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Financial Literacy, Credit Decision-Making, and Fintech: Advancing Business Expansion and Resilience through Bibliometric Analysis

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Abstract

Financial literacy has evolved from basic financial knowledge into competencies to make financial decisions. Financial literacy is also related to credit decisions and business expansion in creating a resilient business in the long run. However, no specific research paper has done a systematic literature review that discusses this term with credit funding decisions to enhance the business. Currently, with the emergence of Financial Technology, funding has become more accessible than before, but without good literacy, companies are also exposed to higher risk. This article provides the latest linked keywords through VOS viewer visualisation to help scholars find a research gap for future research in financial literacy and credit funding decisions. The result found four clusters of keywords regarding financial literacy or credit decisions. Despite many studies on this topic, the linked citation discusses SMEs' performance, the role of financial inclusion in improving shareholder wealth, and fintech usage in improving financial inclusion. The three interconnected ideas provide a future guideline for scholars to find the latest research gap in this topic.

Keywords: Financial Literacy, Credit Decisions, Financial Inclusion, Fintech, Resilient Entrepreneurs, Entrepreneurship

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1. Introduction

Emerging businesses must secure ample funding for expansion before attaining a certain level of resilience in today's economy. Resilience, in this context, denotes a company's ability to endure dynamic competition and thrive over the long term. The sources of funds in this rapidly growing stage usually come from venture capital or bank loans. The need for a significant number of working capital is the major driving factor in issuing new funding for this stage. Firms usually face a challenge in allocating resources properly with their competitive advantages during periods of uncertainty (Blouch & Khan, 2023). This underscores the importance of resilience, as it allows businesses to withstand dynamic competition and sustain their operations in the long run. Without proper allocation of resources (funds), the new business cannot strive to survive in this critical period.

A bank loan is one of the essential sources of funds for entrepreneurs. However, start-up businesses prefer venture capital to the bank because of the collateral needed for the application. This phenomenon creates a demand for flexible and less complicated loan application administration, which Fintech later fulfils. The trend of corporate financing from Fintech is inevitable, which can be found in China (Lyu et al., 2023). Fintech helps to increase financial inclusion and increase the mobility of the fund. However, inclusion and crime costs are relatively high without good policy and regulation (Ofori-Acquah et al., 2022). This further emphasises the importance of resilience in navigating the dynamic landscape of fintech advancements. The Fintech trend to fund business ideas and consumer consumption is increasing globally. The formation of Fintech is also confirmed to be found in countries with fragile financial sectors, benevolent regulation, and extensive labour markets (Haddad & Hornuf, 2019).

The digital economy will need a resilient business with futuristic payments and good financial institution governance. Funds and credit distribution are pivotal in nurturing and expanding the company if they are allocated adequately. From the enterprise perspective, resilient businesses will need sufficient credit decisions to be followed by good strategic and working capital management to increase the value of the firms. Small and medium enterprises (SMEs) will need further support from the government before reaching a certain sustainability level (Aslam et al., 2023). Evidence from China also found that high social trust is exposed to high risk and higher default rates (Hasan et al., 2022). Therefore, the potential challenge is that if the new venture businesses heavily rely on Fintech in funding without adequate risk measurement and good governance, it could lead to financial distress.

The term financial literacy can be traced back to 1999 by the Blue-Ribbon Committee, which refers to understanding the introductory financial statement (McDaniel et al., 2002). The term has evolved to cover financial knowledge, competencies, and time preferences (Lin & Bates, 2022). There is a relationship between high financial literacy and better financial management skills (Van Nguyen et al., 2022). However, financial literacy needs to be mediated by the management control system and risk attitude before it could impact innovation and create a resilient business (Duréndez et al., 2023).

Being highly literate in finance is beneficial in credit decisions. Entrepreneurs need to understand the inherent risk of making credit decisions. High financial literacy means that entrepreneurs carefully calculate the potential income compared with principles and interest paid to lenders. Therefore, highly literate entrepreneurs will make a credit decision if there is a high probability surplus after paying the loan. However, low-literate entrepreneurs tend to speculate on ideas without carefully calculating the likelihood of the worst outcomes. Being highly literate in finance is beneficial in credit decisions. Entrepreneurs need to understand the inherent risk of making credit decisions. High financial literacy means that entrepreneurs carefully calculate the potential income compared with principles and interest paid to lenders. Therefore, highly literate entrepreneurs will make a credit decision if there is a high probability surplus after paying the loan. However, low-literate entrepreneurs tend to speculate on ideas without carefully calculating the likelihood of the worst outcomes.

Based on a systematic literature review, this article aims to capture the current state of the art on financial literacy or credit decisions. The first research question is: What is the most influential literature on financial literacy or credit decisions? The second research question is: What is the citation pattern in this topic? Third is: Where is the future research headed? This paper runs a bibliometric study using a VOS viewer to create keyword mapping from the Web of Science (WOS) database.

This paper wants to contribute to finding the interconnected cluster of research on financial literacy, credit decisions, and Fintech. The existing literature on financial literacy and credit decisions is very diverse. The keywords must also be connected with Fintech as the modern economic tool in the digital ecosystem. The result of this article can help the scholar find a research gap and novelty in the following topics. This paper wants to contribute to finding the interconnected cluster of research on financial literacy, credit decisions, and Fintech. The existing literature on financial literacy and credit decisions is very diverse. The keywords must also be connected with the Fintech as the

modern economy tools in the digital ecosystem. The result of this article can help the scholar find a research gap and novelty in the following topics.

The structure of this paper is written as an introduction, literature review, research method, result, and conclusion. This paper explores the theory and relevant works in financial literacy, credit decisions, and Fintech in the literature review. At the end of the literature section, several papers on resilience business are provided to strengthen the theme of resilience. The research method section explains details about the database and how the data are selected. VOS viewers, bibliometric study, and clusters of networks are discussed in the result section. In the conclusion section, this paper provides the latest research gap in studying financial literacy, credit decisions, Fintech, and how they relate to resilience business.

2. Literature Review

The term credit decision in this article refers to funding the enterprise or business venture using a loan from a bank or other non-bank financial institution. During the rapid growth stage, new businesses usually need more significant capital to fund their operations. After receiving sufficient funds, further monitoring was required to ensure the working capital delivered additional value for the firms. This monitoring process will require accounting and financial literacy skills (Bratfisch et al., 2023). The research trend for this issue concerns financial literacy, inclusion, and regulatory support to nurture micro, small, and medium enterprises to grow (Kurnia Rahayu et al., 2023; Sethy et al., 2023).

Fintech has helped the unbanked access business loans (Kurnia Rahayu et al., 2023; Lyu et al., 2023). The future of loans is entering a new trend with Fintech as a new player in financial intermediaries. Fintech offered flexibility in collateral compared with banks. Many Malawi banks prefer collateral to minimise the risk of default (Pendame & Akotey, 2023). Some banks in developed countries started to accept collateral of investors' goodwill and took a more considerable stake in the process (Thakur et al., 2022). In contrast, Fintech tends to waive the collateral requirement but charges higher interest. It is very crucial to have good risk management to avoid the destructive impact of credit default.

The body of knowledge from this topic cannot be separated from entrepreneurship research. Entrepreneurs need a set of competencies in finance to face rapid changes in the business environment so the resources can be managed effectively (Orrensalo et al., 2022). The result of these competencies led the venture into a sustainable and resilient business in the long run (Fazal et al., 2022). The role of

women in entrepreneurship and value creation also gained significant attention. Gender-based research about fund access for women in Chile found that it has moved toward equality (Bentancor, 2022). Women with remarkable financial and numerical skills tended to have better entrepreneurial skills and boast a culture of value creation (Lladós-Masllorens & Ruiz-Dotras, 2022).

Financial inclusion refers to the reach of financial services to unbanked groups (Neelam & Bhattacharya, 2022). Financial inclusion helps improve the economy by creating jobs and increasing society's wealth through businesses. This argument was supported by empirical findings in Tunisia by Amaira (2022), who found a negative correlation between financial inclusion and economic growth. Financial inclusion improved the economic development of rural areas by redistributing wealth (Aparna & Anthuvan, 2022). However, several countries found wealth disparities challenging (Imhanrenalena et al., 2022; Takmaz et al., 2022).

The final component to create a resilient business is financial literacy. In the previous paragraph, several researchers have pointed out the importance of having a set of competencies in managing capital. The term financial literacy today is far more complex than stated in 1999. Financial literacy is a set of knowledge that allows an individual to make effective decisions regarding their financial resources (Liu & Zhang, 2021). Empirically, it can be measured subjectively or objectively (Xiao & Porto, 2017). The knowledge will help individuals assess the risk and avoid a significant loss (Mitchell & Abusheva, 2016). Individuals were susceptible to financial bullshit without good financial literacy (Kienzler et al., 2022). Low financial literacy was exposed to high bias in financial decisions (Pradana & Kiky, 2022).

Business resilience and working capital management are related to managing limited resources to create value in the long run. Cash or operating capital is essential for business operations. Small businesses prefer to choose family or their owned assets as collateral if they need additional cash flow during a difficult period (Wiatt et al., 2021). Informal lending was another alternative to acquiring fast funding, but it came with a high interest (Turvey & Kong, 2010). However, without continuity management in value preservation and creation, businesses cannot achieve resilience (Niemimaa et al., 2019).

The keyword credit decision and financial literacy research theme can be traced back to entrepreneurial literature. The term credit decision belongs not only to the venture funding but also to consumers' credit and risk management of the bank. The literature study in this article

tries to capture the branch of keywords relevant to venture creation and expansion. The research on this topic heads toward further exploration of improving financial inclusion using the latest financial technology. Therefore, capital distribution can reach the underprivileged population to fund their business ideas and improve the economy.

3. Research Methodology

The bibliometric method investigates impartial information on a specific research theme (Zupic & Čater, 2015). This bibliometric study is categorised as a qualitative content analysis approach. The rationale for this method is that it provides a systematic inference from text to describe specific phenomena (Downe-Wamboldt, 1992). Several software tools can be applied to this bibliometric study, but VOS viewers provided better network visualisation (Gutiérrez-Nieto et al., 2023).

This study focuses on finding novelty and the latest state of the art in the topic of credit decision and financial literacy. The term credit decision has an extensive range of contexts, which include consumer credit, risk management in banking services, and entrepreneurship funding. This article aims to detect keywords related to credit decisions (in funding decisions) and financial literacy. Several literature studies focus on entrepreneurial behaviour and financial technology (Neelam & Bhattacharya, 2022; Orrensalo et al., 2022). A review of financial literacy and behavioural bias has also been discussed by Pradana & Kiky (2022). However, the previous literature lacks a systematic review using bibliometric tools to find the network of keywords that connect credit decisions and financial literacy.

The bibliometric study in this research follows the steps in Figure 1 below. The first step is a database search. To the best of the author's knowledge, there are two reliable databases for scientific research: Web of Science and Scopus. The author decided to use the Web of Science (WOS) as the database source because of minimum duplicated data and better organisation of the references. The input keywords used were "credit decisions" or "financial literacy" because the author wanted to understand the nature of credit decisions and their relation with financial literacy. From this step, 3,887 articles were collected from the database.

The second step was selecting the micro topics that relate to business resilience. Most of the articles about "credit decisions" or "financial literacy" were about consumer credit and consumption, unrelated to the resilience theme in this paper. After careful consideration and selection, several micro topics were selected based on the single theme of entrepreneurship or good governance, and the result was 678 articles.

The third step was running the visualisation network using VOS viewers based on the data of 678 articles. The database was accessed in July 2023, covering a range of research between 1984 and 2023. The keyword co-occurrence is visualised using VOS viewers as a bibliometric tool.

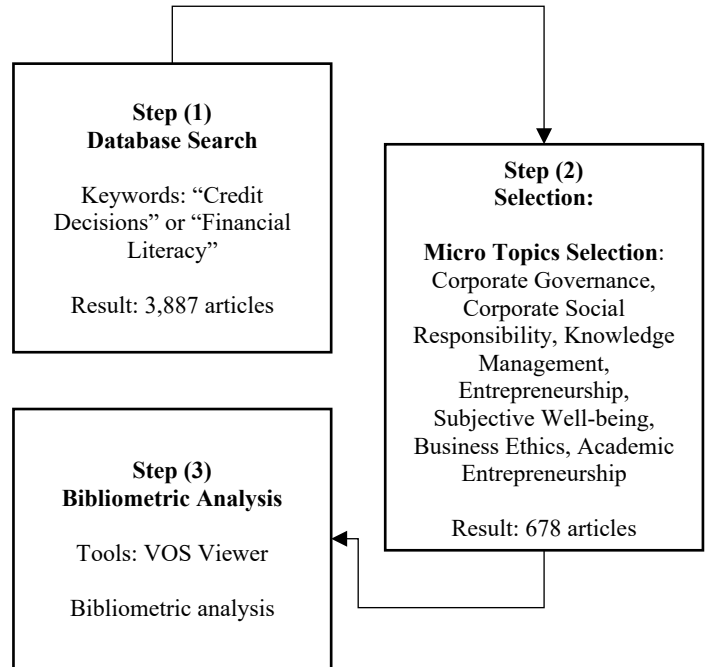


Figure 1. Bibliometric Analysis Steps, Source: Author

4. Result and Analysis

4.1. Descriptive Statistics

The most cited article about financial literacy or credit decisions is by Venesaar et al. (2021) about building entrepreneurship education. Five of the most cited papers are relatively updated research spans between 2021 and 2022. Four articles discussed and explored the effective program to build a resilient entrepreneur (Chaker & Dellagi, 2023; Jackson et al., 2021; Malki, 2022; Venesaar et al., 2021). Skica et al. (2022) stated financial literacy in entrepreneurial aspects included entrepreneurial activity, potential, motivation, involvement in technology, and business exit. The last cited paper pointed out a link between financial literacy and the entrepreneurial aspect before emerging as decisions.

The terms financial literacy or credit decision are not exclusively about entrepreneurial decisions. The knowledge of these terms is vast, covering investment and behavioural biases (Fisch, 2022; Jariyapan et al., 2022).

From the database, the most recent and updated trend of research included Fintech in their discussion. Therefore, it is very likely that future research will extend fintech usage with financial literacy to increase entrepreneurship and value creation.

Table 1 Five the Most Cited Articles about Credit Decision or Financial Literacy based on the WOS Database

Article Title	Author	Year	Cited Reference Count
Entrepreneurship Competence Model for Supporting Learners Development at All Educational Levels	Venasaar, U; Malleus, E; Arro, G; Toding, M	2022	179
Combining teaching methods and developing students' entrepreneurial skills and entrepreneurial intention: The case of students in the Faculty of Economics and Management of Tunis	Chaker, H; Dellagi, H	2022	160
Balancing benefits: evidence-based guidelines for school-banking programmes	Jackson, M; Parker, L; Brennan, L; Robinson, J	2021	158
The financial ambidexterity of the immigrant entrepreneurs: a conceptualisation	Malki, B	2022	157
Financial Literacy and New Business Entry	Skica, T; Mikus, J; Holienka, M	2022	150

4.2 Bibliometric Analysis

Keyword visualisation is generated based on a 678-article database using VOS Viewer. The first analysis is a co-occurrence analysis from the title and abstract keywords. This analysis can obtain a network of keywords grouped based on the linked words. This result can help scholars to find the research gap and novelty for the search keywords.

The first analysis is co-occurrence analysis. This analysis set the minimum number of keyword occurrences to at least ten. Several similar keywords were merged into a single word, such as decision, decision-making, and decision-making, to ensure the robustness of the bibliometric analysis. The result was 65 linked keywords generated based on the VOS Viewer visualisation, shown in Figure 2 below.

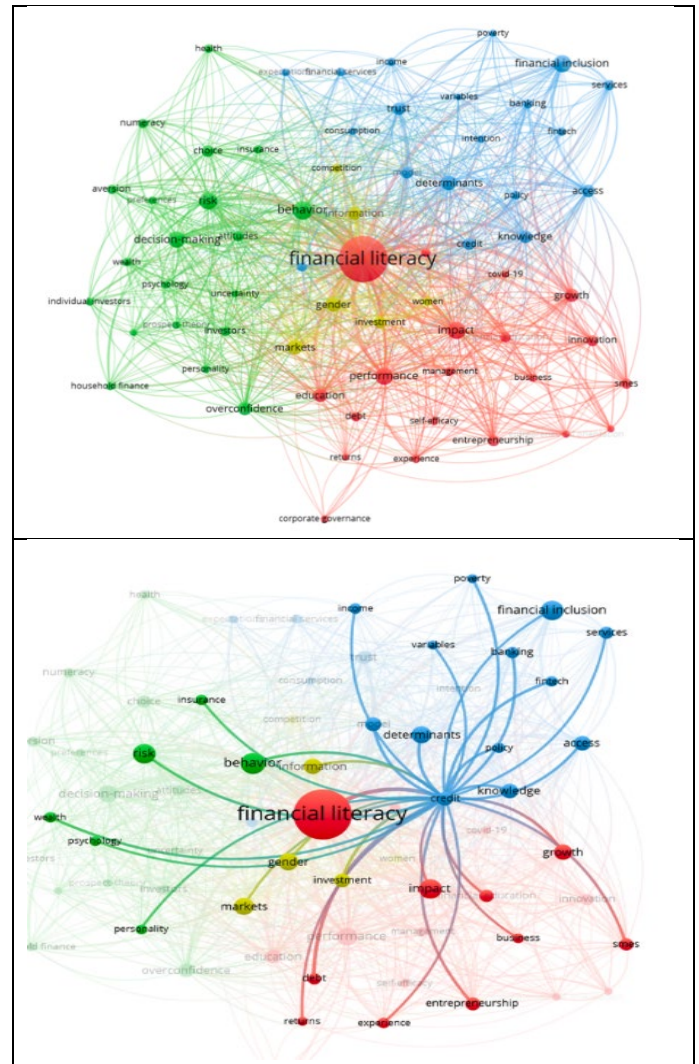


Figure 2. Linked Keyword Visualization using VOS Viewer

Based on the co-occurrence analysis, the term financial literacy or credit decision in the WOS database will have four clusters. On the right side of Figure 2, the term credit can be found in blue sets that link with several words from other groups. The blue cluster is about financial inclusion and credit reach for the unbanked population. The novel theme of research from Blue Sets is about Fintech as a tool to improve financial inclusion or policy development for new banking experiences in the digital age.

Scholars interested in researching financial literacy and credit decisions in building a resilient business can focus their search on the Red Cluster. The red cluster connected with credit concerns debt, growth, SME, impact, financial education, return, experience, and business. Several research themes can be explored in this region, such as how debt capital structure in SMEs can improve their business return. What is the impact of credit decisions on

SMEs' growth? Interestingly, the SMEs provide suitable research objects in exploring this topic.

The Green Cluster explores how an individual perceives the risk before making any credit decision. The theme of consumer credits is prevalent in this cluster. This cluster is related to psychology, sometimes crossing with behavioural finance research. The future investigation on the decision to have an insurance product to protect the risk remains a promising venue. Lastly, there is a small set of keywords in yellow colour that served as the final cluster. The words gender, market, and investment are related to credit. The details of the keywords in each set are shown in Table 2.

Table 2 Four Clusters of Keywords in Financial Literacy or Credit Decision

Cluster Red (20 Keywords)	Cluster Green (20 Keywords)	Cluster Blue (19 Keywords)	Cluster Yellow (6 Keywords)
Business	Attitudes	Access	Competition
Corporate Governance	Aversion	Banking	Gender
Covid-19	Behavior	Consumption	Information
Debt	Behavioral Finance	Credit	Investment
Education	Choice	Determinants	Markets
Empirical-Evidence	Decision-Making	Expectations	Women
Entrepreneurial Orientation	Health	Financial Inclusion	
Entrepreneurship	Household Finance	Financial Services	
Experience	Individual Investors	Fintech	
Financial Education	Insurance	Income	
Financial Literacy	Investors	Intention	
Firm Performance	Numeracy	Knowledge	
Growth	Overconfidence	Model	
Impact	Personality	Perceptions	
Innovation	Preferences	Policy	
Management	Prospect-Theory	Poverty	
Performance	Psychology	Services	
Returns	Risk	Trust	
Self-Efficacy	Uncertainty	Variable	
SMEs	Wealth		

The research theme for the keywords (financial literacy or credit decisions) is divided into four clusters. The red cluster is about SMEs and entrepreneurship. The research gap on financial literacy and business resilience can be found in this segment. The green cluster is about individual decision-making regarding risky choices. The

blue cluster concerns financial inclusion and credit decisions to improve the unbanked population. Fintech as the research subject can be found in this cluster. The yellow set is entirely mixed in the result. Gender-based investment and women's decisions are the theme of this group.

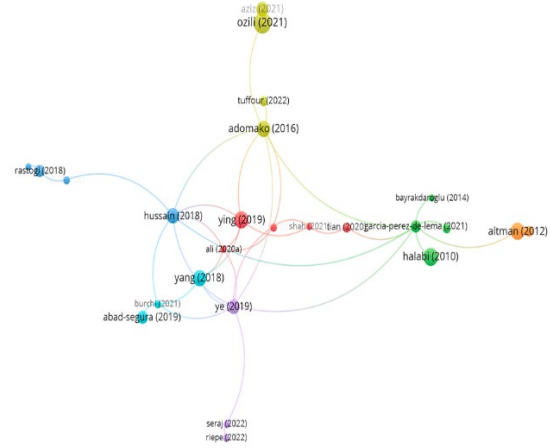


Figure 3 Citation Analysis based on Documents from VOS Viewer

The first citation analysis is done based on the documents. The visualisation network of citation analysis is set based on the threshold of 10 papers. The result is shown in Figure 3 above. The red dots in the citation visualisation is a collection of research about the impact of financial literacy on entrepreneurship performance. The first article detected in the visualisation centre is about SME resource acquisition. Intangible skills such as financial literacy, intellectual capital, and business experience were pivotal in creating sustainable businesses and allocating resources effectively (Ying et al., 2019). Other articles also supported this finding by detecting high financial literacy means competence in managing the available resources (S. Ali et al., 2021; Purnomo, 2019). Financial literacy can improve innovation by alleviating the risk constraints in China (Tian et al., 2020). SME executives in Pakistan with high literacy can benefit from implementing the China-Pakistan Economic Corridor (CPEC) to improve their business performance (Shah et al., 2021). These articles are the best starting point for finding financial literacy and entrepreneurship literature.

The blue dots represent the topic of financial literacy and inclusion. Financial literacy helped SME entrepreneurs reduce information asymmetry on collateral and loan applications. Therefore, it improved access to funds to boost the firm's performance (Hussain et al., 2018). Financial inclusion is the central theme of this group. It can be specified as Islamic financial inclusion (M. M. Ali et al., 2020). Financial inclusion can help to improve the wealth of

marginalised communities. However, the impact of financial literacy on inclusion remained debated. Rastogi & E. (2018) argued that financial literacy was a factor in financial inclusion, but Nandru et al. (2021) found the opposite. Several cyan dots are linked with this cluster. Managing and mitigating risk was the key to achieving SME competitive advantage, moderated by financial literacy (Songling et al., 2018). The cyan group focused on developing a set of competency-based financial literacy frameworks so that small businesses can reach a certain sustainable level in the long run (Abad-Segura & González-Zamar, 2019; Burchi et al., 2021).

The green dots represent the research about fintech usage in increasing financial inclusion. The management and strategic level played an essential role in implementing the technology as a tool in daily operations (Bayrakdaroglu & Şan, 2014; García-Pérez-de-Lema et al., 2021). Low financial literacy causes poor financial information in SMEs. The result was a lack of informal information to assess before credit approval from the banks (Halabi et al., 2010). Digital finance has eased consumer interaction and bridged access to financial services (Aziz & Naima, 2021).

The yellow dots' main issue is SMEs' performance in the long run. The discussion concerns how financial literacy can improve SMEs' performance due to the knowledge to handle limited resources. Financial literacy moderated the relationship between financial inclusion and SMEs' performance (Adomako et al., 2016). The high financial performance affected SMEs' financial performance and on-financial performance (Tuffour et al., 2022). Ozili (2021) provided a detailed systematic review of financial inclusion and SMEs' performance.

The risk attitude of entrepreneurs was determined by financial literacy. Understanding the risk can promote the firms toward sustainability (Ye & Kulathunga, 2019). It was supported further in Saudi Arabia, which pointed out that SMEs need sufficient financial literacy to make risky decisions (Seraj et al., 2022). Interestingly, those with high financial literacy tended to have an increased risk-aversion attitude (Riepe et al., 2022). This attitude can help entrepreneurs avoid unnecessary losses due to careless decisions.

Based on the linked citation, financial literacy or credit decisions can be classified into three related ideas. The first idea is about SMEs' performance. The main goal of this research is to investigate how financial literacy can improve SMEs' performance. The second idea is about financial literacy and inclusion. Inclusion is about debt access, and SMEs need this capital to expand their business to reach the sustainable and mature stage. Financial inclusion must be

moderated by financial literacy before it can improve SMEs' performance. The third idea is Fintech's role in this digital era. Fintech enhanced financial inclusion and reached the unbanked population. However, it also comes with greater risk because several collateral needs are waived.

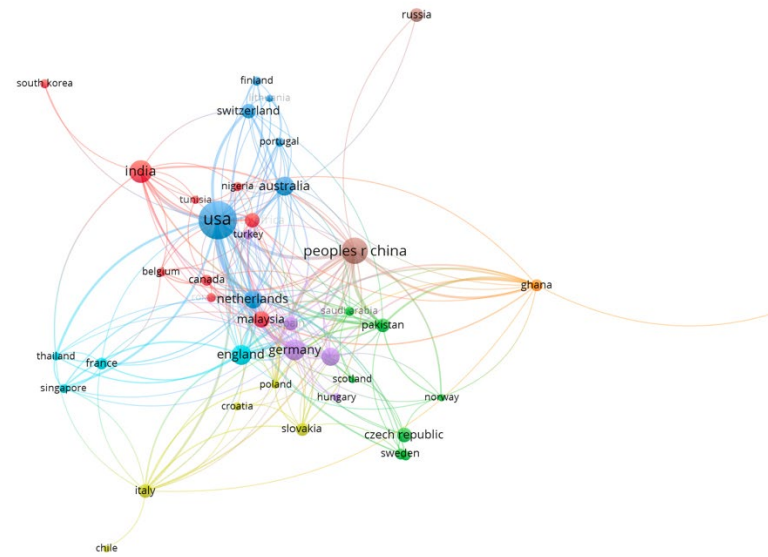


Figure 4 Citation Analysis based on Country from VOS Viewer

Figure 4 presents a visualisation based on the country of the research. Five significant countries have explored financial literacy or credit decisions extensively. The United States of America is the most prominent country in this issue, followed by the People's Republic of China, India, Germany, and England. The United States of America, Germany, and England had good and mature financial systems compared with China and India. Figure 4 points out that the trend of research in credit decisions or financial literacy in emerging economies remains potential, especially concerning SMEs resilience. It leaves room to explore financial literacy in emerging countries such as Indonesia because of the considerable potency of SMEs in their economy.

Based on the bibliometric analysis and current knowledge, financial literacy is crucial in evaluating credit decisions, especially for small-medium enterprises. During the expansion and later stage of the business, capital needs to be managed effectively to create and preserve value. It requires competent entrepreneurs with high financial literacy to assess the risk and devise a well-planned continuity strategic management. Highly literate entrepreneurs will make a credit decision based on carefully evaluating potential income with high certainty to acquire the profit. The resilience business results from good continuity in

managing firm resources and turning the credit into valuable leverage to increase shareholder wealth in the long run.

5. Conclusion

Financial literacy is a vast topic that is gaining much attention today. However, the linked citation and bibliometric study from the WOS database show only three interconnected ideas. The most popular idea is about SMEs' performance. Researchers can expand the concept into risky entrepreneurial decisions and several behavioural research from this area. This area has a lot of potential to be used in interdisciplinary research with behavioural economics in future research.

The second area is about financial inclusion. Financial inclusion is the key to improving and redistributing wealth. However, financial literacy is needed as a moderating factor in enhancing SMEs' financial performance. Future research will likely explore the unbanked population further, which pushes into micro business. Financial inclusion and microfinance will be promising venues in this area.

The final area is about Fintech. The emergence of the digital economy has shifted the consumers' experience through mobile interaction. Classic financial institutions have been disrupted by fintech adaptation with more flexibility and less collateral obligation for borrowers. It can bring more risk but, at the same time, open new opportunities for the unbanked population. Whether Fintech improves financial inclusion or exposes banking services to higher risk remains inconclusive.

The three areas are tied together in the context of building a resilient business. Fintech will be a new tool in the digital economy to distribute the fund, and fund accessibility will become much easier and faster. SMEs have a greater chance of success and become resilient businesses in the digital ecosystem if they know how to utilise the credit for their growth. Entrepreneurs must be empowered with adequate literacy about risk, both theoretical and emotional, before making feasible credit decisions. Future research on building a resilient business will span between credit decisions, working capital management, and strategic continuity framework in SMEs with Fintech as the moderating factor.

Future research on this topic would be fascinating if combined with other fields of study. Interdisciplinary research with behavioural economics will shed light on the mechanism for evaluating risk under uncertainty. Ideally, literacy will help people assess the risk better and make less speculative decisions. The trend will be about the difference

in capital management between constant loss situations, steady growth, and a rapidly changing environment, such as the COVID-19 Pandemic.

The role of Fintech remains questionable in the long term. Fintech has improved many unbanked populations due to its simplicity and less complicated risk assessment in the short run. Some ventures were proven successful, but a significant number of them failed and were scams. Several factors might cause this phenomenon, such as unethical behaviour or lack of proper management skills in running the business. Future research could address whether the problem arises from the Fintech business process inducing unethical behaviour or whether the entrepreneurs need supplementary assistance in management and networking.

Financial literacy or credit decisions are inseparable from banking and risk management. Therefore, it directly impacts practice and policy in the banking sectors. Fintech has redefined and improved the access of the fund. However, it also comes with significant risk if it is poorly managed. Conventional banks survive for a hundred years due to a conservative approach. The emergence of Fintech needs to be monitored extensively by policymakers. Finding sufficient control and risk management will be crucial in the digital ecosystem where traditional banks and Fintech could live as two mutual institutions.

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