

Mapping the Contradictions: A Systematic Review of the Relationships between Customer Concentration and Financial Performance

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Abstract

Amid escalating global supply chain disruptions, customer concentration (CC) has become a critical variable affecting firm financial performance (FP). This study systematically reviews 79 peer-reviewed articles published between 1995 and 2025 from Scopus and Web of Science, applying bibliometric tools (CiteSpace, VOSviewer) to map the intellectual structure and thematic evolution of the CC–FP relationship. The findings reveal three distinct patterns: (1) CC may enhance FP through economies of scale and strategic partnerships; (2) excessive concentration increases financial risk and volatility; and (3) a growing number of studies report nonlinear effects, including U-shaped (FP first declines, then improves) and inverted U-shaped relationships (FP peaks at moderate CC levels). Emerging themes include digital transformation, ESG, and green innovation. The review addresses a significant gap in integrating fragmented empirical evidence and offers guidance for future research on moderating mechanisms and industry-specific heterogeneity. Practically, the findings urge managers to balance efficiency with risk diversification in customer portfolios, especially in dynamic or ESG-sensitive sectors. Future research should examine how digital and green capabilities shape the CC and FP nexus under different institutional contexts.

Keywords: Customer Concentration, Financial Performance, Systematic Literature Review, Bibliometric Analysis, Digital Transformation

Introduction

Against the backdrop of heightened global supply chain volatility (Baldwin & Freeman, 2022), firms' customer structures and financial stability are undergoing profound transformations. The COVID-19 pandemic, escalating geopolitical tensions (Chen et al., 2021), and the rapid pace of digital transformation have significantly complicated strategic decision-making surrounding customer concentration (Fan & He, 2023). As a key dimension of supply chain management, customer concentration reflects the degree of a firm's reliance on its major customers, directly shaping its operational risk and financial outcomes (Cao et al., 2023). On

one hand, the deepening global division of labor has driven many firms to pursue high customer concentration to realize economies of scale (Pan et al., 2020), enhance resource allocation efficiency, and strengthen bargaining power (Chang et al., 2022). In such cases, long-term relationships with key customers can stabilize revenue streams and reduce transaction costs (Kwak & Kim, 2020).

On the other hand, since 2020, supply chain disruptions have exposed the risks of overreliance on a limited customer base. Firms with concentrated customer portfolios are more vulnerable to order cancellations, credit defaults, and working capital pressures, particularly in volatile-demand industries (Chen & Wang, 2020). This overdependence can also lead to shorter accounts receivable periods, increased cash flow volatility, and financial fragility (Kadapakkam & Oliveira, 2021), forcing firms to adopt more adaptive and risk-sensitive financial strategies (Di et al., 2024).

Despite growing scholarly attention, the relationship between customer concentration and firm financial performance remains inconclusive. Some studies find a positive linear effect, suggesting that concentration enhances profitability and efficiency (Ahsan et al., 2023). Others argue for a negative effect, linking concentration to increased risk and reduced flexibility (Chen et al., 2022). More recently, researchers have proposed nonlinear relationships, such as U-shaped (performance first declines, then improves) and inverted U-shaped patterns (FP peaks at moderate CC levels) (Ahsan et al., 2023; Ai & Zhang, 2024; Chen et al., 2022; Kelly & Chicksand, 2024; Upson & Wei, 2024). However, most existing research is empirical and fragmented, lacking a systematic synthesis of key findings and theoretical consensus. Therefore, a comprehensive review of the literature from 1995 to 2025 is necessary to map the intellectual landscape, clarify the theoretical mechanisms, and identify gaps for future investigation. Such an effort would not only enhance understanding of the CC and FP Nexus but also provide a foundation for evidence-based decision-making in supply chain and financial management. Guided by the systematic literature review (SLR) methodology, the following research questions are proposed:

1. Which journals, countries, and authors have had the most influence in this research domain?
2. What relationships between customer concentration (CC) and financial performance (FP) have been revealed by prior studies?
3. What are the potential future directions for research on the relationship between CC and FP?

In light of the above, this study adopts an SLR approach and draws on the methodology of Tang et al. (2022). Guided by the PRISMA framework for data selection and screening (Page et al., 2021), a comprehensive retrieval and review of the literature on CC and FP is conducted to address the research questions identified during the investigation.

Research Methodology

Research Methods

SLR is a well-structured and methodical approach to literature review that requires researchers to adopt an open and transparent procedure for comprehensively collecting, synthesizing, and evaluating scholarly work related to a specific research topic (Gough et al., 2017). This provides a solid foundation for addressing specific academic questions (Jesson et

al., 2011; Rudnicka & Owen, 2012). Given the well-defined focus and scope of this study, employing the SLR approach significantly enhances the scientific rigor and methodological standardization of the research, thereby providing a robust foundation for subsequent theoretical analysis and empirical investigation.

Data Sources

This study conducts a systematic review and in-depth analysis of the existing literature with the aim of comprehensively summarizing research progress in this field. It focuses on comparing findings from different theoretical perspectives regarding the relationship between CC and FP, highlighting both similarities and differences. In terms of data sources, this study selects two authoritative databases, Web of Science (WoS) and Scopus, as the primary platforms for literature retrieval. WoS authoritative journal articles that have undergone rigorous peer review, and its data structure is widely acknowledged internationally for standardization and completeness, making it particularly suitable for bibliometric analyses and knowledge mapping studies (Ding & Yang, 2022). To ensure comprehensive and accurate indexing data, the indexes SCI-EXPANDED, SSCI, and AHCI were selected. Meanwhile, Scopus offers a more diverse and extensive collection of international journal resources, providing a broader and more comprehensive dataset for research purposes (Zhu & Liu, 2020). By leveraging the complementary strengths of both databases, this study enhances the breadth of its literature review and reinforces the scientific rigor and reliability of its conclusions, thereby laying a solid foundation for subsequent analysis.

To ensure a standardized and scientifically rigorous review process, Figure 1 illustrates the literature screening and selection procedure adopted in this study. It outlines the research workflow, including keyword searches, database sources, filtering criteria, data merging, removal of duplicates, manual screening, and final article selection. The literature search was centered on the keywords "Customer Concentration" and "Financial Performance". To broaden the search scope for customer concentration, related terms such as "customer dependence", "client concentration", and "supply chain concentration" were also included. Given the broad scope of financial performance, the search for "financial performance" was expanded by incorporating additional relevant terms such as "profitability", "return on assets (ROA)", "return on equity (ROE)", "earnings per share (EPS)", and "firm value", in order to ensure a more comprehensive and relevant set of research publications. Literature published from 1975 to 2025, with a retrieval cut-off date of April 10, 2025. The selected document types included only "Articles" and "Review Articles". Using these carefully selected keywords, an initial search yielded 201 publications from the Scopus database and 258 publications from the WoS database. After applying filtering criteria and conducting a detailed review of abstracts and full texts, 79 articles were identified as highly relevant and were ultimately included in the final analysis.

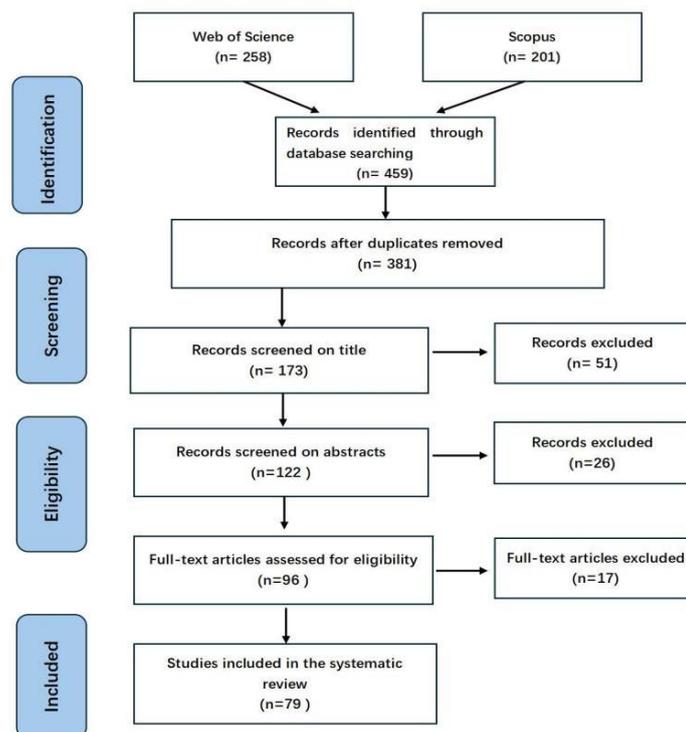


Figure 1. PRISMA Flowchart of the Study

This study further employs bibliometric methods to systematically analyze the characteristics of literature exploring the relationship between CC and FP. As emphasized by Garfield (2006), When combined with bibliometric mapping techniques, researchers can visually present key authors, research institutions, and country distributions within a field, while also capturing the temporal evolution of academic output, thereby offering essential support for constructing a comprehensive knowledge landscape of the discipline (Abramo et al., 2011; Diem & Wolter, 2013; Mayr & Scharnhorst, 2015).

Accordingly, this study relies on data mining and bibliometric analysis. The research investigates dimensions such as "authors," "countries," and "journal sources" to systematically map the scholarly landscape concerning the relationship between CC and FP. In doing so, it aims to extract the knowledge base of this field, identify emerging research hotspots and developmental trends, and provide theoretical foundations and directional insights for future academic inquiry.

Descriptive Statistics

This study conducts a descriptive analysis using raw data through bibliometric methods to address the three main research questions (RQs) proposed in this review.

RQ1: Which authors, countries, and journals have the greatest influence in this research domain?

RQ2: What relationships between CC and FP have been revealed in prior studies?

RQ3: What are the potential future directions for research on the CC and FP relationship?

The relevant publications included in this study originate from 849 authors affiliated with 587 institutions across 31 countries, published in 170 academic journals, and cite a total of 22,250 references drawn from 12,773 different sources.

Figure 2 illustrates the temporal distribution of publications in the research field concerning the relationship between CC and FP. Overall, the number of publications in this domain has shown a steady upward trend, with a notable surge in 2024. This indicates growing scholarly interest in recent years, suggesting that CC has emerged as a new focal point in the field of supply chain management research.

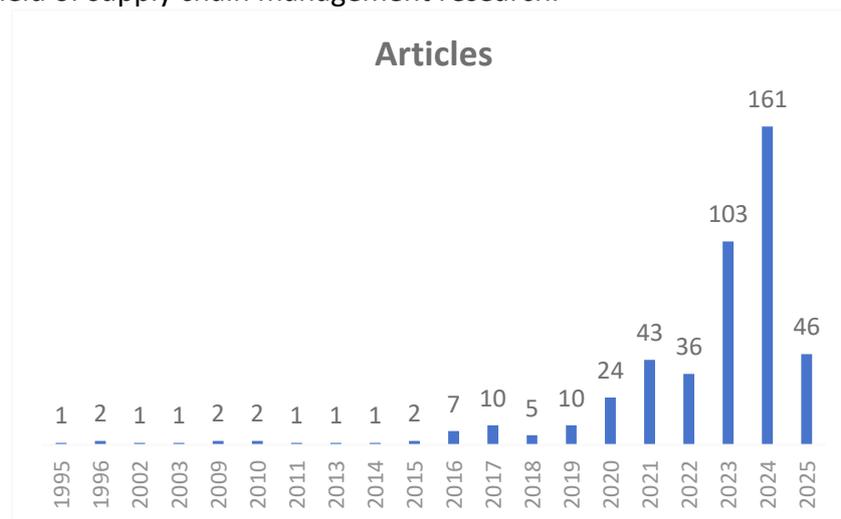


Figure 2. Distribution of Publications from 1995 to 2025

Bibliometric Analysis of the Author

An analysis of key authors and their academic influence in the field of CC and FP reveals that certain scholars have been cited with notably high frequency, as Figure 3 by the author's co-citation network. Figure 3 shows that Dhaliwal et al. (2016) (202 citations) and Patatoukas (2012) (200 citations) have demonstrated significant influence in the field of CC and FP research. Other highly cited scholars include Campello & Gao (2017) (161 citations), Hui et al. (2019) (122 citations), Irvine et al. (2016) (116 citations), and Itzkowitz (2013) (102 citations), whose theoretical and methodological contributions have provided valuable foundations for subsequent studies. In the co-citation network, Patatoukas (2012) and Campello & Gao (2017) focus on the financial strategy and risk management implications of CC, while Dhaliwal et al. (2016) and Irvine et al. (2016) examine its impact on firm performance from the perspectives of information disclosure and corporate governance. Itzkowitz (2013) and Hui et al. (2019), on the other hand, emphasize customer relationships and market structure. The author's co-citation analysis thus helps to clarify the intellectual structure, theoretical foundations, and emerging directions within the field of CC and FP research.

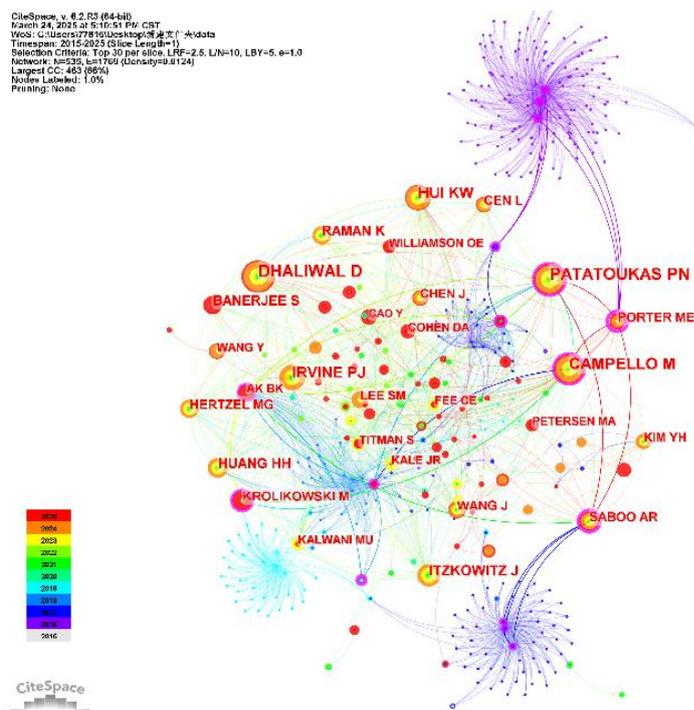


Figure 3. The Author's Co-Citation Network

Bibliometric Analysis of the Journal

An analysis of the journals publishing literature in this field reveals that, apart from a few generalist journals, the majority of publications are concentrated in the domains of finance, economics, and management. Table 1 presents the top ten journals ranked by the number of relevant publications. Among them, three journals have published 14 or more articles, namely *Finance Research Letters* (18 articles), *International Review of Financial Analysis* (16 articles), and *Journal of Business Research* (14 articles).

Notably, both *Sustainability* and *Finance Research Letters* are open-access journals, highlighting the growing influence of open-access publishing in facilitating the accumulation and dissemination of research in this field. In terms of citation performance, the *Journal of Business Research*—a journal in the management field—has the highest average citations per article among the journals listed in Table 1. With 14 relevant publications, each article has been cited an average of 37.64 times, indicating the high academic quality and impact of the research it publishes, particularly within the management discipline.

Further analysis reveals that the articles published in the *Journal of Business Research* are predominantly empirical studies, focusing on the mechanisms through which CC affects FP. These studies often involve multi-country data analysis and interdisciplinary theoretical applications, offering a robust theoretical and empirical foundation for future research.

Table 1

The top 10 journals ranked by the number of relevant publications

Rank	Source	Publications	Citations	Average Citation/Publication
1	Finance Research Letters	18	115	6.39
2	International Review of Financial Analysis	16	124	7.75
3	Journal of Business Research	14	527	37.64
4	Emerging Markets Finance and Trade	12	109	9.08
5	Energy Economics	12	100	8.33
6	International Journal of Production Economics	10	247	24.7
7	Sustainability	10	64	6.4
8	Research in International Business and Finance	10	42	4.2
9	International Journal of Operations & Production Management	8	81	10.13
10	Industrial Marketing Management	8	162	20.25

Bibliometric Analysis of the Country

To examine the contributions of different countries in this research domain, this study analyzes the scientific output of 31 countries. Using CiteSpace, Figure 4 visualizes countries with publication volumes meeting or exceeding a certain threshold. In the visualization, the size of each circular node represents the number of publications from that country, the larger the node, the more prolific the country's research output. Lines between nodes indicate collaborative relationships between countries, with thicker lines representing a higher number of co-authored publications. Different colors denote various cluster groups, revealing the positioning and interconnections of countries within the international collaboration network.

As shown in Figure 4, the distribution of research output in this field is highly uneven, exhibiting a clear "head effect". Research productivity is heavily concentrated among a small number of leading countries. The majority of publications originate from scholars affiliated with these research-intensive nations.

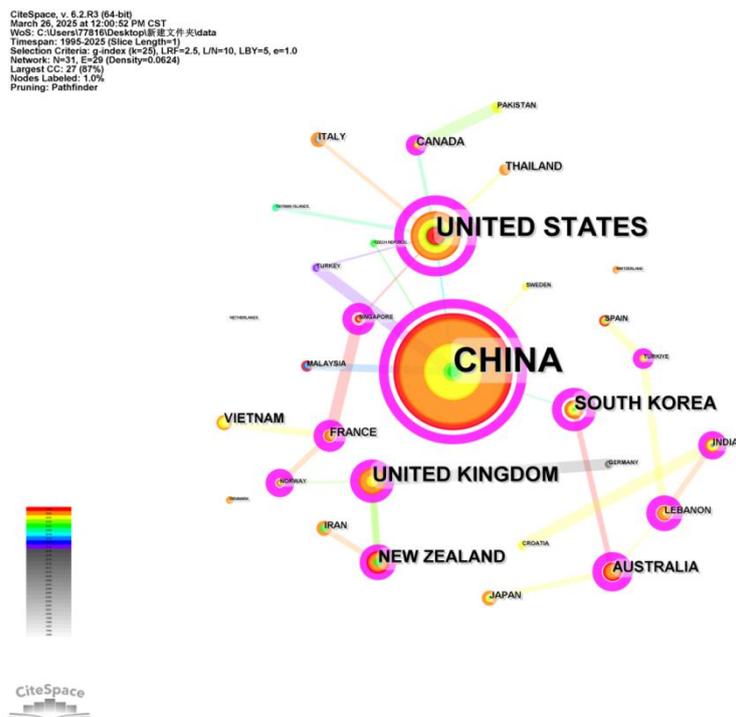


Figure 4. Co-occurrence of Countries

A further analysis of the leading countries in this field is presented in Table 2, which lists the top five countries in terms of publication volume on the topic of CC and FP. The results show that China leads by a wide margin, with a total of 351 publications, securing the top position with an absolute advantage. It is followed by the United States (85 publications) and South Korea (25 publications).

In terms of citation impact, although the United States ranks second in publication volume, it has achieved a total of 4,297 citations, with an impressive average of 50.55 citations per article, indicating strong academic influence and high research quality. South Korea follows closely with an average of 47.84 citations per article, also reflecting a high level of scholarly impact. In contrast, China, despite its large volume of publications, has an average citation rate of 7.85, ranking fifth in citation density. This suggests that while the quantity of research is substantial, there remains room for improvement in terms of citation impact and academic visibility. Overall, international research efforts in this field are primarily concentrated in China, the United States, and South Korea, with the United States and South Korea standing out in terms of academic influence.

Table 2

The top 5 countries in the research field

Rank	Country	Publications	Citations	Average Citation/Publication
1	China	324	2543	7.85
2	The United States	85	4297	50.55
3	South Korea	25	1196	47.84
4	The United Kingdom	13	282	21.69
5	New Zealand	10	97	9.7

Through a systematic review of the existing literature on the relationship between CC and FP, this study analyzes the characteristics of the contributing author groups, journal distribution, and regional research output. Building on prior research, this study aims to comprehensively synthesize the effects of CC on FP, with a particular focus on its potential positive impacts, negative consequences, and nonlinear mechanisms. The objective is to provide a holistic understanding of the multifaceted role that CC plays as a critical variable in shaping FP outcomes.

The Impact of Customer Concentration on Financial Performance

In supply chain relationships, CC, an important variable reflecting resource dependence, exerts a profound influence on a firm's operational and FP (Huang et al., 2016). It may lead to positive financial outcomes, pose risks, or even exhibit nonlinear effects (Padgett et al., 2020). Existing literature, drawing from various theoretical perspectives, has explored the pathways through which CC affects FP. These effects can be broadly categorized into three dimensions: positive impacts, negative impacts, and nonlinear relationships.

Positive Impacts

Under certain conditions, an increase in CC can generate substantial benefits for firms across multiple dimensions. First, by establishing long-term and stable relationships with a small number of major customers, firms can achieve economies of scale, which in turn facilitates large-scale production, reduces unit costs, enhances operational efficiency, and optimizes resource utilization, ultimately improving overall profitability (Ou et al., 2010; Zhu et al., 2022). Second, close cooperation with key customers provides firms with a relatively stable stream of orders, thereby strengthening their bargaining power in areas such as price negotiations, production scheduling, and contract formulation, while simultaneously reducing transaction uncertainty and costs (Cui et al., 2023; Lanier et al., 2010). Third, a higher degree of CC fosters the development of trust-based mechanisms between firms and their core customers, which promotes information sharing, mitigates market risks associated with information asymmetry, and enhances the efficiency and responsiveness of firms' strategic decision-making processes (Bonner, 2010; Cohen & Li, 2020; Do et al., 2023).

Negative Impacts

Although CC may offer certain advantages related to scale and efficiency, excessive reliance on a small number of customers can substantially heighten a firm's operational uncertainty and financial vulnerability (Ahsan et al., 2023; Saboo et al., 2017). One key risk is the increased exposure to business disruptions, if major customers encounter financial distress, reduce their order volumes, or switch to alternative suppliers, the firm's revenue streams and cash

flows may experience significant shocks, thereby adversely affecting FP (Cao et al., 2021; Pan et al., 2020). Furthermore, a high degree of CC may weaken a firm’s bargaining position, as dominant customers may leverage their influence to demand lower procurement prices, extend payment terms, or transfer additional costs and risks onto the supplier, ultimately eroding profit margins (Casalin et al., 2017; Lanier et al., 2010). In addition, such dependence on a limited number of customers results in a highly concentrated revenue structure and diminished risk resilience, making firms more susceptible to liquidity crises and financial distress, particularly in scenarios involving customer default or abrupt declines in demand (Dhaliwal et al., 2016; Ni et al., 2023).

Nonlinear Relationships

An increasing number of empirical studies suggest that the relationship between CC and FP may not be strictly linear, but rather exhibit complex nonlinear characteristics, typically represented by positive U-shaped or inverse U-shaped relationships. Table 3 provides a summary of the impacts of CC on FP.

Table 3
Summary of the impacts of customer concentration on financial performance

Type	Theoretical Support	Pathways	Impact on FP	Authors
Positive Impact	Transaction Cost Economics (TCE)	Economies of scale: reducing transaction costs and improving operational efficiency	Enhanced profitability and increased stability	Ou et al. (2010); Zhu et al. (2022)
	Resource Dependence Theory (RDT)	Enhanced bargaining power: securing stable orders and pricing advantages	Increased revenue and profit margins	Cui et al. (2023); Lanier et al. (2010)
	Information Asymmetry Theory	Information sharing mechanisms: reducing market uncertainty	Reduced operational risk	Bonner (2010); Cohen & Li (2020); Do et al. (2023)
Negative Impact	Resource Dependence Theory (RDT)	Increased business risk: concentrated revenue sources vulnerable to customer fluctuations	Performance volatility and increased risk	Ahsan et al. (2023); Saboo et al. (2017)

	Bargaining Power Theory	Major customers exert pricing pressure and extend payment periods	Reduced profitability and cash flow risk	Cao et al. (2021); Pan et al. (2020)
	Financial Fragility Theory	Customer default or sudden drop in demand leads to cash flow disruptions	Increased liquidity risk	Casalin et al. (2017); Dhaliwal et al. (2016); Ni et al. (2023)
Nonlinear Relationship	Balance Theory, Risk-Return Trade-off Theory	Positive U-shaped: optimal moderate concentration; risks associated with very low or very high concentration	Threshold effect on performance	Kwak & Kim (2020); Wei et al. (2024b)
		Inverse U-shaped: moderate concentration enhances performance, but excessive concentration leads to dependency risks	Performance initially rises, then declines	Gao et al. (2021); Han et al. (2023)

Under a positive U-shaped relationship, firms initially experience weak performance when CC is low, as they are unable to leverage economies of scale or achieve strategic synergies. However, as CC increases, firms begin to benefit from improved scale efficiencies and strategic alignment, resulting in enhanced FP. Yet, once CC surpasses an optimal threshold, FP may decline again due to escalating dependency risks associated with over-reliance on a limited number of customers (Kwak & Kim, 2020; Wei et al., 2024b). Conversely, an inverse U-shaped relationship indicates that moderate levels of CC enable firms to effectively allocate resources, enhance service quality, and achieve superior performance. Nevertheless, excessively high CC elevates dependency on key customers, causing risks to outweigh benefits and consequently impairing FP. Similarly, excessively dispersed customer structures can lead to increased management complexity and reduced resource allocation efficiency, thereby negatively affecting profitability (Gao et al., 2021; Han et al., 2023).

Future Research Directions

To systematically uncover the research hotspots and trends in the domain of CC and FP, this study conducts a visual analysis of keywords from relevant literature. The period between 2015 and 2025 represents a phase of rapid growth in scholarly publications within this field; therefore, analyzing literature from the past decade helps clarify key research themes, evolving trends, and potential future directions.

Initially, this study utilizes CiteSpace software to create a keyword timeline visualization spanning from 2015 to 2025. The keyword timeline map intuitively displays the evolving research focus and dynamic shifts in this research area over time. As illustrated by the evolutionary process depicted in Figure 5, the keyword hotspots progressively transition from internal operational management toward risk management and adaptation to external environments. This evolution can generally be divided into three stages.

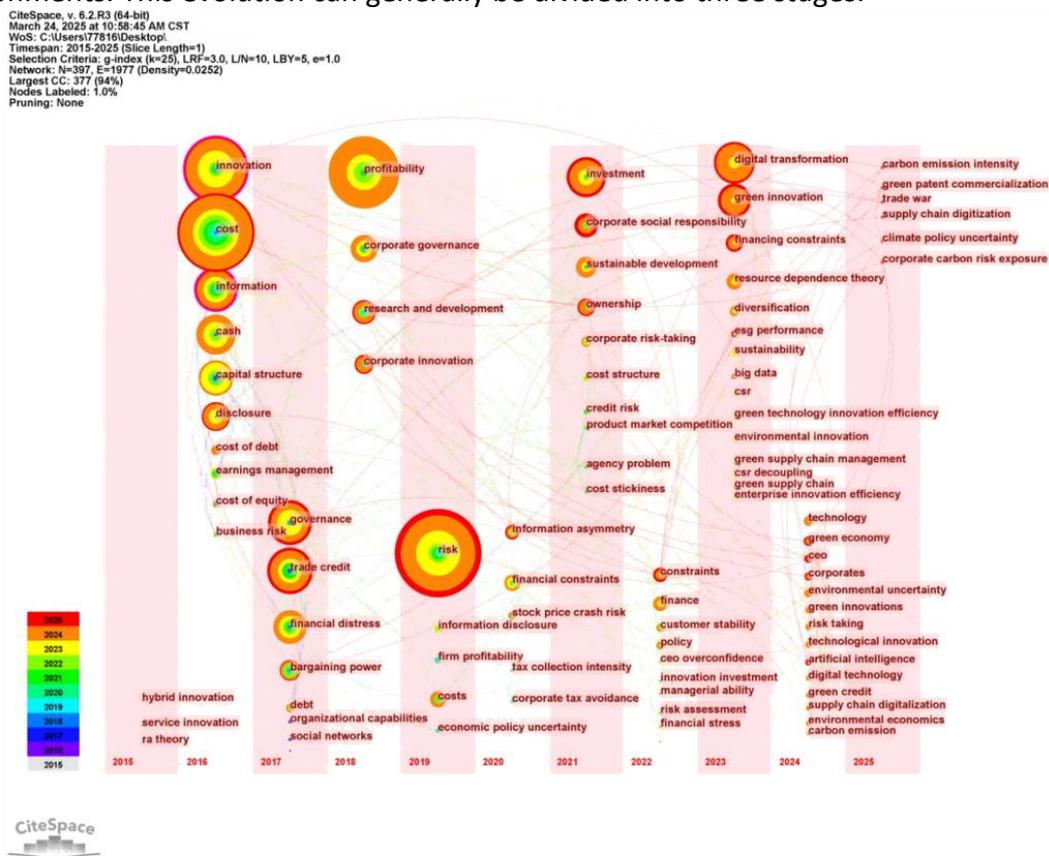


Figure 5. Map of Keyword Timezone Visualization

In the early stage (2015–2018), research primarily focused on topics such as innovation, cost, and capital structure, emphasizing the role of internal management in enhancing firm performance.

During the middle stage (2019–2022), research hotspots began shifting towards risk, governance, bargaining power, and financial fragility, reflecting increasing scholarly attention to the potential operational risks associated with CC.

In the recent stage (2023–2025), research has gradually shifted toward themes such as digital transformation, green innovation, and corporate social responsibility (CSR). This

indicates an emerging scholarly emphasis on the complexity of CC within the environmental, social, and governance (ESG) framework and its subsequent impact on FP.

Research hotspots have progressively moved from an internal management focus towards adaptability and responsiveness to external environmental factors, with continually broadening and deepening research perspectives.

To further identify recent hotspots and emerging trends, this study employs VOSviewer to construct a keyword co-occurrence network for publications spanning from 2021 to 2024. As Figure 6 illustrates in the keyword network map, core keywords such as Risk, Profitability, and Cost remain centrally positioned, highlighting that risk management and performance enhancement continue to be critical research themes. Newly emerging keywords include "digital transformation", "ESG", "green economy", "artificial intelligence (AI)", "big data," and "green innovation." This indicates that future research on CC is increasingly extending toward firm sustainability strategies, technological innovations, and environmental responsibility. Customer relationship management is thus evolving from a purely economic activity into a complex interaction involving a firm's technological capabilities, social responsibility, and environmental strategies.

Future research may further explore how factors such as digital transformation, green innovation, and CSR moderate or mediate the relationship between CC and FP. Especially in the context where green economies and sustainable development have become globally acknowledged priorities, the risk-reward structure associated with CC may evolve. Consequently, firms not only need to manage relationships with key customers effectively but must also consider how environmental responsibility and innovation investment influence long-term financial outcomes. This perspective contributes to enriching the theoretical framework of CC research, providing theoretical support for enterprises to develop more scientifically robust and sustainable customer management strategies.

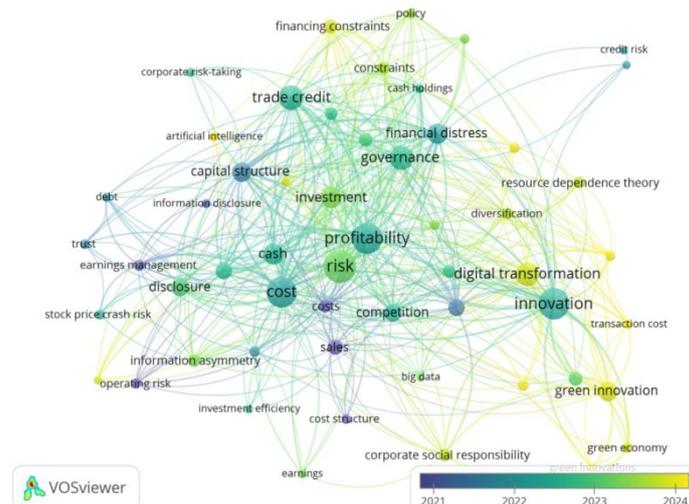


Figure 6. The Keyword Network Map

Findings and Conclusion

This study adopts an SLR methodology under the PRISMA framework to systematically select highly relevant literature from the WoS and Scopus databases. Utilizing bibliometric tools such as VOSviewer and CiteSpace, it comprehensively analyzes the relationship between CC

and FP. The study systematically reviews the developmental trends in this research field and validates the applicability of Bradford (1934) and Zipf (2013) from scientometric analysis. Additionally, it categorizes three types of relationships between CC and FP identified in the existing literature. The major findings of this study are as follows:

- (1) Through author co-citation analysis, the continuous evolution of research hotspots is evident. A detailed examination of citation timelines further clarifies these trends. Additionally, several authoritative scholars have emerged, significantly influencing the field's advancement.
- (2) The core journals publishing research in this domain have become clear, primarily including *Finance Research Letters*, *International Review of Financial Analysis*, and *Journal of Business Research*.
- (3) Chinese scholars contribute the highest proportion of publications, accounting for 60.1% of the total output. However, in terms of average citations per article, studies by U.S. scholars demonstrate higher recognition within the academic community.
- (4) CC can enhance FP through economies of scale, improved bargaining power, and information sharing. Conversely, excessive reliance on key customers increases operational risks and financial fragility. The relationship between CC and FP is not simply linear but rather exhibits nonlinear characteristics, specifically positive U-shaped or inverse U-shaped patterns.
- (5) Research hotspots have gradually shifted from internal management and controls toward external environmental adaptability, with increasing attention on frontier topics such as digital transformation, green innovation, and ESG.

Limitations and Outlook

Although this study has systematically reviewed and analyzed research findings and trends regarding the relationship between CC and FP using SLR and bibliometric methods, several limitations remain. First, the selected literature primarily originates from the WoS and Scopus databases. Despite their authoritative and representative nature, these databases may exclude relevant conference proceedings and dissertations, potentially limiting the comprehensiveness of the findings. Additionally, only English-language publications were considered during the selection process, which may result in language bias and overlook valuable research conducted in other languages. Furthermore, despite employing bibliometric and visualization methods, this study did not perform an in-depth comparative analysis of the specific contributions of various research methodologies, thus making it difficult to assess the consistency or differences in findings derived from different methodological approaches. Future research should integrate literature from multiple databases to enhance data comprehensiveness and actively engage with scholars in the field to better understand the latest research developments, thereby deepening and refining the objective knowledge of this domain. Moreover, future studies could further investigate the mediating and moderating roles of factors such as digital capability, green innovation capability, and ESG in the relationship between CC and FP, also exhibit heterogeneity across industries or different regions (developed versus developing countries). Therefore, subsequent studies should emphasize cross-country comparisons and industry-specific analyses to account for this variability.

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