

REVIEW

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A systematic review of financial performance in the manufacturing industry

Agnus Baby¹ , Md Aslam Mia^{1*} and Anwar Allah Pitchay¹

Abstract

Achieving exceptional financial performance is a primary goal for every management team due to its importance in establishing a solid firm structure and facilitating growth. However, several factors consistently hinder the attainment of this objective, resulting in adverse effects on a firm's performance and financial success. Therefore, this study aims to analyze scholarly publications to understand relevant factors influencing the financial performance of firms in the manufacturing industry. Using keywords in the Scopus database, we identified a total of 808 papers published between 1987 and 2022, and ultimately selected 289 for further analysis based on predetermined criteria. The selected literature was then analyzed in two different ways. First, we discerned the crucial factors affecting the financial performance of manufacturing firms. Our systematic review revealed that organizational characteristics (e.g., CSR practices, strategy, board characteristics, innovation & technology, information, decision-making and communication, and environmental and sustainability practices) play a more significant role in determining the financial performance of a firm than external factors (e.g., market economic parameters, government policies & support, and competition). Second, we employed VOSViewer software to dissect the selected publications, including the creation of bibliometric co-word maps and the examination of bibliographic coupling among journals. The results yielded valuable insights into leading nations, notable journals, noteworthy studies, trending keywords, and prominent publications in this field. Moreover, our research emphasizes the multifaceted nature of financial performance-related factors, offering useful insights for future studies exploring the interplay between factors and the performance of manufacturing firms.

Keywords Financial performance, Manufacturing industry, Bibliometric analysis, Systematic review

JEL Classification L25, M41, O11, L60

Introduction

In recent years, the "performance" of firms, particularly in manufacturing, has garnered significant attention from academics and industry practitioners [1–5]. Using relevant financial metrics to assess organizational success is paramount for various stakeholders [3]. This emphasis on performance measures has intensified competition, creating a more demanding atmosphere for management. Businesses recognize the important role of tracking and

monitoring performance to remain competitive in a continuously evolving landscape [6, 7]. Consequently, institutional studies, especially in developing countries, have significantly focused on understanding factors affecting firm performance [8]. Numerous factors, both internal and external, influence an organization's activities and practices, and ultimately its financial performance. Unlike external factors, which are beyond the management's control and often economy-wide, internal factors can be actively managed to ensure a better firm's performance [8]. Examples include demand and production factors, corporate social responsibility practices, corporate governance, and innovation strategies. On the other hand, external factors encompass macroeconomic

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factors, suppliers, competitors, political environment, and government regulations.

The significance of analyzing firm performance in light of external factors has grown significantly, particularly in the face of recent global challenges like the COVID-19 pandemic and the Russia-Ukraine war. The pandemic, for instance, caused immense financial and operational disruptions for manufacturers worldwide [9]. A 2020 study by the National Association of Manufacturers (NAM) surveyed 558 US member firms and found that over 78% anticipated negative financial impacts due to the pandemic's uncertainty [9]. Early in 2020, the sudden outbreak sent shockwaves through global markets and economies, significantly impacting firm performance by disrupting supply chains and increasing costs [10, 11]. These impacts, along with the pandemic's effect on investment thresholds and total revenue [12], led to adverse consequences for businesses, shareholders, investors, and decision-makers worldwide [13].

The ongoing conflict in Ukraine also had global repercussions, significantly impacting not only democracies but also the manufacturing industry. A recent study by Arndt et al. [14] estimated that the war will push an additional 27.2 and 22.3 million people into poverty and hunger, respectively, highlighting its devastating human cost [14]. The economic cost is also substantial, with the projected to cost 1% of global GDP in 2022, equivalent to around \$1.5 trillion at purchasing power parity (PPP) [15]. Additionally, Liadze et al. [15] predicted the war will raise global inflation by almost 2% in 2022 and 1% in 2023, further squeezing household budgets and potentially impacting economic growth [15].

Adding to these challenges, the escalating US-Russia tensions over Ukraine have significantly disrupted global supply chains [16]. One key factor driving this disruption is the surge in oil prices, directly impacting production costs and consequently affecting firms' financial performance. Energy prices, particularly oil and gas prices, significantly influence the global economy [17]. This confluence of factors makes it increasingly difficult for firms to achieve the financial performance necessary to satisfy their shareholders and stakeholders.

Although past studies have explored various factors affecting financial performance in the manufacturing industry, they often focus on either internal or external factors in isolation. This study aims to address this gap by systematically analyzing both internal and external factors influencing firm performance and compiling a comprehensive list of effective financial performance indicators. The global scope of the analyzed articles (over 65 countries) demonstrates the field's international appeal and highlights contributions from both developed and developing nations. Understanding the complex

interplay of internal and external factors is crucial for sustainable firm growth and informed decision-making by managers and policymakers. Therefore, this study aims to identify key organizational and environmental factors that shape manufacturing firm performance, providing valuable knowledge for stakeholders across various sectors and regions.

Given the above-mentioned context, the systematic literature review addresses the following research questions: (1) What is the current volume of publications and emerging trends regarding factors influencing financial performance in the manufacturing industry? (2) Which country has the most publications on factors affecting financial performance in the manufacturing sector? (3) Which journals are the top publishers on factors affecting financial performance in the manufacturing sector? (4) How do factors influencing financial performance in the manufacturing industry differ between advanced and emerging economies? (5) What are the key factors affecting the financial performance of manufacturing firms?

To address these questions, we conducted an extensive examination of studies on the factors influencing financial performance in the manufacturing sector using the Scopus database. The insights gained will prove valuable to policymakers, managers, and practitioners in drafting strategies to improve firms' financial performance. Furthermore, we employed bibliometric analysis techniques like citation analysis, co-citation analysis, and word mappings, employing the VOSViewer software to uncover recent trends in the relevant literature. This methodology, specifically, aids new researchers in identifying prominent publications, high-citation countries, prolific journals and articles, and research hotspots. In today's dynamic environment characterized by globalization, relaxed regulations, the COVID-19 pandemic, technological advancements, and financial crises like the Russia-Ukraine War, organizations face the challenge of meeting demanding performance requirements for sustained growth and fierce competition. This study's findings will equip managers with the knowledge needed to develop effective policies and strategies for organizational success.

The rest of the article is structured as follows: Sect. 2 outlines the methodology employed in the study; Sect. 3 presents the findings from the systematic review and bibliometric analysis; and lastly, Sect. 4 concludes the article and discusses directions for future research.

Methodology

Systematic Literature Review (SLR) is considered valuable for synthesizing and providing collective insights into existing research in a specific area [18]. The review process typically consists of three phases: (1) designing

the review, (2) executing the review, and (3) disseminating the findings [18]. For a very mature topic where an accumulated body of research exists, there is a need for in-depth analysis and synthesis to gain further understanding [19]. This is particularly true in the manufacturing industry, where the abundance of scientific information can be overwhelming. To address this challenge of information overload and review existing literature, we employed bibliometrics, a branch of data science that utilizes bibliographic data and specific data mining techniques. It provides a novel approach to managing information overload and reviewing existing literature on a given subject. Bibliometrics involves the application of statistical and mathematical techniques to formal literature, including books, journal articles and other scholarly works [20]. The primary objective of this study is to conduct a bibliometric analysis of research papers that explore the determinants of financial performance in the manufacturing sector. To achieve this, we collected journal articles from the Scopus repository (www.scopus.com). Although the Web of Science is often considered more well-known, it has been discovered that the Scopus database, launched by Elsevier in 2004, offers a larger social sciences database with a broader coverage of references dating back to 1996 [21]. Scopus seamlessly integrates Mendeley data and references, offering a broader subject coverage compared to Web of Science and open-access platforms, with its 20% wider scope.

Given that the field of factors affecting financial performance in the manufacturing industry is predominantly anchored in the finance/economics discipline, we determined that Elsevier's Scopus index database was the most suitable choice for our study. This decision was driven by the database's comprehensive coverage, particularly during the late 1990s when the finance/economics discipline experienced a significant expansion. The initial phase of this study involved formulating a set of inclusion and exclusion criteria to effectively retrieve the most relevant articles for the systematic literature mining process [22]. Figure 1 shows the literature mining process. This paper covers articles published in Scopus until the end of 2022. The data retrieval process involved a keyword search utilizing terms such as "determinant," "factor," "financial," "performance," "manufacturing," "firm," "company," and "industry." Boolean operators "AND" and "OR" were employed to refine the search. The exact search string used was as follows:

TITLE-ABS-KEY (determinant OR factor AND financial AND performance AND manufacturing AND firm OR company OR industry).

Our initial search yielded a total of 808 papers. However, after excluding conference papers, review papers, and book chapters, a total of 654 refined academic

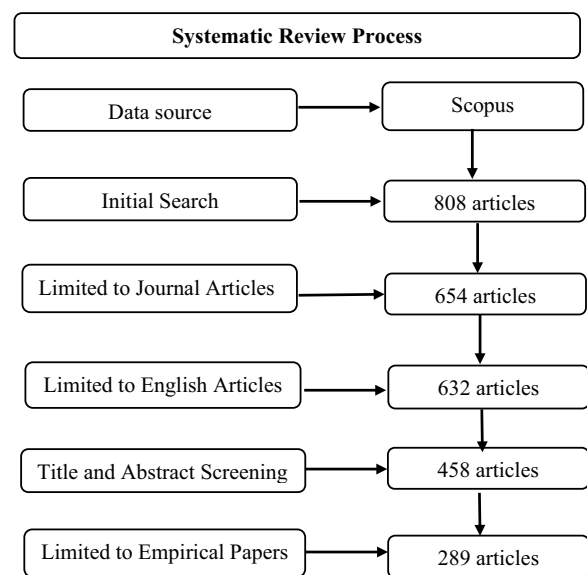


Fig. 1 The flowchart demonstrating the approach to literature sample collection. Source: Authors

articles written in the English language were retained. This exclusion aimed to focus on peer-reviewed, published research directly related to our field of study. Conference proceedings often lack peer review and may not be fully developed, while review articles and book chapters may not offer the specific empirical data needed for this research. Usually, papers that are presented at conferences are often not regarded as "articles" as they are not peer reviewed or published. Moreover, not every review paper and book chapter were pertinent to our field of study. The primary screening process involved evaluating titles and abstracts, resulting in the identification of 458 articles that aligned with the research focus. These articles explored the link between various factors and the financial performance of manufacturing firms. Since the objective of this study is to uncover the elements impacting organizations' financial performance, only empirical articles were deemed suitable for inclusion. Empirical research involves the collection and analysis of data through experiments and observations rather than relying solely on theoretical frameworks. Applying these criteria, a total of 289 empirical papers were finally selected for the research.

This analysis focuses exclusively on relevant empirical literature published between 1987 and 2022 (inclusive). While aiming to capture the most recent research on organizational financial performance, publications from early 2023 were unavailable or not empirical in nature. This timeframe limitation ensures the study analyzes the most comprehensive and up-to-date research available at the time of the analysis.

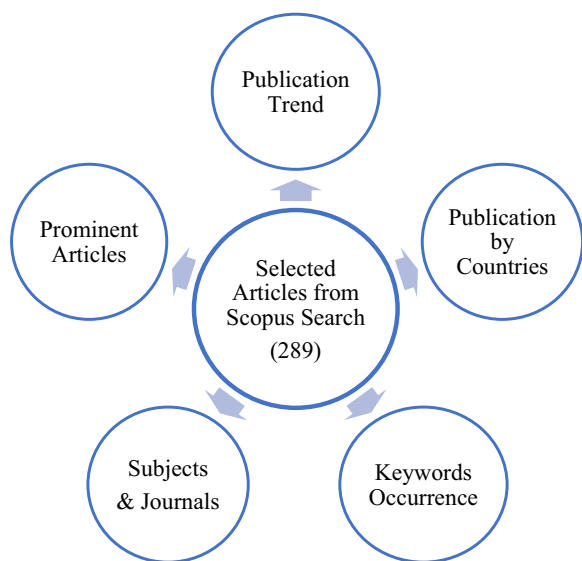


Fig. 2 Content of the Bibliometric Analysis. Source: Authors

Bibliometric analysis

Employing descriptive statistics, we analyzed publication patterns in the database, generating tables and graphs that identify trends related to financial performance determinants in manufacturing firms. These analyses included publication counts, top publishing nations, journals and authors, most-cited papers, and keyword evolution for trend analysis. To further strengthen the knowledge base, the author conducted citation and co-citation analyses. Citation analysis, which measures how often articles are referenced in other publications, identified the top nations, journals, and prominent papers in the field of determinants of financial performance in the manufacturing sector. Additionally, co-citation analysis,

comparing publications cited together in a single document, allows for a deeper understanding of research connections. The more frequently two references are co-cited, the stronger the indication that they belong to the same school of thought, whether supporting or contradicting each other. The results of the bibliometric analysis (including citation and co-citation analysis) were presented in alignment with the research questions. This analysis revealed the top journals and countries contributing to research on financial performance determinants in manufacturing. The process of the bibliometric analysis is depicted in Fig. 2.

Publication trend of prior studies

Following the filtering process, a total of 289 items were retained from a 35-year period (1987–2022), demonstrating remarkable growth in the field. To visualize this distribution, we employed a cumulative frequency graph (Fig. 3). Cumulative frequency graphs are valuable tools for visualizing the distribution of large datasets. This type of graph shows the running total of frequencies for each category, obtained by summing the frequency of each class interval with frequencies of all preceding intervals. Figure 3 illustrates the publication trend, indicating a substantial rise in interest in this research field. The fact that over 90% of the papers were published within the last decade (2011–2022) underscores the relevance of studying this field. Notably, the number of papers published experienced a dramatic increase after 2017 (69% of the samples), nearly 30 years after the commencement of research on determinants of financial performance. This observation indicates a broadening of the field and holds great promise for future advancements. Consequently, numerous scholars have been motivated to investigate various determinants of financial performance.

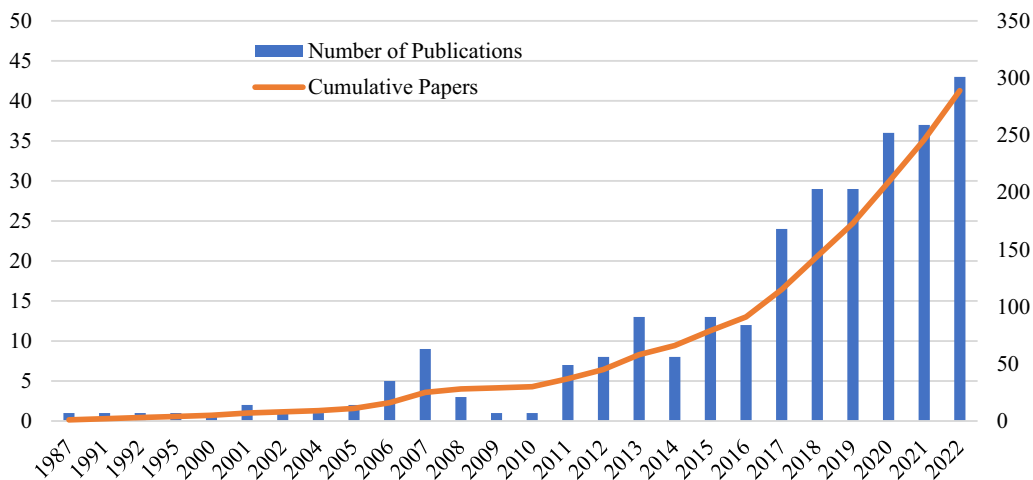


Fig. 3 Publication trend of selected studies. Source: Authors

Table 1 Top 20 countries by research publications. Source: Authors

| SI.No. | Country | GDP (annual %, 2021) | Type of economy | Documents | Citations (Scopus) |
|--------|--------------------------|----------------------|-----------------|-----------|--------------------|
| 1 | India | 8.7 | Developing | 36 | 776 |
| 2 | United States of America | 5.9 | Developed | 35 | 2208 |
| 3 | China | 8.1 | Developing | 31 | 618 |
| 4 | United Kingdom | 7.5 | Developed | 31 | 1498 |
| 5 | Indonesia | 3.7 | Developing | 23 | 235 |
| 6 | South Korea | 4.1 | Developed | 20 | 443 |
| 7 | Malaysia | 3.1 | Developing | 17 | 1020 |
| 8 | Taiwan | 3.7 | Developed | 16 | 328 |
| 9 | Italy | 6.7 | Developed | 13 | 336 |
| 10 | Australia | 2.2 | Developed | 12 | 569 |
| 11 | Spain | 5.5 | Developed | 10 | 463 |
| 12 | Turkey | 11.4 | Developing | 10 | 483 |
| 13 | Nigeria | 3.6 | Developing | 9 | 41 |
| 14 | Iran | 4.7 | Developing | 8 | 907 |
| 15 | Thailand | 1.5 | Developing | 8 | 137 |
| 16 | Canada | 4.5 | Developed | 7 | 277 |
| 17 | Saudi Arabia | 3.2 | Developing | 7 | 173 |
| 18 | Vietnam | 2.6 | Developing | 6 | 73 |
| 19 | France | 6.8 | Developed | 5 | 111 |
| 20 | New Zealand | 3.7 | Developed | 5 | 264 |

Moreover, the year 2022 saw the highest number of publications (43), followed by 2021 and 2020. This overall upward trend in research output suggests a continuous increase, which is expected to persist in the near future.

Publication by countries

The study considered publications from 65 countries, highlighting the global popularity of research in the field. Table 1 presents the top 20 countries actively contributing to the literature on the factors influencing financial performance, with a minimum of five articles published. India leads the list with 36 articles (776 citations), followed by the United States (35 articles, 2208 citations). China and the United Kingdom tie for third place with 31 articles each (China: 618 citations, UK: 1498 citations). It is noteworthy that over half of the studies are conducted in developed economies.

Interestingly, despite having the most publications worldwide, India has relatively low citation rates. The same is true in China, where 31 papers have been published with 618 citations. In contrast, the US and the UK, with 35 and 31 published papers, respectively, have much higher citation rates, with 2208 and 1498 citations, respectively. This unequivocally demonstrates a preference among academics and researchers to cite works from the aforementioned countries, possibly influenced by the reputation and impact factor of the top-ranked

US/UK journals. Although China and India prioritize quantity in terms of publications, the US and UK prioritize the impact factor and quality of journals where research is published. This trend further translates into higher citation rates for US and UK authors, leading to a widening global citation gap observed across multiple disciplines. Researchers argue that this disparity and lack of diversity in scientific knowledge dissemination can hinder the spread of information and the emergence of new ideas.

Keyword occurrence using VOSViewer

The main keywords found in the examined literature were visually mapped using the VOS viewer. Through keyword occurrence analysis, we identified the most popular study subjects and their interrelationships, similar to the approach of Qing et al. [23]. Their study applied this method to identify the hot spot of research in the field of green technology innovation and financial performance over time. To achieve our goal of identifying research hotspots in the performance of the manufacturing industry over time, corresponding with the first research question, we adopted their keyword co-occurrence analysis strategy. Figure 4 (threshold: 5 co-occurrences, displayed keywords: 40) presents the keyword occurrence map, focusing on two aspects: the frequency of keyword occurrence and their changing

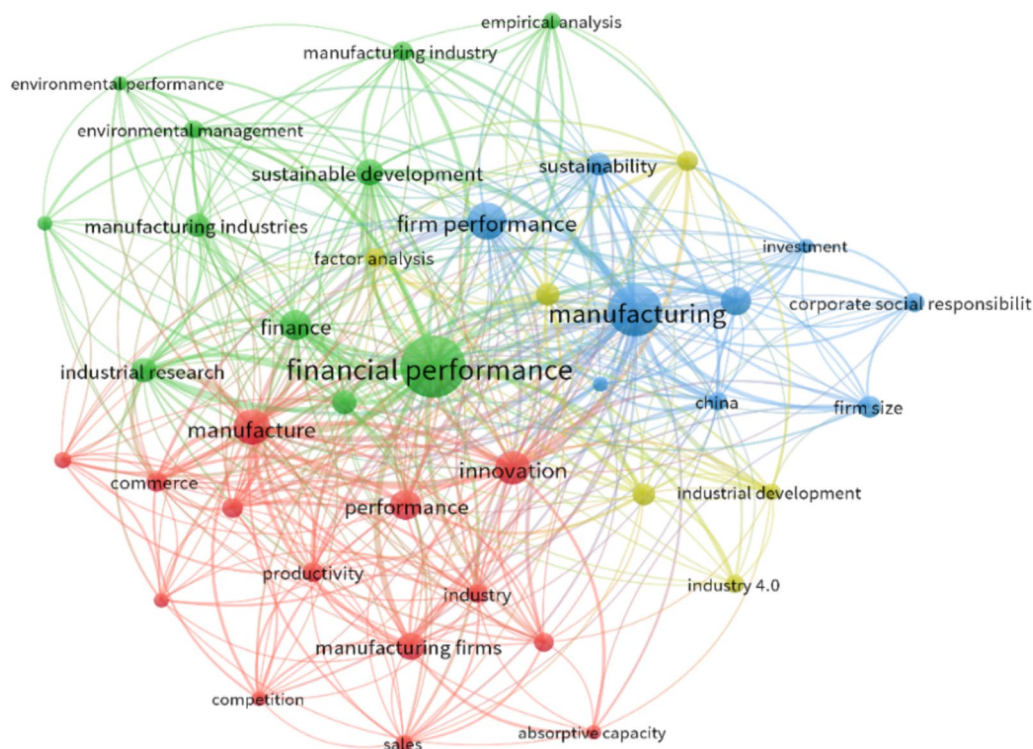


Fig. 4 Network visualization co-occurrence map with 40 keywords having at least five occurrences in articles published from 1987 to 2022.

Source: Authors based on VOSviewer. Note: Based on the analysis of 1366 keywords, 40 keywords with at least five occurrences were identified. Dominant keywords in the co-occurrence analysis include “manufacturing” with 79 occurrences, “financial performance” with 77 occurrences, “firm performance” with 29 occurrences, “innovation” with 24 occurrences, and “sustainability” with 26 occurrences

popularity over time. In the map, the size of a node symbolizes how frequently a specific word appears, while the distance between two nodes shows the frequency of their co-occurrence. Furthermore, the size of the circles and labels on the example items indicate the weight of each item; the greater the weight, the larger the label and circle. The colors used in the map correspond to keywords, helping identify clusters of phrases that commonly appear together.

Within the cluster, the keyword ‘manufacture’ appears 26 times and is closely linked to the keyword ‘innovation,’ which has 25 occurrences within the same cluster. There are seven occurrences of the keyword ‘China,’ indicating the country’s growing research interest in the manufacturing sector. In cluster three, the keyword ‘profitability’ is strongly associated with CSR and sustainability. Another significant area of interest is Industry 4.0, which demonstrates a strong connection to financial performance. The keyword analysis underscores the robust relationship between financial performance and manufacturing firms. Additionally, the implications for innovation and firm performance have garnered substantial attention in recent years, further highlighting their importance as crucial research areas.

Performing a co-occurrence keyword analysis not only provides valuable insights into existing research topics but also helps identify emerging research topics in the field and its related disciplines. The light green and yellow shades in Fig. 5 can be used to identify these emerging themes. The themes that have gained popularity over the past years based on frequency are sustainable development (15 occurrences), sustainability (11 occurrences), supply chain management (10 occurrences), corporate social responsibility (8 occurrences) Industry 4.0 (7 occurrences), industrial development (6 occurrences), and environmental performance (5 occurrences). These findings align with the growing focus on the role of sustainable development in influencing the financial performance of manufacturing organizations [24–28]. Furthermore, research indicates that government policies play a substantial role in determining a company’s size and technical resources. Notably, [24] contribute to this subject by examining the causal linkages between organizational sustainability abilities and government policies. It is increasingly recognized that relying on financial performance indicators is inadequate for assessing a company’s success. Sustainability practices are now considered crucial factors, with sustainable design, regulations and

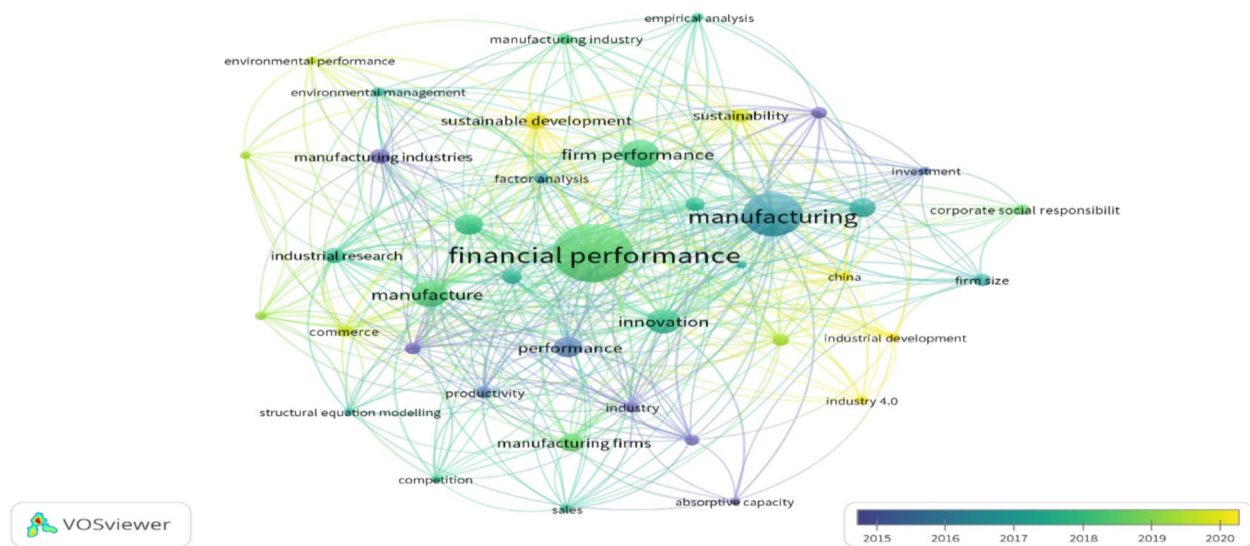


Fig. 5 Overlay visualization co-occurrence maps for articles published from 1987 to 2022. Source: Authors. Note: Minimum co-occurrence threshold: 5; Keywords displayed: 40

guidelines, and waste management identified as the three most significant elements influencing a company's potential for sustainable growth [25].

Corporate Social Responsibility (CSR) has emerged as a distinct subject that has attracted significant attention in the literature [29–32]. In developed and developing nations, CSR is seen as an important determinant of financial performance, as evidenced by its significant positive relationship with the expansion of manufacturing industry sales [32]. Additionally, recent research has also investigated the impact of the Industrial 4th Revolution on firm performance [1, 33–35]. For example, [33] highlights how Industry 4.0 enhances the potential returns for businesses and provides them with a deeper understanding of the financial implications associated with its implementation.

Publication by subject areas and journals

Next, we describe the prominent journal publications focused on the financial determinants of the manufacturing industry. For our bibliometric analysis, a wide range of papers from 188 journals were considered. Table 2 presents the top publishing journals in this area. Furthermore, these published articles cover a diverse array of disciplines, including Business, Management and Accounting (205), Economics, Econometrics and Finance (81), Engineering (55), Social Sciences (53), Decision Sciences (49), Environmental Science (40), Computer Science (33), Energy (31), Arts and Humanities (10), Mathematics (7), Agricultural and Biological Sciences (4), Multidisciplinary (4), Materials Science (3), Medicine (3), Pharmacology, Toxicology and Pharmaceutics (3),

Psychology (3), Chemical Engineering (2), and Physics and Astronomy (1) (Fig. 6).

The Strategic Management Journal, published by Wiley, stands out as the most influential journal in terms of citation impact, with a total of 860 citations related to the determinants of financial performance in the manufacturing industry. Although they have published only two articles related to the themes of this study, they have received the highest number of citations from other researchers. Taking the second spot is the Journal of Business Research, with 848 citations, followed by the International Journal of Production Economics (510 citations) and the International Journal of Operations and Production Management (420 citations).

In addition to the citation analysis findings presented in Table 2, Fig. 7 illustrates the results of the journal bibliographic coupling analysis. This analysis examines how publications with similar content are interconnected and serve a common purpose [36]. Figure 6, generated using VOSViewer, shows the outcomes of this analysis. Publications with similar research themes are grouped by color, and the connections between them indicate how they reference and cite one another. As the relationship between publications strengthens, the groups move towards one another. A total of forty-six journals were found to be interconnected, forming five clusters and a total of 490 links. Notably, the journal “Sustainability,” published by MDPI in Switzerland, ranked first with 17 documents and 306 citations, demonstrating a strong link strength of 370. Among the journals, the International Journal of Production Economics, published by Elsevier in the Netherlands, had the highest number of links. It featured

Table 2 Top 20 high-impact journals for research in determinants of financial performance in the manufacturing industry. *Source:* Authors

| Rank | Journal name | Publisher | Article count | Citations in scopus |
|------|--|------------------|---------------|---------------------|
| 1 | Strategic Management Journal | Wiley | 2 | 860 |
| 2 | Journal of Business Research | Elsevier | 3 | 848 |
| 3 | International Journal of Production Economics | Elsevier | 10 | 510 |
| 4 | International Journal of Operations and Production Management | Emerald | 5 | 420 |
| 5 | Journal of Manufacturing Technology Management | Emerald | 4 | 381 |
| 6 | Journal of Cleaner Production | Elsevier | 8 | 312 |
| 7 | Sustainability (Switzerland) | MDPI | 17 | 306 |
| 8 | International Journal of Productivity and Performance Management | Emerald | 4 | 252 |
| 9 | Supply Chain Management | Emerald | 2 | 246 |
| 10 | Journal of Operations Management | Elsevier | 3 | 189 |
| 11 | International Journal of Information Management | Elsevier | 2 | 143 |
| 12 | Management Decision | Emerald | 3 | 125 |
| 13 | European Journal of Innovation Management | Emerald | 2 | 117 |
| 14 | Technological Forecasting and Social Change | Elsevier | 3 | 106 |
| 15 | Baltic Journal of Management | Emerald | 2 | 89 |
| 16 | Competitiveness Review | Routledge | 2 | 89 |
| 17 | Total Quality Management and Business Excellence | Emerald | 4 | 88 |
| 18 | British Accounting Review | Elsevier | 2 | 79 |
| 19 | International Journal of Production Research | Taylor & Francis | 2 | 59 |
| 20 | International Journal of Quality and Reliability Management | Emerald | 3 | 54 |

Based on Scopus Citations (1987–2022)

a total of ten documents, 510 citations, 41 links, and an impressive link strength of 482.

Prominent articles

Bibliometric evaluation, combined with our comprehensive database, allows us to identify research articles that have made a significant impact on the field or subject of study. Citation analysis plays a vital role in assessing the frequency with which a particular research article has been referenced or cited in subsequent works. The number of citations received by an article is often considered an indicator of its quality and influence within the scholarly community. In Table 3, we present the top 20 papers that have received the highest number of citations, representing their popularity and influence within the academic community. The number of citations an article receives serves as an indicator of its level of recognition. Additionally, the reputation and impact factor of the journal in which the article is published also plays a role in the number of citations it garners. Journals with a higher impact factor tend to attract more citations, reflecting their quality and significance in the field. Citation analysis greatly facilitates the task of identifying key papers for researchers, allowing them to navigate the scholarly landscape more effectively.

The first article, authored by Saeidi et al. [37], has received 757 Scopus citations. Their study highlights that CSR enhances business financial performance by strengthening credibility, competitive edge, and customer satisfaction. The second article by Powell [38] had 584 Scopus citations and revealed that supernormal profits can be generated regardless of strategic variables, traditional industries, or organizational alignments with the environment and internal structure. Morgan et al. [39] contribute to the understanding of export venture operations by highlighting the significant impact of properly implementing planned exporting market tactics on financial success. The authors emphasize the importance of marketing competencies in achieving this outcome. Empirical research conducted by Pearce et al. [40] involving 97 manufacturing firms with an average yearly sales volume of \$20 million demonstrates a strong correlation between financial performance and planning formality. Other notable articles in the list address various important topics. Demirbag et al. [41] found that Total Quality Management (TQM) practices have a significant positive link with non-financial performance in SMEs but minimal impact on their financial success. Vázquez-Bustelo et al. [42] emphasized that the full utilization of agile manufacturing methodologies encourages

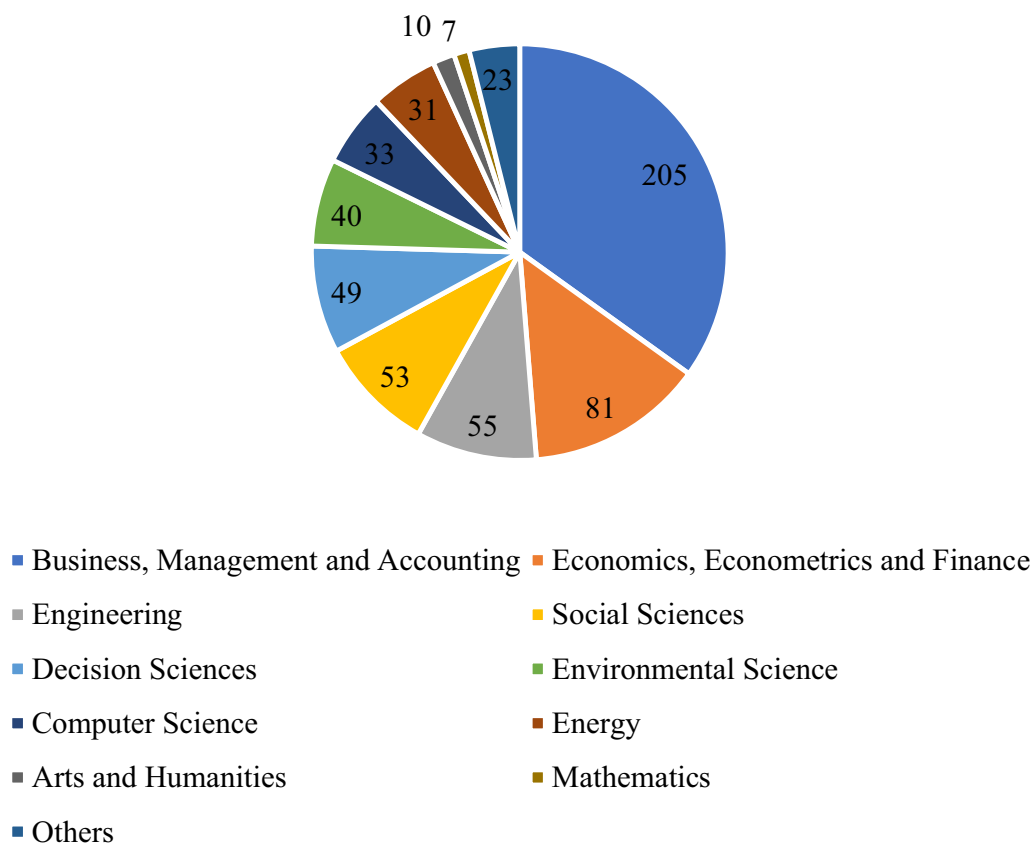


Fig. 6 Scopus analysis of the number of articles by subject area

manufacturing core competitiveness in turbulent situations by enhancing business operations, market performance, and financial performance. Tracey et al. [43] observed a strong relationship between Supply Chain Management (SCM) expertise and corporate success. Leonidou et al. [44] noted that adopting a green company strategy can create a competitive advantage, especially in highly regulated, dynamic, and competitive markets. This advantage contributes to superior market and financial outcomes. Centobelli et al. [45] demonstrated that both innovation and leanness significantly enhance financial and environmental performance in firms. Lee et al. [46] found that carbon emissions considerably reduce firm value. Gosselin [48] stressed the need for developing a theory explaining how businesses can utilize their performance measurement system to improve performance.

Furthermore, Koumanakos [47] revealed that as the level of inventory held by a company increases, its rate of return decreases. In terms of innovation capability, Kafetzopoulos and Psomas [51] found that although it may not have a direct influence on the financial outcomes of manufacturing enterprises, it does play an indirect role through the mediator of operating efficiency. The

beneficial impact of intellectual capital on a company's economic health and sustained growth was emphasized by Xu and Wang [49]. Gaur et al. [50] demonstrated that inter-functional collaboration and customer orientation, two sub-dimensions of market orientation, positively correlate with manufacturing performance. However, competitor orientation does not enhance manufacturing performance, according to their findings.

According to a study by Rehman et al. [53], green manufacturing techniques have a considerable influence on organizational performance in the Indian manufacturing sector. Tung et al. [54] showed that performance and staff-related outcomes, two aspects of Performance Measurement System (PMS) efficacy, are correlated with the implementation of multidimensional performance measurements. Maroufkhani et al. [52] revealed that the implementation of big data analytics has a significant positive effect on SMEs' marketing and financial performance. Ghosh [56] explored the impact of board size on company success and observed that larger boards tend to have a dampening effect when evaluating a company's success using accounting or market-based parameters. Heredia Pérez et al. [55] highlighted that companies with

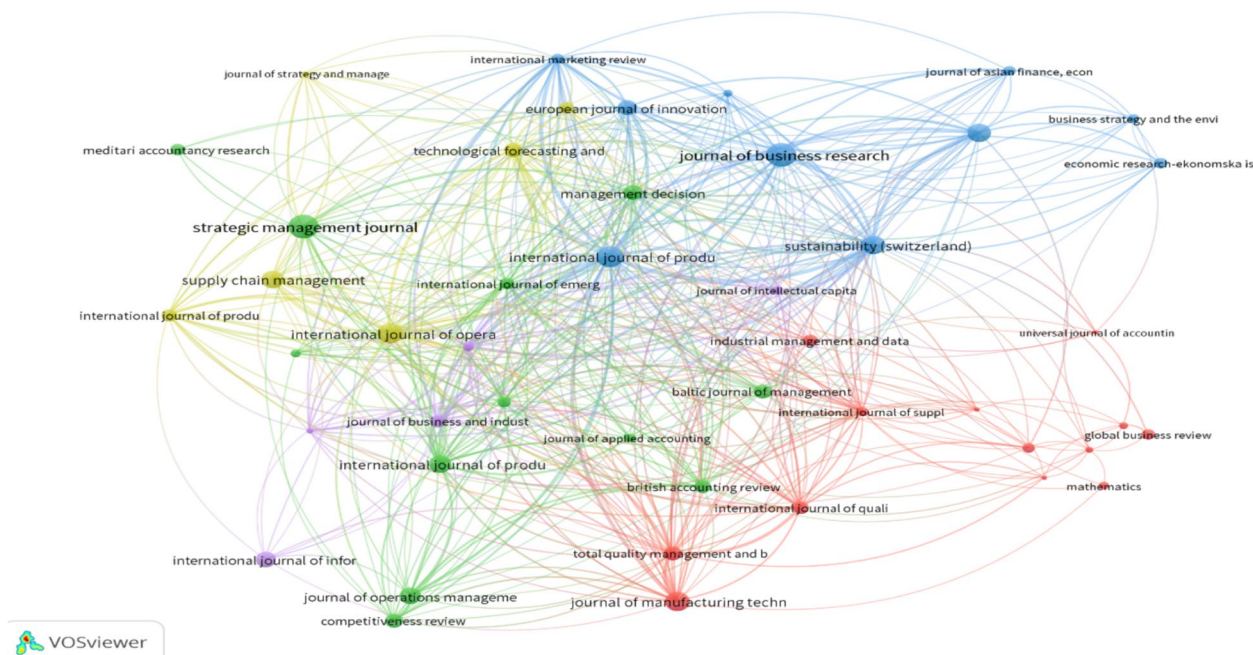


Fig. 7 Scopus articles-based network diagram showing the bibliographic coupling of 46 journals. Source: Authors based on VOSviewer

a high perception of financial limitations are inclined to focus on creating marketing breakthroughs to enhance manufacturing efficiency, whereas companies with a lower perception of financial constraints allocate more resources to process innovation and innovation activities, resulting in substantial improvement in market performance.

A brief overview of determinants of financial performance in manufacturing literature

The crucial role of financial performance in a company’s long-term viability has attracted considerable scholarly attention [57, 58]. It serves as a gauge of a firm’s growth potential, reflecting the effectiveness of its strategy, deployment, and execution in enhancing operations and practices [59]. Usually, a company’s performance is evaluated through three key dimensions: financial outcomes, market outcomes, and shareholders’ return [60]. Analyzing a company’s financial performance over time allows stakeholders, including businesses and investors, to assess its effectiveness in achieving strategic goals. This analysis provides valuable insights into a company’s ability to generate profits, allocate resources, manage debt, and deliver value to shareholders.

Financial performance is measured by indicators like return on assets (ROA), return on investment (ROI), return on equity (ROE), and profit, among others. Market

performance is assessed by market share and earning per share (EPS). Shareholder return is calculated by considering the annual change in stock price plus any dividends paid out [60]. Financial performance measurements, such as productivity and efficiency indicators, are frequently used in enterprises. Numerous accounting indicators, such as ROE, return on sales (ROS), ROA, ROI, and return on capital employed (ROCE), along with market-based metrics like market share and earnings per share (EPS), are frequently employed in the literature to assess the financial health of organizations (Fig. 8). Some studies also incorporate additional indicators such as sales, sales growth, and sales per employee, but these are relatively less common. In some cases, researchers utilized composite measures like Tobin’s Q (Fig. 8), which combines accounting and market-based indicators (Table 4).

The determinants of financial performance in manufacturing literature are classified into external and internal factors, which contribute to improving a firm’s financial performance. One of the main objectives of the paper is to identify the most common internal and external elements that have an impact on the business excellence and financial performance of firms. Secondary research supports the notion that many internal and external factors significantly influence a firm’s financial performance (Table 5).

Table 3 Top 20 highly cited articles in the manufacturing sector (1987–2022). *Source:* Authors

| Rank | Title | Publisher | Cited by* | References |
|------|---|--------------------|-----------|------------|
| 1 | How does corporate social responsibility contribute to firm financial performance? The mediating role of competitive advantage, reputation, and customer satisfaction | Elsevier | 776 | [37] |
| 2 | Organizational alignment as a competitive advantage | Wiley | 592 | [38] |
| 3 | Export marketing strategy implementation, export marketing capabilities, and export venture performance | Springer | 291 | [39] |
| 4 | The impact of grand strategy and planning formality on financial performance | Wiley | 268 | [40] |
| 5 | An analysis of the relationship between TQM implementation and organizational performance: Evidence from Turkish SMEs | Emerald | 259 | [41] |
| 6 | Agility drivers, enablers, and outcomes: Empirical test of an integrated agile manufacturing model | Emerald | 224 | [42] |
| 7 | The impact of supply-chain management capabilities on business performance | Emerald | 189 | [43] |
| 8 | Internal Drivers and Performance Consequences of Small Firm Green Business Strategy: The Moderating Role of External Forces | Springer | 176 | [44] |
| 9 | The impact of leanness and innovativeness on environmental and financial performance: Insights from Indian SMEs | Elsevier | 127 | [45] |
| 10 | The impacts of carbon (CO ₂) emissions and environmental research and development (R&D) investment on firm performance | Elsevier | 126 | [46] |
| 11 | The effect of inventory management on firm performance | Emerald | 115 | [47] |
| 12 | An empirical study of performance measurement in manufacturing firms | Emerald | 114 | [48] |
| 13 | Intellectual capital, financial performance, and companies' sustainable growth: Evidence from the Korean manufacturing industry | MDPI | 110 | [49] |
| 14 | Market orientation and manufacturing performance of Indian SMEs: Moderating role of firm resources and environmental factors | Emerald | 106 | [50] |
| 15 | The impact of innovation capability on the performance of manufacturing companies the Greek case | Emerald | 105 | [51] |
| 16 | Big data analytics adoption: Determinants and performances among small to medium-sized enterprises | Elsevier | 102 | [52] |
| 17 | Impact of green manufacturing practices on organizational performance in Indian context: An empirical study | Elsevier | 99 | [53] |
| 18 | Factors influencing the effectiveness of performance measurement systems | Emerald | 96 | [54] |
| 19 | New approach to the innovation process in emerging economies: The manufacturing sector case in Chile and Peru | Elsevier | 89 | [55] |
| 20 | Do board characteristics affect corporate performance? Firm-level evidence for India | Taylor and Francis | 86 | [56] |

*As of January 2023

Impact of global events

COVID-19 The COVID-19 pandemic exacerbated operational and financial challenges for manufacturers already grappling with economic disruptions [9]. A survey by the National Association of Manufacturers (NAM) found that over 78% of its 558 US member companies anticipated negative financial impacts from the pandemic [9].

Russia-Ukraine war Russia's invasion of Ukraine has shaken the foundations of global democracies and significantly impacted the industrial sector. The study by Arndt et al. [14] underscores this impact, estimating alarming rises in hunger (27.2 million) and poverty (22.3 million)

due to the crisis. Additionally, Liadze et al. [15] estimate the war's cost at 1% of global GDP in 2022, equivalent to roughly \$1.5 trillion in purchasing power parity (PPP) terms. Furthermore, they project global inflation to rise by 2% and 1% in 2022 and 2023, respectively.

Conclusion, implications and future research direction

The bibliometric research demonstrates that between 1987 and 2022, the corpus of knowledge about the variables affecting financial outcomes in the manufacturing sector has expanded tremendously. Despite the global

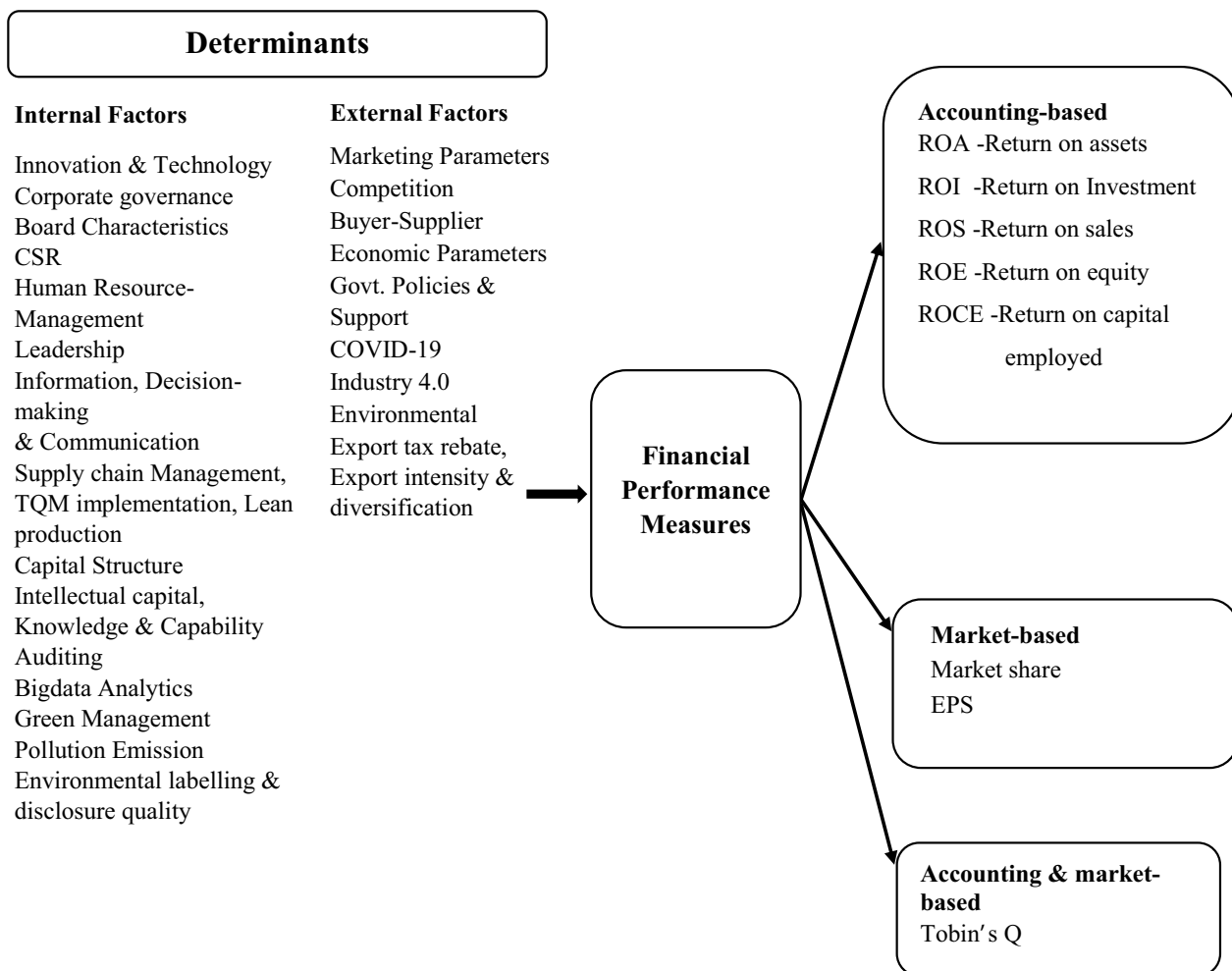


Fig. 8 Determinants and Measures of Financial Performance in Manufacturing Literature. Source: Authors

diversity of the literature, with contributions from 119 countries, studies from developed economies like the United States, Canada, the United Kingdom, Australia, Spain, Italy, and others remain dominant.

Several developing themes in the literature were identified through keyword map analysis, which can serve as potential research areas for scholars. Notable examples include sustainable development, sustainability, corporate social responsibility, industry 4.0, and industrial development. These areas present opportunities for scholars and researchers to explore in future studies. Among the 189 journals across various disciplines, *Strategic Management Journal*, published by Wiley, emerges as the most influential journal in terms of citation. It is followed by the *Journal of Operations Management* and the *Academy of Management Journal*.

This study’s analysis offers valuable insights for managers and researchers. For managers, the findings highlight various financial performance factors that can be leveraged to improve decision-making and potentially achieve high performance. The identified factors, as outlined in the SLR, can inform the development of management guidelines for strategic planning and real-world performance enhancement. For researchers, the SLR provides a comprehensive overview of recent research on various facets of organizational financial performance. By reviewing key research areas, this study aims to identify crucial gaps and potential avenues for further investigation. Ultimately, this SLR serves as a springboard for researchers defining an “initial concept” or area of interest for future exploration in organizational financial performance research.

Table 4 Top 30 most-cited articles by region and industry. *Source:* Authors

| SI.No. | Determinants | Performance measures | Authors | Country | Country classification (developed/emerging) | Industry type |
|--------|--|--------------------------|---------|-------------------------------------|---|---|
| 1 | CSR contribution | ROA, ROS, ROI | [37] | Iran | Emerging | Consumer Products |
| 2 | Impact of strategy & planning | ROA, ROS | [40] | USA | Developed | Manufacturing |
| 3 | TQM implementation | ROA | [41] | Turkey | Emerging | Textile Industry |
| 4 | Agile manufacturing | ROA | [42] | Spain | Developed | Manufacturing |
| 5 | Supply-chain management capabilities | ROI | [43] | USA | Developed | Manufacturing |
| 6 | CO ₂ emissions & environmental R&D investment | Tobin's q, ROA | [46] | Japan | Developed | Manufacturing |
| 7 | Intellectual capital & sustainable growth | ROA, ROE | [49] | Korea | Developed | Manufacturing |
| 8 | Board characteristics | ROA, ROE, ROS, Tobin's Q | [56] | India | Emerging | Manufacturing |
| 9 | Environmental management practices | ROA | [61] | USA | Developed | Manufacturing |
| 10 | Impact of strategy & planning | Market share | [62] | Turkey | Emerging | Manufacturing |
| 11 | Innovation & market orientation | ROI | [63] | Austria | Developed | Consumer Products |
| 12 | International diversification | ROI | [64] | Germany, France, UK, Spain, Denmark | Developed | Manufacturing |
| 13 | Capital structure | ROI | [65] | Greece | Developed | Small & medium-sized enterprises (SMEs) and large-sized enterprises (LSEs) |
| 14 | Pollution emission reduction policy | ROA | [66] | China | Emerging | Manufacturing |
| 15 | CSR | ROA | [67] | Korea | Developed | Auto, machine, shipbuilding, and electronics |
| 16 | Board characteristics | ROA, ROE, Tobin's q | [68] | India | Emerging | Apparel, automobile & auto parts, cement, chemical & paint, commercial trading, consumer electronics, diversified range of products, engineering products, fertilizers & agro-chemicals, fibers & plastic products, coal mining, gas & oil exploration, iron & steel, packed foods & personal products, sugar & paper, pharmaceuticals, power, textiles, and miscellaneous industries |
| 17 | Macroeconomic factors, firm characteristics | ROA | [69] | Nigeria | Emerging | Consumer goods |
| 18 | Environmental labeling certification | ROA, Tobin's q | [70] | China | Emerging | Manufacturing |
| 19 | Knowledge transfer, regulatory support, legitimacy | Market share | [71] | Taiwan | Developed | Manufacturing |
| 20 | Logistics outsourcing | ROA, ROE | [72] | Finland | Developed | Manufacturing and trading SMEs |
| 21 | Innovation | ROI | [73] | Indonesia | Emerging | ISO 9001-certified manufacturing companies |

Table 4 (continued)

| SI.No. | Determinants | Performance measures | Authors | Country | Country classification (developed/emerging) | Industry type |
|--------|--------------------------------------|----------------------------------|---------|------------|---|---|
| 22 | Strategic investment decision-making | ROA, ROE | [74] | UK | Developed | Motors vehicles, trailers & semi-trailers, radio, television, & communication equipment, computer & related products, electrical machinery, chemicals & chemical products, wood, rubber & plastic products, food products, & beverage, crude petroleum & natural gas, and mining of metal, uranium & other elements |
| 23 | Manufacturing strategies | ROI | [75] | Turkey | Emerging | Manufacturing |
| 24 | Sustainable supply chain integration | ROA, ROE | [76] | Pakistan | Emerging | Manufacturing |
| 25 | R&D project efficiency | ROI | [77] | Spain | Developed | SMEs, chemical & pharmaceutical, manufacturing machinery, electronics and computer |
| 26 | Managerial capability perspective | ROA, ROE | [78] | Bangladesh | Emerging | Apparel industry |
| 27 | Eco-industrial parks | ROI, market share | [79] | China | Emerging | Manufacturing |
| 28 | Energy efficiency | ROA, ROE, Tobin's ROI, ROS, ROIC | [80] | Korea | Developed | Energy-intensive non-metal, food industry |
| 29 | Competitiveness | ROA | [81] | Greece | Developed | Chemicals, pharmaceuticals, and plastics |
| 30 | Knowledge management implementation | Market share | [82] | Serbia | Emerging | Manufacturing |

While this work has made a significant contribution, like any other study, it also has inherent limitations. One notable drawback is the study's use of only one database (Scopus) to compile the research findings. This approach may have missed out on relevant research from diverse data sources, potentially limiting the interpretation of the results. The study procedure and the associated qualitative approach also have their limitations. Although conducted rigorously, the SLR was restricted by time constraints and focused solely on English-language publications. This excludes potentially relevant research published in other languages. Additionally, the inclusion and

exclusion criteria set for the analysis limited the selection of potentially relevant publications to those available in the Scopus database. Finally, the timeframe of the review (1987–2022) was chosen to focus on empirical studies discussing organizational financial performance. While no relevant papers published before 1987 were found, some articles published in early 2023 were unavailable or non-empirical and were therefore excluded. Despite these limitations, the study employed a thorough literature review methodology, resulting in a sizable body of literature that fairly represents the contributions and impact of the field.

Table 5 Determinants and financial performance measures in manufacturing literature. Source: Authors

| Sl.No. | Determinants | Performance Measures | Authors |
|--------|---|----------------------------------|---------|
| 1 | CSR contribution | ROA, ROS, ROI | [37] |
| 2 | Impact of strategy and planning | ROA, ROS | [40] |
| 3 | TQM implementation | ROA | [41] |
| 4 | Agile manufacturing | ROA | [42] |
| 5 | Supply-chain management capabilities | ROI | [43] |
| 6 | CO ₂ emissions and environmental R&D investment | Tobin's q, ROA | [46] |
| 7 | Intellectual capital and sustainable growth | ROA, ROE | [49] |
| 8 | Board characteristics | ROA, ROE, ROS, Tobin's Q | [56] |
| 9 | Environmental management practices | ROA | [61] |
| 10 | Impact of strategy and planning | Market share | [62] |
| 11 | Market entry, competitive strategy | ROI | [83] |
| 12 | Innovation and market orientation | ROI | [63] |
| 13 | International diversification | ROI | [64] |
| 14 | Technological diversification | Tobin's q | [84] |
| 15 | Capital structure | ROI | [65] |
| 16 | Pollution emission reduction policy | ROA | [66] |
| 17 | CSR | ROA | [67] |
| 18 | Board characteristics | ROA, ROE, Tobin's q | [68] |
| 19 | Lean production | ROI, ROS | [85] |
| 20 | Environmental, social, and corporate governance (ESG) factors | ROI, ROE, ROA, ROS, ROCE | [86] |
| 21 | Macroeconomic factors, firm characteristics | ROA | [69] |
| 22 | Environmental labeling certification | ROA, Tobin's q | [70] |
| 23 | Knowledge transfer, regulatory support, legitimacy | Market share | [71] |
| 24 | Logistics outsourcing | ROA, ROE | [72] |
| 25 | Innovation | ROI | [73] |
| 26 | Strategic investment decision-making | ROA, ROE | [74] |
| 27 | Manufacturing strategies | ROI | [75] |
| 28 | Sustainable supply chain integration | ROA, ROE | [76] |
| 29 | R&D project efficiency | ROI | [77] |
| 30 | Managerial capability perspective | ROA, ROE | [78] |
| 31 | Eco-industrial parks | ROI, market share | [79] |
| 32 | Corporate sustainability measurement | ROA, ROCE, ROS, ROE | [87] |
| 33 | Energy efficiency | ROA, ROE, Tobin's ROI, ROS, ROIC | [80] |
| 34 | Competitiveness | ROA | [81] |
| 35 | Strategic factors | ROA, ROE | [88] |
| 36 | Knowledge management implementation | Market share | [82] |
| 37 | HRM | ROE, ROA | [89] |
| 38 | Top management team diversity | ROA, ROE | [90] |
| 39 | Business strategies | ROI | [91] |
| 40 | Logistics service | ROA, ROCE | [92] |
| 41 | Sustainable development during the COVID-19 crisis | ROA | [28] |
| 42 | Social capital | ROA, ROI | [93] |
| 43 | Environment disclosure quality | ROA, ROE | [94] |
| 44 | Capital investments | ROA | [95] |
| 45 | Technological diversification | Tobin's Q | [96] |
| 46 | Quality certification | ROA | [97] |
| 47 | Organizational leadership | ROI, ROE, ROA, market share | [30] |
| 48 | CO ₂ and greenhouse gas emissions | ROA, ROE | [98] |
| 49 | Earnings management | ROA | [99] |

Table 5 (continued)

| Sl.No. | Determinants | Performance Measures | Authors |
|--------|---|-------------------------|---------|
| 50 | Corporate mergers | ROA, ROE | [100] |
| 51 | Government support | ROA, ROE | [101] |
| 52 | Managerial decisions | ROE, ROCE, ROS | [102] |
| 53 | Product innovation, staff and planning issues, quality product, customer orientation and financial attractiveness | ROA | [103] |
| 54 | Management accounting techniques | ROE, ROA, ROI | [104] |
| 55 | Concurrent engineering and communication | Market share, ROI | [105] |
| 56 | Environmental investment | ROA | [106] |
| 57 | Audit report lag | ROA | [107] |
| 58 | Intellectual capital | ROA, ROE | [108] |
| 59 | Green accounting | ROA | [109] |
| 60 | HRM | ROA | [110] |
| 61 | CSR | Tobin's Q, ROA | [111] |
| 62 | Firm competitiveness | ROA | [81] |
| 63 | Decision tree algorithms | ROE, ROE, ROC | [3] |
| 64 | Innovation and liquidity | ROA | [112] |
| 65 | Export tax rebate | ROA | [113] |
| 66 | Export earnings, firm size, asset turnover, and volatility of exchange rate | ROA, ROCE | [114] |
| 67 | Strategic procurement | ROA | [115] |
| 68 | Technology and investment | ROS | [116] |
| 69 | Sustainable industrial revolution | ROA, ROE, ROI, ROS | [27] |
| 70 | Supplier—buyer innovation | ROA | [117] |
| 71 | Diverse technological portfolios | ROS, market share | [118] |
| 72 | Intellectual capital | ROA, ROE | [2] |
| 74 | External factors | Market share | [119] |
| 75 | Industry 4.0 | ROI, ROS, ROA, EPS, ROE | [33] |
| 76 | Financial leverage | ROE | [120] |
| 77 | Export intensity and diversification | ROA | [121] |
| 78 | Environmental collaboration | ROA, ROCE | [122] |
| 79 | Economic variables | ROA | [123] |
| 80 | Corporate governance | Tobin's Q, ROA | [124] |
| 81 | Back shoring initiatives | ROA, ROE | [125] |
| 82 | Marketing capability and operation flexibility | ROA | [126] |
| 83 | Environmental performance | ROE, Tobin's Q | [127] |
| 84 | Environmental website disclosure | ROA | [128] |
| 85 | Logistic Capability and TQM Practice | ROA, ROE | [129] |
| 86 | Company's intangible resources | ROA, ROE | [130] |
| 87 | Corporate entrepreneurship | ROA, Tobin Q | [131] |
| 89 | Sustainability management | ROA, ROE | [132] |
| 90 | Board of director size and managing director duality | ROA, Tobin's Q | [133] |
| 91 | Board diligence, director business, and corporate governance | ROA, Tobin's Q | [134] |
| 92 | Structural and locational differences in establishments | ROA | [135] |

Future evaluations could broaden the scope of relevant research by incorporating additional databases and potentially including non-empirical studies from the manufacturing sector within Scopus. Expanding the research focus beyond the manufacturing industry to encompass service, healthcare, agriculture, and

banking & financial services could further enhance the comprehensiveness of future studies.

Acknowledgements

The authors would like to thank the Executive Editor (Dr. Ghada Refaat el Said), Associate Editor (Dr. Felicia Hui Ling Chong) and two anonymous reviewers for their valuable comments and suggestions on the earlier version of the

draft. We believe that the quality of the paper has substantially improved after addressing their recommended revision.

Author contributions

All authors have contributed equally.

Funding

None.

Availability of data and materials

All the data are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

All the authors have agreed to publish the paper.

Competing interests

None.

Received: 21 September 2023 Accepted: 28 May 2024

Published online: 22 June 2024

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