are referenced in the same third work are either related or have a comparable structure of material. Co-citation analysis, is used to expose the conceptual framework of a particular field of research [22-23]. Based on the clusters created, this approach also assists us in identifying the most important publications. Each cluster has a theme and is based on a certain foundation. After grouping the documents into clusters, the co-citation analysis identifies the publications that are most related to each subject. This analysis allows researchers to get additional knowledge about the article according to their interests. Moreover, by perusing the relevant journals, upcoming

researchers may compile literature on a certain subject. When doing the analysis, the VOSViewer application makes use of a co-citation strategy. For this selection process, we look for publications with a minimum of five citations in the published papers. Only 29 out of 681 articles get enough citations. The weights of the linkages were evaluated in Figure 9.



Fig. 9. An author-specific co-citation correlation map

34 cluster are created in total. Increasing the weight of the links allows you to demonstrate the number of extra publications that are connected to the ones in the reference list. A higher number of links indicates that the work is more suited for study.

Table 5

The analysis of the co-citation map

Number of clusters	Author name	Citation
3	Barro	38
6	Buiter	27
2	Alberto F.	20
1	Bovens	14
4	Bernhard	9
5	Beetsma	7

This bar chart, titled "Document by author," in Figure (10) shows how many papers written by certain writers have been published. De Haan, J., the author with the highest ranking, has ten papers in all. Amtenbrink, F. comes in second place with six papers. With five documents apiece, the following six writers are tied: Lastra, R., Markakis, M., Fromage, D., Alam, M.K., Tuori, K., and Dumiter, F.C. With four documents apiece, Chang, M. and Eijffinger, S.C.W. round out the top ten.

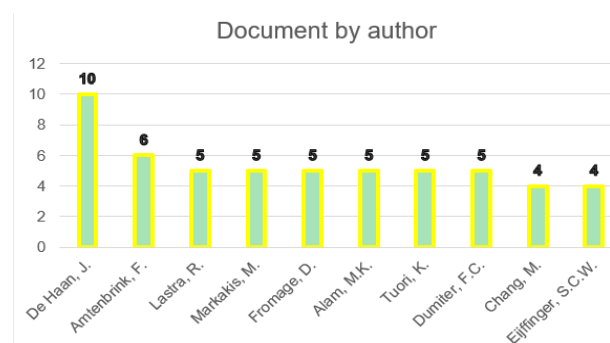


Fig. 10. Highest document from authors' name

This Table 6, shows the author pair of the collaborations," lists the top 10 author pairs based on the number of collaborations they've had. Three different author pairs Eijffinger, S.C.W. and de Haan, J. (Rank 1); Abreu, R. and Pinho, C. (Rank 2); and Oosterloo, S. and de Haan, J. (Rank 3) achieved the largest number of collaborations among the dataset's top pairings. Interestingly, two of the top three couples had de Haan, J. as a common collaborator, suggesting a high degree of cooperation. genauer,

A.-L. and Mendes, J.; Gershberg, A.I. and Meade, B.; Bobić, A. and Dawson, M.; Chayon, M.A.K. and Islam, M.M.; Chayon, M.A.K. and Hussain, M.S.; Jitu, P.G. and Joy, S.N.; and Jitu, P.G. and Shaha, R.K.

Table 6
 The author pair of the collaborations

No.	Author Pair	Collaborations
1	Eijffinger, S.C.W. and de Haan, J.	3
2	Abreu, R. and Pinho, C.	3
3	Oosterloo, S. and de Haan, J.	3
4	Högenauer, A.-L. and Mendes, J.	2
5	Gershberg, A.I. and Meade, B.	2
6	Bobić, A. and Dawson, M.	2
7	Chayon, M.A.K. and Islam, M.M.	2
8	Chayon, M.A.K. and Hussain, M.S.	2
9	Jitu, P.G. and Joy, S.N.	2
10	Jitu, P.G. and Shaha, R.K.	2

3.8 Co-occurrence Analysis

Another technique for scientific map-making that makes use of "author keywords" is co-occurrence analysis. The author's chosen research methodology is the primary focus of the study, which is why it includes keywords chosen by the author. Co-word analysis, creates themes or groups based on words that occur together [22,23]. Because just those keywords are desired, just the ones that appear in at least five articles are utilized for the purpose of analysis.

Several authors employ keywords to evaluate the state of a subject of research, and only strong terms are considered. The point where the limit is reached by 37 characters. 6 groups were formed by co-occurrence analysis using Figure (11) and Table (7). 'Accountability' is the most prevalent theme, appearing the most frequently (84 times) and displaying the highest overall link strength (187), according to the keyword analysis. It is included in cluster 3. With 53 occurrences and a total link strength of 135, "European Central Bank" is the second most popular keyword in cluster 5. With 44 instances and a link strength of 107 in cluster 1, "Monetary Policy" ranks third and is therefore quite significant. The themes "Central Bank Independence" (cluster 2), "Central Banking" (cluster 4), and "Financial Stability" (cluster 6) are less prominent but still important. Their lower frequencies and total link strengths indicate that they are either less discussed or more incidental to the main focus indicated by the top three keywords.

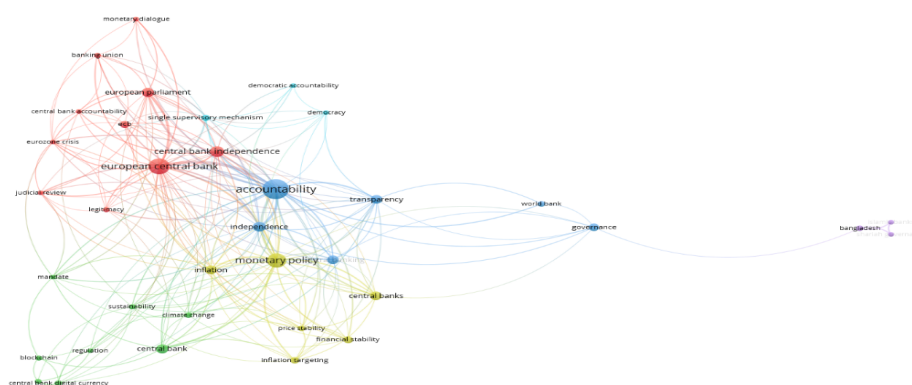


Fig. 11. A map of the co-occurrence of keywords

Table 7
 Diverse terms generated by co-occurrence analysis

Number of clusters	Keywords	Link	Total link strength	Times appeared
3	Accountability	28	187	84
5	European Central Bank	27	135	53
1	Monetary Policy	24	107	44
2	Central Bank Independence	20	47	24
4	Central Banking	16	29	16
6	Financial Stability	10	21	12

3.8.1 Thematic analysis

The co-occurrence analysis was used to create thematic clusters, as seen in Figure (12). Co-occurrence analysis is a science mapping approach concentrating around terms to develop clusters of different themes by categorizing keywords the fact that come together regularly [22,23]. For the purpose to identify the many recurring themes, each phrase was specifically chosen. The justification for this is because whether considering the abstract, title, or keywords, the larger context that is provided by all of the keywords is more appropriate. Reason being, overall keyword coverage is higher than author's keyword coverage, phrases that featured in publications at least ten times were chosen for the thematic analysis. Phrases that appeared in documents more frequently were also considered. Although a keyword develops of greater significance in a specific area if it appears a minimum of 5 times in various papers, we need to assign it a weight of at least ten times before it appears in papers. Following that, different weights were utilised in a hit-and-miss fashion; results were clear when the weight was ten times. In order to give weight to keyword occurrences, a minimum of 29 words were required. A total of 4 clusters were formed. Theme 1 at the "central bank" is the focal point of the Blue Cluster, which has connections to "blockchain," "digital currency," "financial system," "Europe," and "banking." With an emphasis on innovation and the structure of the financial environment, this cluster often reflects the technical, systemic, and geographic aspects of contemporary central banking. Theme 2 at the phrases "accountability," "inflation," and "independence" dominate Red Cluster's exclusive focus on fundamental monetary and institutional ideas. It has connections to concepts like "price stability," "transparency," "central banking," and "inflation targeting central banks." In order to achieve price stability, this cluster focuses on the mandate, governance, and structural integrity of central banks, highlighting the vital balance between independence and public responsibility. Theme 3 at the "European key Bank" and "monetary policy," together with "European Parliament" and the abbreviation "ECB," are the focal points of the Yellow Cluster, which has close ties to the key issues of the Red Cluster. This cluster highlights the particular activities and governing bodies associated with monetary policy within the Eurozone, defining the institutional and political framework of the European monetary system. Theme 4 at the Green Cluster is the most externally oriented, extending from "public policy" and "decision-making" to more general social and international concepts like "economics," "people," "human," "article," "governance," and "world bank." This cluster links central banking's choices and policies to the broader domains of economics, public welfare, global governance, and human well-being. It also illustrates the macro-level influence and external linkages of central banking.

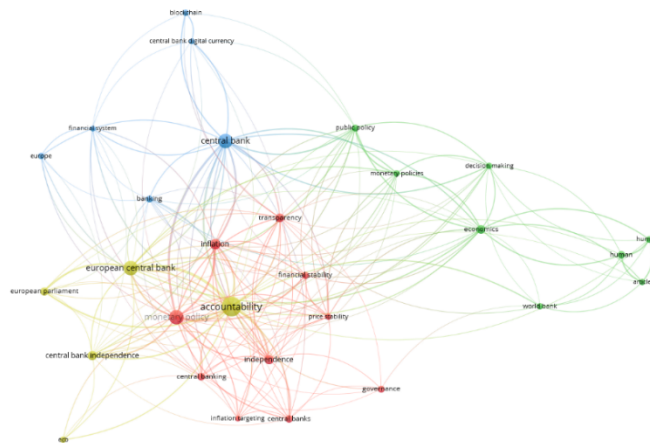


Fig. 12. A map of co-occurrence analysis to generate themes from all keywords

3.9 Thematic Evolution

To ascertain the trend's trajectory, theorists use thematic development, through offering a thorough bibliometric analysis of central bank accountability research, which methodically maps the field's intellectual structure, publishing patterns, and thematic evolution, the current study has significant advantages for both academia and practice. Finding reputable sources, identifying research gaps, and forming partnerships with seasoned professionals are all made easier for researchers and practitioners by the identification of powerful nations, significant writers, and high-impact publications. In theme progression, time is divided into sections so that changes across time may be examined. Based on the Figure (13), analysis of publication trends and key research topics, the thematic evolution of Satisfaction in using online food delivery app has progressed through distinct phases. Figure (13), shows how top 10 distinct themes changed from 1995 to 2026. The vertical axis displays the number of documents, while the horizontal one displays the year. Each line represents a distinct keyword. various keywords show various patterns in the figure, such as a strong, persistent presence for subjects like inflation and monetary policy and a dramatic, recent peak for COVID-19, which represents its rise as a prominent study focus in the dataset's final years. These lines' convergence and divergence show how research interests have changed, with economic and financial topics continuing to be important but with particular thematic attention adjusting to world events and developing fields of study, such as the recent spike in articles about the financial crisis.

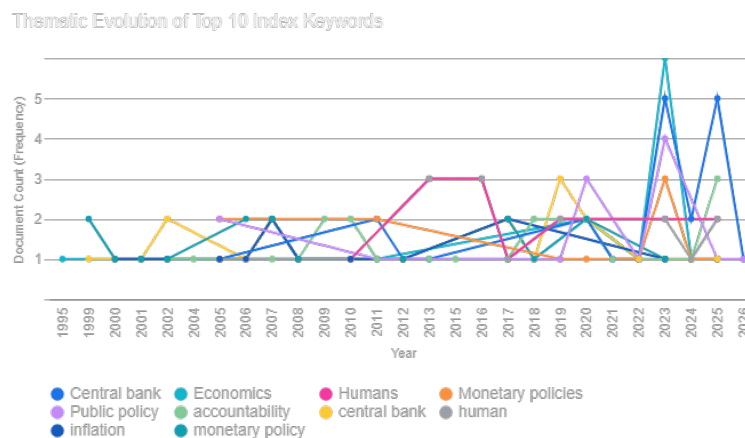


Fig. 13. Showcases thematic evolution

3.10 Discussion

In the next years, both academia and industry will benefit greatly from this thorough bibliometric review of central bank accountability research. The current study gives a comprehensive bibliometric analysis of research on central bank responsibility, which has major benefits for both practice and academics. As seen by the selection of the most pertinent journals utilizing Bradford's law, such as the Maastricht Journal of European and Comparative Law with 19 papers on the topic, the results enable scholars to swiftly locate and choose reliable sources. Additionally, by identifying important writers and powerful countries like the United States (most documents) and Sweden (highest average citations), the study helps establish connections with seasoned specialists and comprehend the intellectual structure of the topic. For example, writers like Ahmad Junaid K. and others are the most prominent with 388 referenced documents, while De Haan Jakob is the most important author with 10 published works. The study assists scholars in locating essential literature by finding high-impact articles such as Litvack 1998, which has 388 worldwide citations. Lastly, the results help reveal research gaps and demonstrate the need for more study on the topic. These findings include the analysis of theme progression and the observation that there are currently relatively few studies completed yearly.

A critical analysis of the results exposes a number of structural and conceptual aspects of the subject that go beyond descriptive trends, even if this bibliometric study offers a methodical mapping of research on central bank mandates and accountability systems. First, the consistent increase in publications over time is a reflection of growing interest in central bank mandates among academics and policymakers, especially in relation to unconventional monetary policy and post-financial crisis changes. Publication increases by itself, however, should not be seen as proof of theoretical maturity. The prevalence of recurrent themes like price stability, monetary policy credibility, and central bank independence points to a heavy reliance on well-established paradigms with very little conceptual innovation. This suggests that while the literature is still theoretically path-dependent, it may be growing numerically.

Second, a concentration of impact among a very limited number of foundational books and writers is revealed by citation analysis. This focus highlights the fundamental significance of traditional views on responsibility and independence, but it also raises the possibility of intellectual rigidity in the subject. Research agendas are still shaped by highly cited studies, which might limit the creation of alternative accountability frameworks, especially those that take into consideration institutional diversity, political economy, or viewpoints from emerging and developing economies.

Third, country and institutional analysis reveals that research from advanced economies is heavily predominant. The generalizability of current conclusions concerning central bank mandates and responsibility is called into question by this regional mismatch. The literature underrepresents the significant regional disparities in institutional structures, legal frameworks, and political settings. Therefore, rather than being generally applicable governance solutions, accountability mechanisms that have been defined as "best practices" may represent norms peculiar to a given environment.

From a conceptual standpoint, the bibliometric findings demonstrate that although accountability is regularly addressed, it is typically approached normatively rather than scientifically. While many studies highlight independence, openness, and reporting as desired qualities, very few empirically evaluate how these mechanisms really work or interact with fiscal authorities and democratic supervision. This disparity points to a mismatch between institutional reality and theoretical recommendations, especially in times of crisis when mandates are increased and accountability becomes more intricate.

In terms of methodology, the literature shows a significant bias for conceptual, legal, and macroeconomic techniques, with comparative institutional analysis and hybrid methods being used seldom. Although these methods have improved knowledge of legal mandates, they frequently ignore political influences, communication dynamics, and informal channels of responsibility. Furthermore, although bibliometric metrics like citation counts and keyword co-occurrence are helpful for mapping intellectual structure, they may underrepresent new or transdisciplinary contributions and strengthen established research hierarchies.

Lastly, selection bias is introduced but data quality and consistency are improved by only depending on the Scopus database. Although they are outside the purview of this research, influential policy reports, working papers, and regional journals that are not indexed in Scopus may have a big impact on discussions about central bank responsibility. Therefore, rather than providing a comprehensive account of all pertinent knowledge creation, the findings should be understood as a structured depiction of mainstream academic discourse. Overall, the critical analysis indicates that methodological uniformity, topic persistence, and intellectual concentration are characteristics of research on central bank mandates and accountability systems. In order to advance the discipline toward more context-sensitive, empirically supported, and multidisciplinary investigation, it is imperative that these constraints be addressed.

4. Conclusions

In conclusion, as these organizations broaden their duties into intricate domains like crisis management and sustainability, requiring stronger frameworks to preserve democratic legitimacy, the study of central bank accountability has grown in importance. A developing research trend since 1975 is revealed by bibliometric analysis, with important contributions from writers like De Haan Jakob and Litvack and a notable concentration of prominent work coming from the United States and Sweden. Modern literature emphasizes the crucial need to strike a balance between this autonomy and improved transparency and complex accountability mechanisms that has include legal, procedural, and political aspects while older academics placed a higher priority on operational independence to guarantee price stability. In the end, in order to maintain their effectiveness and democratic accountability, central banks' dynamic position in a world economy that is changing quickly need ongoing study and policy innovation.

This bibliometric study shows that, despite the growing amount of literature on central bank mandates and accountability mechanisms, the area is still mostly based on well-established theoretical frameworks and is dominated by research from industrialized nations. Even though current research offers insightful information on institutional design and governance principles, it frequently fails to experimentally investigate how accountability mechanisms function in various political and economic contexts. Therefore, in order to better understand the changing role of central banks in an increasingly complex policy environment, future research should shift away from normative and citation-driven impact and toward comparative, multidisciplinary, and evidence-based methods. As the results of this comprehensive bibliometric analysis from a single publication in 1975 to a predicted high of 38 publications in 2025, the bibliometric study shows that research on central bank responsibility is steadily increasing. According to the data, Sweden has the greatest average citation effect, whereas the United States is the most producing country with 92 documents. Highly recognized books like Litvack (1998) and prolific writers like Jakob De Haan are the centre of intellectual leadership. The tension between central bank independence and the "blurred boundaries" created by expanded mandates in green finance and climate risk management are two important research gaps that can be addressed by future studies using these findings to strategically

target high-impact journals like the Maastricht Journal of European and Comparative Law. Future researchers can create stronger accountability frameworks that guarantee these influential institutions maintain their democratic legitimacy as they traverse new economic frontiers by concentrating on the identified thematic clusters, which range from technological advancements like blockchain to more general global governance.

The main reason why this research couldn't generalise its findings to different settings is that it just looked at papers in the Scopus database. Consequently, future studies could benefit from using larger databases, like Google Scholar or the Web of Science, to uncover fascinating discoveries. This limitation narrows the scope of insights and may overlook influential contributions in the central bank accountability of domain published outside Scopus. Therefore, future research can expand the bibliometric mapping by incorporating multiple databases, which would allow for more holistic coverage, stronger cross-validation of findings, and broader generalizability across disciplines. This study primarily concentrated on quantitative bibliometric indicators such as publication trends, co-occurrence, co-citation, and thematic evolution. While these methods provide valuable insights into structural patterns, they do not capture deeper qualitative aspects of consumer experiences and managerial practices. Future research can adopt a mixed-method approach, using more language combining bibliometric mapping with content analysis or systematic literature reviews to offer richer theoretical and practical insights. Insufficient attention to new technologies, the study notes that the influence of emerging technologies, such as interdisciplinary megatrends smart things and blockchain, has not been sufficiently discussed in previous studies. Even if "central bank accountability" is the best term for the study, the more comprehensive and up-to-date ideas might not be well covered or thoroughly examined. Thus, future research should extend the bibliometric horizon by incorporating foresight analysis, trend forecasting, and scenario planning to anticipate emerging research avenues and practical challenges in the central bank accountability ecosystem.

Acknowledgement

This research was not funded by any grant

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