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UNDERSTANDING THE EVOLUTION OF CONSUMER BEHAVIOUR RESEARCH DURING THE COVID-19 PANDEMIC: A BIBLIOMETRIC ANALYSIS¹

Summary

Purpose | This article aims to examine the current state of research on consumer behaviour during the COVID-19 pandemic through bibliometric analysis and a critical review of the literature. By identifying key thematic clusters, emerging trends, and research gaps, the study aims to evaluate the scope of knowledge in this area.

Research method | In this paper, bibliometric analysis was used as a research method, supplemented by content analysis of literature selected from the Scopus database. The authors also carried out a keyword co-occurrence analysis using VOSviewer software.

Results | The bibliometric analysis revealed that most publications on consumer behaviour during the COVID-19 pandemic concerned the hospitality sector. Five clusters were identified: (1) Digital consumption and trade, (2) Consumer attitudes and risk

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perceptions, (3) Buying behaviour, risk perceptions, and technology, (4) Protective motivation, and (5) Short-term rental. Research topics evolved from social distancing and health concerns to e-commerce and digital technologies.

[Originality/value/implications/recommendations](#) | Publications on consumer behaviour during the coronavirus pandemic continually emerge, necessitating knowledge updates. Understanding the latest trends aids future research and business practices in crises.

Keywords: consumer behaviour, COVID-19, pandemic, bibliometric analysis

JEL classification: M30, M31, M20

1. Introduction

To gain a competitive edge in a highly competitive market, businesses must develop a deep understanding of consumer needs and expectations. Insights into consumer behaviour should inform strategic decisions and drive innovation in marketing efforts [Mazurek-Łopacińska, 2003, p. 11]. The COVID-19 pandemic crisis has led to rapid shifts in consumer behaviour, prompting businesses to adapt swiftly in response [Tudoran et al., 2024, p. 1]. The coronavirus pandemic affected the collapse of global supply chains [Verbeke, 2020, pp. 444–445], with consumers facing shortages of many products [Pantano et al., 2020, p. 210]. The introduced lockdowns and restrictions led consumers to feel socially excluded, but at the same time, they had a positive attitude towards online shopping [Papagiannidis et al., 2023, p. 684]. The COVID-19 pandemic has impacted numerous sectors, from tourism [Ju, Jang, 2023; Yu et al., 2021] and air transport [Hoffmann et al., 2023] to restaurants [T.J. Kim et al., 2021].

Numerous studies conducted during the pandemic period have shown that consumers increased their preferences towards corporate social responsibility and sustainable consumption [Blanco-González et al., 2023, pp. 5–6; Xu et al., 2024, p. 9], were more inclined to use mobile payments [Chmielarz et al., 2021, p. 1], increased their spending on groceries, health, and hygiene products [Das et al., 2022, pp. 709–710] and even embraced innovations by participating in virtual tours [El-Said, Aziz, 2022; Mastroberardino et al., 2021]. The COVID-19 pandemic also revealed a number of extraordinary and rapid

changes in consumer behaviour, such as stockpiling and panic buying [Kogan, Herbon, 2022]. As a result, prices of food and medical supplies increased worldwide, and retailers implemented rationing and price caps on products in high demand [Kogan, Herbon, 2022; Sim et al., 2020].

Since the pandemic outbreak, numerous articles have been dedicated to the issue of consumer behaviour [Cai et al., 2023; Gupta et al., 2023]. A literature review revealed that many studies were published after the WHO declared an end to the public health threat [United Nations, 2023]. This is understandable given the relatively long publication process in academic journals [Björk, Solomon, 2013]. Considering that scientific publications on consumer behaviour are regularly emerging and continually evolving, there is a need to update knowledge on the latest advancements in this area. Awareness of the latest trends in consumer behaviour research allows for a better understanding of the context in which these studies are conducted, identifies the main themes around which knowledge is concentrated, and highlights areas that remain underexplored.

This article explores the contemporary research landscape regarding consumer behaviour amid the COVID-19 pandemic. The authors examine and assess the nature of shifts in the research domains while also pinpointing the primary focal points of studies related to consumer behaviour throughout the coronavirus crisis.

2. Research methodology

In order to achieve the objectives set out in this article, we used the research method of bibliometric analysis, complemented by a content analysis of the literature. This study used VOSviewer version 1.6.18 to create and visualise the bibliometric maps. The proposed methods are widely employed in research examining the current state of studies in areas such as consumer ecological behaviour [Naini, Reddy, 2023], start-up challenges [Damayanti et al., 2023] crisis management [Haciibrahimoglu et al., 2024], sensory marketing [Antunes, Veríssimo, 2024] or multichannel retailing [Mahadevan, Joshi, 2021]. The bibliometric analysis involving several stages (see Table 1) was adapted from previous studies [Ejdys, 2016; Jadach, Pluta-Olearnik, 2023; Karakose et al., 2021].

TABLE 1
Research procedure

STAGE 1 Search and identification	Identification of the primary database of scientific articles from the Scopus database. The number of records identified in the Scopus database (n = 1062).
STAGE 2 Selection	Selection of publications indexed in the AJG-ABS database (above 3). Number of records after selection (n = 94).
STAGE 3 Data export	Exporting complete bibliometric data, including authors' information, abstracts, keywords, and citations.
STAGE 4 Bibliometric analysis	Performed bibliometric analysis and generated linkage intensity map using VOSviewer software version 1.6.18.

Source: own elaboration.

Stage 1. Searching and identifying the primary literature base

To identify the foundational records database addressing the issues discussed in this article, we employed keywords related to consumer behaviour and the COVID-19 pandemic (see Box 1). To ensure diversity in the records, we utilized synonyms for both topics and their linguistic variations (American and British English) during the search process. We included only articles written in English, excluding book chapters, conference materials, and reports. The search encompassed articles published from January 1, 2020 to July 1, 2024.

BOX 1

Search string used for the primary literature database

TITLE-ABS-KEY ("customer behavior" OR "consumer behaviour" OR "buyer behavior" OR "buyer behaviour" OR "purchasing patterns" OR "shopping habits" OR "customer decision-making" OR "consumer choices" OR "purchase motives" OR "buying factors" OR "purchase drivers" OR "shopping motivations" OR "consumer attitudes" OR "consumer attitude" OR "customer perceptions" AND ("COVID-19" OR "pandemic" OR "COVID-19 pandemic" OR "coronavirus")) AND PUBYEAR > 2019 AND PUBYEAR < 2025 AND (LIMIT-TO (PUBSTAGE, "final")) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "ECON") OR LIMIT-TO (SUBJAREA, "SOCI")) AND (LIMIT-TO (LANGUAGE, "English"))

Source: own elaboration.

As shown in the box above, the search included only fully published articles classified in the Scopus database under the categories: (1) “Business, Management and Accounting”, (2) “Social Sciences” and (3) “Economics, Econometrics and Finance”. The criteria applied align with the objectives of the article, and the search process resulted in the identification of 1,062 records.

Stage 2. Selection of the primary literature database

The next step in the research process involved selecting articles based on the Academic Journal Guide (AJG/ABS) published by the Association of Business Schools, which classifies journals in the fields of economics, business, and management [Drivas, Kremmydas, 2020]. The AJG/ABS list ranks journals from 1 to 4, with a 4* rating indicating the highest level of quality [Hussain, 2015]. Journals with higher ratings are considered to feature more original and rigorously conducted research [Drivas, Kremmydas, 2020]. The AJG/ABS list is also used to assess researchers’ accomplishments [Drivas, Kremmydas, 2020; Hussain, 2015] and the quality of publications in review articles [Pombinho et al., 2024]. This stage of selection led to the identification of a final list of 94 publications.

Stage 3. Data export

We exported comprehensive bibliometric data from the 94 identified publications, including keywords, abstracts, authors, and citations into a CSV file.

Stage 4. Bibliometric analysis

In the fourth step, we conducted a bibliometric and content analysis of the literature. First, we identified the scientific journals in which articles on consumer behaviour related to the COVID-19 pandemic appeared most frequently. We then performed keyword co-occurrence analysis and used VOSviewer software to create a map of the intensity of keyword co-occurrence among these keywords present in all 94 selected publications from the Scopus database. VOSviewer software is commonly used in review articles [Ejdys, 2016; Jadach, Pluta-Olearnik, 2023; Karakose et al., 2021; Pombinho et al., 2024]. The process of map generation included the following steps:

- Keywords that appeared at least three times in the bibliometric descriptions were extracted. This filtering of an initial set of 650 keywords resulted in 43 keywords that met the criterion. During this stage, all keywords were reviewed to identify technical or irrelevant terms not related to the discussed topic, resulting in the removal of the keyword “article”.
- A map of the co-occurrence intensity of the 42 most frequent keywords in all 94 publications selected from the Scopus database was created, focusing on consumer behaviour during the coronavirus pandemic.

3. Results and discussion

In the first stage of our bibliometric analysis, we identified the scientific journals with the highest number of publications. Table 2 lists the top 10 journals that published the most articles on consumer behaviour related to the coronavirus pandemic.

TABLE 2

Number of publications on consumer behaviour in the context of the COVID-19 pandemic in the Scopus database

No.	Journal	Publications	AJG(ABS)	SJR
1	<i>International Journal of Hospitality Management</i>	13	3	2.923
2	<i>International Journal of Contemporary Hospitality Management</i>	11	3	2.843
3	<i>Technological Forecasting and Social Change</i>	10	3	3.118
4	<i>Journal of Business Research</i>	9	3	3.128
5	<i>Journal of International Marketing</i>	3	3	2.178
6	<i>Journal of Travel Research</i>	3	4	3.408
7	<i>Marketing Science</i>	3	4*	5.643
8	<i>Social Science and Medicine</i>	3	4	1.954
9	<i>Brookings Papers on Economic Activity</i>	2	3	5.133
10	<i>European Journal of Marketing</i>	2	3	1.266

Source: own elaboration.

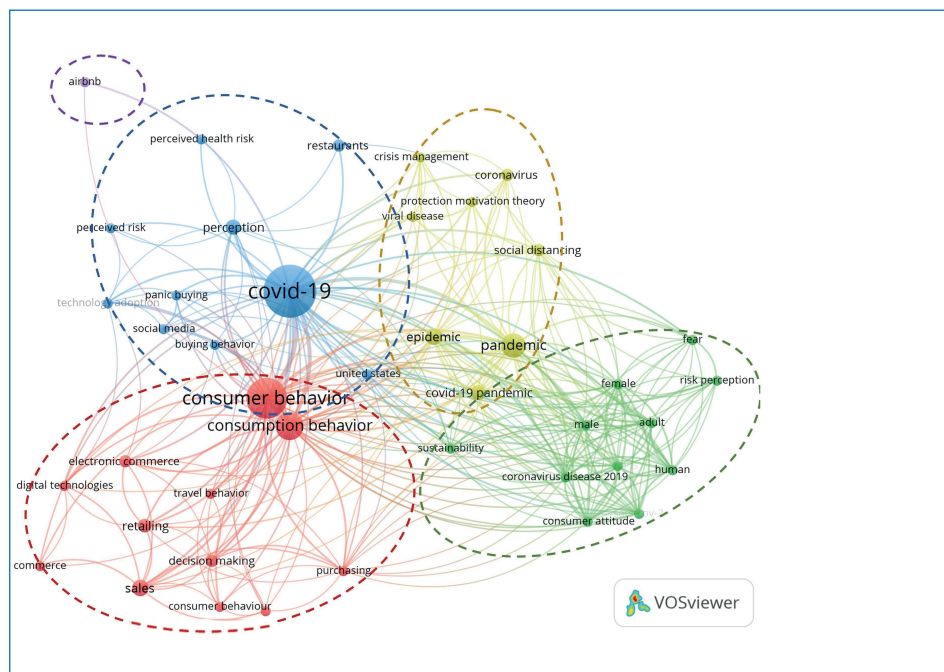
As shown in Table 2, the highest number of publications on consumer behaviour during the COVID-19 pandemic were recorded in journals related to the hospitality industry. The “International Journal of Hospitality Management” (13 publications) and the “International Journal of Contemporary Hospitality Management” (11 publications) occupy the top positions in the ranking. The coronavirus pandemic impacted the hospitality industry, which resulted in significant interest from researchers analyzing changes in consumer behaviour and the adaptation of management strategies in response to rapidly changing market conditions. It is also noteworthy that a significant number of publications were found in the journal “Technological Forecasting and Social Change” (10 publications), which is one of the most influential journals in the world, focusing on research on technology forecasting and its discussion in the context of business and management [Savin, 2023]. This suggests that research on the impact of technology on consumer behaviour was equally important. Furthermore, the thematic diversity of the journals on the list highlights the interdisciplinary nature of the research. Journals such as “Social Science and Medicine” and the “Journal of International Marketing” reflect the broad range of researchers’ interests and the complexity and multidimensionality of the issues the coronavirus pandemic has caused in the context of consumer behaviour.

Using co-occurrence analysis, we identified the main trends and research themes in consumer behaviour during the COVID-19 pandemic. Figure 1 presents a network map illustrating the intensity of connections among 42 keywords grouped into five clusters.

As shown in Figure 2, research on consumer behaviour in the context of the COVID-19 pandemic is focused on 5 main clusters. The co-occurrence analysis assumes that words that frequently appear together are thematically related [Cobo et al., 2011]. The closer two keywords are to each other, the more often they are used together in the same context. Additionally, if a keyword appears larger on the map, it is frequently used in the analysed dataset. VOSviewer uses the VOS mapping technique to generate maps, as described in detail by Van Eck and Waltman [2007]. A detailed list of all 42 keywords, grouped into 5 main clusters, is presented in Table 3, supplementing Figure 2.

FIGURE 1

Co-occurrence analysis of keywords identified in Scopus database searches



Source: own elaboration using VOSviewer.

TABLE 3

Keywords grouped into the clusters shown in Figure 1

Cluster	Color	Research area	Keywords
1	red	Digital consumption and trade	commerce; consumer behavior; consumer behaviour; consumption behavior; decision making; digital technologies; electronic commerce; mobile apps; purchasing; retailing; sales; travel behavior
2	green	Consumer attitudes and risk perceptions	adult; consumer attitude; coronavirus disease 2019; fear; female; human; humans; male; risk perception; sars-cov-2; sustainability
3	blue	Buying behaviour, risk perceptions and technology	buying behavior; covid-19; panic buying; perceived health risk; perceived risk; perception; restaurants; social media; technology adoption; united states
4	yellow	Protective motivation	coronavirus; covid-19 pandemic; crisis management; epidemic; pandemic; protection motivation theory; social distancing; viral disease
5	purple	Short-term rental	airbnb

Source: own elaboration.

As shown in Table 3 and Figure 1, research on consumer behaviour in the context of COVID-19 is concentrated in 5 main clusters. The first cluster, which we have termed “Digital consumption and trade”, focuses on the impact of technology where consumers affected by lockdowns began to utilize mobile applications for purchases increasingly and enhanced their engagement in on-line shopping [Jiang, Stylos, 2021]. Furthermore, researchers observed changes in the shopping basket, i.e. consumers prioritized the purchase of groceries online over luxury goods [Jiang, Stylos, 2021]. This cluster also includes studies dedicated to forecasting technological developments. For example, it is argued that products requiring a tactile experience, known as “Need For Touch” merit greater attention as consumers evaluate them online through visual effect [Racat et al., 2021]. The studies further reveal the profound impact of the pandemic on the adoption of remote work, online education, and e-commerce, even suggesting that the pandemic acted as a “catalyst for technological advancements” [Yao et al., 2024, p. 15].

The second cluster, “Consumer attitudes and risk perceptions”, focuses on consumer preferences and attitudes as a result of experiences (anxiety and threat) related to the pandemic’s impact on sustainable/eco-friendly consumption [Xu et al., 2024], firearm purchases and the characteristics of their buyers [Anestis et al., 2021], and perceived consumer risk and their preventive behaviours in restaurants [Sung et al., 2021]. The third cluster, “Buying behaviour, risk perceptions, and technology”, examines panic buying behaviour driven by misinformation [Ali et al., 2023] and stockpiling to improve consumer mood [Zaky et al., 2022]. This cluster also includes studies on technology adaptation, such as deliveries by autonomous vehicles [AlKheder et al., 2023], and articles on the need for digital transformation in companies [Cruz-Cárdenas et al., 2021].

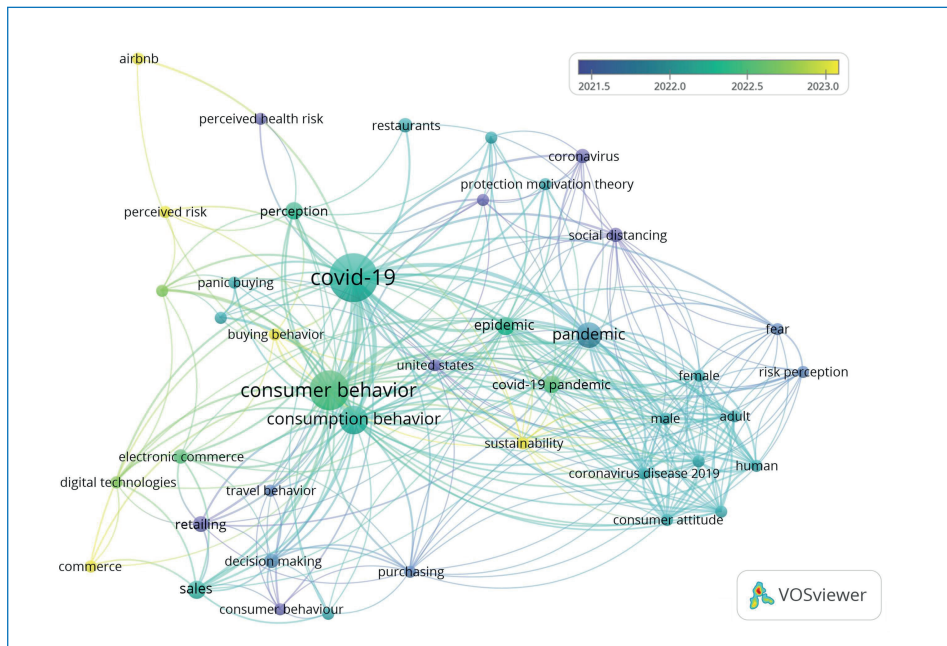
The fourth cluster is dedicated to crisis management and consumers’ protective motivations. Research in this area is concerned with the behaviour of social distance by consumers, who are more likely to take virtual tours [Itani, Hollebeek, 2021] and are more likely to go to restaurants if they ensure proper social distancing [Zhang et al., 2021]. In addition, attention has been given to crisis communication or crisis management [H. Kim et al., 2023; Litvin et al., 2022]. The last cluster concerns the issue of short-term rent, which was particularly affected during the coronavirus pandemic. On this topic, research-

ers have come to some interesting findings, including that consumers prefer whole Airbnb flats during high-risk periods [Nicolau et al., 2023], are more likely to choose premium accommodation in rural or suburban areas [Filiari et al., 2023] and that there are a number of factors influencing the choice of accommodation form (between hotels and Airbnb) [Mody et al., 2022].

In order to examine the shifts in researcher interest in different consumer behaviour topics during the COVID-19 pandemic, we developed a map (see Figure 2) using an overlay visualisation. This approach facilitates the analysis of temporal trends and allows the identification of research areas that gained or lost prominence during specific time periods.

FIGURE 2

Keyword link intensity map with overlay visualization



Source: own elaboration using VOSviewer.

As shown in Figure 2, the keywords are colour-coded according to the publication date of the articles. The earliest publications during the pandemic (shown in dark blue and purple) addressed issues related to consumers' social

distancing practices, concerns about coronavirus and health risks, travel behaviour and retail issues. In the later period (dark green), a significant number of studies focused on analysing consumer behaviour, including panic buying, consumer attitudes and their variations by gender, issues related to sales and restaurants. The most recent publications (light green and yellow) focus on e-commerce and digital technologies. Recent studies also look at the short-term rental sector (such as Airbnb) and the impact of the pandemic on sustainable consumption.

4. Conclusions

The COVID-19 pandemic was an unprecedented event that rapidly changed consumer purchasing behaviour and significantly impacted businesses that had to deal with the negative consequences [Tudoran et al., 2024]. The pandemic affected many sectors, requiring companies in these sectors to ensure the safety of consumers when using their products or services, often by implementing innovations [Cruz-Cárdenas et al., 2021; Racat et al., 2021; Yao et al., 2024; Zhang et al., 2021]. Our literature review, supported by bibliometric analysis, highlights several key observations in research on consumer behaviour in the context of the coronavirus pandemic.

First, most publications on consumer behaviour during the COVID-19 pandemic were found in journals related to the hospitality industry. The “International Journal of Hospitality Management” and the “International Journal of Contemporary Hospitality Management” reported the highest number of publications, which may reflect the significant impact of the pandemic on this sector and the interest of researchers in analysing changes in consumer behaviour. We also observed a high number of publications in the journal “Technological Forecasting and Social Change”, which may indicate that research into the impact of technology on consumer behaviour was equally crucial to scholars. In addition, there is a notable thematic diversity in journals such as “Social Science and Medicine” and “Journal of International Marketing”, indicating the interdisciplinary nature of the research and the complexity and multidimensionality of the issues raised by the consumer pandemic.

Second, in the studies on consumer behaviours in the context of COVID-19, we identified five clusters that reflect diverse and complex changes in consumer behaviours. The first cluster, “Digital consumption and trade”, illustrates how the pandemic has accelerated the digitization of shopping [Jiang, Stylos, 2021] and the rapid adoption of new technologies, which play a crucial role in online commerce [Racat et al., 2021; Yao et al., 2024]. The second cluster, “Consumer attitudes and risk perceptions”, demonstrates the impact of the COVID-19 pandemic on consumer attitudes toward sustainable consumption and their safety concerns. The third cluster, “Buying behaviour, risk perceptions, and technology”, examines panic buying and consumers’ adoption of modern technologies in response to changing environmental conditions. The fourth cluster, “Protective motivation” highlights how various sectors, such as restaurants [Zhang et al., 2021] and tourism [Itani, Hollebeek, 2021], and their consumers are adapting to new challenges posed by the global pandemic. The final cluster, “Short-term rental”, illustrates changes in preferences regarding short-term rentals. The analyzed clusters provide a broad picture of changes in consumer behaviours, underscoring the profound and diverse impacts of the COVID-19 pandemic on various aspects of consumer life and the businesses that had to adapt to the evolving purchasing behaviours.

Third, it is important to note the variation in the topics addressed over time. The earliest publications addressing consumer behaviour in the context of the coronavirus pandemic dealt with issues related to consumers’ social distancing practices, concerns about coronavirus and health risks, travel behaviour and retail issues. Subsequently, researchers have focused on analysing consumer behaviour, including panic buying, consumer attitudes, and how they differ by gender and consumer use of restaurants. More recent publications focus on e-commerce and digital technologies and examine the short-term rental market (such as Airbnb).

Fourth, although research addresses important and diverse areas of consumer behaviour, it tends to focus on short-term aspects of the impact of a coronavirus pandemic (consumer reactions to the lockdown, panic buying, sudden intimation of online shopping). Future research should consider the perspective of long-term changes in consumption, such as the post-pandemic

continued popularity of e-commerce, post-pandemic sustainable consumption, and their constancy. Furthermore, we note a lack of cross-cultural studies (comparative analyses between countries with different cultural contexts). Future comparative studies between countries and articles directed at developing strategies for dealing with similar crises in the future would also be important. By addressing these areas, it would be possible to verify the consistency of the observed changes in consumption and whether the observations made are general or rather contextual (country and culture specific). Because recent studies indicate that cultural dimensions can significantly influence the approach to counteracting the effects of a pandemic. For example, Sekar et al. [2022] indicate that countries with low power distance, low masculinity indices, and characteristics of uncertainty avoidance tend to engage in proactive measures to mitigate the negative effects of a pandemic (e.g. testing citizens). Likewise, research by Nair et al. [2022] shows that countries with high uncertainty avoidance are more likely to accept expert recommendations and government restrictions readily. Such constraints may also extend to consumption (e.g. maintaining physical distance, staying at home and shopping online).

Finally, while our study provides several valuable insights into consumer behaviour during the COVID-19 pandemic, it is not free of limitations, and caution should be exercised when generalizing the results. Primarily, we based our bibliometric analysis and literature review on the Scopus database, which means we may have missed valuable articles from other sources that may be central to the issue at hand with relevant research findings. Using a single database limits comparative analysis. Hence, future research could be expanded to include databases such as Web of Science, JSTOR or ScienceDirect. In addition, we narrowed our analysis to academic articles only; future research could be expanded to include book chapters and post-conference materials, which often contain more recent research findings. Moreover, we limited our search to the categories of "Business, Management and Accounting", "Social Sciences" and "Economics, Econometrics and Finance". It would be worthwhile for future research to include more disciplines to help give the analysis a more multidisciplinary nature.

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