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# History of behavioral accounting research (1960–2023): a bibliometric analysis

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Riccardo Camilli, Alessandro Mechelli and Lorenzo Coronella

Department of Management and Law,

University of Rome "Tor Vergata", Rome, Italy

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#### Abstract

**Purpose** – This study aims to examine the over 60-year evolution of behavioral accounting research (BAR), with the main aim of critically and accurately tracing its past, present and future.

**Design/methodology/approach** — This study used Scopus and Google Scholar databases to collect 2,263 articles of BAR published on relevant accounting journals. Thus, this study used Bibliometrix to provide a temporal overview of articles and a temporally oriented network co-occurrence analysis of BAR topics.

**Findings** – This study retraces the history of BAR since its origins and, also on the basis of triggering events inside (e.g. Nobel Prizes for behavioral economics studies) and outside (e.g. accounting scandals) the academic debate, this study critically discusses the evolution and interconnections of BAR topics. Then, future research is addressed toward main promising avenues, thus integrating recent technological applications into the behavioral accounting experimental designs to improve their external validity, exploring the potential positive effects of professionals' heuristics in performing accounting tasks under certain environmental conditions, exploiting behavioral accounting frameworks to analyze and improve sustainability reporting and sustainability performance management.

**Originality/value** — Although BAR is rich of contributions, including subfields and contaminations, it lacks a holistic evaluation of its origins, development and future perspectives. In this vein, to the best of the authors' knowledge, this is the first study to use a bibliometric analysis to evaluate the evolution of BAR.

**Keywords** Behavioral accounting research, Behavioral accounting, Accounting history, Bibliometric analysis

Paper type Literature review

#### 1. Introduction

Over the years, traditional paradigms of accounting have gradually expanded to incorporate behavioral aspects, acknowledging the pivotal role of human behavior in shaping accounting practices (Hofstedt and Kinard, 1970). Behavioral accounting represents an interdisciplinary domain that merges psychology, sociology and economics with accounting principles, marking a significant departure from conventional accounting theories (Birnberg, 2011). The incorporation of behavioral insights has indeed enriched traditional accounting theories, shedding light on how individual and organizational behaviors influence accounting phenomena, such as financial reporting (McEwen and Jeanne Welsh, 2001), audit quality



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Journal of Management History Emerald Publishing Limited 1751-1348 DOI 10.1108/JMH-04-2024-0053 (Herda *et al.*, 2019) and managerial accounting processes (Wibbeke and Lachmann, 2020). As a result, this interdisciplinary approach has not only expanded the theoretical foundations of accounting but has also improved its practical implications in various business settings (Birnberg and Shields, 1989). A notable example is the role of accounting budgets, which have been regularly investigated over the years in relation to the behavioral balances among all corporate actors (e.g. stakeholders, employees and managers) (Hartmann, 2017, p. 501).

The rise of behavioral accounting research (BAR), during the crisis of classical and neoclassical economics, can be attributed to its ability to bridge the gap between traditional accounting theories and real-world practices by acknowledging the inherent cognitive limitations and biases in decision-making (Libby, 1981). Over time, researchers have enriched the field by incorporating other aspects of human behavior, such as professionals' emotions (Kwok and Sharp, 1998). More recently, the research methods, mainly empirical, have become more sophisticated. For example, eye-tracking has been used to evaluate professionals' attention when analyzing accounting information (Chen *et al.*, 2016), and functional magnetic resonance imaging has been used to evaluate their emotional reactions (Farrell *et al.*, 2014). Recently, BAR studies (e.g. Repenning *et al.*, 2022) are beginning to explore the expanding role of artificial intelligence (AI) in accounting behaviors by focusing on its effects, such as revolutionizing professionals' time, costs and the accuracy of accounting practices. In sum, the evolution of BAR is characterized by a rich historical tapestry that intersects empirical findings about human behavior, accounting practices and technologies supporting both accounting researchers and professionals.

Given these premises on the breadth and complexity of the field, we aim to respond to the call presented in relevant contributions (e.g. Andiola *et al.*, 2017, p. 473) to advance behavioral accounting literature by reviewing and connecting existing research in the field. Apart from outdated reviews examining BAR from various perspectives – such as personal (e.g. Shields, 2009), methodological (e.g. Kwok and Sharp, 1998), editorial (Williams *et al.*, 2006) and subfield-specific (e.g. Basel and Dalla Via, 2014; Trotman *et al.*, 2011) – to the best of our knowledge, no historically-oriented literature reviews of BAR as a unique field have been published at an authoritative level. A historically-oriented literature review would be especially able to (i) unveil the roots of BAR, which started in the 1960s with earlier approaches that marked the field's development, (ii) trace the evolution of various BAR contributions, subfields and cross-disciplinary influences, which collectively define the research field's complexity and breadth, (iii) comment on BAR's evolution in light of historically disruptive events to highlight the challenges behavioral accounting has faced and those it has not, and (iv) guide future BAR research development towards truly original and relevant objectives, thus avoiding duplication and/or trivialities of interdisciplinary research.

To pursue these aims, we used a bibliometric analysis to accurately and comprehensively unveil the intricate historical trajectory of BAR. Similar to previous historically oriented contributions to accounting and management literature (e.g. Ratzinger-Sakel and Tiedemann, 2022; Singh and Pathak, 2023), our assessment required collecting and processing large data sets of scholarly works beyond human capacity and offering historically-oriented visualizations of processed data. We searched for relevant behavioral accounting articles, identifying 2,263 items. We then analyzed the articles using *Bibliometrix* (Aria and Cuccurullo, 2017), an R-tool for science mapping analysis already used in notable bibliometric analyses with a historical orientation within the accounting domain (e.g. Linnenluecke *et al.*, 2020).

Using *Bibliometrix*, we provide a temporal overview of the 2,263 articles, highlighting a growing trend in publications over the years driven by critical events, such as the foundation of the *Behavioral Research in Accounting* journal, the awarding of Nobel Prizes to behavioral economists, and the advent of new technologies for conducting empirical research. Our analysis

also includes a temporally oriented network co-occurrence analysis of BAR topics divided into five clusters. Based on triggering events within (e.g. Nobel Prizes for behavioral economics) and outside (e.g. financial and accounting scandals, normative interventions in accounting and auditing) the academic debate, we critically discuss the evolution and interconnections of BAR topics over more than 60 years of history. BAR studies have targeted a broad range of accounting practices, though researchers have mostly focused on budgeting, performance evaluation and especially auditing. These studies have examined various factors, including psychological, cognitive, social, cultural, ethical and emotional influences.

Our findings hold significant implications for accounting research. First, unlike previous literature reviews, our bibliometric analysis provides a large spatiotemporal perspective on the behavioral accounting literature, highlighting both consolidated topics and those with more potential for future research. By examining thematic interconnections, academics can explore the broader context of BAR and identify potential links between seemingly unrelated areas. Finally, the historical orientation of our analysis offers insights into BAR's evolution through key events both within and outside the research field.

# 2. Methodology

To unveil the complex historical course of BAR, our methodological approach is based on a rigorous procedure for selecting BAR articles and conducting a bibliometric analysis. More specifically, our methodology combines a literature review approach with the power and accuracy of bibliometric analysis to unravel the evolution of BAR. Indeed, bibliometric analysis has already proven to be a powerful tool for charting the evolution of fields within accounting and management research, tracing historical trajectories and predicting future trends (e.g. Baker *et al.*, 2023; Behrend and Eulerich, 2019; Cepêda *et al.*, 2022; Rautela, 2024). The research design outlines a methodology defined in the three steps below.

#### 2.1 Keywords selection

To identify the pivotal keywords that capture the evolving landscape of BAR, we drew from three sources. First, we used the name of the research field (i.e. BAR), then declined in other possible forms with which it could have been reported as keywords in the contributions (Andiola *et al.*, 2017). Second, we extracted keywords from the Libby and Thorne's (2018, p. 3) definition of BAR, namely "evaluation of people's behaviors, judgments, decisions, cognitive and psychological responses when creating, reporting, and/or responding to accounting data." Third, we used the keywords mentioned in reviews of main BAR subfields, i.e. Tank and Farrell (2022) investigate the state of neuroaccounting, Repenning *et al.* (2022) explain the role of emotions, Shanteau (1989) recaps on heuristics and cognitive biases and Trotman *et al.* (2011) on judgment and decision-making.

Therefore, the keywords used are the following: "behavioral accounting," "behavioral research in accounting," "behavioral accounting research," "behavioural accounting," "behavioural research in accounting," "behavioural accounting research," behavioural, behavioral, "judgment and decision-making," cognitive, psycho\*, emotion\*, heuristic\*, neuro\*. Such keywords selection substantiates a comprehensive approach that integrates foundational and contemporary contributions of BAR and its subfields, thus proving a unique temporal and thematic coverage of the articles selected with respect to the other dated and/or specialized reviews. In this initial phase, the approach prioritizes comprehensiveness to establish the groundwork for a comprehensive historical analysis of the entire BAR research field (Hardies *et al.*, 2024).

#### 2.2 Articles' selection

Armed with keywords above, we searched for articles on Scopus and Google Scholar, precisely those articles and review articles written in English and published by relevant accounting journals (i.e. among those listed in the Academic Journal Guide 2021) from 1960 until 2023. At the end of the identification phase described above, 2,263 articles were considered.

The main database selected for paper collection was Scopus due to its extensive coverage of papers and peer-reviewed journals, making it the preferred choice for literature reviews on such topics (e.g. Grossi *et al.*, 2020). The use of a second database, Google Scholar, was necessary to integrate some of the articles published further back in time into the final sample. In fact, using Scopus alone would have led to the omission of some older but fundamental articles for the evolution of BAR (e.g. Devine, 1960; Hofstedt and Kinard, 1970).

Considering only the articles and reviews published in relevant accounting journals is consistent with other authoritative literature reviews within the field. The accounting literature addresses accounting phenomena, and its analysis is instrumental in understanding how behavioral theories and variables, which originate from other disciplines, have been integrated to develop BAR (Repenning *et al.*, 2022; Tank and Farrell, 2022). The decision to limit the selection to articles published in journals listed in the Academic Journal Guide 2021, without discriminating based on ranks, was made to maintain a convenient trade-off between the breadth and relevance of the literature analyzed (Hiebl, 2023).

The time range for the articles search was set from 1960 as it is the year in which it was firstly and clearly stated that the study of behavioral relations was a feasible area for accounting research (Devine, 1960, p. 387). Although there were attempts prior to 1960 to integrate accounting practices with behavioral variables, none before the 1960 was published in a specialized accounting journal, thus witnessing how behavioral research had not yet taken root in the accounting discipline. To strengthen the choice of 1960 as the starting year of the BAR, we point out that Trotman *et al.* (2011, p. 282) identified Stedry's (1960) book as a "strong candidate" for the inception of behavioral accounting.

#### 2.3 Bibliometric analysis

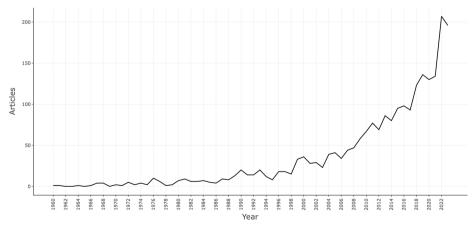
We analyzed our final selection of 2,263 articles using *Bibliometrix*. *Bibliometrix*, an R-tool for science mapping analysis developed by Aria and Cuccurullo (2017), has emerged as the most appropriate tool for our bibliometric analysis. Its suitability primarily stems from the nearly systematic options it provides for customizing graphical outputs from a temporal perspective, as evidenced by its use in pertinent bibliometric analyses to unveil historical evolutions of phenomena within the accounting and management domains (e.g. Linnenluecke et al., 2020; Rautela, 2024). In the case of BAR, a bibliometric approach enhances the capacity to analyze such a comprehensive field of research regardless of its vast scope. Specifically, *Bibliometrix* identified the number of articles published over the years and conducted a temporally oriented network co-occurrence analysis of BAR topics. Cooccurrence network analysis has been used in relevant studies to reveal space-time patterns of accounting phenomena (e.g., Özmen Uysal, 2010) and can trace valuable research trajectories when links between mature and emerging topics arise (Uyar et al., 2020). By interpreting the graphical output of the temporally oriented network co-occurrence analysis, we were able to elucidate the evolution and interconnections of BAR topics and critically discuss this evolution in relation to significant events in both research and real-world history.

# 3. Past, present and future of BAR

# 3.1 A Temporal overview

In this subsection, we provide a temporal overview concerning the 2,263 articles analyzed through *Bibliometrix*. Figure 1 generally shows how the interest in behavioral accounting, measured through the number of published articles, has increased over the years.

An initial phase, concerning the first thirty years, is characterized by a relatively low volume of publications, exhibiting a slow and steady growth pattern. This can be attributed to the nascent nature of behavioral accounting as a field of study during this era. Indeed, in those years, the theoretical and methodological assumptions of BAR were mainly sought to effectively understand the feasibility of the analyses (Devine, 1960), the usefulness of its practical and theoretical implications (Caplan, 1966) and possible definitions of the field (e.g. Becker, 1967; Hofstedt and Kinard, 1970). Since early 1990s, it follows a much more pronounced acceleration. This was not surprising as in 1989, the Accounting, Behavior and Organizations (ABO), a section of the American Accounting Association (AAA), founded the Behavioral Research in Accounting (BRIA) to provide the accounting profession and society with behavioral and organizational constructions related to accounting (Meyer and Rigsby, 2001). An even more rapid escalation in publication volume is evident since the end of 2010s. This rising interest can be attributed to a range of factors, such as the adoption of technological tools (e.g. internet-based platforms) to conduct empirical analyses on accounting information drafters and receivers' interactions (Sutton, 2010), or the long trail of enthusiasm generated by the awarding of first Nobel Prizes to two psychologists for their studies in behavioral economics (i.e. Daniel Kahneman and Vernon Smith in 2002). A final rise in number of publications is evident for the last two years. Even this surge was sustained by the widespread adoption of technological tools for investigations as well as by the awarding of Nobel Prize for behavioral economics studies (i.e. Richard Thaler in 2017), but it also seems driven by the interest in the issues of auditing and accountability started years later (Trotman et al., 2011). In a unique view, the graph unequivocally demonstrates that BAR has established itself as a rapidly expanding field of study. The unwavering growth in



Source: Created by authors

Figure 1. Behavioral accounting articles published over the years

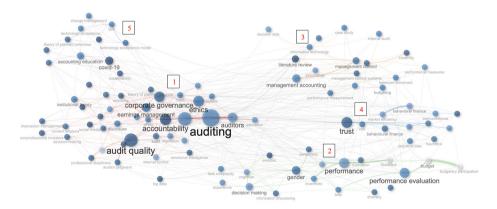
publications underscores the burgeoning interest in this domain among researchers and practitioners alike, thus may persist in the foreseeable future.

## 3.2 Evolution and interconnections of BAR topics

In this subsection, the authors analyze the topics investigated by the BAR over the years. We employed a temporally oriented network co-occurrence analysis of topics treated in the 2,263 articles reviewed, getting the graphical output reported in Figure 2. Following the temporal order of the topics given by the network co-occurrence analysis, and considering topics clustering, we critically discuss the evolution and interconnections of BAR topics in the light of triggering events, both inside and outside the academic debate.

Under a technical point of view, co-occurrence network refers to the relationship between articles based on their shared authors' keywords (Liu and Mei, 2016; Lozano et al., 2019). The size of the dots depends on the number of articles published including a specific keyword (i.e. the bigger dots represent the authors' keywords most used in articles, while the smaller dots represent the authors' keywords least used in articles). Links represent the articles reporting the authors' keywords connected (i.e. the link and proximity between two dots are strong whether the two authors' keywords appear in many articles), indicating a thematic connection between them. The colors of the links indicate the cluster the dots belong to (i.e. red links connect dots of cluster 1, green links connect dots of cluster 2, orange links connect dots of cluster 3, blue links connect dots of cluster 4, violet links connect dots of cluster 5). The colors of the dots give the temporal dimension on the use of the authors' keywords, indicating the maturity stage of certain topics (i.e. the darkest dots represent the most recently cited authors' keywords while the lightest dots represent the least recently cited authors keywords).

In 1952, Chris Argyris published *The Impact of Budgets on People* and, in 1953, *Human Problems with Budgets*, marking early efforts to explore the interaction between behavioral factors (e.g. motivation, participation and leadership) and budgeting. However, these works did not offer a systematic perspective on behavioral research or accounting phenomena, resulting in a period of limited development. The 1960s, known as the "decade of awakening" for BAR (Dyckman and Zeff, 1984, p. 233), saw foundational studies by Devine (1960) and Stedry



Source: Created by authors

Figure 2. Temporally oriented co-occurrence network of BAR topics

(1960), which recognized the influence of behavioral factors on accounting practices. These studies laid the groundwork for the field, culminating in Caplan's (1966) seminal work, "Behavioral Assumptions of Management Accounting," which contrasted traditional management accounting theories with contemporary organizational theory. In 1967, Becker coined the term "behavioral accounting," which emphasized using behavioral science to understand the connection between accounting data and human behavior.

The 1970s began with a pivotal contribution by Hofstedt and Kinard (1970), who called for a strategic framework for BAR and defined it as "the study of the behavior of accountants or non-accountants as influenced by accounting functions and reports." This period saw a growing interest in the behavior of professionals through the lens of emerging social and cognitive theories, particularly the "Behavioral Theory of the Firm" by Richard Cyert and James March, which offered a realistic view of business operations, highlighting cognitive limitations, goal variety, internal conflicts and continuous learning. Guided by this theory, early BAR focused on budgeting, with seminal works like Hopwood (1972) examining the impact of budgets on behavior, marking the first critical mass of studies in the field (Hartmann, 2017, p. 501). Key research explored interactions between budgets and organizational behavior, such as budgetary participation (Milani, 1975) and performance evaluation (Otley, 1978). Sorensen and Franks (1972) uniquely linked behavior, budget estimates and performance evaluation, suggesting that supportive feedback could positively influence performance, though individuals' self-esteem and ability could lead to unrealistic budget estimates.

BAR gained institutional recognition with the establishment of the ABO section by the AAA in 1981, which subsequently decided to publish the dedicated journal Behavioral Research in Accounting. However, this period posed challenges as many major research universities diverted focus from BAR, driven by the prevailing enthusiasm for efficient markets, rationality and equilibrium theories. Conversely, this era also offered significant opportunities. The rise of behavioral economics opened avenues to explore issues related to bounded rationality and market imperfections, areas where behavioral research is particularly well-positioned (Shields, 2009). Indeed, as indicated within Cluster 4, accounting researchers began to consider, albeit belatedly, the pioneering work of Tversky and Kahneman (1973, 1974), which forms the foundation of the heuristics and biases program. Auditing and financial accounting literature particularly considered professionals' heuristics and biases in this period, such as overconfidence in a variety of accounting settings (e.g. Casey and Selling, 1986), while representativeness and base-rate fallacy concentrated in audit judgment (e.g. Joyce and Biddle, 1981) and bankruptcy prediction (e.g., Johnson, 1983). Thus, in general, researchers increasingly recognized that professionals operate within the bounds of rationality, a realization that has profound implications for both information search and information processing (Trotman et al., 2011, p. 329). Consequently, the emergence of behavioral economics, followed by behavioral finance, inspired and reinforced the value of BAR, contributing to make it a "mature and accepted accounting research area" (Lord, 1989, p. 139).

In the 1990s, the BAR concentrated its efforts on examining the quality of accounting practices performed by professionals, with an emphasis on cognitive capacities to acquire and apply their expertise in differentiated judgment and decision-making settings (Libby and Luft, 1993), making this decade the "era of expertise" (Kotchetova and Salterio, 2004). In this vein, Bamber (1993) defined the expert as "a successful decision maker" and expertise as "comprising general problem-solving ability and domain-specific knowledge" (Bamber, 1993, p. 17). As visible from dots and edges between Cluster 1 and 2, the role of experience in task complexity was discussed in performance information processing and auditing literature. The latter demonstrated that superior auditing performance is linked to specific

expertise, rather than general experience alone. Indeed, Bonner (1990) highlighted issues in earlier research that failed to find experience effects, noting that many studies used tasks suitable for both experienced and inexperienced participants, thus not expecting an experience effect. In addition, tasks often lacked elements like cue selection were knowledge aids performance. In this vein, Bonner and Lewis (1990) examined the relationship between components of audit knowledge and performance across various tasks, emphasizing the importance of task-specific experience and training.

Throughout the 2000s, the interest on BAR, as on other behavioral economic fields, has been sustained also by the awarding of first Nobel Prizes to two psychologists for their leading studies in behavioral economics (i.e. Daniel Kahneman and Vernon Smith in 2002). Indeed, it undoubtedly contributed to create the fertile ground for cross-fertilization among social sciences and other disciplines. For instance, referring to management accounting, Luft and Shields (2002, p. 795) argue that "social sciences offer more potential to explain important features of management accounting such as understanding people's preferences. how they think, how they interact with other people and the process of change." In fact, BAR grew within management accounting in this decade, grounding on performance measurement and, as indicated by dots and edges roughly at the top right in Figure 2, on a particular tool: the Balanced Scorecard (BSC) (Trotman et al., 2011, p. 333). The great legacy has been to highlight a contradiction between theoretical development and application of the BSC in the light of cognitive phenomena. In fact, the BSC, originally wanted to disaggregate performance measures to better translate strategic objectives, seemed unable to prevent managers from prioritizing the most common measures over the specific ones (Lipe and Salterio, 2000). This contradiction has been so important that it has led to the naming of a dedicated bias: the "common measures bias."

The interdisciplinary approach also extended in the field of auditing which, especially in the 2000s, was characterized by relevant regulatory interventions (e.g. Sarbanes-Oxley Act in 2002) fueled by the dilemma of the conflict of interest between auditors and clients (Trotman et al., 2011). Indeed, roughly at the mid-left in Figure 2, these are visible linked dots concerning audit and regulation. The excerpts from the underlying studies provide a comprehensive examination of the challenges faced by auditors in maintaining independence and objectivity amidst various external pressures and evolving regulatory environments. Some underscore the persistent challenges in maintaining auditor independence and objectivity, while Kadous et al. (2003) highlight the specific influence of directional goals and the potential counterproductive effects of certain regulatory measures (e.g. SAS No. 90), Windsor and Warming-Rasmussen (2009) provide a broader historical and socio-economic context, linking the decline in independence to the rise of regulatory capitalism (focusing on Sarbanes-Oxley Act and the PCAOB) and its effects on the profession. Others investigate cognitive biases at the base of the auditor-client conflict and the mechanisms to mitigate these distortions. In this sense, a stream of audit literature supported the impossibility of intentional or unintentional auditors' independence (Bazerman *et al.*, 2006), while another looked to be more trustful (King, 2002).

The accounting and financial scandals of the 2000s (e.g. Enron collapse in 2001, Global Financial Crisis in 2008) influenced the BAR of the 2010s, signing the growth of the corporate governance literature with main interests on corporate boards and audit committees (Carcello *et al.*, 2011). In particular, accounting research has investigated the topic of corporate governance in relation to earnings management and fraud (Cluster 1), and with the aim of reducing the intensity and frequency of incorrect practices by leveraging behavioral factors such as ethics and culture. Pointing to a more ethical and transparent economic system, Leventis and Dimitropoulos (2012) find that banks with effective corporate governance mechanisms are less likely to report marginally positive earnings,

indicating reduced engagement in aggressive earnings management. This includes less manipulation through discretionary loan loss provisions and realized security gains and losses. Thus, Leventis and Dimitropoulos (2012) suggest that strong corporate governance should be reinforced by regulatory bodies, and their ethical responsibilities, to improve transparency and information quality, in the interest of investor decision-making. Instead, Elghuweel et al.'s (2017) research supports that companies that integrate (Islamic) religious values also show lower levels of earnings management while, interestingly, no significant relationship between earnings management and certain governance features like board size, audit firm size and board gender diversity exist. Cheng et al. (2016) introduce the concept of internal governance, emphasizing the role of subordinate executives in mitigating earnings management, and, in this light, suggesting that the effectiveness of internal governance in reducing earnings management is more pronounced in firms with complex operations and less powerful CEOs, particularly after the Sarbanes-Oxley Act implementation. From 2010s, the behavioral variables and frameworks have also been exploited to explained and guide the adoption, at a corporate level, of technologies to perform accounting practices (Cluster 5). Indeed, technology acceptance model (TAM) focuses on perceived ease of use and usefulness, highlighting user attitudes towards technology, while theory of planned behavior (TPB) emphasizes behavioral intentions shaped by attitudes, subjective norms and perceived behavioral control. In practice, integrating the TAM with the TPB confirmed that positive behavioral intentions and conditions facilitated the use of new technologies within the corporate accounting practices (Alleyne and Lavine, 2013).

After 2020, also due to the rise in the number of publications within the whole research field, several new topics are emerging. For instance, as visible between Cluster 1 and 2, the use of big data seems to be somehow relevant for the complexity of different accounting tasks. In this vein, it is interesting to notice how Holt and Loraas (2021), basing on cognitive load theory, studied the effects of information structure on auditor judgment and decision-making, observing that the variety of evidence inspired by big data likely leads to increased perceptions of ambiguity. These findings leave the field open for studies that deepen the efficiency and effectiveness of the use of big data in the accounting professions and, hopefully, increase them. Moreover, it looks interesting the link between affect and emotions with accountability (Cluster 1). Indeed, despite accountability has been seriously investigated in recent times, it is rooted in auditing traditions, while affect and emotions occur as truly behavioral topics. In this sense, it is recently studied both the role of emotions in shaping accountability (e.g. Giovannoni et al., 2023) as well as the role of accountability in controlling emotions (Fehrenbacher et al., 2020). All this knowledge in construction could next inform the design of accountability systems that evoke certain emotional responses that, in turn, takes to the desired professional output. In general, the emotions look to be a promising issue that future BAR could study under several lenses, such as generating or following well-studied cognitive biases, or interacting with AI applications, as already investigated in other scientific domains (Repenning et al., 2022). Finally, within Cluster 4, it is shown a significant focus on a new behavioral factor: trust. This is in fact a topic that unites the disciplines of behavioral accounting and finance, since it is mainly studied if and how investors place it in financial reporting estimates (Goh et al., 2021) and audit process (Festa et al., 2023). In this sense, even more future lines of research could investigate how trust, already put into the debate of the relationship between human and AI in the accounting professions (Leitner-Hanetseder, et al., 2021), can vary in stakeholders as the use of AI in drafting and reviewing the financial reports addressed to them varies.

### 4. Concluding remarks

BAR has its roots in the 1950s, when Argyris started investigating the effects of budgeting and control on human behavior, but officially rising in the 1960s with focused seminal works by Devine, Caplan and Becker. In these crucial years, the accounting scholars started recognizing the bounded rationality of professionals thus acknowledging its significance within accounting information search and processing. As a consequence, behavioral accounting researchers incorporated the pioneering insights of Tversky and Kahnemans' seminal works (1973, 1974) to dissect the role of cognitive distortions on accounting judgments and decisions. The late 1980s marked a definitive upswing, driven by the founding of *BRIA*, that continues so far through the evolution of topics and methodologies.

Building upon our historical analysis of BAR, we propose key directions for future studies that align with contemporary challenges and opportunities in the field. By interpreting the relationships between established and emerging topics, we identify underexplored areas ripe for investigation. Our recommendations aim to bridge gaps in existing literature, guiding researchers towards innovative paths that enrich the understanding of behavioral influences in accounting. Below, we outline specific avenues for future exploration, emphasizing the integration of technological applications in experimental designs, the nuanced role of heuristics in decision-making and the incorporation of sustainability considerations in BAR.

# *4.1 Suggestions for future BAR*

The temporally oriented analyses of BAR topics substantiate our suggestions for future research. In particular, we exploit our knowledge of the research field to (i) interpret the links between mature and emerging topics and (ii) identify potentially valuable topics that remained unexplored by BAR so far. Thus, the suggestions for main future research avenues are discussed below:

- Technological applications in BAR experimental designs. Future BAR should relevantly incorporate technological applications used by practitioners, in contemporary professional activities, into experimental designs. The increasing reliance on technologies such as enterprise resource planning (ERP) systems, AI and RegTech in accounting practices should guide the shift from traditional experimental settings (Estep et al., 2023). Integrating these technologies can enhance external validity, as current professional tasks are increasingly mediated by sophisticated tools. As existing BAR is recently doing with big data (e.g. Holt and Loraas, 2021), researchers should explore how other new technologies influence cognitive biases, both by introducing new forms of bias and by mitigating existing ones. For instance, examining the impact of AI-driven decision-support systems on judgment accuracy and how ERP systems streamline data management to reduce information overload biases can yield valuable insights. Aligning experimental settings with the technological landscape of modern accounting ensures findings are more applicable to real-world scenarios, advancing both theoretical understanding and practical applications in the field.
- Heuristics to improve accounting judgment and decision-making. The classical heuristics and bias research program (Kahneman and Tversky, 1996) considers heuristics (i.e. mental shortcuts in response to complex problems) as simply antecedents of cognitive biases in human reasoning. Anyway, another stream of literature recognizes that, in real-world conditions, a biased mind could make

better inferences, and that heuristics are effective cognitive mechanisms that enhance the efficiency and effectiveness of human judgment under certain environmental conditions (Gigerenzer and Brighton, 2009). The BAR has dealt little with heuristics and, when it has done so, adopted the classical heuristics and bias research program (Kahneman and Tversky, 1996) thus focusing on the biasing effect of heuristics (e.g. Joyce and Biddle, 1981). Thus, there is much room to understand which conditions (e.g. time, resources and targets) can change, from negative to positive, the output of certain judgments and decisions in accounting tasks (e.g. audit judgment, investment evaluation and cost allocation). This goal is even more within reach if one decides to replicate experiments already conducted on heuristics in accounting judgment and decision-making and that, under the given conditions, have led to suboptimal results.

Sustainability in behavioral accounting research. Despite BAR offer valuable frameworks for exploring the personal factors that influence organizations' sustainability performance and reporting, sustainability has been barely integrated into behavioral accounting studies analyzed (e.g. Gödker and Mertins, 2018). There is a need for more research on both the potential behavioral drivers behind the sustainability performance measurement systems and the behavioral consequences of using these systems. Indeed, understanding how individuals perceive and respond to sustainability metrics is crucial for designing effective management control systems (Cristofaro et al., 2023). In the realm of sustainability reporting, future research area includes examining how cognitive biases affect managerial decision-making in sustainability disclosures, understanding stakeholders' judgments of sustainability information and investigating the impact of arising regulations (e.g. European Sustainability Reporting Standards) on perceived managerial accountability. In addition, exploring the role of technologies and AI applications in accuracy and accountability of sustainability reporting could be relevant for the future advancement of the field.

# 4.2 Practical and theoretical implications

The findings of our analysis reveal significant practical implications. First, the insights gained from the analysis can guide accounting professionals in understanding the key human variables (e.g. cognitive biases and emotions) that affect professional judgments and decisions (e.g. auditing judgments and performance evaluations) and the use of accounting tools (e.g. budgets, balanced scorecards). This knowledge can generally increase professional sensitivity to these issues and, more specifically, highlight the need for corrective actions. These may include the development of training programs, adoption of technological solutions at the corporate level or formulation of decision aids to mitigate adverse effects and enhance the accuracy of accounting judgments and decisions. Second, from a longer-term perspective, our findings underscore the importance of integrating behavioral insights into accounting curricula. Educational institutions could incorporate behavioral factors into traditional accounting courses, perhaps starting with those insights derived from over 60 years of research (e.g. the widespread influence of cognitive biases, the reciprocal influence between budgeting and stakeholders). This approach would allow for the creation of more comprehensive and professionally grounded curricula, thus preparing students to understand and manage behavioral factors in real-world accounting scenarios, ultimately leading to a more skilled accounting workforce.

Overall, our bibliometric analysis of the behavioral accounting literature offers theoretical implications for the gap identified by Andiola et al. (2017, p. 473), who, highlighting the breadth and complexity of BAR, advocate for literature reviews to synthesize and connect topics. In this regard, our bibliometric analysis, which focuses on topics through cooccurrence network analysis rather than just descriptive statistics, extends analytical capabilities in recounting past progress and guiding future advancements in the behavioral accounting literature. Although our bibliometric approach has some well-known limitations, such as reduced depth in qualitative observation of specific topics (Donthu et al., 2021), it covers the entire temporal and spatial span of BAR activity. Moreover, our historical analysis of BAR aims to offer a renewed evolutionary perspective on its relevance. Williams et al. (2006, p. 783) assert that BAR has diminished in prominence as a leading paradigm, with even accounting and financial scandals failing to challenge the perceived superiority of static and formula-based economic models over the behavioral approach to accounting. In this context, our analysis seeks to shift this prevailing sentiment by uncovering the rich history of BAR, valuing the allure and depth of behavioral analysis in accounting, and demonstrating its potential impact. Ultimately, our work aims to enhance the theoretical perception of behavioral accounting, advocating for its growing integration into traditional economic models.

## *4.3 Limitations of this study*

A first limitation of our analysis may be the underestimation of interdisciplinary influences on BAR. Behavioral accounting is influenced by various disciplines (e.g. psychology, sociology and medicine), so our bibliometric analysis, which is confined to accounting articles, may not fully integrate these external influences. Therefore, considering and integrating interdisciplinary influences throughout the history of BAR represents a critical and ambitious challenge for future accounting research. In this regard, the history of BAR as reported in this article can serve as a framework to incorporate these influences. A second limitation is the gap, due to the constraints of space within a paper, between the topics presented in the graphical output of the co-occurrence analysis (Figure 2) and the amount and depth of discussion. However, future researchers might find valuable ideas for further research by interpreting the graphical output. A third limitation concerns the selection of articles. Although the selection was based on an inclusive approach to keywords, some relevant articles may have been omitted. Generally, the bibliometric approach applied to large data sets is also intended to mitigate this type of methodological issue.

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## **Corresponding author**

Riccardo Camilli can be contacted at: riccardo.camilli@uniroma2.it