

Bibliometric Insights and Systematic Review of Research Literature: The Role of Financial Literacy in Growth of SMEs

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Abstract: *In recent years, there has been substantial research dedicated to financial literacy towards small & medium sized enterprises. This body of work examines how financial knowledge influences the management and success of these businesses. Designated research studies from 2017 to 2024 were analyzed using the Web of Science database. Key significant trends and research developments were identified through the use of VOS viewer software for co-occurrence and co-citation analysis. To establish current trends & prospective future directions, the results of the bibliometric analysis were incorporated into a systematic review. Major research efforts focused on managers' intangible skills and their impact on financial literacy within SME sustainability. The journal Sustainability emerged as most significant source, with 163 citations, and Ying et al. were identified as the most significant authors. Co-occurrence analysis highlighted three primary research disciplines: management and performance, innovation and sustainability, and finance and growth. Additionally, four topics were identified through co-citation analysis: financial management, sustainability and innovation, financial success and resource acquisition, and financial literacy and performance. Future research should address SME risk management, regulatory issues, the significance of fintech in decisions of financing, innovative funding methods, the effect of social & human capital on finance, & women's financial literacy in SMEs. Thus, the study provides comprehensive insights in emerging discipline of financial literacy within SMEs.*

Keywords: *Financial Literacy, Economic Growth, SMEs, Bibliometric analysis, Systematic Literature analysis.*

Introduction

Financial literacy (FL) is important for economic prosperity, upgrading skills like budgeting, investment, borrowing, tax planning, and personal financial management. It enables well-informed financial decisions, economic stability, and sustainable growth (Chen & Volpe, 1998; Hou *et al.*, 2024). However, demographic disparities affect FL ratings, with women, young adults, and the less educated scoring lower (Karakurum-Ozdemir, 2019). Initiatives like Radical Adult Education programs and organizations such as Junior Achievement Worldwide promote FL and highlight the need for targeted educational efforts to develop FL across communities (Cook, 2006; Dell & Mahadeva, 2009; Sukarieh & Tannock, 2009).

Financial literacy (FL) is vital for SMEs, enhancing financial management, funding access, and informed decision-making, thus driving sustainable entrepreneurship and growth of economy (Burchi *et al.*, 2021; Grana-Alvarez *et al.*, 2024). Despite higher FL among entrepreneurs, legislation and training are needed to improve FL and reduce business failures (Munoz-Cespedes *et al.*, 2023; Memory & Ashley, 2023). Digital financial capabilities further enhance SME performance (Gosal & Nainggolan, 2023; Tubastuvi & Purwidiati, 2023).

Grana-Alvarez *et al.* (2022) analysed 63 papers on financial literacy in SMEs, identifying educational, cultural, and contextual factors as key antecedents, and financial attitudes, behaviours, and SME success as outcomes. Molina-García *et al.* (2022) examined 88 studies, highlighting topics like performance, financial access, and entrepreneurship, and noted a lack of empirical research. Damayanti *et al.* (2018) emphasized historical context of FL towards SMEs but relied on qualitative methods,

potentially introducing bias. Some studies focused solely on bibliometric or systematic analysis, with few covering both.

The present study analyses research on financial literacy (FL) and SME success from 2017-2024 using data from the Web of Science Core. Advanced bibliometric techniques, including analysis of co-occurrence & co-citation, were employed to identify key research themes and theoretical foundations such as the Pecking Order Theory/ResourceBased View/TradeOff Theory/Planned Behaviour Theory& Upper Echelon Theory. The study provides a comprehensive framework for future research, highlighting the importance of integrating FL knowledge for SMEs. It critically assesses current literature, identifies key themes and gaps, and suggests areas for further investigation, enhancing our understanding of FL's impact on SMEs.

Methodology

The study starts by identifying goals and research questions (**Figure 1**) and then used a search and filtration approach to evaluate relevant studies. It employed a dual method combining bibliometric analysis with systematic review of literature. Analysis of Bibliometric offers strong quantitative evaluation but lacks qualitative depth, while systematic reviews provide qualitative insights but may lack quantitative rigor and be subject to biases (Roberto *et al.*, 2016; Rob *et al.*, 2022). This combined approach balances quantitative mapping and qualitative evaluation, offering a comprehensive assessment of research on SMEs and financial literacy.

Research questions

These questions are designed to show a thorough comprehension of discipline, (Research Questions=RQ)

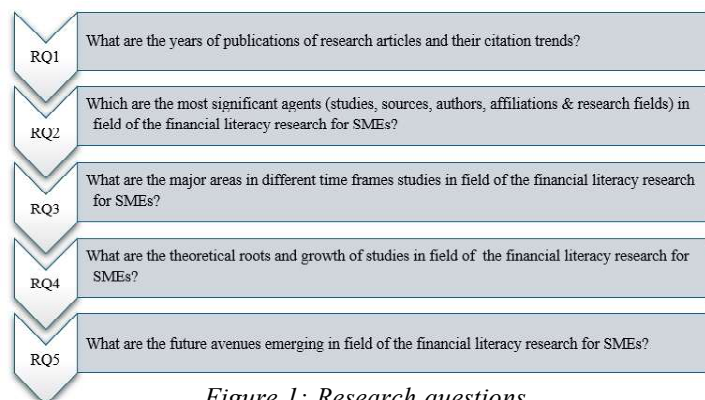


Figure 1: Research questions

Objectives

- Examine the historical distribution and citation patterns of financial literacy research in SMEs.
- Provide a comprehensive list of the most significant research, sources, authors, affiliations and research areas in the realm of financial literacy specifically on SMEs.
- Examine the primary study domains, fundamental principles and development of research investigations in financial literacy for SMEs during various time periods.
- Identify prospective areas of future study in the domain of financial literacy for SMEs.
- Examine changes in the emphasis of study and the emergence of new subjects over a period.

Search and Filtration Strategy

The first step is a thorough search and filtering, as outlined by Green (2020) and shown in the PRISMA framework (Page *et al.*, 2020). This approach uses well-chosen keywords to search databases, ensuring comprehensive retrieval by including synonyms and spelling variations.

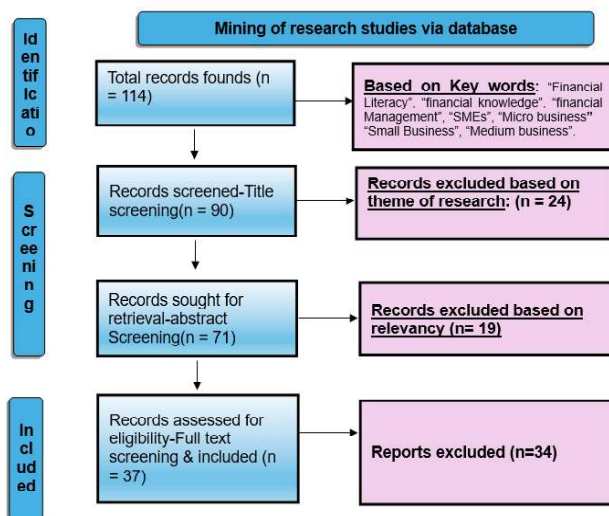


Figure 2: Prisma Framework showing the process of identification of studies for analysis with keywords and inclusion exclusion criteria of the study

Source: Author

The PRISMA framework (Figure 2) documents each review stage, ensuring transparency and replicability, and graphically depicts records identified, inspected, and included for analysis.

Bibliometric analysis & systematic literature analysis

37 papers from Web of Science (2017-2024) based on methods by Alvareza *et al.* (2022), Garcia *et al.* (2023). The paper uses analysis of bibliometrics & review of systematic literature to examine research questions (Figure 1), selecting, and Goyal and Kumar (2020).

Bibliometrics, including citation analysis and science mapping, serves as quantitative tool to evaluate research performance & scientific domains (Mota *et al.*, 2024). This approach is effective in natural, applied, and behavioural sciences, with significant socio-economic implications (Anthony & Raan, 2014; Zamorano *et al.*, 2023). The study conducted citation analysis to identify patterns, key papers, sources, authors, affiliations, and research areas in financial literacy among SMEs (RQ1, RQ2). To address primary research questions (RQ3) and

theoretical underpinnings (RQ4), co-occurrence of keywords & referenced co-citation are analysed using *VOS viewer 1.6.20*, known for its user-friendly, multi-platform support and superior visualizations (JMLA, 2022; Van Eck & Waltman, 2010; Van Eck & Waltman, 2017).

Systematic literature reviews aim to find all relevant research on a topic, minimizing biases and using meta-analysis (Nightingale, 2009; Varsha *et al.*, 2024). This study reviews literature based on clusters identified through keyword co-occurrence and co-citation analysis. Domain-based reviews focus on primary factors (RQ3), while theoretical reviews examine theoretical foundations (RQ4). Combining bibliometric analysis and systematic review identifies research structure and theoretical background, establishing a comprehensive framework on SME financial literacy (RQ5) and determining future research directions (RQ6).

Bibliometric Analysis

Years of publications of research articles and their citation trends

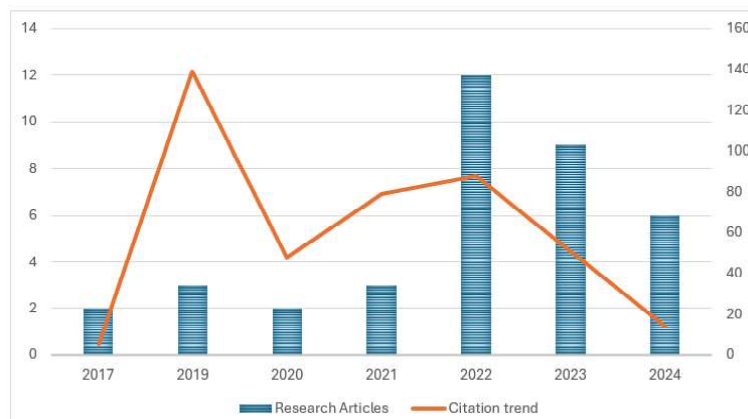


Figure 3: No. of Research Articles per year n=37 & their citation trends.

Source: Author

Figure 3 (RQ1) displays annual research articles and citation trends from 2017 to 2024. A surge in publications in 2022 (8 articles) and consistent output in 2023 (6 articles) indicate growing interest in financial literacy (FL) and SMEs. While publication numbers vary yearly, citation patterns don't always correlate directly. Citations peaked

in 2018 with 12, emphasizing the significance of FL studies for SMEs. The upward trajectory in publications and citations from 2017 to 2024 suggests increasing recognition of FL's importance for SMEs. These insights can help SMEs improve financial management, boost performance, and achieve sustainable growth.

Continued focus on research, education, and policy support will enhance FL's impact on SME success. The consistent publication volume in 2022-2024 establishes a strong foundation for potential future citation increases.

Most significant studies in field of the financial literacy research for SMEs

The area of FL research in SMEs has gained considerable focus recently, as highlighted in Table 1 (RQ2). Prominent studies emphasize FL's critical role in enhancing SME performance, sustainability, and innovation. Ying *et al.* (2019), Ye and Kulathunga (2019), and Lema *et al.* (2021) collectively underscore FL's importance in achieving sustained competitive performance, sustainability, and innovation. Ying *et al.* (2019) highlights the significance of intangible-skills like FL in resource acquisition & competitive performance. Ye and Kulathunga (2019) link FL to sustainability in SMEs in developing nations, arguing it improves financial decision-making and risk management. Lema *et al.* (2021) find that CEO

FL reduces financial constraints & boosts innovation in Spanish SMEs. Tian *et al.* (2022) emphasize executive FL's role in fostering corporate innovation in China, while Liu *et al.* (2021) connect entrepreneurial FL to increased innovation in SMEs. Andriamahery and Qamruzzaman (2022) explore FL's impact on women's empowerment through entrepreneurial growth. Seraj *et al.* (2022) revealed the impact of entrepreneurial resilience in connecting FL to satisfactory results in Saudi Arabia. Shah *et al.* (2021) examines senior executives' FL and its influence on innovation in SMEs within China Pakistan Economic Corridor. Stefani *et al.* (2020) proposes innovative financial strategies to support SME innovation. García *et al.* (2023) conduct a bibliometric analysis, identifying key patterns and suggesting future research areas. These studies collectively highlight FL's crucial role in improving SME performance, sustainability, and innovation, offering valuable insights for policy-making and practical implementation.

Table 1: Most significant studies in area of the financial literacy research for SMEs (Total citations= TC)

Title of the studies	Authors	TC
The Role of a Manager's Intangible Capabilities in Resource Acquisition and Sustainable Competitive Performance	Ying <i>et al.</i> (2019)	69
How Does Financial Literacy Promote Sustainability in SMEs? A Developing Country Perspective	Ye <i>et al.</i> (2019)	59
Analysing the roles of CEO's financial literacy and financial constraints on Spanish SMEs technological innovation	Lema <i>et al.</i> (2021)	41
Do Access to Finance, Technical Know-How, and Financial Literacy Offer Women Empowerment Through Women's Entrepreneurial Development?	Andriamahery and Qamruzzaman (2022)	27
Entrepreneurial Competency, Financial Literacy, and Sustainable Performance-Examining the Mediating Role of Entrepreneurial Resilience among Saudi Entrepreneurs	Seraj, Fazal and Alshebami (2022)	26
Executive financial literacy and firm innovation in China	Tian <i>et al.</i> (2022)	25
New tools and practices for financing novelty: a research agenda	Stefani <i>et al.</i> (2020)	23
The impact of entrepreneurs' financial literacy on innovation within small and medium-sized enterprises	Liu <i>et al.</i> (2021)	20
Top managers' attributes, innovation, and the participation in China-Pakistan Economic Corridor: A study of energy sector small and medium-sized enterprises	Shah <i>et al.</i> (2021)	18
Financial literacy in SMEs: a bibliometric analysis and a systematic literature review of an emerging research field	Garcia <i>et al.</i> (2023)	15

The studies are arranged as the total no. of the citations from Web of Science Core

Source: Author

Most significant sources in field of the financial literacy research for SMEs

Table 2 summarizes journals' citation impacts, content outcomes, ratings, and significance in financial literacy studies for SMEs (RQ2).

The journal *Sustainability* has the highest citation impact with 163 citations over six publications, indicating substantial influence. *Technology in Society* has 41 citations from a single source, showing high esteem. The *Pacific-Basin Finance Journal* received 25 citations for one article, and *Frontiers in Psychology* garnered 32 citations from four papers, indicating consistent influence.

The SJR indicator rates scholarly journals by citation weighting and eigenvector centrality, emphasizing scientific impact over the Journal Impact Factor (Pereira *et al.*, 2009). Journal Impact Factor measures how often an average publication is cited annually, published by Clarivate in Web of Science reports (Sharma, 2022). ABDC rankings and quartile rankings (Q1-Q4) assess journal quality and impact. *Technology in Society* has the highest SJR (0.748) and is Q1, indicating top-tier status. *Pacific-Basin Finance Journal* also has a high SJR (1.137)

and an 'A' ranking. *European Journal of Innovation Management* has a high JIF (6.88) and is Q1. *International Small Business Journal* is 'A' ranked with a strong SJR (0.905). *Frontiers in Psychology* is Q2 with an SJR of 0.800. *Sustainability* is Q2, indicating excellence but not top-tier.

The numerous publications indicate that financial literacy (FL) for SMEs spans multiple disciplines. High citation counts and quality rankings reflect the research's high calibre. The increasing importance of *Sustainability* highlights the connection between FL & sustainability concerns towards SMEs. *Frontiers in Psychology* underscores the role of behavioural and cognitive aspects. Journals like *European Journal of Innovation Management* and *Technology in Society* explore innovative and technical methods, while the *Pacific-Basin Finance Journal* focuses on finance research. *Managerial & Decision Economics & Baltic Journal of Management* incorporate management perspectives. Overall, FL research in SMEs emphasizes sustainability, innovation, psychology, finance, management and more.

Table 2: Most significant sources the field of the financial literacy research for SMEs. (Total citations=TC, Total documents=TD, Years= N, SCImago-Journal Rank=SJR, Journal Impact Factor=JIF, Australian Business Deans Council ranking= ABDC, Quartiles ranking=Q)

Title of the sources	TC	TD	N	SJR/JIF/ABDC or Q
<i>Sustainability</i>	163	6	2019, 2019, 2022, 2022, 2023, 2023	0.548/3.3/Q2
<i>Technology in Society</i>	41	1	2021	0.748/3.2/Q1
<i>Frontiers in Psychology</i>	32	4	2022, 2022, 2022, 2022	0.800/2.89/Q2
<i>Pacific-Basin Finance Journal</i>	25	1	2020	1.137/2.3/A
<i>European Journal of Innovation Management</i>	23	1	2020	1.142/6.88/Q1
<i>International Small Business Journal-Researching Entrepreneurship</i>	20	1	2021	0.905/4.2/A
<i>Managerial and Decision Economics</i>	18	1	2021	0.685/1.8/B
<i>Review of Managerial Science</i>	15	1	2023	1.014/3.6/B
<i>Baltic Journal of Management</i>	12	1	2022	0.487/1.5/C
<i>Journal of Small Business Management</i>	12	1	2024	0.982/3.5/A

The sources are arranged in total no. of citations, total no. of documents, years of publication, SJR/JIF/ABDC AND Q from Web of Science Core

Source: Author

Most significant Authors, Affiliations, Research area in field of the financial literacy research for SMEs.

Table 3 (RQ2) summarizes authors, affiliations, and research areas. The most cited work (69 citations) is by Ying *et al.* (2019) from Sichuan University and Hamdard University. The second most cited (59 citations) is by Ye and Kulathunga (2021) from Wuhan University of Technology and Uva Wellassa University. Environmental Sciences & Ecology received 169 citations across 7 articles, while Business & Economics garnered 164

citations over 16 works. Science & Technology - Other Topics covered 6 publications with 163 citations. Sichuan University and the University of Malaga appear twice in the top 10 institutions. The table shows global research collaborations among institutions from China, Pakistan, Spain, Germany, and the U.S. Interdisciplinary research integrates fields like Business & Economics with Mathematical Methods and Environmental Sciences with Science & Technology. Emerging fields such as Social Issues and Social Sciences indicate growing interest and impactful recent research.

Table 3: Most significant Authors, Affiliations, Research area in field of the financial literacy research for SMEs. (Total citations=TC, Total documents=TD)

Authors (Au)	Affiliations (Af)	TC (Au, Af)	TD (Au, Af)	Research Area (RA)	TC (RA)	TD (RA)
Ying <i>et al.</i>	Sichuan University; Hamdard University	69	1	Science & Technology - Other Topics; Environmental Sciences & Ecology	163	8
Ye <i>et al.</i>	Wuhan University of Technology; Uva Wellassa University	59	1	Business & Economics	160	15
García-Pérez-de-Lema <i>et al.</i>	Universidad Politécnica de Cartagena; Universidad de Málaga	41	1	Social Issues; Social Sciences - Other Topics	41	1
Andriamahery, A; Qamruzzaman, M	Hubai Polytechnic University; United International University (UIU)	27	1	Psychology	32	4
Sera <i>et al.</i>	King Faisal University; King Faisal University; King Faisal University; Universiti Kebangsaan Malaysia; King Faisal University	26	1	Area Studies: Government & Law	11	1
Tan <i>et al.</i>	North China Electric Power University; Central University of Finance & Economics; Fudan University; Central University of Finance & Economics	25	1	Environmental Sciences & Ecology	6	1
Stefani <i>et al.</i>	University of Konstanz; Pantheon University Naples; Universités de Strasbourg; Etablissements Associés; Université de Strasbourg	23	1	Business & Economics; Mathematical Methods In Social Sciences	4	2
Li <i>et al.</i>	Sichuan University; Sun Yat Sen	20	1	Computer Science	3	1

Shah et al.	International Islamic University, Pakistan; Witten Herdecke University	18	1	Engineering	2	1
Molina-Garcia et al.	Universidad de Malaga	15	1	Information Science & Library Science; Business & Economics	1	1

The Authors, Affiliations and Research area are arranged in citations, documents from Web of Science Core

Source: Author

Co- occurrence analysis of the studies in domain of the financial literacy research for SMEs

Co-occurrence analysis maps scientific topics by examining the frequency and relationships of author-defined keywords in publications, revealing main topics and intellectual structures within a study field (Klarin, 2024; Sedighi, 2016).

Figure 4 (RQ3) visualizes 61 keywords from 37 studies, forming a co-occurrence network on financial literacy among SMEs. Created using VOSviewer

with node size indicating frequency and edge thickness representing co-occurrence strength, offering insights into the bibliometric landscape.

The structure features 3 central nodes: *financial literacy*, *innovation*, and *performance*, highlighting their significance in SMEs. 4 neighboring nodes include *access to financial resources*, emphasizing FL’s role in funding; *SMEs*, showing the FL-SME connection; *growth*, indicating FL’s correlation with SME expansion; and *management*, analyzing FL’s role in SME

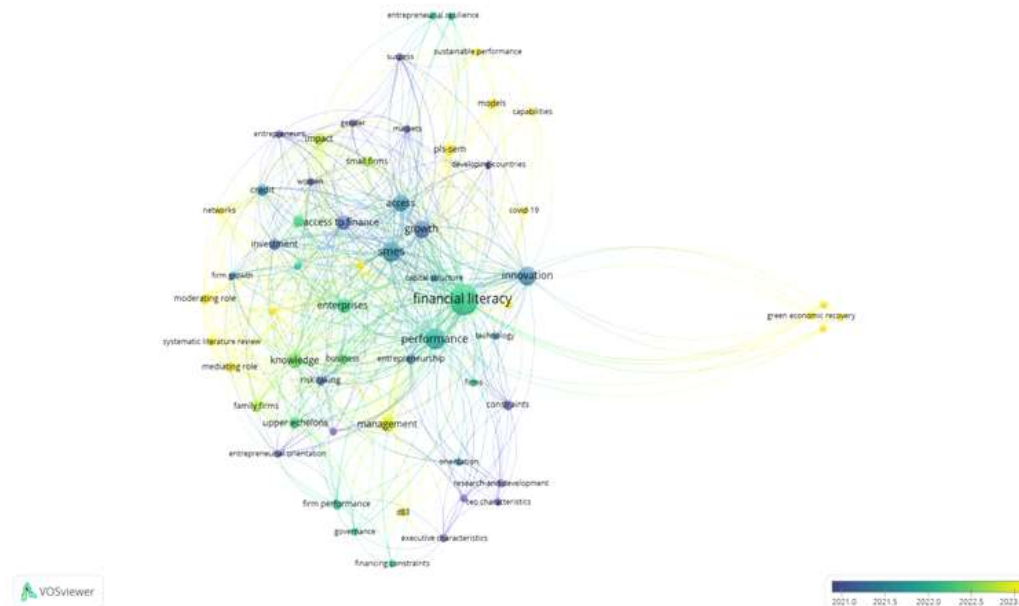


Figure 4: Overall Visualization of the author’s co-occurrence analysis of keywords for studies in field of financial literacy research for SMEs using VOS viewer

Source: Author

The network is segmented into thematic groups using colour coding (Figure 5). The “*Green Cluster*” (2021-2022) includes nodes like “management,” “firm performance,” and “governance,” focusing on SME internal management and governance, with subclusters- *management practices* and *performance metrics*. The “*Yellow Cluster*” (2022-2023) features “innovation,” “green economic recovery,” and “sustainable performance,” indicating a shift towards sustainability and innovation, with subclusters- *innovation* and *sustainability*. The “*Blue Cluster*” (2021 and earlier) includes “access

to finance,” “growth,” and “entrepreneurship,” focusing on traditional corporate expansion and entrepreneurial efforts, with subclusters- *financing* and *business growth*. The network shows that financial literacy research for SMEs is multidisciplinary, covering management, finance, innovation, and sustainability. Understanding these relationships can help policymakers and educators develop targeted financial literacy initiatives, fostering sustainable growth and innovation in SMEs. This analysis highlights future research directions and practical applications for enhancing financial literacy in SMEs.

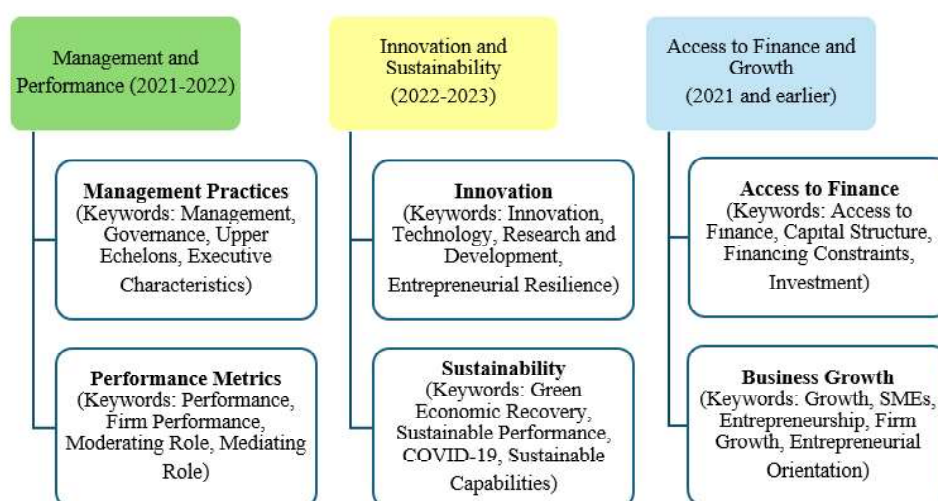


Figure 5: Cluster and Subclusters from keywords co-occurrence analysis

Source: Author

Co- citation analysis for the studies in field of the financial literacy research for SMEs

Co-citation analysis quantifies how often two documents are referenced together, revealing their semantic correlation, identifying impactful research, and visualizing the organization of scientific domains (Hou et al., 2018; Salemi & Koosha, 2016).

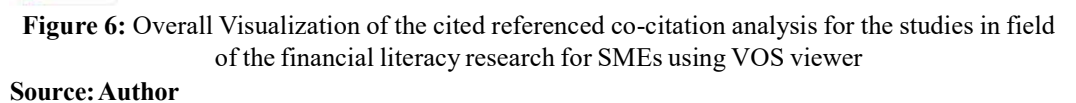
Figure 6 (RQ3) visualizes a co-citation analysis using VOS viewer, examining 245 references commonly cited together in 37 studies. It maps connections between academic articles based on shared citations, focusing on financial literacy

among SMEs. The image shows color-coded clusters representing interconnected topics within this domain.

In Figure 6, each node represents an academic publication or author, with larger nodes indicating more citations. Connections depict co-citations, with thicker lines showing stronger links. The visualization highlights prominent authors and works by node size and central cluster positions.

Huston (2018) holds a high position with total strength of the link- 387, indicating substantial impact. Ye and Kalathunga (2019) are also prominent with a link strength of 380. Lusardi and Mitchell (2014), with a link strength of 376,

et al. (2011). The “Purple cluster” analyses financial literacy’s impact on firm performance, referencing Fornell and Larcker (1981) and Henseler et al. (2015). This study highlights financial literacy’s role in promoting sustainability, fostering innovation, and enhancing SME performance. Major journals include Journal of Small Business and Enterprise Development, Journal of Small Business Management, Journal of Management, Journal of Pension Economics and Finance & Journal of Business Venturing.



The co-citation patterns reveal several theoretical frameworks in this sector. The Resource-Based View (RBV) examines financial literacy's impact on SME competitive advantage. Pecking Order and Trade-Off Theories explore capital structure and financing choices. Upper Echelon Theory studies SME leaders' financial knowledge, while Planned Behaviour Theory addresses financial decision-making behaviours in SMEs.

The co-citation analysis reveals an interconnected network of studies on financial literacy and SMEs, highlighting key references and theoretical frameworks crucial for understanding FL's impact on SMEs and areas needing further inquiry.

Systematic literature review

Systematic review of literature using co-occurrence analysis metrics

With conducting a thorough bibliometric analysis with combining a systematic literature review, we meticulously structured our research around key clusters and sub-clusters defined by keyword occurrences, ensuring a comprehensive understanding (RQ3).

The first *Green cluster* identified management practices and performance metrics as sub-clusters. Intellectual capital and entrepreneurial resilience positively influenced resource acquisition and competitive performance, with business experience enhancing this relationship (Seraj *et al.*, 2022; Ying *et al.*, 2019). Executive FL improved performance of corporatethrough addressing financing issues & enhancing management of risk (Tian *et al.*, 2022). FL positively affected financial access and risk management, while various factors influenced digitalization adoption, impacting SME performance & sustainability (Alshebami *et al.*, 2022; Kurniasari *et al.*, 2023). FL had a beneficial impact on sustained competitive performance, and this link was mediated by access to digital money (Akhtar *et al.*, 2024; Lontchi *et al.*, 2023).

The *Yellow cluster* focuses on Innovation and Sustainability, crucial for SMEs. Study highlights tools and practices for financing innovation,

addressing funding issues (Stefani *et al.*, 2020). Financial literacy positively influences innovation, with male owners and larger firms showing higher innovation levels (Liu *et al.*, 2021). CEO FL is crucial for SME innovation (Duréndez *et al.*, 2023; García-Pérez-de-Lema *et al.*, 2021). Fintech services positively impact SME performance (Lontchi *et al.*, 2023). Improved financial knowledge enhances sustainability (Alshebami & Murad, 2022; Tang, 2022; Ye *et al.*, 2019). Government support boosts financial literacy, capital access, and green value co-creation (Aslam *et al.*, 2023). Entrepreneurial competence and financial literacy improve sustainability (Seraj *et al.*, 2022), with positive correlations for female's entrepreneurial sustainability & empowerment (Andriamahery & Qamruzzaman, 2022).

The *Blue cluster* includes financial access and growth as sub-clusters. Financial literacy (FL), access, and risk attitude positively impact SME sustainability (Charfeddine *et al.*, 2024; Ye *et al.*, 2019). CEO FL correlates with organizational success (Diéguez-Soto, 2022). FL moderates relationship of human/social capital & financial access (Talip *et al.*, 2024). Empowerment boosts women's entrepreneurial sustainability (Andriamahery *et al.*, 2022). Increasing ICT usage significantly influences FL & credit access (Charfeddine *et al.*, 2024).

Enhancing Financial Literacy in SMEs: An Integrative Literature Review

This section explores clusters from co-occurrence of the keywords & co-citation analysis, linking research of SME FL to the theoretical underpinnings (RQ4).

The role of the banking system in economic volatility is significant and warrants explicit emphasis in financial education (Cortes & Chiang, 2017). Validated through robustness tests and endogenous treatment, underscored the importance of enhancing bank competition, improving financial literacy, and developing industrial parks to boost small and micro enterprises' exports and support economic growth. (Zhang, 2022). The earlier studies shows

that Intellectual capital positively influenced resource acquisition and competitive performance, with business experience enhancing this relationship, while financial literacy did not significantly moderate the connection (Ying *et al.*, 2019) but developing education around finance and entrepreneurship could improve access to resources and support innovation, with significant societal implications (Stefani *et al.*, 2020). The subsequent measurement of the study has recognized the influence of entrepreneurial competence and financial literacy as essential elements for sustained success in small firms (Seraj *et al.*, 2022; Tian *et al.*, 2022) and it improved corporate performance by removing financing issues & enhancing risk management (Tian *et al.*, 2022; Alshebami *et al.*, 2022). The detailed study which found that entrepreneurial characteristics, financial literacy, knowledge & experience positively influenced spiritual quotient and center of control, thereby enhancing performance of finance, with emotional quotient further strengthening these relationships (Diéguez-Soto *et al.*, 2022; Imarhiagbe *et al.*, 2017; Khan *et al.*, 2022; Top & Ozbek, 2022). Sustainability is affected by financial & non-financial SMEs performance, the model demonstrated the significant of knowledge management impact on both financial and non-financial performance, emphasizing importance of knowledge, innovation, and creativity as competitive advantages (Bawono *et al.*, 2022). Training in corporate culture of finance & awareness of finance is crucial, highlighting significant role of the financial culture in corporate success (Tóth *et al.*, 2022). Financial literacy and leverage have association, and it shows that higher financial literacy was connected with lower leverage in small firms, with this relationship being less significant in nations that have low levels of the financial growth, high levels of transaction expense & bankrupt, and larger levels of low information (Basha *et al.*, 2023). The same applies to Agro-based SMEs, where financial literacy is crucial for improving productivity, sustainability, and market competitiveness (Akhtar *et al.*, 2024).

This section of research studies shows that Innovation is also playing significant role in success and growth of SMEs. By embracing innovative practices, SMEs can enhance their competitiveness, improve operational efficiency, and create new opportunities for growth and development. Financial literacy is crucial for fintech services to enhance SMEs' performance during the COVID-19 recovery period (Lontchi *et al.*, 2023). Company's innovation is influenced by financial culture and well-grounded management decisions (Gyori *et al.*, 2019). Further it is found that Management control systems and risk attitudes wholly mediated relationship in FL & innovation (Duréndez *et al.*, 2023). The FL of entrepreneurs also affects the innovation level in SMEs (Liu *et al.*, 2021; Duréndez *et al.*, 2023). Advancements in innovation finance and underscores the need for further research into the connections between creativity and financial support, particularly in developing countries. The study focuses on societal benefits of improved financial literacy and education in fostering innovation (Stefani *et al.*, 2020). Fostering a collaborative environment, strengthening the digital data landscape, and improving financial literacy are essential for developing the FinTech sector, with a focus on data security and comprehensive financial solutions for SME borrowers (Thomas, 2023). Furthermore, there is favourable relation in FL & the achievement of a green economic rebound, and emphasized the need for continued support and development of green finance and financial literacy to sustain China's green economic progress (Hou & fang, 2023).

Financial literacy, financial access, and risk attitude of finance have influenced sustainability in SMEs in Sri Lanka, revealing direct positive impacts and mediation effects (Ye *et al.*, 2019). The impact of easily comprehensible risk ratings and advanced financial information on investment choices and their correlation with the performance of loan financing on the marketplace-lending platform (Cumming & Hornuf, 2022). Various factors identified that affect financial literacy in SMEs which includes in human capital & social

capital in accessing finance (Talip *et al.*, 2024). The financial literacy is playing critical role in improving financial access for SMEs, especially in developing countries (Talip *et al.*, 2024) and it is search that FL& perceived financial access significantly influenced credit access (Charfeddine *et al.*, 2024). There is study on women empowerment which revealed significant positive relation in the sustainability of women's business & their empowerment., highlighting the need of policies that improve financial access, technical knowledge, & financial literacy to promote women's empowerment (Andriamahery *et al.*, 2022). Financial literacy level, financial access enhanced through government support which promote sustainability of SMEs (Aslam *et al.*, 2023).

The research underscores financial literacy's crucial role in enhancing SME innovation, acquisition of resource, and performance with competitiveness, emphasizing intellectual capital, experience of business, fintech services, green recovery, and financial access in developing countries.

Future significant avenues of research

The study suggests significant avenues for the future research (Figure8) to develop further this ongoing and emerging research field (RQ5) in this section based on integrated literature revenue (RQ4). Studies have primarily analysed SME financial literacy in terms of topics such as performance, financial access, innovation, financial risk attitude, & entrepreneurship.

While existing studies emphasize the significance of regional bank lending in explaining volatility (Cortes & Chiang, 2017), Given the importance of financial literacy in enhancing SMEs' performance (Ying *et al.*, 2019), there's room for study on effective FL interventions. The positive influence of entrepreneurial competency on sustainable performance (Bawono *et al.* 2022; Seraj *et al.*, 2022;), The relation in FL& leverage (Basha *et al.* 2023) varies across countries. Focusing on Agro-based SMEs (Akhtar *et al.*, 2024), research could delve into sector-specific financial literacy needs.

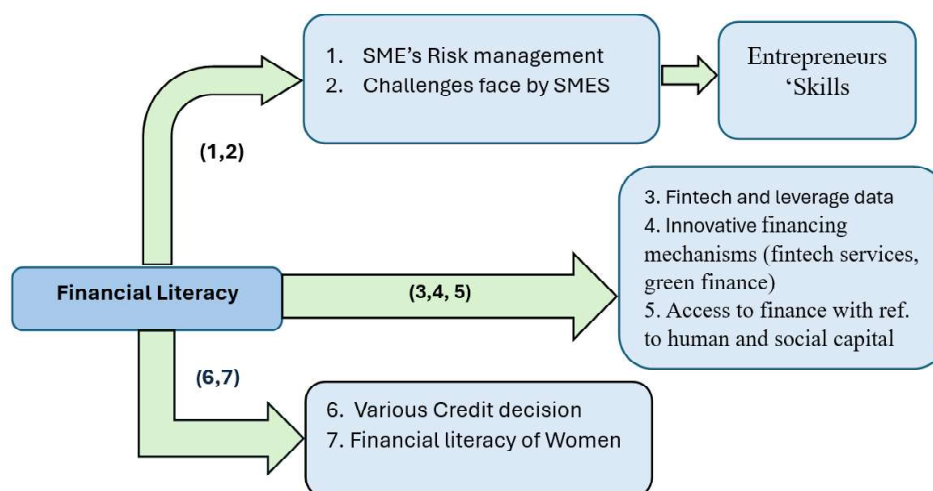


Figure8: Future directions of research towards the financial literacy in the SMEs

Source: Author

Research gap I: How can tailored financial education programs improve SMEs' risk management, investment decisions during economic fluctuations?

Research gap II: How can FL programs address the unique challenges such as seasonality,

supply chain dynamics, and commodity price fluctuations?

Across several studies (Duréndez *et al.*, 2023, Lontchi *et al.*, 2023; Stefani *et al.*, 2020), FL emerges as a critical factor. However, there's a need for context-specific interventions. Duréndez

et al. (2023) and Liu *et al.* (2021) highlight the mediating effect of FL towards innovation. Stefani *et al.* (2020) emphasizes the challenges faced by SMEs in accessing necessary funds for innovative projects. Importance of collaboration with traditional financial institutions and scalability of operations for FinTech growth is seen (Thomas, 2023). Hou & Fang (2023) analysed green finance's role in boosting green economy.

Research gap III: How SMEs can effectively collaborate with FinTech's and leverage digital data for financial solutions would be relevant?

Research gap IV: How Innovative financing mechanisms (e.g., fintech services, green finance) that enhance SME resilience during economic disruptions?

Remaining research highlights positive impact of FL on SME sustainability. Strategies to enhance SME sustainability include improving financial knowledge and financial access (Ye *et al.*, 2019). However, there are several areas where further investigation is warranted. Simple risk ratings significantly influence investor behaviour in marketplace lending (Cumming & Hornuf, 2022). Financial literacy moderates MSMEs' access to financing, human capital, and social capital (Charfeddine *et al.*, 2024; Talip *et al.*, 2024). A favorable correlation between women's entrepreneurial sustainability and empowerment exists. Financial access, technical knowledge, and financial literacy play crucial roles.

Research gap V: How financial literacy interacts with human & social capital to improve financial access?

Research gap VI: How different types of financing (e.g., trade credit, bank loans) are affected by financial literacy and technological factors?

Research gap VII: How women's financial literacy is significant for successful women entrepreneurship

Conclusion

This study postulates a comprehensive bibliometric and systematic review of literature on financial literacy towards SMEs, depicting from 37 research studies published between 2017

& 2024 sourced from the Web of Science. Bibliometric analysis shown several key trends: the year 2022 saw the highest publications, while 2018 had the highest citation count. Notably, the study on the manager's intangible capability's role and financial literacy in promoting sustainability in SMEs received significant attention. The journal "*Sustainability*" was identified as the most influential source, with 163 citations, and Ying *et al.* (2019) emerged as most significant author in this field. Through co-occurrence analysis of author keywords, we identified main clusters in management & performance, innovation & sustainability, and access to finance & growth. The co-citation analysis highlighted four primary clusters: financial management, sustainability & innovation, financial success & resource acquisition, and financial literacy & performance. Based on these insights, a systematic review of literature was carried, focusing on areas of management, performance, innovation, sustainability, and financial access & growth in SMEs.

Based on the findings of the bibliometric & systematic review, several avenues for future research in the domain of financial literacy towards SMEs have been identified. First, there is a need for more in-depth studies on SME risk management, particularly in navigating financial uncertainties and market volatility. Second, research should explore the unique challenges faced by SMEs, including regulatory hurdles and access to resources. The emergence of fintech and its potential to leverage data for financial decision-making represents another promising area for investigation. Additionally, innovative financing mechanisms, such as fintech services and green finance, warrant further exploration to understand their impact on SME growth & sustainability. The role of human & social capital in accessing finance should also be examined, as well as the various factors influencing credit decisions. Finally, research focusing on financial literacy of women in SMEs could provide valuable insights into gender-specific financial challenges and opportunities, promoting more inclusive economic growth.

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