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Article

Literature analysis of financial flexibility and financial performance: Bibliometric and scientometric analysis

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Literature Analysis of Financial Flexibility and Financial Performance: Bibliometric and Scientometric Analysis

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ABSTRACT

This research explores the role of financial flexibility and financial performance in the literature. It gives a quantitative review of the scholarly literature on this topic. The research investigates whether financial flexibility can have an impact on financial performance. A bibliometric and scientometric study was performed on a database encompassing 266 English-language publications published between 1991 and 2023. Data on publications, journals, authors, and citations were gathered, double-checked, and analyzed using bibliometric and scientometric techniques. A review of the literature and scientometrics revealed that published research focuses mostly on variables linked to financial flexibility and financial performance. According to the findings of the study, financial flexibility is linked to financial crises, financial restrictions, profitability, and financial performance. Therefore, the potential for the development of related articles on financial flexibility and financial performance can still be continued. These findings also provide a foundation for future research on financial flexibility and financial performance by highlighting characteristics associated with financial flexibility and financial performance. This research adds to the body of knowledge on the impact of financial flexibility on financial performance. It presents a comprehensive evaluation of the literature on the issues of financial flexibility and financial performance in greater depth.

KEY WORDS:

Financial Flexibility (FF), Financial Performance (FP), Flexibility, Performance, bibliometric analysis.

JEL Classification: M02.

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1. Introduction

The ability of a corporation to negotiate unforeseen financial changes while retaining performance is referred to as financial flexibility. This encompasses liquidity management, securing additional funds, and handling financial risks. On the other hand, financial performance gauges a company's financial outcomes, including profitability, sales growth, efficiency, and market value. The ability of a corporation to negotiate unforeseen financial changes while retaining performance is referred to

as financial flexibility (Byoun, 2007). This concept intersects with the Resource-Based View theory, emphasizing proper resource utilization for competitive advantage (Penrose & Penrose, 2009). This theory portrays a company as a collection of assets—physical and intangible—managed to acquire, sustain, and employ them effectively. Financial flexibility can be considered a financial resource that contributes to performance in the context of the Resource-Based View. It facilitates long-term competitive advantage by enabling adaptive financial resource management based on market condi-

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tions. Effective financial flexibility empowers rapid responses to market shifts, management of challenges, strategic investments, and risk mitigation.

Studies exploring financial flexibility's influence on performance yield varied outcomes. Research by (Rapp et al., 2014) suggests high financial flexibility enhances performance, echoed by (Arslan-Ayaydin et al., 2014), stating that such flexibility aids firms during crises by supporting valuable investments and prudent resource allocation. Yet, (Meier et al., 2013) found that pre-crisis cash holdings do not impact crisis-period performance. Conversely, excessive pre-crisis debt impairs performance (Gu & Yuan, 2020; Meier et al., 2013). Excess cash might lead to idle funds, incurring opportunity costs and raising agency costs as management pursues personal gains, damaging performance (Jensen & Meckling, 2019).

This research aims to deepen the understanding of the concept of financial flexibility and its impact on company performance. Financial flexibility is not just about having sufficient liquidity, but also about the ability to manage financial risks and respond to market changes quickly and efficiently. This concept is closely related to the Resource-Based View theory, which emphasizes the importance of managing resources effectively to achieve long-term competitive advantage. Considering that companies are regarded as collections of assets managed to achieve business objectives, financial flexibility becomes a strategic resource in attaining these goals. Previous research has shown that companies with high levels of financial flexibility tend to perform better, especially in times of crisis. However, challenges arise when research results show varying and sometimes contradictory outcomes, indicating the need for more in-depth research to holistically understand how financial flexibility can influence company performance.

In the context of this study, scientometric and bibliometric analyses are expected to provide a more comprehensive insight into the development of literature related to financial flexibility and company performance. Through these analyses, it will be possible to identify trends, patterns, and gaps in existing research, which can guide further focused and in-depth studies. By better understanding the

literature landscape, this research has the potential to offer valuable guidance for practitioners and decision-makers in designing effective financial management strategies. Furthermore, integrating empirical findings with the Resource-Based View theory can help develop a more robust understanding of the role of financial flexibility in creating long-term competitive advantage for companies.

2. Literature Review

Financial performance is a vital yardstick for evaluating a company's efficient utilization of assets and revenue generation. It encompasses the assessment of assets, liabilities, equity, costs, and income (Orlitzky et al., 2003). Performance analysis is a widely used diagnostic tool in many economic sectors, including transportation, health, construction, the public food industry, finance, banking, and sustainable activities (Ban et al., 2022). However, measuring corporate financial performance is debated, and diverse methods are used (Cochran & Wood, 1984). The evaluation involves market, accounting, and survey measurements, indicating shareholder satisfaction, internal efficiency, and subjective estimations (Orlitzky et al., 2003). Return on assets (ROA), return on investment (ROI), return on equity (ROE), and sales growth are some of the metrics used to assess performance (Agle et al., 1999; Berman et al., 1999; Choi & Wang, 2009; Fauzi & Idris, 2009). Return on assets (ROA) and return on equity (ROE) are used to measure profitability in research conducted by (Kartanaite & Krusinskas, 2022), and return on investment (ROI) is used to measure profitability in research conducted by (Kartanaite & Krusinskas, 2022).

Flexible companies have a competitive advantage over other companies in initiating and implementing transformation activities (Javed et al., 2022). Financial flexibility demonstrates the company's ability to quickly mobilize financial resources or take action to maximize company value (Byoun, 2007). This includes redistributing cash flows between bonds and shareholders in order to adapt to risks and create value (Pendar et al., 2019). Furthermore, cash management can benefit both investors and policymakers (Stamatopoulos, 2022).

Financial flexibility goes hand in hand with capital structure decisions, allowing firms to navigate risks and optimize the cost of capital (Mittoo et al., 2011). This helps companies in obtaining internal and external funding during difficult times, thereby enabling them to overcome difficulties and take advantage of opportunities. However, excessive debt can hinder financial flexibility (Alipour et al., 2015).

Several studies have been conducted to investigate the relationship between financial flexibility and performance. (Rapp et al., 2014) discovered that high financial flexibility has a positive effect on company performance. Similarly, (Cherkasova & Kuzmin, 2018) discovered that firms with high financial flexibility perform better during crises as a result of strategic investments and optimal resource allocation. (Arslan-Ayaydin et al., 2014) investigated the impact of financial flexibility on investment and performance during crises, discovering that financial flexibility prior to a crisis leads to greater investment capacity and better performance. Where, investment strategy significantly influences the company's financial performance (Vu & Chi, 2022). And, by designing investment strategies to attract and retain investors. This will also help company management to improve company performance and increase its market value (Mysaka & Derun, 2021). The research conducted by (Chang & Wu, 2022) made a significant contribution to the literature on the impact of financial flexibility on financial performance.

Past research emphasized financial flexibility's role during economic downturns (Fisman, 2001; Johnson et al., 2000; Lemmon et al., 2003; Lins, 2003; Mitton, 2002). It's evident that financial flexibility is crucial for performance in challenging times. In conclusion, financial performance assesses a company's resource utilization and revenue generation, while financial flexibility denotes a company's ability to adapt and mobilize resources in order to maximize value. The relationship between these factors is intricate; high financial flexibility can enhance performance by facilitating strategic investments and risk management. This connection is particularly significant during

crises. Future research should continue exploring this relationship, considering factors like leverage ratios, liquidity ratios, and debt management to comprehensively understand the interplay between financial flexibility and financial performance.

3. Methodology

The investigation into the relationship between financial flexibility and financial performance requires scientometric and bibliometric analyses utilizing data from the extensive Scopus database. Scopus stands out as a premier academic source, renowned for its wide coverage across various disciplines and international journals. This comprehensive coverage ensures that researchers can easily access a wealth of credible data, thereby enhancing the reliability of the findings of this research. Furthermore, Scopus offers superior coverage specifically within this research field, which further enriches the dataset and enables a more thorough exploration of the subject matter. The methodology involves citation, co-citation, content, and co-author analyses in scientometric, and co-occurrence analysis in bibliometric analysis. The goal is to create a framework for understanding the research field. Bibliometrics aids in summarizing prior research, identifying gaps, and delving into domains. The VOS Viewer software facilitates analysis, reducing the initial 1,328 articles to 266 for in-depth review. The research follows the five-stage framework (Costa et al., 2017), encompassing defining fields, search procedures, data collection, analysis, and discussion of results and citations. This comprehensive approach ensures a thorough exploration of the subject matter.

The initial step in bibliometric analysis involves defining Financial Flexibility and Financial Performance as research subjects. Subsequently, a bibliometric analysis is conducted based on these variables, utilizing Scopus data. Article data related to these concepts is collected from the Scopus database, serving as a valuable resource for scientific articles in this field. This systematic approach ensures a comprehensive exploration of the research domain, aiding in identifying trends and gaps in existing literature.

In the research methodology outlined in Table 1, step 2 involves the search procedure, where the study employs search terms such as "Financial Flexibility" and "Financial Performance." The Scopus database is

utilized, searching through titles, abstracts, and keywords using the command "financial flexibility AND performance OR financial performance." Four filters are applied: articles, all available years, specific scientific fields (Business, Management and Accounting, Economics, Finance, Social Sciences), and English language. Moving on to step 3, data collection and organization occur. R Studio and VosViewer are employed as reference management and bibliometric analysis software, respectively. References are downloaded from Scopus and formatted in R Studio and electronic spreadsheet formats, then imported into VosViewer for analysis.

According to Table 1, the fourth stage includes contextual analysis of the selected scientific outcomes

within the sample. The number of sample articles, as well as excerpts, is analyzed over time to determine relevance. Journal analysis includes country of origin, prevalent keywords, and scientific fields. VosViewer assists in processing this information. Starting with 1,328 articles from Scopus, a focused sample of 266 articles is analyzed and discussed based on predefined research criteria. Lastly, stage 5 of the bibliometric analysis deals with citation network analysis. The most cited works and authors are identified, followed by a discussion of the work ratios of primary authors. Journals with the most articles cited by the sample are also investigated. This thorough procedure supplements database results by providing insights into key works, authors, and journals within established theoretical domains.

Table 1
Stages of Research Assembly and Bibliometric Analysis

No	Stages	Description
1	Choosing the object of analysis and its scientific foundation	a. Define the scientific and theoretical fields of the work;
		b. Define the work's objectives; and
		c. Select the scientific basis on which the article research will be conducted.
2	Procedures for conducting searches	a. Specify the search terms
		b. Specify the engines for an advanced search
		c. Create the search filters
		a. Create the reference manager software
3	Data collection and organization	b. Create the bibliometric analysis software
		c. Download the references from the reference manager format, the bibliometric analysis format, and the electronic spreadsheet format
		d. Import the files into the reference manager and the bibliometric analysis software
4	Contextual analysis of the sample-related scientific output	a. Analysis of the selected publications' temporal volume
		b. Analysis of the selected articles' citations
		c. Analysis of the journals that published the selected articles
		d. Analysis of the countries of origin of the selected articles
		e. Analysis of the keywords of the selected articles
		f. Analysis of the selected articles' scientific areas
5	The sample conducted an analysis of the citation networks	a. Analysis of the overall sample's citations and co-citations
		b. Analysis of the most cited authors
		c. Analysis of the main journals

4. Findings and Discussion

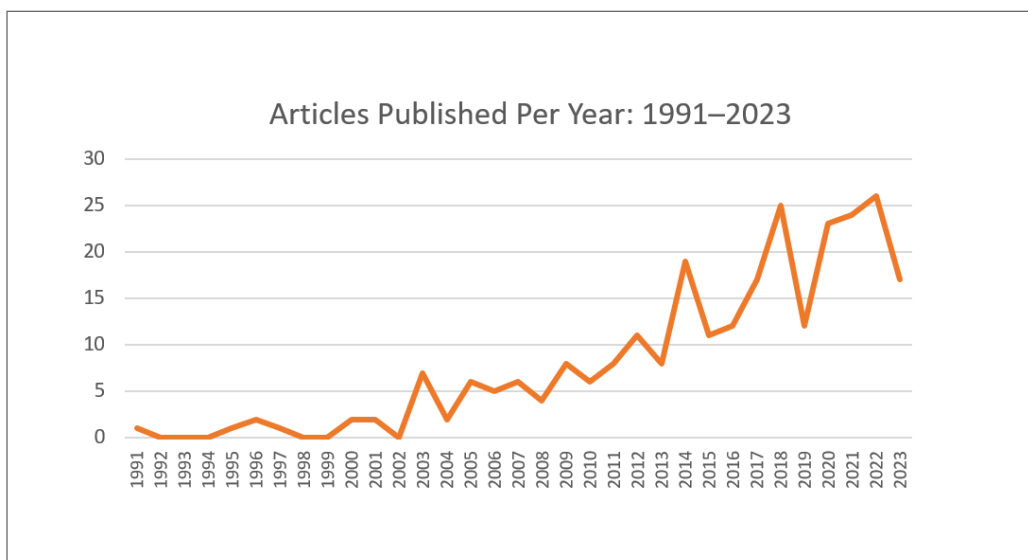
4.1. Contextual Analysis of Scientific Outputs from a Sample

The survey was conducted in July 2023, and a primary search yielded 1328 articles that were used in the bibliometric analysis. A specific search yielded 266 articles relating to Financial Flexibility and Financial Performance between 1991 and 2023. As a result, to determine the time span of the published publications, a graph was created that was outlined based on predetermined search criteria, as shown in Figure 1, which shows the number of articles published over time.

Figure 1 showcases the evolution of sample articles in the field of financial flexibility and financial performance based on the Scopus database. The earliest work dates back to 1991, titled "Financial Intermediaries and Financial Markets: A United Kingdom Regional Perspective," discussing regional financial market distribution and technology's impact on intermediaries (McKillop & Hutchinson, 1991). Over time, the volume of publications has notably increased, with a peak in 2022, featuring 26 scientific articles. Between 1991 and 2023, there was a significant increase in the number of articles, reaching 25

articles. When compared to 2018, this represents a 2400% increase in articles compared to 1991. This trend suggests that the topics of financial flexibility and financial performance have become compelling issues for further examination and analysis to enable companies to achieve maximum performance. The highest citation in 2018, totaling 185 citations, was attributed to the work by (Pedersen et al., 2018), titled "Between Business Model Innovation, Corporate Sustainability, and Organisational Values within the Fashion Industry," published in the Journal of Business Ethics. This study aims to examine the relationship between business model innovation, corporate sustainability, and underlying organizational values, as well as how these dimensions correlate with company financial performance. It is concluded that companies with innovative business models are more likely to address corporate sustainability and that both business model innovation and corporate sustainability are generally found in organizations rooted in values of flexibility and wisdom. Business model innovation and corporate sustainability appear to originate from fundamental principles that guide organizations. Additionally, the study also found a positive relationship between core organizational values and financial performance.

Figure 1
The Annual Number of Articles Published



In 2023, the number of articles on financial flexibility and financial performance experienced a decrease of 47% compared to 2018, with the highest citation totaling 4 citations attributed to an article by Kafetzopoulos (2023), titled "Talent development: a driver for strategic flexibility, innovativeness, and financial performance," published in the *EuroMed Journal of Business*. The article aims to establish a theory presenting talent development as a catalyst for innovation and strategic flexibility and to examine how these organizational capabilities impact financial performance. Methodologically, the study employs a literature review and exploratory interviews with managers and academicians. Additionally, a conceptual framework is validated through confirmatory factor analysis and subsequently structural equation modeling using survey data from 462 Greek companies. The research findings indicate a positive effect of talent development on strategic flexibility and innovation. Moreover, strategic flexibility emerges as an influential organizational capability affecting innovation and financial performance. Furthermore, the study reveals the significance of innovation on financial performance.

Based on the publication of articles from 1991 to 2023, there are specific articles that focus on financial flexibility and financial performance. The initial article in the research, "Financial flexibility, corporate investment, and performance: Evidence from financial crises," published in 2014 in the *Review of Quantitative Finance and Accounting*, specifically explored the relationship between financial flexibility and financial performance. This article indicates that high financial flexibility enhances crisis performance by enabling valuable investments and optimal resource allocation (Arslan-Ayaydin et al., 2014). Figure 1 also highlights that although articles related to financial flexibility have been published since 1991, the specific focus on its relationship with financial performance emerged in 2014. Among the selected articles, Table 2 presents the 10 most cited works, shedding light on predominant studies based on Scopus citation counts.

Table 2 presents the top 10 authors with the highest citations from the Scopus database in the realm of financial flexibility and financial perfor-

mance. Nishitani (2009) emerges as the most cited author with 121 citations, exploring the interplay of stakeholder preferences, financial flexibility, and ISO 14001 adoption. This study reveals that stakeholder pressures and financial flexibility influence ISO 14001 adoption, impacting economic performance. Arslan-Ayaydin et al. (2014) hold second place with 100 citations. Their work delves into financial flexibility's role in investment and corporate performance during crises, highlighting its importance during the Asian Crisis and Credit Crisis. Hatakeda et al. (2012) rank third with 58 citations, examining the link between greenhouse gas emissions, profitability, and factors such as ISO 14001 implementation, market competition, uncertainty, and financial flexibility. Sharma et al. (2010) secure the fourth spot with 57 citations, emphasizing the broader significance of flexibility in organizational strategic management processes. Baos-Caballero et al. (2016) are ranked fifth with 54 citations for their research on the relationship between working capital financing and firm performance under changing conditions, particularly during the financial crisis.

Mensah & Werner (2003), at sixth place with 34 citations, assess how a lack of financial flexibility affects efficiency in higher education institutions. Panda & Nanda (2018) hold the seventh position with 32 citations, researching the relationship between working capital financing and firm profitability, taking into account price-cost margin scenarios and financial flexibility. Zainudin et al. (2017) are in the eighth spot with 26 citations, analyzing REITs' debt financing decisions in relation to financial performance and flexibility. Ma & Jin (2016) stand tenth with 18 citations, examining the interplay between financial flexibility, investment, and firm performance, revealing a preference for investment expansion over efficiency in Chinese firms. These works collectively provide insights into the complex dynamics between financial flexibility and performance across diverse contexts. Further examination reveals that the works cited in Table 2 not only investigate the relationship between financial flexibility and performance, but also the effects of operational, strategic, and organizational flexibility on overall performance. Table 3 presents data on the journals that published the most articles relevant to

Table 2*The Top 10 Most Articles in Scopus Related to Financial Flexibility and Financial Performance (n=266)*

No	Authors	Title	Year	Source Title	Total Citation	Average Citations Per Year
1	Nishitani (2009)	An empirical study of the initial adoption of ISO 14001 in Japanese manufacturing firms	2009	Ecological Economics	121	100%
2	Arslan-Ayaydin et al. (2014)	Financial flexibility, corporate investment and performance: Evidence from financial crises	2014	Review of Quantitative Finance and Accounting	100	100%
3	Hatakeda et al. (2012)	Factors Influencing Corporate Environmental Protection Activities for Greenhouse Gas Emissions Reductions: The Relationship Between Environmental and Financial Performance	2012	Environmental and Resource Economics	58	100%
4	(Sharma et al., 2010)	Revisiting flexibility in organizations: Exploring its impact on performance	2010	Global Journal of Flexible Systems Management	57	100%
5	(Baños-Caballero et al., 2016)	Financing of working capital requirements, financial flexibility and SME performance	2016	Journal of Business Economics and Management	54	68%
6	(Mensah & Werner, 2003)	Cost efficiency and financial flexibility in institutions of higher education	2003	Journal of Accounting and Public Policy	34	100%
7	Panda and Nanda (2018)	Working capital financing and corporate profitability of Indian manufacturing firms	2018	Management Decisions (UK)	32	100%
8	(Zainudin et al., 2017)	Debt and financial performance of reits in Malaysia: A moderating effect of financial flexibility	2017	Management Journal	26	100%
9	(Yung et al., 2015)	The value of corporate financial flexibility in emerging countries	2015	Journal of Multinational Financial Management	20	77%
10	(Ma & Jin, 2016)	What Drives the Relationship Between Financial Flexibility and Firm Performance: Investment Scale or Investment Efficiency? Evidence from China	2016	Emerging Markets Finance and Trade	18	23%

the study to supplement the main article analysis.

Table 3 reveals that 10 journals collectively published 55 articles, constituting 20.68% of the 266 selected articles. The Journal of Sustainability (Switzerland) leads with 12 articles (4.51%). Notably, an

article by (Teng et al., 2021) explores the effect of financial flexibility on the performance of Taiwanese manufacturing firms during COVID-19, revealing a positive correlation, especially in asset-intensive sectors. However, the semiconductor industry and

asset-light manufacturing sector exhibit weaker associations. Moving forward, the study delves into the volume of scientific output, focusing on the top 10 countries by article count, as detailed in Table 4 of the Scopus database.

Table 4 highlights the substantial research contributions from various countries in the area of financial flexibility and performance. The USA emerges as a dominant player, publishing 45 articles out of the 266 sampled, representing 16.92% of the total. China follows with 31 articles, while the United

Kingdom contributed 12 articles. The prominence of the USA underscores its leadership in this area of research. Other countries like Canada and India each have 9 articles, while Italy and Spain have 8 articles, Germany 7 articles, Korea 6 articles, and Greece 5 articles. The article "What Drives the Relationship Between Financial Flexibility and Firm Performance: Investment Scale or Investment Efficiency?" from the Journal of Emerging Markets Finance and Trade, a US-based publication, is one example. In 2016, Ma C. and Jin Y. published

Table 3
Journals with the Most Publications Among the 266 Articles Relevant to the Study

Journals	Frequency of publications	Ratio (%)
Sustainability (Switzerland)	12	4.51
International Journal of Production Economics	11	4,14
Industrial Marketing Management	5	1.88
International Journal of Production Research	5	1.88
Journal of Business Research	5	1.88
Journal of cleaner production	4	1.50
Journal of Corporate Finance	4	1.50
Benchmarking	3	1,13
Corporate Social Responsibility and Environmental Management	3	1,13
Global Journal of Flexible Systems Management	3	1,13
Partial Summary	55	20.68
Other Journals	211	79.32
Total summaries	266	100

Table 4
Country with the Most Publications out of the 266 Articles

No	Country	Articles	Freq (%)
1	USA	45	16.92
2	China	31	11.65
3	United Kingdom	12	4.51
4	Canada	9	3.38
5	India	9	3.38
6	Italy	8	3.01
7	Spain	8	3.01
8	Germany	7	2.63
9	Korea	6	2.26
10	Greece	5	1.88

"Evidence from China," which received 18 citations. This signifies its relevance for future researchers as a reference point. Notably, the network of cooperation among countries is visually represented in Figure 2, depicting collaborative relationships among the 266 sampled research articles.

The formation of common research clusters in this study involves by RStudio software grouping publications based on shared factors like keywords, titles, subject categories, and authors. This process helps identify publications with similar topics, enabling more comprehensive trend analysis and collaboration exploration. The study identified 11 clusters among 266 articles from various countries. Cluster groupings are represented by different colors, and the same color indicates shared clusters among countries. For instance, Cluster 1 (green) includes the USA, China, Australia, and the Philippines; Cluster 2 (red) encompasses the UK, France, Germany, and Brazil. Among these clusters, the USA exhibits the highest collaboration, with

32 collaborative works, followed by the UK with 15 and China with 6.

Creating these clusters aids researchers and professionals in identifying evolving research trends within the Financial Flexibility and Financial Performance domains. It also helps connect researchers working on similar topics, potentially fostering collaboration. Researchers can easily locate relevant publications and intuitively understand countries' groupings based on scientific cooperation. Additionally, the study performed a bibliometric analysis of keywords used in the research, as presented in Table 4 and Figure 3. The top 10 keywords emerging from the search criteria ("financial flexibility" and "financial performance") are outlined in Table 5. These keyword insights further contribute to a comprehensive understanding of the research landscape.

According to the research on financial flexibility and financial performance, "financial performance" is the most frequently used keyword, appearing

Figure 2
The Annual Number of Articles Published

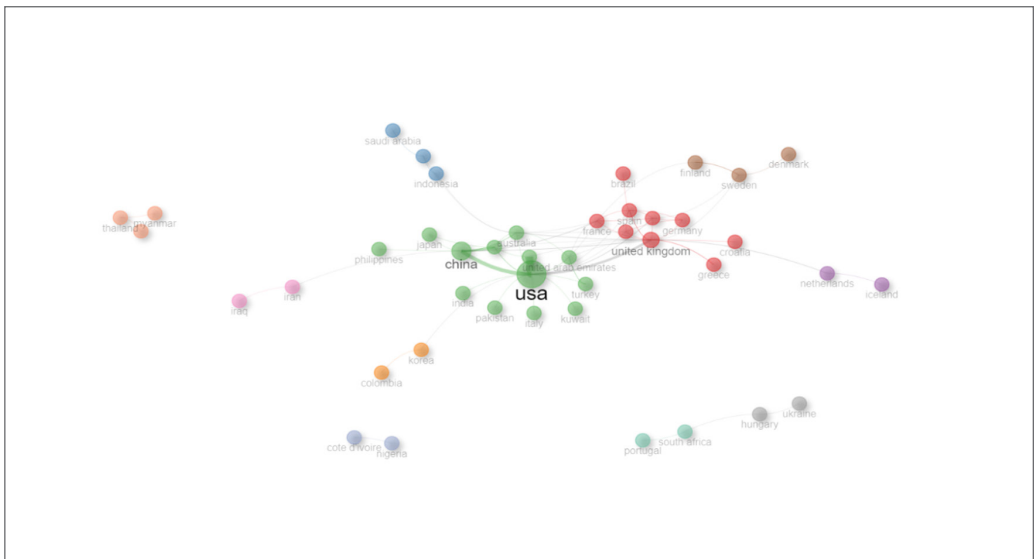


Table 5
Top Keywords Financial Flexibility and Performance Based on Emergence Keywords

No	Keyword	Occurance
1	Financial Performance	54
2	performance	43
3	Flexibility	35
4	Financial Flexibility	30
5	Firm Performance	28
6	Finance	23
7	Strategic Flexibility	16
8	Operational Performance	15
9	Investments	12
10	Costs	12

54 times. Other related keywords include "performance" (43 times), "flexibility" (35 times), "financial flexibility" (30 times), "firm performance" (28 times), "finance" (23 times), "strategic flexibility" (16 times), "operational performance" (15 times), "investments" (12 times), and "costs" (12 times). The frequent use of keywords like "financial performance" and "flexibility" indicates their relevance and popularity in current scientific literature. The frequent appearance of these keywords suggests a strong interest and demand among researchers in these topics. Using Scopus as the source database, a co-occurrence analysis of keywords was conducted to group and evaluate research sub-fields. By employing the VOSviewer software and employing the Binary Counting method, the study narrowed down the selection to 266 articles for bibliometric analysis. The network analysis of keywords is illustrated in Figure 3, highlighting the interconnectedness of research themes.

Circles drawn on the map represent specific objects (a term found more than 6 times), according to Figure 3 created by Vosviewer software. The larger the circle, the higher the score for term occurrence. Items are organized into groups denoted by the same color. Items are organized into color-coded groups. Each the same color indicates the keywords are in the same cluster. In addition, the closer the circles are to each other, the closer the lines are related between each keyword, indicating that between keywords has a strong influence. Therefore, it can be seen that things such as financial flexibility,

firm performance, financial crisis, financial constraints, profitability, industrial performance, and emerging markets have the same cluster and have a strong linkage or influence between these variables or keywords. In the last cluster for keyword analysis, there are the keywords performance, flexibility, strategy, financial management, organizational performance, and competitiveness. These keywords have a strong attachment between keywords, which means they have a fairly strong influence on these variables. Network keywords that often appear as shown in Figure 3 can be seen in its development from year to year according to Figure 4 below.

The keywords that appeared from 2012 to 2018 can be seen from different colors starting from darker colors in earlier years, namely 2012, namely the keywords industrial performance, and financial market until 2018 which are increasingly bright in color, namely on the keyword costs. From our analysis of the bibliometric literature on financial flexibility and financial performance, our research results show that financial performance can be influenced by one factor, namely financial flexibility. The definition of financial flexibility is the company's capacity and speed in mobilizing financial resources or taking preventive, reactive, and exploitative actions to maximize the company's value (Byoun, 2007).

4.2. Analysis of Scientific Output Networks

While analyzing Figure 4, it is possible to infer the existing relationship between the areas of Fi-

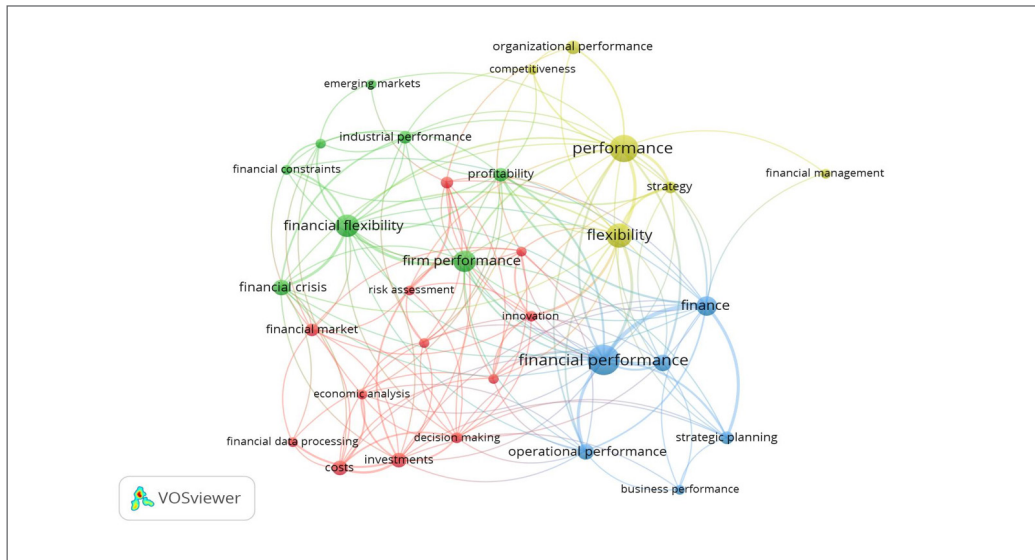
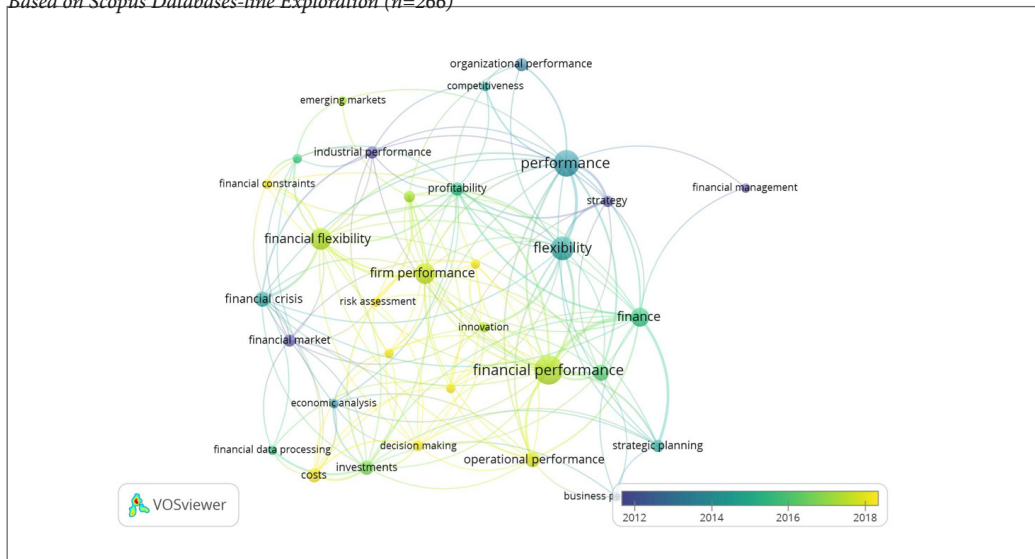
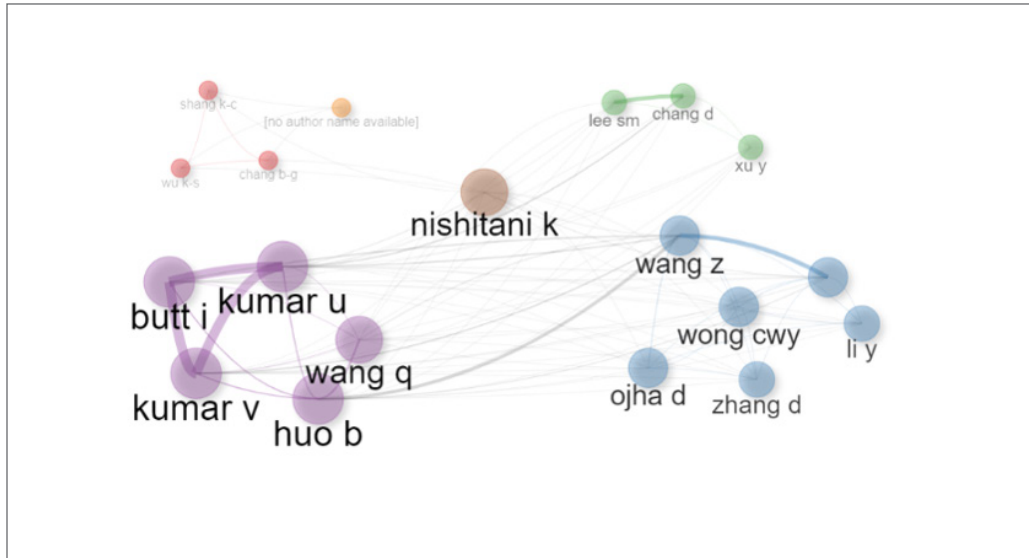
Figure 3*Network of the Main Keywords Among the 266 Articles***Figure 4***The Trend of Increased Publication Devoted to Financial Flexibility and Financial Performance in the Following Year Based on Scopus Databases-line Exploration (n=266)*

Figure 5

Network of Authors by Global Citation Score Among the 266 Articles of this Sample



financial Flexibility and Financial Performance, i.e., financial flexibility is a key factor for investment and performance, particularly during times of crisis. Companies that were financially flexible prior to the crisis were better able to take advantage of investment opportunities, relied on the availability of internal funds to invest, and outperformed companies that were less flexible during the crisis (Arslan-Ayaydin et al., 2014). A keyword search turned up 1,328 articles. As shown in Figure 5, these articles cite several studies, which are sorted by the first author who receives the most citations. There are 20 authors in the top order who receive the most citations.

Based on Scopus database, Figure 5 displays a global citation score-based author keyword network, forming five distinct clusters. In the first cluster, (Shang & Marlow, 2005) present a paper titled "Logistics Capability and Performance in Taiwan's major manufacturing firms," garnering 128 citations. This work explores how logistics capabilities impact benchmarking, flexibility, logistics performance, and financial performance. Notably, information-based capabilities emerge as crucial, indirectly influencing financial performance through logistics performance. Within the same cluster,

(Chang & Wu, 2022) study the "Convex-concave effect of financial flexibility on hospitality performance" with 3 citations. Investigating Taiwan's hospitality industry during COVID-19, they find a need for FF optimization to address liquidity risks post-pandemic.

The second cluster includes (Ojha et al., 2020) and their article "Dynamic strategic planning and firm competitive performance: A Conceptualization and an Empirical Test," which has received 22 citations. This study investigates how operational capabilities mediate the link between dynamic strategic planning and financial performance, revealing the critical role of operational capabilities. Furthermore, (Wong et al., 2012) and (Pham & Doan, 2020) contribute to this cluster by focusing on the role of stakeholder support in asset recovery and investigating chain flexibility concepts, respectively. (Jiao et al., 2022) publish "Effects of strategic flexibility and organizational slack on the Relationship between green operational practices adoption and firm performance," which receives 7 citations in the third cluster. Their findings show that strategic flexibility and organizational slack influence the relationship between the adoption of green operational practices and both environmental and financial

performance. Cluster 3 (Chang & Lee, 1996) investigates the "Impact of JIT on organizational performance of US firms" using 26 citations.

Cluster 4 features (Huo et al., 2016) and their work "Threats and benefits of power discrepancies between organizations: a supply chain perspective" with 13 citations. This study examines how power dynamics impact information sharing, flexibility, and performance within supply chains. In the same cluster, (Zahari et al., 2023) investigate "The impact of strategic orientations on the development of manufacturing strategy and firm's Performance," uncovering strategic orientations' influence on manufacturing strategy and its subsequent impact on financial and non-financial performance.

Finally, cluster 5 contains (Nishitani, 2009), who authored an article titled "Empirical study of the initial adoption of ISO 14001 in Japanese manufacturing firms," with a remarkable 121 citations. This study investigates how stakeholder environmental preferences and financial flexibility influence company ISO 14001 adoption. Additionally, Table 6 highlights the ten journals with the highest citations pertaining to financial flexibility and financial performance, further enriching the landscape of research in this domain.

The analysis of journals in this field reveals prominent contributors. Leading the list is the International Journal of Production Economics, covering Business, Management, Decision Sciences,

and more, with (Rogers et al., 2011) having 39 citations for their work on manufacturing flexibility. The Journal of Business Research ranks second, with top contributors being Rudd JM, Greenley GE, Beatson AT, and Lings IN, amassing 117 citations. In third place is the Journal of Industrial Marketing Management, wherein Sisodiya SR, Johnson JL, and Grégoire Y. have 168 citations. Following closely is the Journal of Cleaner Production, with Y. Wu holding 82 citations. The International Journal of Production Research ranks fifth, featuring Rogers PP, Ojha D., White RE, accumulating 39 citations. The Sustainability journal places sixth, with Popescu GH, Nica E., Ciurlău FC, Comănescu M., and Bițoiu T. having 54 citations.

The Global Journal of Flexible Systems Management takes seventh place, featuring Girotra A. and Yadav SS with 57 citations. The Benchmarking journal comes in second with 35 citations from Jajja MSS, Kannan VR, Brah SA, and Hassan SZ. The Journal of Corporate Finance is ninth, with 17 citations from Isin AA, and the Corporate Social Responsibility and Environmental Management journal is tenth, with 7 citations from Jiao J., Liu C., Xu Y., and Hao Z. The Scopus index and SJR scores of these journals help researchers select relevant references. This information assists authors in aligning their work with the journal's focus and desired index. Moreover, a linkage network among journals related to the 266 research samples is displayed in

Table 6

Journal with Top Number of Citations Based on Keywords Financial Flexibility and Performance

Journals	Number of Citations
International Journal of Production Economics	665
Journal of Business Research	547
Industrial Marketing Management	281
Journal of cleaner production	190
International Journal of Production Research	138
Sustainability (Switzerland)	127
Global Journal of Flexible Systems Management	81
Benchmarking	65
Journal of Corporate Finance	30
Corporate Social Responsibility and Environmental Management	14

Figure 6, enhancing the understanding of their interconnections.

Figure 6 shows four distinct journal clusters created by RStudio software. Journals in the first cluster include Journal of Business Ethics, Sustainability (Switzerland), Journal of Corporate Finance, and others. Journals in the second cluster include Euromed Journal Of Business, Corporate Social Responsibility And Environmental Management, and others. Journal of Operations Management, International Journal of Production Economics, and related journals comprise the third cluster. Lastly, cluster 4 contains the Journal Of Cleaner Production. These clusters reflect the thematic alignment of journals, aiding researchers in exploring relevant literature and establishing connections within their fields of interest.

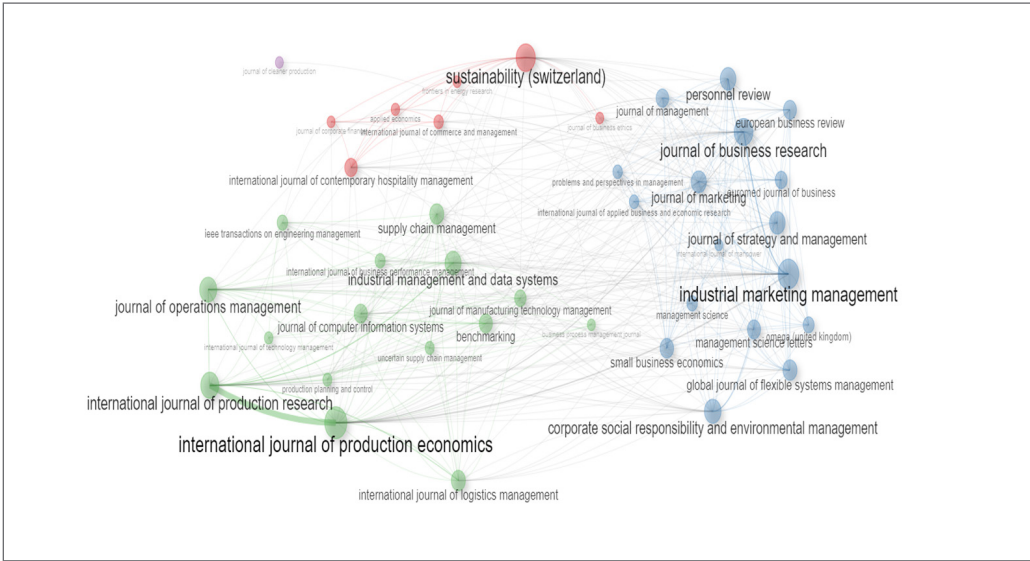
4. Conclusion

The aim of this research is to conduct a comprehensive bibliometric analysis of financial flexibility and financial performance. This involves exploring

connections, influences, and patterns within this field. The research collected a sample of 266 articles from 1991 to 2023 using the Scopus database. The analysis revealed that (McKillop & Hutchinson, 1991) were among the initial contributors, with a steady rise in annual publications, notably 26 articles in 2022. The most cited work, authored by (Nishitani, 2009), received 121 citations. The journal "Sustainability (Switzerland)" published the highest number of articles, with 12 contributions, including (Teng et al., 2021) addressing financial flexibility's role in sustainable enterprise emergence during the COVID-19 crisis. The USA produced the most articles (45 out of 266), and prevalent keywords include performance, flexibility, firm performance and financial flexibility.

The findings of the study, emphasize a positive relationship between financial flexibility and firm performance, crucial in economic crises. Financial flexibility enables seizing investment opportunities, risk management, and enhancing company value. The analysis highlights the interconnectedness of

Figure 6
Among the Sample's 266 Articles, the Network of Most Frequently Used Journals



financial flexibility, financial performance, and related variables in scholarly discourse. Financially flexible firms exhibit better crisis resilience, benefiting from improved access to external capital markets and wiser investment choices. This study contributes to theoretical understanding by mapping the trajectory of research in financial flexibility and financial performance, laying a foundation for further exploration. Future research directions might delve deeper into the specific financial flexibility's impact on financial performance, expanding the theoretical framework.

This study contributes significantly to the theoretical understanding of financial flexibility and corporate financial performance. The findings strengthen the existing theoretical framework and offer a reference point for future investigations concerning the studied variables. The research aligns with the resource-based view theory, underscoring the significance of internal capabilities and resources in establishing competitive advantages and superior performance. The study's outcome indicates that financial flexibility plays a crucial role in a company's ability to mobilize financial resources and respond proactively, reactively, and exploitatively to financial performance factors. This underscores the potential impact of financial flexibility on a firm's financial performance. The consensus across prior research is that higher financial flexibility corresponds to improved financial performance. This underscores a positive correlation between financial flexibility and firm performance. Firms with greater financial flexibility are better equipped to navigate financial challenges and make strategic investments during crisis situations. The concept also aids in optimizing financial resource allocation and managing financial risks. This bibliometric analysis provides valuable insights into research trends and key contributors within the financial flexibility and financial performance domain, offering practical guidance to researchers, academics, and practitioners.

Beyond its theoretical contribution, this study offers practical insights for companies concerning the intricate relationship between financial flexibility and financial performance. Organizations are advised to elevate their financial flexibility.

The business landscape's uncertainties necessitate firms to swiftly mobilize financial resources and undertake appropriate actions to maximize overall performance. Companies can enhance financial flexibility by employing judicious leverage strategies, prudent cash retention policies, and securing access to external capital markets. Safeguarding against financial risks should be a central focus for firms. In coping with unexpected events and financial crises, companies must formulate effective strategies to mitigate adverse impacts. Financial flexibility emerges as a valuable tool in managing financial risks adeptly. When making investment decisions, financial flexibility should be factored in. Firms must consider their financial flexibility levels to make informed investment choices. Robust financial flexibility empowers firms to seize investment prospects and circumvent situations leading to suboptimal investments. While the study reveals that extensive research has explored financial flexibility and financial performance, it highlights the absence of a single comprehensive theory pinpointing financial flexibility's definition and its precise effect on financial performance. Moreover, the heterogeneity of prior research in terms of conditions and company characteristics hinders definitive generalizations.

The recommendations from this research highlight two key points. Firstly, it underscores the importance of future research in developing a more comprehensive theory regarding the relationship between financial flexibility and firm performance. This endeavor can help bridge existing knowledge gaps and provide clearer guidance for business practitioners in crafting their financial strategies. By strengthening our understanding of financial flexibility and its precise impact on firm performance, we can better equip companies to navigate the challenges of an ever-evolving business landscape. Furthermore, enhancing the financial flexibility of companies is crucial. In a dynamic and uncertain business environment, having adequate financial flexibility can be a valuable asset. Companies are advised to consider prudent debt strategies and careful cash retention policies to ensure sufficient financial resources to address both challenges and emerging business opportunities. Additionally,

securing reliable access to external capital markets while prioritizing effective financial risk management, especially in crisis situations, is essential. By formulating appropriate strategies and considering financial flexibility in investment decision-making, companies can maximize their performance potential and minimize risks associated with market uncertainty.

References

- Alipour, M., Mohammadi, M. F. S., & ... (2015). Determinants of capital structure: an empirical study of firms in Iran. ... *Journal of Law and ...* <https://www.emerald.com/insight/content/doi/10.1108/ijlma-01-2013-0004/full/html>
- Arsilan-Ayaydin, Ö., Florackis, C., & Ozkan, A. (2014). Financial flexibility, corporate investment and performance: evidence from financial crises. *Review of Quantitative Finance and Accounting*, 42(2), 211–250.
- Ban, O. I., Droj, L., Tuş, D. A., & Botezat, E. (2022). Operationalization of Importance-Performance Analysis With Nine Categories and Tested for Green Practices and Financial Evaluation. *Technological and Economic Development of Economy*, 28(6), 1711–1738. <https://doi.org/10.3846/tede.2022.17653>
- Baños-Caballero, S., García-Teruel, P. J., & ... (2016). Financing of working capital requirement, financial flexibility and SME performance. *Journal of Business ...* <https://www.tandfonline.com/doi/abs/10.3846/16111699.2015.1081272>
- Byoun, S. (2007). Financial flexibility, firm size, and capital structure. In *Journal of Economic Literature*. Citeseer. <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=62b94b255b30e27f3b502cb3433be84d468912cd>
- Chang, B.-G., & Wu, K.-S. (2022). Concave effect of financial flexibility on semiconductor industry performance: Quantile regression approach. *Technological and Economic Development of Economy*, 28(4), 948–978. <https://doi.org/10.3846/tede.2022.16622>
- Cochran, P. L., & Wood, R. A. (1984). Corporate social responsibility and financial performance. *Academy of Management Journal*, 27(1), 42–56.
- Costa, D. F., de Melo Carvalho, F., de Melo Moreira, B. C., & do Prado, J. W. (2017). Bibliometric analysis on the association between behavioral finance and decision making with cognitive biases such as overconfidence, anchoring effect and confirmation bias. *Scientometrics*, 111(3), 1775–1799. <https://doi.org/10.1007/s11192-017-2371-5>
- Fisman, R. (2001). Estimating the value of political connections. *American Economic Review*, 91(4), 1095–1102. <https://doi.org/10.1257/aer.91.4.1095>
- Gu, Y., & Yuan, F. (2020). Internal control, financial flexibility and corporate performance—Based on empirical analysis of listed companies in information technology industry. *Journal of Physics: Conference Series*. <https://iopscience.iop.org/article/10.1088/1742-6596/1607/1/012118/meta>
- Hatakeda, T., Kokubu, K., Kajiura, T., & Nishitani, K. (2012). Factors Influencing Corporate Environmental Protection Activities for Greenhouse Gas Emission Reductions: The Relationship Between Environmental and Financial Performance. *Environmental and Resource Economics*, 53(4), 455–481. <https://doi.org/10.1007/s10640-012-9571-5>
- Huo, B., Wang, Q., Zhao, X., & Schuh, S. (2016). Threats and benefits of power discrepancies between organisations: a supply chain perspective. *International Journal of Production Research*, 54(13), 3870–3884. <https://doi.org/10.1080/00207543.2016.1159744>
- Javed, A., Nawaz, A., Inayat, A., & Fareed, M. (2022). Predicting the role of strategic orientation, social capital, and strategic flexibility for strategic renewal of SMEs. *OEconomia*, 5(2), 51–77.
- Jensen, M. C., & Meckling, W. H. (2019). Theory of the firm: Managerial behavior, agency costs and ownership structure. In R. I. Ticker (Ed.), *Corporate Governance* (pp. 77–132). Gower.
- Johnson, S., Boone, P., Breach, A., & Friedman, E. (2000). Corporate governance in the Asian financial crisis. *Journal of Financial Economics*, 58(1–2), 141–186. [https://doi.org/10.1016/s0304-405x\(00\)00069-6](https://doi.org/10.1016/s0304-405x(00)00069-6)
- Kafetzopoulos, D. (2023). Talent development: a driver for strategic flexibility, innovativeness and financial performance. *EuroMed Journal of Business*, 18(2), 296–312. <https://doi.org/10.1108/EMJB-02-2022-0042>
- Lemmon, M. L., & Lins, K. V. (2003). Ownership structure, corporate governance, and firm value: Evidence from the East Asian financial crisis. *The Journal of Finance*, 58(4), 1445–1468. <https://doi.org/10.1111/1540-6261.00573>
- Lins, K. V. (2003). Equity ownership and firm value in emerging markets. *The Journal of Financial and Quantitative Analysis*, 38(1), 159. <https://doi.org/10.2307/4126768>

- Ma, C., & Jin, Y. (2016). What drives the relationship between financial flexibility and firm performance: investment scale or investment efficiency? Evidence from China. *Emerging Markets Finance and Trade*, 52(9), 2043–2055. <https://doi.org/10.1080/1540496X.2015.1098036>
- McKillop, D. G., & Hutchinson, R. W. (1991). Financial intermediaries and financial markets: A United Kingdom regional perspective. *Regional Studies*, 25(6), 543–554. <https://doi.org/10.1080/00343409112331346707>
- Meier, I., Bozec, Y., & Laurin, C. (2013). Financial flexibility and the performance during the recent financial crisis. *International Journal of Commerce and* https://www.emerald.com/insight/content/doi/10.1108/10569211311324894/full/html?utm_campaign=Emerald_Strategy_PPV_November22_RoN
- Mensah, Y. M., & Werner, R. (2003). Cost efficiency and financial flexibility in institutions of higher education. *Journal of Accounting and Public Policy*, 22(4), 293–323. [https://doi.org/10.1016/S0278-4254\(03\)00036-X](https://doi.org/10.1016/S0278-4254(03)00036-X)
- Mitton, T. (2002). A cross-firm analysis of the impact of corporate governance on the East Asian financial crisis. *Journal of Financial Economics*, 64(2), 215–241. [https://doi.org/10.1016/S0304-405X\(02\)00076-4](https://doi.org/10.1016/S0304-405X(02)00076-4)
- Mittoo, U. R., Bancel, F., & Mittoo, U. R. (2011). Financial flexibility and the impact of the global financial crisis. *International Journal of Managerial Finance*, 7(2), 179–216.
- Mysaka, H., & Derun, I. (2021). Corporate financial performance and Tobin's Q in dividend and growth investing. *Contemporary Economics*, 15(3), 277–288. <https://doi.org/10.5709/ce.1897-9254.449>
- Nishitani, K. (2009). An empirical study of the initial adoption of ISO 14001 in Japanese manufacturing firms. *Ecological Economics*, 68(3), 669–679. <https://doi.org/10.1016/j.ecolecon.2008.05.023>
- Orlitzky, M., Schmidt, F. L., & Rynes, S. L. (2003). Corporate social and financial performance: A meta-analysis. *Organization Studies*, 24(3), 403–441.
- Panda, A. K., & Nanda, S. (2018). Working capital financing and corporate profitability of Indian manufacturing firms. *Management Decision*, 56(2), 441–457. <https://doi.org/10.1108/MD-07-2017-0698>
- Pedersen, E. R. G., Gwozdz, W., & Hvass, K. K. (2018). Exploring the relationship between business model innovation, corporate sustainability, and organisational values within the fashion industry. *Journal of Business Ethics*, 149(2), 267–284. <https://doi.org/10.1007/s10551-016-3044-7>
- Penrose, E., & Penrose, E. T. (2009). *The theory of the growth of the firm*. Oxford University Press.
- Rapp, M. S., Schmid, T., & Urban, D. (2014). The value of financial flexibility and corporate financial policy. *Journal of Corporate Finance*, 29, 288–302. <https://doi.org/10.1016/j.jcorpfin.2014.08.004>
- Rogers, P. P., Ojha, D., & White, R. E. (2011). Conceptualising complementarities in manufacturing flexibility: A comprehensive view. *International Journal of Production Research*, 49(12), 3767–3793. <https://doi.org/10.1080/00207543.2010.499116>
- Shang, K.-C., & Marlow, P. B. (2005). Logistics capability and performance in Taiwan's major manufacturing firms. *Transportation Research Part E: Logistics and Transportation Review*, 41(3), 217–234. <https://doi.org/10.1016/j.tre.2004.03.002>
- Sharma, M. K., Sushil, & Jain, P. K. (2010). Revisiting flexibility in organizations: exploring its impact on performance. *Global Journal of Flexible Systems Management*, 11, 51–68. <https://doi.org/10.1007/BF03396587>
- Teng, X., Chang, B.-G., & Wu, K.-S. (2021). The role of financial flexibility on enterprise sustainable development during the COVID-19 crisis-A consideration of tangible assets. *Sustainability (Switzerland)*, 13(3), 1–16. <https://doi.org/10.3390/su13031245>
- Vu, H. M., & Chi, H. T. (2022). The Factors of Financial Performance of SMEs (Case of Vietnam). *Contemporary Economics*, 16(3), 346–360. <https://doi.org/10.5709/ce.1897-9254.486>
- Yung, K., Li, D. Q. D., & Jian, Y. (2015). The value of corporate financial flexibility in emerging countries. In *Journal of Multinational Financial Management*. Elsevier. <https://doi.org/10.1016/j.mul-fin.2015.07.001>
- Zahari, M. K., Zakuan, N., Saman, M. Z. M., Yaacob, T. Z., & Nor, R. M. (2023). The impact of flexibility and responsiveness on the financial performance in Malaysia's manufacturing industry during the COVID-19 pandemic. *International Journal of Applied Economics, Finance and Accounting*, 16(1), 10–17. <https://doi.org/10.33094/ijae.v16i1.870>
- Zainudin, Z., Ibrahim, I., Said, R. M., & Hussain, H. I. (2017). Debt and financial performance of reits in Malaysia: A moderating effect of financial flexibility. *Jurnal Pengurusan*, 50, 3–12. <https://doi.org/10.17576/pengurusan-2017-50-01>