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I. Gusti Ketut Agung Ulupui, Gentiga Muhammad Zairin, Febe Dwi Sutanti, Hera Khairunnisa, Adam Zakaria, Septi Nurmalita

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Enhancing MSME performance: the role of FinTech literacy, financial literacy and competitive pressure

I Gusti Ketut Agung Ulupui*,
Gentiga Muhammad Zairin,
Febe Dwi Sutanti, Hera Khairunnisa,
Adam Zakaria and
Septi Nurmalita

Faculty of Economics,
Universitas Negeri Jakarta,
Jakarta, Indonesia
Email: igka-ulupui@unj.ac.id
Email: gentigamuhammad@unj.ac.id
Email: febedwisutanti4@gmail.com
Email: herakhairunnisa@unj.ac.id
Email: adamzakaria@unj.ac.id
Email: septi.nurmalita@unj.ac.id
*Corresponding author

Abstract: This study investigates the influence of financial technology literacy, financial literacy and competitive pressure on the performance of Micro, Small and Medium Enterprises (MSMEs) in Jakarta. Data were collected from 77 MSME owners and managers through a structured questionnaire distributed with the assistance of the Jakarta MSME Office (Dinas PPKUKM). The responses were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM). The results show that financial technology literacy and financial literacy have significant positive effects on MSME performance, while competitive pressure also has a positive but relatively smaller effect. These findings emphasise the importance of strengthening financial capabilities and digital readiness among MSMEs. Practically, the study recommends targeted financial literacy training programs, the provision of simple FinTech adoption toolkits and mentoring initiatives to enhance MSMEs' readiness to compete in dynamic markets.

Keywords: MSME performance; financial literacy; financial technology; competitive pressure.

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Biographical notes: I Gusti Ketut Agung Ulupui is a Senior Lecturer in the Accounting Department, Faculty of Economics at Universitas Negeri Jakarta. Her research focuses on accounting and finance, and she has been actively involved in teaching and research since 1995.

Gentiga Muhammad Zairin is a Lecturer in the Accounting Department, Faculty of Economics at Universitas Negeri Jakarta. His main research interests include sustainability, corporate governance, risk management and accounting.

Febe Dwi Sutanti is an Accounting study program student in the Faculty of Economics at Universitas Negeri Jakarta. Her research focuses on taxation, accounting management and SMEs in accounting.

Hera Khairunnisa is a Lecturer in the Accounting Department, Faculty of Economics at Universitas Negeri Jakarta. Her research interests include auditing, corporate governance and behavioural accounting.

Adam Zakaria is a Lecturer in the Accounting Department, Faculty of Economics at Universitas Negeri Jakarta. His research interests include cover financial reporting, capital markets and corporate finance.

Septi Nurmalita is a Lecturer in the Accounting Department, Faculty of Economics at Universitas Negeri Jakarta. Her research interests include financial accounting, auditing and corporate governance.

1 Introduction

Micro, Small and Medium Enterprises (MSMEs) are a vital sector supporting the economy worldwide, including Indonesia. MSMEs play a central role in reducing unemployment, fostering innovation and contributing significantly to national GDP (Sha et al., 2023). According to Indonesia's Central Statistics Agency (BPS), the number of MSMEs reached 4.38 million in 2019, declined to 4.16 million in 2021 due to the pandemic and rose again to 4.34 million in 2022 (Badan Pusat Statistik Indonesia, 2022). These data illustrate the contribution of MSMEs to the economy, particularly to reducing unemployment rates.

MSMEs are crucial for a country's economic development and reducing unemployment rates (Ye and Kulathunga, 2019). A nation's economic growth can benefit from well-performing MSMEs, which in turn increases business revenue. The growth and development of a business can be observed through its resilience during economic downturns such as the Covid-19 pandemic (Kaya, 2022). Resilience is evident in a business's ability to adapt to new circumstances. Data from the Ministry of Cooperatives, Small and Medium Enterprises Republic of Indonesia indicated that Indonesia's Gross Domestic Product (GDP) at current prices increased by IDR 9.58 trillion in 2019, while the constant price GDP was IDR 5.93 trillion (Kementerian Koperasi dan UMKM RI, 2021). These data demonstrate that MSMEs significantly support Indonesia's economy by providing employment and substantially contributing to GDP growth.

Despite their importance, MSMEs often face persistent barriers to sustainable growth, such as limited managerial capability, inadequate adoption of technology, poor financial planning and restricted access to resources (Sudjatmoko et al., 2023). These issues can negatively impact the MSME performance. These weaknesses suggest that MSMEs' survival depends heavily on how effectively they develop and mobilise their resources. To address this, our study is guided by the Resource-Based View (RBV) of the firm. This theory posits that a firm's performance is achieved when it effectively deploys valuable,

rare, inimitable and non-substitutable resources. In a dynamic environment, these resources often include intangible capabilities like knowledge and skills. We argue that in the context of MSMEs, financial literacy, financial technology literacy and the ability to respond to competitive pressure are not merely factors but are strategic resources or capabilities essential for building competitiveness and improving performance. Our research therefore investigates how these specific capabilities and external pressures influence the performance of MSMEs in Indonesia.

The Resource-Based View (RBV) provides a relevant lens to explain this phenomenon, as it emphasises that firms achieve sustained performance when they effectively deploy valuable, rare, inimitable and non-substitutable resources. Contemporary RBV scholarship further highlights the role of intangible capabilities in driving value creation and adaptability in dynamic environments (Barney et al., 2021). In the context of MSMEs, financial knowledge, digital capabilities and adaptive skills represent strategic resources that are essential for building competitiveness and improving performance.

The ability to evaluate knowledge-based resources is crucial for enhancing organisational performance (Kubr, 2022). Basic knowledge significantly affects performance, as the resources used impact business continuity. This aligns with Susan (2020), who states that if owners and managers enhance their financial behaviour, attitudes, skills and knowledge, the company's growth also improves. Developing MSME performance requires more than internal management improvements; it also depends on the external ecosystem, policy support and entrepreneurs' competencies. As highlighted by the OECD, key barriers to entrepreneurship often stem from 'a lack of skills, societal attitudes toward entrepreneurs, access to finance and the regulatory complexities of markets (Lavison et al., 2023)'.

Another challenge faced by MSMEs has occurred during the Covid-19 pandemic from 2020 to 2021. A survey by the United Nations Development Programme (UNDP) and the Institute for Economic and Social Research, University of Indonesia (LPEM-UI) in Limanseto (2022) found that 48% of local MSMEs experienced raw material issues, 77% faced revenue declines, 88% saw decreased product demand and 97% experienced a decrease in asset values. Additionally, 56.8% of MSMEs were adversely affected by the pandemic, while only 14.1% remained stable, 82.9% were negatively impacted, and only 5.9% experienced positive effects from the pandemic (Setyati, 2022). One negative impact was a decline in MSME sales turnover, which could affect performance evaluations, because a decrease in sales turnover can lead to lower MSME performance. The next issue faced by MSMEs was the decline in business performance during the Covid-19 pandemic. According to a survey by the Indonesian Institute of Sciences (Lembaga Ilmu Pengetahuan Indonesia, 2020), 94.69% of businesses have experienced a decline in sales.

Performance can be measured based on the work results or achievements of business actors, both in terms of quality and quantity, which are then evaluated against predetermined standards or values set by a business (Harini et al., 2023). A business's performance can be influenced by two factors: internal and external, as supported by the theory chosen for this research. The theory of company performance suggests that a business's performance can be observed through the results of the work or actions taken by business actors. MSME's performance of the MSME reflects its effectiveness in achieving predefined goals. These goals are established within the business itself, considering both the quantity and quality (Gunawan et al., 2023). Notably, MSMEs are

legally defined entities with specific assets and revenue thresholds. Both internal and external factors influence business performance.

Financial technology literacy affects MSME performance. Understanding technology can be a competitive advantage for actors in MSME. Financial technology refers to financial services innovation aimed at providing ease of access, improving operational activities with appropriate technology, and offering effective and efficient solutions (Leong and Sung, 2018). The aforementioned development of financial technology has prompted a demand for the incorporation of financial technology services within organisations as a means to maintain competitiveness (Krah et al., 2024). This development could facilitate business operations. Financial technology is defined as technologies that support financial services (Gunawan et al., 2023). The use of financial technology in business operations can provide convenient and effective solutions. Financial technology plays a crucial role in Indonesia's economic growth. Previous research by Yan et al. (2022) shown that financial technology significantly influences sustainability performance. This finding is supported by Al-Matari et al. (2022), who state that financial technology significantly affects business performance. Financial technology affects financial performance, indicating that proper financial technology capabilities can influence MSME performance (Alkhalwaldeh et al., 2023).

Another factor that influences MSME performance is financial literacy. Correct financial knowledge and understanding of the impact performance. Some common errors in financial reporting stem from a lack of financial literacy (Lusardi and Mitchell, 2014). Information on MSME financial reports can be used for decision-making. Poor financial literacy can affect the performance evaluations of MSME. Understanding financial literacy is essential for effective and efficient business operations. Davidson et al. (2004) argued that financial literacy is necessary for efficient investment. Besides aiding decision making, good financial information is useful for increasing investment and business capital. Proper financial understanding impacts generated financial reports. Financial well-being can be achieved by focusing on decisions regarding financial activities based on attitudes, skills, behaviours and instincts related to financial literacy (Competencies, 2016). Related to financial literacy, a company's growth improves when owners and managers enhance their financial behaviour, attitudes, skills and knowledge (Susan, 2020).

Financial literacy affects a person's way of thinking about financial conditions and influences business owners' strategic financial decision making and management (Gunawan et al., 2023). MSME actors need these factors to make the correct financial decisions. Good financial literacy is a positive behaviour in determining decisions owing to knowledge of finance, which can determine the level of financial satisfaction (Farida et al., 2021). Appropriate financial literacy enables individuals to prepare accurate financial reports.

In addition to financial technology and literacy, competitive pressure is another factor in improving MSME performance. MSMEs face hurdles both within (limited capital, production, marketing and staff) and externally (challenges created by the development and management environment) (Gunawan et al., 2023). Many small businesses cannot support operations because of their limited resources and capabilities (Hobijn and Jovanovic, 2001), especially for new startups.

Every business activity faces competitors in the same industry. Increasing a company's competitive advantage can be used to develop or improve its performance (Susanti et al., 2023). A competitive advantage is a value proposition for addressing

competition by selling products at lower prices or offering high-quality products and services (Kotler, 2004). MSME actors can use these solutions to overcome competition. A company's ability to attract customers can affect its business performance (Kotler, 2012). An organisation's competitive ability can also be a value addition. Organisational innovation can enhance competitive advantage and affect performance (Rubio-Andrés et al., 2024). This finding is supported by Susanti et al. (2023), who state that competitive advantage positively influences business performance.

The role of MSMEs in the global economy has become increasingly important in the era of digitalisation. Globally, MSMEs contribute more than 90% of businesses and are increasingly pressured to adopt digital financial services to remain competitive (OECD, 2023). The integration of financial literacy and digital capabilities, including FinTech adoption, has been recognised as a critical driver for MSME sustainability (World Bank, 2021). In the Indonesian context, these constructs are particularly relevant. First, FinTech literacy is essential as the country is experiencing rapid digital payment adoption and financial innovation (OJK, 2022). Second, financial literacy remains relatively low, with the national index still below 50%, creating challenges for MSMEs in managing capital and making informed decisions. Third, competitive pressure is highly relevant given Indonesia's position as the largest MSME base in ASEAN, where digital platforms and globalisation intensify market rivalry. Thus, studying these three constructs provides valuable insights not only for Indonesia but also for other emerging economies facing similar digital transformation challenges.

MSMEs play a crucial role in a country's economy and contribute to GDP growth. However, MSMEs face various challenges that can affect their performance. These challenges include limited technological adaptation for financial efficiency (financial technology), inadequate financial management understanding (financial literacy) and numerous competitors in the same industry, all of which affect MSME performance.

2 Literature review

2.1 Resource-based view (RBV) theory and organisational performance

The Resource-Based View (RBV) theory, pioneered by Barney (1991) and Wernerfelt (1984), provides a robust theoretical lens for understanding firm performance heterogeneity. According to RBV, firms achieve sustained competitive advantage through the strategic deployment of resources that are valuable, rare, inimitable and non-substitutable (VRIN criteria). In the context of MSMEs in emerging markets, this theoretical framework becomes particularly relevant as these enterprises often operate with limited tangible resources but can leverage intangible capabilities such as knowledge, skills and digital competencies to enhance their performance.

Recent applications of RBV theory to MSME contexts emphasise the critical role of knowledge-based resources and dynamic capabilities. Kumar et al. (2024) argued that in emerging markets, financial knowledge and digital financial access operate as firm-level resources that fundamentally shape performance and growth opportunities. This perspective aligns with the knowledge-based view extension of RBV, which positions organisational knowledge as the most strategically significant resource for creating competitive advantage (Grant, 1996).

Emerging markets present unique challenges and opportunities for MSMEs. These economies are characterised by institutional voids, limited access to formal financial services, rapid technological adoption and intense competitive pressures (Khanna and Palepu, 2010). In such contexts, the traditional RBV framework requires adaptation to account for the specific resource constraints and environmental dynamism that MSMEs face.

Organisational performance represents a complex, dynamic system rather than just outcomes of efforts. The concept of organisational performance has evolved to encompass multiple dimensions, including financial, operational and stakeholder-related outcomes (Bititci et al, 2016). Bourne et al. (2018) emphasised the importance of a holistic approach to performance management, integrating both objective and subjective measures.

Contemporary performance management frameworks recognise that performance is not merely about measurement but requires a structured system incorporating goal setting, continuous feedback and development opportunities (Schleicher et al., 2019). This is especially critical for MSMEs where limited resources necessitate efficient performance management systems that can effectively integrate various organisational capabilities, including financial literacy and competitive responsiveness (Eniola and Entebang, 2017).

Recent empirical evidence demonstrates that human capital attributes – including knowledge, skills and capacity – have significant positive relationships with organisational performance (Delery and Roumpi, 2017). This relationship is particularly pronounced when moderated by innovative leadership approaches that enhance employee motivation and creativity while maintaining strategic alignment with organisational objectives (Srivasta and Jain, 2017).

Thuy et al. (2023) stated that business performance can be measured by influencing factors (external and internal) and business indicators (financial and non-financial). Financial factors that can affect business performance include understanding good organisational management, one of which is financial literacy. MSME performance can be improved if MSME actors have a good understanding of financial literacy. Additionally, the use of financial technology literacy can affect MSME performance. These financial factors can affect improvements in MSME performance, as a good understanding of financial literacy and the use of financial technology is needed by a leader to make decisions. Competitive pressures are non-financial factors that can affect MSME performance. Competitive advantages can facilitate business process implementation, allowing MSME actors to survive competition (Esubalew and Raghurama, 2020).

2.2 Performance of micro, small and medium enterprises (MSMEs)

Performance is the term that manifests the level of resource utilisation by enterprises to achieve business targets (Thuy et al., 2023). In SME research, firm performance is often treated as the key indicator of business sustainability and competitiveness (Manchanda and Prakash, 2025). According to Maswin and Sudrajad (2023), MSME performance is the result of work achieved by an individual and can be completed with the individual's task in the MSME in a certain period and will be linked to the size of the value or standard of the MSME that the individual works.

Performance is a broad category that reflects how well a company can achieve its market operations, growth and financial goals within a specified timeframe (Susanti et al., 2023). The quality of an organisation can be determined based on the performance outcomes achieved. Business performance is considered the result of a production process that utilises the available input for the enterprise (Rio Rita and Thomas Thren, 2019). Increasing sales in an organisation can be a measure of MSME business performance (Agus et al., 2023). The performance of a business must continue to improve and become sustainable.

Based on previous research, performance can be defined as the performance of an MSME as the overall work achieved compared to the work targets or criteria that were predetermined and mutually agreed upon in a business entity with assets and criteria revenue specified by law (Gunawan et al., 2023). MSME performance can be measured by the level of sales or income, business profits, and employees Suparjo (2023). MSME performance refers to the level of success achieved by Micro, Small and Medium Enterprises (MSMEs) in meeting their goals and ensuring competitiveness and sustainability (Adiningrat et al., 2023). Maximum performance improvement requires effort and perseverance from business owners to achieve the desired results. Research by Gunawan et al. (2023) revealed that MSME performance increases with good financial literacy. In previous research, performance variables have been used with several indicators in their testing. According to Akinwale et al. (2025), competitiveness are positively related to firm's performance. Financial performance can be measured in several ways: profitability, increased production sales, increased sales revenue and non-financial performance; namely, resource increases, business area expansion and business improvements can serve as benchmarks for organisational performance. MSME performance measures by determining the relevant performance measures for MSME, it could use revenue, sales growth, profitability, customer satisfaction or operational efficiency (Adiningrat et al., 2023). Business performance can be measured by profitability levels, market areas and sales productivity. Garg et al. (2004) explained that business growth is aligned with profitability; growth for profitability is a major concern, and profitability remains the key measure of business performance. Furthermore, measuring business performance is complex because of multiple business objectives, with profit maximisation being the core objective (Garg et al., 2004). The indicators used as performance measures for MSMEs in this study are sales, profits, labour and market area, in accordance with the research conducted by Wicaksono and Kramadibrata (2022).

2.3 Financial literacy

Financial literacy encompasses an individual's understanding, skills, knowledge and attitudes regarding money management. It involves making informed financial decisions that contribute to sound financial health (Atkinson and Messy, 2012). According to Kosova et al. (2025), Financial literacy, encompassing knowledge, skills and financial behaviour, significantly enhances financial capability by enabling individuals to make informed financial decisions and effectively utilise available resources. Evidence from South Africa shows that low levels of financial literacy negatively affect financial behaviour, while financial education positively enhances literacy, underscoring the importance of strengthening financial knowledge in the digital age (Saini et al., 2025).

Aligned with the Financial Services Authority (OJK), financial literacy is crucial for improving financial management and decision-making, leading to greater financial stability (OJK, 2022).

A solid understanding of financial concepts is essential for effective money management and influences the accuracy of financial records (Farida et al., 2021). Research in Mozambique shows that financial literacy, along with other demand-side factors, is crucial for shaping SMEs' access to financing and for informing effective strategies in developing economies (Murambire Júnior et al., 2025). Financial literacy empowers individuals to make informed choices about their finances, ultimately contributing to their overall well-being (Competencies, 2016). Factors influencing financial literacy include financial experience, knowledge and access to financial resources (Rehman and Mia, 2024). The study in Tamil Nadu shows a significant positive connection between financial literacy and microbusiness success (Bharathithasan and Srinivasan, 2024). Research has shown that financial literacy can improve various financial behaviours such as saving, investing and managing debt (Bongomin et al., 2017). Financial literacy shapes how individuals perceive their financial situations, influencing the strategic decisions and management practices of business owners, which are crucial for the performance and sustainability of their businesses (Gunawan et al., 2023).

Previous research has identified various indicators of financial literacy, including knowledge, skills, attitudes and behaviours (Atkinson and Messy, 2013; Bongomin et al., 2017; Holzmann, 2010; Lusardi and Tufano, 2015; Xu and Zia, 2012). For this study, we adopted the framework proposed by Bongomin et al. (2017), using knowledge, behaviour, skills and attitude as our primary indicators of financial literacy.

2.4 *Financial technology literacy*

The financial industry in this modern era has experienced many changes, particularly in the fields of communication and information technology. Therefore, a good understanding of technology is needed, which will add value to competition in the business world (Fung, 2019). Understanding technology can be advantageous in competing with MSME actors. According to Lejuste et al. (2024), societal changes are pushing businesses toward digital maturity, alongside a growing awareness of the importance of integrating digital technology into their strategies and aligning it with the ecological transition; for MSMEs, this underlines the need to enhance FinTech literacy as part of their competitive strategy. Empirical evidence from India shows that IT adoption and internal financing sources significantly enhance MSME performance, underscoring the importance of digital capabilities and sound financial management for business sustainability (Mand and Kaur, 2025). The adoption of technology and the application of information have been proven to increase efficiency and expand the market reach of business actors (Umami et al., 2024). This development can be convenient for operational business activities. Financial technology can be defined as a change in financial services that will be more useful in providing access to its use, improving activities in the technology field and providing solutions with effective and efficient management (Leong and Sung, 2018). Financial technology plays a role in financial transactions involving easy products. Financial technology is considered innovative because it can easily connect all business lines to a single platform (Krah et al., 2024).

This research conducted by Sijabat et al. (2019) employed four perceptions to measure financial technology: understanding of benefits, ease of use, future risks and consumer trust.

2.5 Competitive pressure

Every business activity must have competitors in the same industry. The fierce competition driven by globalisation can stimulate growth across various economic sectors, compelling business owners, to adjust their behaviour, methods and strategies (Jasiyah et al., 2022). SME competitiveness refers to a firm's capacity to achieve superior performance compared with its rivals in a specific market (Bilali, 2022). Human capabilities and competencies act as enablers of sustainable competitive advantage, allowing organisations to build a stronger competitive edge (Priyanka et al., 2025). Companies that achieve competitive advantages through the implementation of a competitive strategy improve their performance (Rubio-Andrés et al., 2024). Increasing a company's competitive advantage can be used to develop or improve its performance (Susanti et al., 2023). The pressure from competitors creates a desire for an organisation to produce more innovative products than existing competitors.

To create a competitive advantage, organisations must possess the ability to empower and optimise their existing resources, leading to the creation of innovative products or services that differentiate them from competitors. Knowledge-based resources strengthen core competencies and, through this mechanism, contribute to improving organisational performance (Yewei et al., 2025).

These capabilities stem from effective resource management. This perspective aligns with the resource-based view of competitive advantage, which emphasises the importance of leveraging internal resources and capabilities to achieve superior performance (Harrison and Wicks, 2019). Furthermore, recent studies highlight that the ability to innovate and create unique offerings is closely tied to an organisation's capacity to effectively manage and deploy its human, financial and technological resources (Schleicher et al., 2019).

Business activities must be carried out with the competitive advantage of maintaining customers even though the prices of the products offered are higher than those of competitors. The presence of competition in general can have a negative impact on business performance, because the more competitors in the business industry, the greater the pressure faced by the organisation (Yasa et al., 2017).

Competitiveness in Small and Medium-sized Enterprises (SMEs) refers to their ability to succeed against rivals in the market or industry, influenced by globalisation and exporting trends (Bilali, 2022). There are factors that affect competitiveness, including competitors, the use of technology and competitive advantages (Herman and Nohong, 2022). According to (Soewarno et al., 2020), competitive advantage can affect positive business performance. The development of economic sectors in Indonesia can grow with increased MSME performance; therefore, an increase in performance is needed to create sustainable businesses and competent resources. An organisation's success in carrying out an increasingly complex organisational operation will be largely determined by various factors, both external and internal (Alkaf et al., 2021). MSMEs that grow rapidly can generate competitiveness from other actors (Susan, 2020). This proves that pressure from competitors can affect MSME performance.

The indicators used as competitive pressure measures in this study are the modified form number of competitors, technology use to compete and having the advantage to compete, based on previous research that has been conducted by Herman and Nohong (2022).

2.6 Conceptual framework and hypothesis development

The number of Micro, Small and Medium Enterprises (MSMEs) is steadily growing worldwide, including in Indonesia. This expansion has the potential to significantly impact Indonesia's economic development by reducing its unemployment rates. However, achieving this development hinges on MSME sustainability, which can be achieved through improved business performance. Maintaining successful business is challenging, as evidenced by the COVID-19 pandemic's negative impact on MSME performance due to decreased sales.

A lack of understanding of both the internal and external factors influencing performance can lead to these declines. Therefore, MSME players must be equipped to effectively analyse these factors. Performance (Agus et al., 2023) suggests that the MSME performance reflects the combined impact of quality and quantity of effort, often measured by sales growth, which shows an increase in sales. Additionally, it is important to understand it's vital to understand that entrepreneurship is built on the foundation of proper knowledge and skills (Khan et al., 2021).

Financial literacy is a crucial internal factor influencing MSME performance. A strong understanding of financial concepts allows MSMEs to make informed decisions and effectively manage their finances, ultimately leading to improved performance. Understanding technology and competitive pressure is key. Not embracing technology to facilitate transactions, or failing to develop a competitive advantage, can significantly hinder business performance. By understanding and addressing both internal and external factors through improved financial literacy, technology adoption and focus on competitive advantage, MSMEs can achieve sustainable business practices and contribute positively to Indonesia's economic development.

2.6.1 Financial technology literacy

The rapid advancement of technology in the current era, particularly in Indonesia's economic sector, has prompted continuous growth and operational updates among MSMEs. One notable innovation is the adoption of financial technology (Fintech). Financial technology's innovative products and services, offering convenient and anytime-anywhere transactions, drive performance improvements and user satisfaction (Farida et al., 2021). The convenience of conducting transactions has driven FinTech's ongoing evolution. When aligned with a solid understanding of financial technology, this development enhances the MSME performance. Many MSMEs now rely on digital payments, necessitating a deeper understanding of this technology. Such comprehension not only adds value but also streamlines financial transactions within businesses.

Robust understanding of financial technology is essential for business operations. This understanding serves as a competitive advantage in the business context (Fung, 2019). Technological proficiency can empower MSMEs in a competitive environment.

Owing to heightened competition in the MSME sector, the use of digital technology is one way to improve the competitiveness of MSMEs, and technology adoption will improve business performance (Aziz, 2019). SMEs owners believe FinTech services are useful in enhancing their overall business performance (Krah et al., 2024). This underscores the impact of proficient financial technology on the MSME performance. Based on these insights, we propose the following hypothesis:

H1: Financial Technology Literacy significantly influences MSME Performance positively.

2.6.2 Financial literacy

A company's growth improves when owners and managers enhance their financial behaviour, attitudes, skills and knowledge (Susan, 2020). Financial literacy is one of the key abilities and skills of MSME owners to manage their finances and achieve successful business performance (Gunawan et al., 2023).

Understanding financial concepts shapes a person's financial mindset, influencing business owners' strategic financial decision-making and management, and ultimately impacting business performance and continuity (Gunawan et al., 2023). Recognising financial literacy as key to MSME innovation, business owners and policymakers should prioritise initiatives that empower entrepreneurs with financial knowledge to make sound decisions, drive innovation and achieve better financial performance (Rosyidiana and Narsa, 2024). Effective decision making in business financing requires a thorough understanding of financial management. Financial literacy encompasses activities aimed at enhancing financial quality through investments, debt management, income management and future planning.

Several factors can influence financial literacy. A systematic review by Rehman and Mia, (2024) concluded that financial literacy is a multidimensional concept that includes financial factors, such as financial experience, financial knowledge and access to financial resources. Financial literacy empowers individuals to make informed decisions through knowledge, which leads to better financial behaviour and, ultimately, greater satisfaction, encompassing awareness, skills and confidence in managing money for long-term financial satisfaction (Farida et al., 2021). The financial management skills possessed by MSME operators significantly influence business performance by enabling the effective management of income and expenditure. Furthermore, when financial literacy can be improved, MSME performance increases (Hamidah et al., 2020). Based on these findings, we propose the following hypothesis:

H2: Financial Literacy significantly influences MSME Performance positively.

2.6.3 Competitive pressure

MSME growth plays a crucial role in Indonesia's economic landscape, necessitating enhanced performance to foster sustainable businesses that contribute competently to the economy. Sustaining a business amidst competitive pressure is essential to its longevity. The increased MSME performance can be attributed to competitive pressures. By strengthening their competitive edge through innovation, companies can improve their performance, offer new products quickly and adapt to remain relevant in the face of constant competition (Susanti et al., 2023). According to Soewarno et al. (2020), a

competitive advantage positively influences business performance. Competitive pressures can directly trigger a spirit for SMEs to accept, adapt and improve business performance. External factors significantly impact policymaking and the strategic direction of an organisation (Pearce and Robinson, 2014). A competitive strategy will encourage MSMEs to be better able to adapt to changing environments that can improve their performance.

Heightened competition prompts organisations to innovate and produce products superior to their rivals. According to Harrison and Wicks (2019) asserted that achieving competitive advantage requires efficient resource utilisation and empowerment, leading to innovative products that are distinct from competitors. This capability is fostered by optimal resource management. Business operations based on competitive advantages help retain customers even when offering products at higher prices than competitors. Overall, competition can adversely affect business performance, as an increased number of competitors heightens the pressure on organisations (Yasa et al., 2023). Based on this analysis, we propose the following hypothesis:

H3: Competitive Pressure significantly influences MSME Performance positively.

3 Methodology

3.1 Data selection and measurement

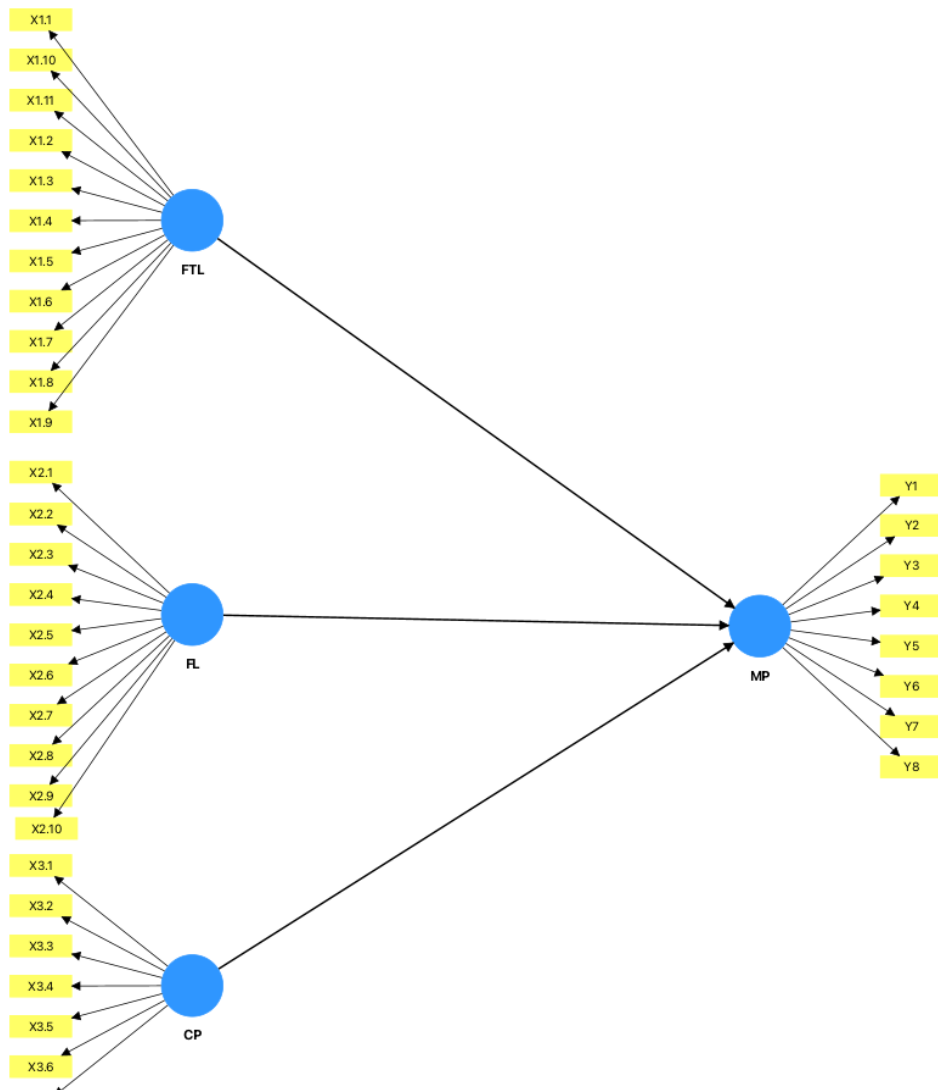
The population of this study consisted of MSMEs officially registered in the Province of DKI Jakarta, distributed across six administrative areas Central, North, West, South and East Jakarta, as well as the Thousand Islands. Respondents were recruited in collaboration with the Jakarta Small and Medium Enterprises Office (Dinas PPKUKM), which facilitated the distribution of an online questionnaire via Google Form to MSME owners and managers. The inclusion criteria followed the official records of active, registered MSMEs in Jakarta and a total of 77 completed questionnaires were returned, resulting in a 100% response rate. The survey instrument used a closed-ended format with a five-point Likert scale (1 = strongly disagree to 5 = strongly agree) and measured four constructs adapted from prior studies: MSME performance (sales, profit, employment and market expansion), financial technology literacy (perceived benefits, ease of use, risk perception and trust), financial literacy (knowledge, skills, attitude and behaviour) and competitive pressure (number of competitors, technology usage and relative advantage). Prior to full-scale distribution, a pre-test was conducted to assess clarity and reliability. To justify the adequacy of the sample size, a power analysis was performed using G*Power with three predictors, medium effect size ($f^2 = 0.15$), $\alpha = 0.05$ and statistical power = 0.80, which indicated a minimum requirement of 77 observations. The final sample therefore met the recommended threshold for detecting statistically meaningful effects in the structural model.

Prior to full-scale data collection, a pre-test was conducted with 20 MSME owners in Jakarta to assess the clarity, wording and initial reliability of the questionnaire. The results confirmed that all items were understandable and met the minimum thresholds for validity and reliability, so no major modifications were required. Measurement items were adapted from established sources to ensure content validity: financial technology literacy from Sijabat et al. (2019), financial literacy from Bongomin et al. (2017),

competitive pressure from Herman and Nohong (2022) and MSME performance from Wicaksono and Kramadibrata (2022). The items were slightly adapted to the Indonesian MSME context and translated into Bahasa Indonesia, followed by back-translation to maintain conceptual equivalence.

To analyse the data, the researcher employed the Structural Equation Modelling Partial Least Squares (SEM-PLS) method using SmartPLS 4.0. The PLS analysis involves three stages: (1) a measurement model (outer model) to assess the validity and reliability of the data, (2) a structural model to evaluate the fit of the proposed model and (3) hypothesis testing (Musyaffi et al., 2022).

Figure 1 Model of the study (see online version for colours)



This model illustrates the hypothesised relationships among Financial Technology Literacy (FTL), Financial Literacy (FL) and Competitive Pressure (CP) as independent variables and MSME Performance (MP) as the dependent variable.

3.2 Data analysis

This study employs SmartPLS, a multivariate statistical method, to examine the impact of each hypothesis. Given its ability to handle complex models with smaller sample sizes and analyse multiple variables simultaneously, SmartPLS is well suited for this study. As recommended by Hair et al. (2019), PLS-SEM is ideal for prediction and theory development and is aligned with our research objectives. By utilising path modelling within SmartPLS, we can assess the relationships between variables and ensure the reliability and validity of our measures after evaluating the structural model.

3.2.1 Ethical considerations

This study was approved by the ethical clearance committee of Lembaga Penelitian dan Pengabdian Kepada Masyarakat, Universitas Negeri Jakarta. All participants provided written informed consent before their participation in the study. The informed consent form explained the purpose of the research, the procedures to be followed, the potential benefits and risks and the participants' right to withdraw at any time without consequences.

4 Results

4.1 Assessment of the measurement model

The first step in performing an analysis with PLS is the measurement model to check the validity of the data with outer loading and AVE. The next step is to use CA and CR to check the reliability of the data.

The initial stages used SEM-PLS to perform a validity check (Hair and Alamer, 2022). Average Variance Extracted (AVE) and outer loadings were assessed to evaluate the construct validity of the measurement model. A threshold of 0.5 for AVE and 0.7 for outer loadings were considered acceptable. The results indicate that all the indicators surpassed these benchmarks. The outer loadings for the constructs ranged from 0.706 for FTL10 to 0.812 for MP2. Given the recommended threshold of 0.7, all indicators demonstrated acceptable convergent validity. To further strengthen the validity assessment, Average Variance Extracted (AVE) was computed. The AVE values fell between 0.557 and 0.592 for the FTL and CP indicators, respectively, thus exceeding the required threshold of 0.5. Consequently, based on both outer loading and AVE criteria, the measures exhibited satisfactory convergent validity.

The reliability of the measurement model was assessed using Composite Reliability (CR) and Cronbach's alpha (CA). According to Hair and Alamer (2022), a minimum value of 0.7 is required for both CR and CA to indicate acceptable reliability. As shown in Appendixes 1 and 2, the calculated CR values ranged from 0.910 (CP) to 0.933 (FTL), which surpassed the recommended threshold. Similarly, the CA values fell between 0.885 (CP) and 0.920 (FTL), all exceeding the minimum requirement of 0.7. While the

CA and CR values for financial technology literacy and financial literacy were relatively high (>0.90), they remained below the critical threshold of 0.95 (Hair et al., 2019), indicating strong internal consistency rather than redundancy. To preserve comparability with prior studies and maintain content validity, all items were retained in the measurement model. These results collectively suggest that the measures employed in this study exhibited adequate and robust reliability. These results suggest that the measures employed in this study exhibited adequate reliability.

4.2 Structural model

The next phase involved evaluating the structural model. This assessment aimed to determine the model's overall fit by examining its predictive power. Two primary metrics, predictive relevance (Q^2) and R^2 -squared (R^2) also VIF, were used for this purpose.

Table 1 presents the results of the structural model tests. Before evaluating the hypothesised relationships, collinearity diagnostics were performed for the predictor constructs. The results show that all inner VIF values were below the recommended threshold of 3.3 (CP = 2.384; FL = 2.649; FTL = 2.534), indicating that multicollinearity is not a concern and that common method variance is unlikely to bias the structural estimates (Hair et al., 2022). According to the parameters used in this study, the results of the structural model test for R^2 were 0.811 or 81.1%. This means that the variance of the MSME performance variable, which can be explained by the financial technology literacy, financial literacy and competitive pressure variables, is 81.1% and falls into the high category. Next, the f^2 values were evaluated to show the magnitude of the model constructed by the endogenous variables on the exogenous variables (Henseler et al., 2015). As shown in Table 1 the value of financial technology literacy on MSME performance is 0.183 (moderate). For the financial literacy variable on MSME performance, the value is 0.097 (small) and the competitive pressure variable on MSME performance is 0.045 (small). This indicates that financial technology literacy has a moderating effect on MSME performance. Financial literacy and competitive pressure had a small effect on MSME performance.

Table 1 Evaluation of Q^2 and R^2

	VIF	f^2	R^2	Decision
MP			0.811	High
FTL->MP	2.534	0.183		Moderate
FL->MP	2.649	0.097		Low
CP->MP	2.384	0.045		Low

Source: Author's calculation with SEM-PLS.

4.3 Hypothesis test results

This section tests the hypothesis proposed by the researcher with details of the results of SEM-PLS according to Table 2.

Table 2 Hypothesis result

<i>Hypothesis</i>		<i>Path</i>	<i>P-values</i>	<i>Decision</i>
H1	FTL-> MP	0.430	0.001	Accepted
H2	FL -> MP	0.317	0.002	Accepted
H3	CP -> MP	0.194	0.047	Accepted

Source: Author's calculation with SEM-PLS.

Based on Table 2, all the three hypotheses proposed in this study were accepted. The *P*-value for Hypothesis 1 (H1) was 0.001, for Hypothesis 2 (H2) was 0.002 and for Hypothesis 3 (H3) was 0.047. Since the significance level (α) is set to 0.05, and the *p*-values for all three hypotheses are less than 0.05, we can reject the null hypotheses and conclude that there is a statistically significant relationship between the variables.

The highest path coefficient was observed for Hypothesis 1 with a value of 0.43. This indicates that financial technology literacy has a significantly positive relationship with MSME performance, with a magnitude of 43%. The second largest path coefficient was found for Hypothesis 2, with a value of 0.317. This finding suggests that financial literacy has a significant positive relationship with MSME performance, with a magnitude of 31.7%. Finally, Hypothesis 3 has a path coefficient of 0.194, indicating that competitive pressure has a significant positive influence on MSME performance.

5 Discussion

5.1 Financial technology and its impact on MSME performance

Financial technology (FinTech) is an innovation in financial practices aimed at achieving goals efficiently and effectively. In this study, Fintech is assessed through four perceptions: understanding of benefits, ease of use, awareness of future risks and consumer trust. Fintech users are expected to comprehend the benefits derived from their utilisation. Moreover, understanding the ease it provides is crucial for MSME operators to integrate FinTech into their business. However, MSMEs utilising FinTech must also understand and anticipate future risks, such as data breaches, fraud risks, payment failures during system disruptions and others. These risks can influence consumer trust in transactions, necessitating strategies to mitigate them and to maintain consumer confidence.

The findings of this study demonstrate the positive influence of financial technology literacy on MSME performance. This finding affirms that adopting and understanding financial technology can enhance MSME performance. These results align with organisational performance theory, which posits that organisational outcome hinge on decisions and actions. MSME operators opting for FinTech in their operational activities can positively impact business performance by streamlining operations. This effectiveness is facilitated by payment systems tailored to the current societal conditions, thereby simplifying transactions with consumers. Furthermore, integrating financial technology into business operations enhances access to financial service information and minimises the risks associated with technology-based financial services. This is also supported by previous research by Aziz (2019), Krah et al. (2024) and Umami et al. (2024), who highlighted the significant impact of FinTech on MSME performance.

5.2 Financial literacy and its influence on MSME performance

Financial literacy encompasses behaviours related to understanding, beliefs and skills in financial management that impact financial stability. This knowledge enhances financial management and income generation, ensuring accurate financial reporting. The measurement of financial literacy includes knowledge, behaviour, skills and attitudes. MSMEs benefit greatly from financial literacy in managing business finances, aiding in budget planning and expenditure control. Sound financial literacy also affects MSME operators' behaviour, ensuring that business income aligns with budgeted expenditures and prevents financial issues such as misusing business funds for personal use. Effective financial literacy improves financial knowledge among low-income households in developing countries, fostering behaviours such as savings, financial planning, bank account ownership, investments, debt management and prudent financial decision-making.

The findings reveal a positive impact of financial literacy on MSME performance. This underscores that a solid grasp of financial literacy influences enhanced MSME performance, aligning with organisational performance theory suggesting that outcomes result from future capabilities. MSME operators with strong financial literacy contribute to improved business performance through well-planned and managed operational budgets, ensuring financial control and effective expenditure management. The findings of this study are consistent with research by Susan (2020), Hamidah et al. (2020) and Gunawan et al. (2023), indicating that understanding financial literacy enhances MSME performance.

5.3 Competitive pressure and its impact on MSME performance

Competitive pressure refers to the challenges faced by MSMEs due to competitors within the same industry. This pressure motivates organisations to innovate, create products that outshine competitors and add value. The competitive advantages of such innovations can significantly boost MSME performance by increasing sales. Strategies for gaining competitive advantage include pricing strategies, innovative product offerings and attractive marketing approaches. Achieving a competitive advantage requires optimising available resources to innovate and differentiate from competitors. MSMEs must base their operations on competitive advantages to retain customers, even if their product prices exceed those of their competitors. Thus, competitive pressure can motivate MSMEs to innovate, thereby enhancing their performance. The findings indicate that competitive pressure positively influences MSME performance. This supports the organisational performance theory, suggesting performance improvement through increased competitiveness. This conclusion is consistent with research by Susanti et al. (2023) and Soewarno et al. (2020), who highlight the significant impact of competitive advantage on MSME performance.

6 Conclusions

In conclusion, this study explored the significant influences of financial technology literacy, financial literacy and competitive pressure on the performance of Micro, Small and Medium Enterprises (MSMEs). Based on the findings, three practical implications

can be highlighted. First, the significant role of financial literacy suggests that targeted training programs are essential to equip MSME owners with budgeting, financial planning and decision-making skills. Second, the positive impact of financial technology literacy underscores the need for simple adoption toolkits and digital financial services that enable MSMEs to streamline operations and improve transparency. Third, while the effect of competitive pressure on performance was significant but relatively small, coaching and mentoring initiatives are recommended to strengthen MSMEs' readiness to compete in increasingly dynamic and digitalised markets.

Future research should establish specific criteria for selecting MSMEs to study, ensuring clarity on whether those with existing knowledge of financial technology, financial literacy and competitive pressure truly understand these concepts. Subsequent studies could focus exclusively on a single sector to ensure the comparability of samples, thereby providing more standardised testing conditions within that sector. Future research should consider incorporating or expanding other potential variables influencing MSME performance, such as risk management practices, access to capital, government policies, business strategies and additional intervening or moderating variables that could strengthen the relationships between the dependent and independent variables. Further studies are encouraged to conduct more in-depth research over longer periods, such as 1 year, to yield more accurate and comprehensive research outcomes. Future research should develop questionnaire indicators related to business budgeting practices and offer insights into how budgets are structured and utilised by MSME operators. These recommendations aim to guide future researchers in addressing the complexities and gaps identified in this study, ultimately contributing to a more nuanced understanding of the factors affecting MSME performance.

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Declarations

All authors declare that they have no conflicts of interest.

References

- Adiningrat, A.A., Wahyuni, I., Rustan and Ruhayu, Y. (2023) 'MSME performance: financial information system, work productivity, and e-commerce', *Journal of Consumer Sciences*, Vol. 8, No. 2, pp.204–219. Doi: 10.29244/jcs.8.2.204-219.
- Agus, Limakrisna, N. and Muharram, H. (2023) 'Internal factors determining MSME business performance: a literature study', *Journal of World Science*, Vol. 2, No. 11, pp.1894–1901. Doi: 10.58344/jws.v2i11.493.

- Akinwale, Y.O., Adelowo, C.M. and Surujlal, J. (2025) 'Entrepreneurial orientation and financial performance among MSMEs in Nigeria', *International Journal of Business Innovation and Research*, Vol. 36, No. 1, pp.131–147. Doi: 10.1504/IJBIR.2025.143943.
- Alkaf, A., Yusliza, M.Y., Saputra, J., Muhammad, Z. and Bon, A.T. (2021) 'A review of work effectiveness and efficiency, service quality and organisational performance literature: a mini-review approach', *Proceedings of the International Conference on Industrial Engineering and Operations Management*, pp.5127–5141. Doi: 10.46254/an11.20210873.
- Alkhawaldeh, B.Y., Alhawamdeh, H., Al-Afeef, M.A.M., Al-Smadi, A.W., Almarshad, M., Fraihat, B.A.M., Soumadi, M.M., Nawasra, M. and Alaa, A.A. (2023) 'The effect of financial technology on financial performance in Jordanian SMEs: the role of financial satisfaction', *Uncertain Supply Chain Management*, Vol. 11, No. 3, pp.1019–1030. Doi: 10.5267/j.uscm.2023.4.020.
- Al-Matari, E.M., Mgammal, M.H., Alosaimi, M.H., Alruwaili, T.F. and Al-Bogami, S. (2022) 'Fintech, board of directors and corporate performance in Saudi Arabia financial sector: empirical study', *Sustainability*, Vol. 14, No. 17. Doi: 10.3390/su141710750.
- Atkinson, A. and Messy, F-A. (2012) *Measuring Financial Literacy: Results of the OECD*, OECD Publishing.
- Atkinson, A. and Messy, F-A. (2013) *Promoting Financial Inclusion through Financial Education, OECD/INFE Evidence, Policies and Practice*, OECD Working Papers on Finance, Insurance and Private Pensions, 34, OECD Publishing
- Aziz, R.A. (2019) 'The opportunities for MSMEs in the industrial technology', *Proceedings of the 5th International Conference on Information Technology and Bussiness*.
- Badan Pusat Statistik Indonesia (BPS) (2022) *Jumlah Perusahaan menurut provinsi (Unit), 2020–2022*. Available online at OECD Working Papers on Finance, Insurance and Private Pensions 34, OECD Publishing <https://www.archive.bps.go.id/indicator/170/440/1/jumlah-perusahaan-menurut-provinsi.html>
- Barney, J. (1991) 'Firm resources and sustained competitive advantage', *Journal of Management*, Vol. 17, No. 1, pp.99–120.
- Barney, J.B., Ketchen, D.J. and Wright, M. (2021) 'Resource-based theory and the value creation framework. *Journal of Management*, Vol. 47, No. 7, pp.1936–1955. Doi: 10.1177/01492063211021655.
- Bharathithasan, S. and Srinivasan, K.S. (2024) 'Profit and prosperity: the impact of financial literacy on small business growth', *International Journal of Work Innovation*, Vol. 5, No. 3, pp.270–291. Doi: 10.1504/IJWI.2024.139442.
- Bilali, J.B. (2022) 'Small/medium sized enterprises (SMEs) competitiveness: a global perspective competitiveness of small and medium-sized enterprises', *Journal of Enterprise and Business Intelligence*, pp.109–119. Doi: 10.53759/5181/jebi202202012.
- Bititci, U., Cocca, P. and Ates, A. (2016) 'Impact of visual performance management systems on the performance management practices of organisations', *International Journal of Production Research*, Vol. 54, No. 6, pp.1571–1593.
- Bongomin, C.G.O., Munene, J.C., Ntayi, J.M. and Malinga, C.A. (2017) 'Financial literacy in emerging economies: Do all components matter for financial inclusion of poor households in rural Uganda?', *Managerial Finance*, Vol. 43, No. 12, pp.1310–1331. Doi: 10.1108/MF-04-2017-0117.
- Competencies, A.F.L. (2016) *OECD/INFE International Survey*. Available online at: <http://www.Oecd.Org/daf/fin/financial-education/OECD-INFE>.
- Davidson, W.N., Xie, B. and Xu, W. (2004) 'Market reaction to voluntary announcements of audit committee appointments: the effect of financial expertise', *Journal of Accounting and Public Policy*, pp.279–293.
- Delery, J.E. and Roumpi, D. (2017) 'Strategic human resource management, human capital and competitive advantage: is the field going in circles?', *Human Resource Management Journal*, Vol. 27, No. 1, pp.1–21.

- Eniola, A.A. and Entebang, H. (2017) 'SME managers and financial literacy', *Global Business Review*, Vol. 18, No. 3, pp.559-576.
- Esubalew, A.A. and Raghurama, A. (2020) 'The mediating effect of entrepreneurs' competency on the relationship between Bank finance and performance of micro, small, and medium enterprises (MSMEs)', *European Research on Management and Business Economics*, Vol. 26, No. 2, pp.87-95.
- Farida, M.N., Soesatyo, Y. and Aji, T.S. (2021) 'Influence of financial literacy and use of financial technology on financial satisfaction through financial behavior', *International Journal of Education and Literacy Studies*, Vol. 9, No. 1. Doi: 10.7575/aiac.ijels.v.9n.1p.86.
- Fung, M.K. (2019) 'Fraudulent financial reporting and technological capability in the information technology sector: a resource-based perspective', *Journal of Business Ethics*, Vol. 156, No. 2, pp.577-589. Doi: 10.1007/s10551-017-3605-4.
- Garg, A.K., Joubert, R.J.O. and Pellissier, R.Â. (2004) 'Measuring business performance: a case study', *Southern African Business Review*, Vol. 8, No. 1, pp.7-12.
- Grant, R.M. (1996) 'Toward a knowledge-based theory of the firm', *Strategic Management Journal*, Vol. 17, No. S2, pp.109-122.
- Gunawan, A., Jufrizen and Pulungan, D.R. (2023) 'Improving MSME performance through financial literacy, financial technology, and financial inclusion', *International Journal of Applied Economics, Finance and Accounting*, Vol. 15, No. 1, pp.39-52. Doi: 10.33094/ijae.v15i1.761.
- Hair, J. and Alamer, A. (2022) 'Partial least squares structural equation modeling (PLS-SEM) in second language and education research: guidelines using an applied example', *Research Methods in Applied Linguistics*, Vol. 1, No. 3. Doi: 10.1016/j.rmal.2022.100027.
- Hair, J.F., Risher, J.J., Sarstedt, M. and Ringle, C.M. (2019) 'When to use and how to report the results of PLS-SEM', *European Business Review*, Vol. 31, No. 1, pp.2-24.
- Hamidah, N., Prihatni, R. and Ulupui, I. (2020) 'The effect of financial literacy, fintech (financial technology) and intellectual capital on the performance of MSMEs in Depok City, West Java', *Journal of Social Science*, Vol. 1, No. 4, pp.152-158.
- Harini, S., Pranitasari, D., Said, M. and Endri, E. (2023) 'Determinants of SME performance: evidence from Indonesia', *Problems and Perspectives in Management*, Vol. 21, No. 1, pp.471-481. Doi: 10.21511/ppm.21(1).2023.40.
- Harrison, J.S. and Wicks, A.C. (2019) 'Stakeholder theory, value, and firm performance', *Business Ethics Quarterly*, Vol. 29, No. 1, pp.97-124.
- Henseler, J., Ringle, C.M. and Sarstedt, M. (2015) 'A new criterion for assessing discriminant validity in variance-based structural equation modeling', *Journal of the Academy of Marketing Science*, Vol. 43, pp.115-135.
- Herman, B. and Nohong, M. (2022) 'Pengaruh Jaringan Usaha, Inovasi Produk, dan Persaingan Usaha Terhadap Perkembangan Usaha Mikro Kecil dan Menengah (UMKM)', *JBMI (Jurnal Bisnis, Manajemen, Dan Informatika)*, Vol. 19, No. 1, pp.1-19. Doi: 10.26487/jbmi.v19i1.18575.
- Hobijn, B. and Jovanovic, B. (2001) 'The information-technology revolution and the stock market: evidence', *American Economic Review*, Vol. 91, No. 5, pp.1203-1220.
- Holzmann, R. (2010) *Bringing Financial Literacy and Education to Low and Middle Income Countries: The Need to Review, Adjust, and Extend Current Wisdom*, IZA Discussion Paper. Doi:
- Jasiyah, R., Suriadi, Setini, M. and Sukmawati, S. (2022) 'Adoption of information systems in OCB in the pandemic era mediates personality relationships, organisational culture on employee performance', *International Journal of Intellectual Property Management*, Vol. 1, No. 1. Doi: 10.1504/IJIPM.2022.10053245.
- Kaya, O. (2022) 'Determinants and consequences of SME insolvency risk during the pandemic', *Economic Modelling*, Vol. 115. Doi: 10.1016/j.econmod.2022.105958.

- Kementerian Koperasi dan UMKM RI (2021) *Data UMKM*. Available online at Doi: <https://www.kemenkopukm.go.id/data-umkm/?R4o4tncqE0oAlnsr4Ffvx0FWJdMOSooU4mebDBuTczxwV1f34>.
- Khan, M.A., Zubair, S.S., Rathore, K., Ijaz, M., Khalil, S. and Khalil, M. (2021) 'Impact of entrepreneurial orientation dimensions on performance of small enterprises: do entrepreneurial competencies matter?', *Cogent Business and Management*, Vol. 8, No. 1. Doi: 10.1080/23311975.2021.1943241.
- Khanna, T. and Palepu, K.G. (2010) *Winning in Emerging Markets: A Road Map for Strategy and Execution*, Harvard Business Press.
- Kosova, R., Cakerri, L. and Petanaj, M. (2025) 'Development of a financial capability model: a hybrid dual-stage partial least square structural equation modelling and artificial neural network analysis', *International Journal of Economics and Business Research*, Vol. 29, No. 14. Doi: 10.1504/IJEBR.2025.10071941.
- Kotler, P. (2004) *Manajemen Pemasaran* (Millennium), PT. Prenhallinda.
- Kotler, P. (2012) *Principles of Marketing*, Pearson Education Limited.
- Krah, R., Tetteh, L.A., Boateng, A. and Amankwa, R.F. (2024) 'Financial technology adoption among small and medium enterprises in Ghana', *Cogent Business and Management*, Vol. 11, No. 1. Doi: 10.1080/23311975.2024.2321786.
- Kubr, M. (2022) 'Management consulting: a guide to the profession', *International Labour Organization*.
- Kumar, M.V.M., Almuraqab, N.A.S., Moonesar, P., Braendle, U.C. and Rao, A. (2024) 'How critical is SME financial literacy, and digital financial access for financial and economic development in the expanded BRICS block?', *Frontiers in Big Data*, Vol. 7. Doi: 10.3389/fdata.2024.1448571.
- Lavison, C., Shymanski, H., Ramadan, M. and Dana, L-P. (2023) *Soutenir l'entrepreneuriat des Personnes Immigrées et des Personnes en Situation de Handicap en Wallonie-Vers des Politiques Plus Inclusives*, OECD SMEs and Entrepreneurship Papers.
- Lejuste, D., Acquatella, F. and Rispal, M.H. (2024) 'How do the managers of local businesses integrate the digital transition imperative into their strategy', *EuroMed J. of Management*, Vol. 6, No. 2, pp.128–152. Doi: 10.1504/EMJM.2024.140144.
- Lembaga Ilmu Pengetahuan Indonesia (2020) *Survei Kinerja UMKM di Masa Pandemi Covid-19*. <http://lipi.go.id/Berita/Survei-Kinerja-Umkm-Di-Masa-Pandemi-Covid19/22071>.
- Leong, K. and Sung, A. (2018) 'FinTech (Financial Technology): what is it and how to use technologies to create business value in Fintech way?', *International Journal of Innovation, Management and Technology*, pp.74–78. Doi: 10.18178/ijimt.2018.9.2.791
- Limanseto, H. (2022) *Perkembangan UMKM sebagai Critical Engine Perekonomian Nasional Terus Mendapatkan Dukungan Pemerintah*. <https://www ekon.go.id/Publikasi/Detail/4593/Perkembangan-Umkm-Sebagai-Critical-Engine-Perekonomian-Nasional-Terus-Mendapatkan-Dukungan-Pemerintah>.
- Lusardi, A. and Mitchell, O.S. (2014) 'The economic importance of financial literacy: theory and evidence', *American Economic Journal: Journal of Economic Literature*, Vol. 52, No. 1, pp.5–44.
- Lusardi, A. and Tufano, P. (2015) 'Debt literacy, financial experiences, and overindebtedness', *Journal of Pension Economics and Finance*, Vol. 14, No. 4, pp.332–368. Doi: 10.1017/S1474747215000232.
- Manchanda, P. and Prakash, D. (2025) 'SMEs leveraging strategic orientation to achieve firm performance: a mediating role of firm capabilities and competitive advantage', *International Journal of Public Sector Performance Management*, Vol. 16, Nos. 1/2, pp.45–75. Doi: 10.1504/IJSPM.2025.147380.
- Mand, H.S. and Kaur, G. (2025) 'Impact of information technology adoption and internal financing sources on firm performance', *International Journal of Business and Globalisation*, Vol. 39, No. 2, pp.167–182. Doi: 10.1504/IJBG.2025.143915.

- Maswin, M. and Sudrajad, O.Y. (2023) 'Analysis of financial indicator literacy determinants on the performance of Bandung City SMEs', *International Journal of Current Science Research and Review*. Doi: 10.47191/ijcsrr/V6-i6-68.
- Murambire Júnior, B.J., Falcão, P.F. and Esperança, J.P. (2025) 'Small and medium-sized enterprise financing in the manufacturing industry: demand-side determinants of bank credit access in Mozambique', *International Journal of Entrepreneurship and Small Business*, Vol. 54, No. 1, pp.48–82. Doi: 10.1504/IJESB.2025.142889.
- Musyaffi, A.M., Khairunnisa, H. and Respati, D.K. (2022) *Konsep Dasar Structural Equation Model-Partial Least Square (sem-pls) Menggunakan Smartpls*, Pascal Books.
- OJK (2022) *Literasi Keuangan*. Available online at: <https://ojk.go.id/id/kanal/edukasi-dan-perlindungan-konsumen/pages/literasi-keuangan.aspx#:~:text=Literasi%20Keuangan%20adalah%20Keterampilan,Untuk%20Mencapai%20Kesejahteraan%20Keuangan%20Masyarakat>.
- Pearce, J. and Robinson, R.B. (2014) *Manajemen Strategis Edisi 12 Buku 1*, McGraw-Hill Education.
- Priyanka, N.A., Khera, S.N. and Suri, P.K. (2025) 'Developing emotionally intelligent organisations: an imperative for sustainable competitive edge', *World Review of Entrepreneurship, Management and Sustainable Development*, Vol. 21, No. 1, pp.57–74. Doi: 10.1504/WREMSD.2025.143635.
- Rehman, K. and Mia, M.A. (2024) 'Determinants of financial literacy: a systematic review and future research directions', *Future Business Journal*, Vol. 10, No. 1, pp.75. Doi: 10.1186/s43093-024-00365-x.
- Rio Rita, M. and Thomas Thren, A. (2019) 'A three-dimensional model of MSME performance: an agenda for further research', *BISMA (Bisnis Dan Manajemen)*, Vol. 12, No. 1, pp.1–14. Doi: 10.26740/bisma.v12n1.p1.
- Rosydiana, R.N. and Narsa, I.M. (2024) 'Micro, small, and medium-sized enterprises (MSMEs) during the post-pandemic economic recovery period: digitalization, literation, innovation, and its impact on financial performance'. *Cogent Business and Management*, Vol. 11, No. 1. Doi: 10.1080/23311975.2024.2342488.
- Rubio-Andrés, M., Linuesa-Langreo, J., Gutiérrez-Broncano, S. and Sastre-Castillo, M.Á. (2024) 'How to improve market performance through competitive strategy and innovation in entrepreneurial SMEs', *International Entrepreneurship and Management Journal*. Doi: 10.1007/s11365-024-00947-9
- Saini, Y., Ndhlovu, F. and Abratt, R. (2025) 'Financial literacy, attitudes and purchase intention of Insurance Products in South Africa', *International Journal of Business and Emerging Markets*, Vol. 1, No. 1. Doi: 10.1504/IJBEM.2025.10059204.
- Schleicher, D.J., Baumann, H.M., Sullivan, D.W. and Yim, J. (2019) 'Evaluating the effectiveness of performance management: a 30-year integrative conceptual review', *Journal of Applied Psychology*, Vol. 104, No. 7, pp.851–887.
- Setyati, S.H.E. (2022) *Penyediaan Infrastruktur untuk Membangkitkan Kembali UMKM Akibat Pandemi*. [Ttps://kpbu.kemenkeu.go.id/read/1169-1502/umum/kajian-opini-publik/penyediaan-infrastruktur-untuk-membangkitkan-kembali-umkm-akibat-pandemi](https://kpbu.kemenkeu.go.id/read/1169-1502/umum/kajian-opini-publik/penyediaan-infrastruktur-untuk-membangkitkan-kembali-umkm-akibat-pandemi).
- Sha, Y., Shah, S.G.M. and Sarfraz, M. (2023) 'Short selling and SME irregular CEO succession: Witnessing the moderating role of earnings management', *International Review of Economics and Finance*, Vol. 85, pp.163–173.
- Sijabat, Y.P., Hutajulu, D.M. and Sihombing, P. (2019) *Determinasi Technology Acceptance Model Terhadap Niat Penggunaan Fintech Sebagai Alat Pembayaran (Payment)*.
- Soewarno, N., Tjahjadi, B. and Permatanadia, D. (2020) 'Competitive pressure and business performance in East Java Batik Industry', *Journal of Asian Finance, Economics and Business*, Vol. 7, No. 12, pp.329–336. Doi: 10.13106/JAFEB.2020.VOL7.NO12.329.
- Srivastava, S. and Jain, A.K. (2017) 'Relating leadership styles to organizational innovation: a review and future research agenda', *International Journal of Innovation Science*, Vol. 9, No. 4, pp.368–384.

- Sudjarmoko, A., Ichsan, M., Astriani, M., Mariani and Clairine, A. (2023) 'The impact of COVID-19 pandemic on the performance of Indonesian MSME with innovation as mediation', *Cogent Business and Management*, Vol. 10, No. 1. Doi: 10.1080/23311975.2023.2179962.
- Suparjo, S. (2023) 'Development analysis that influence business product development through performance factors in SMEs', *International Journal of Business, Economics and Social*, Vol. 4, No. 4, pp.253–261.
- Susan, M. (2020) 'Financial literacy and growth of micro, small, and medium enterprises in west java, indonesia', *International Symposia in Economic Theory and Econometrics*, Emerald Group Publishing Ltd., Vol. 27, pp.39–48. Doi: 10.1108/S1571-038620200000027004.
- Susanti, E., Mulyanti, R.Y. and Wati, L.N. (2023) 'MSMEs performance and competitive advantage: evidence from women's MSMEs in Indonesia', *Cogent Business and Management*, Vol. 10, No. 2. Doi: 10.1080/23311975.2023.2239423.
- Thuy, V.T.T., Nhung, P.T.H., Oanh, L.T.T. and Hoa, N.T.K. (2023) 'Factors affecting business performance: expanding theoretical measurements', *International Journal of Professional Business Review*, Vol. 8, No. 5. Doi: 10.26668/businessreview/2023.v8i5.2134.
- Umami, I., Che Pee, A.N. Bin, Bin Sulaiman, H.A., Hariyanto and Mar'ati, F.S. (2024) 'A literature review of MSME success: acceptance and use of technology, financial access, and strategic cooperation. *Multidisciplinary Reviews*, Vol. 6. Doi: 10.31893/multirev.2023ss086.
- Wernerfelt, B. (1984) 'A resource-based view of the firm', *Strategic Management Journal*, Vol. 5, No. 2, pp.171-180.
- Wicaksono, A.I.D. and Kramadibrata, I.B.S. (2022) 'Analisis Pengaruh Inflasi dan Tingkat Suku Bunga Terhadap Kinerja Umkm Binaan Komunitas Jakpreneur Cipayung', *Jurnal Ilmu Sosial, Manajemen, Dan Akuntansi (JISMA)*, Vol. 1, No. 4, pp.487–500.
- World Bank (2021) *Digital Financial Services*.
- Xu, L. and Zia, B. (2012) 'Financial literacy around the world an overview of the evidence with practical suggestions for the way forward', *World Bank Policy Research Working Paper*, 6107. Available online at: <http://econ.worldbank.org>.
- Yan, C., Siddik, A.B., Yong, L., Dong, Q., Zheng, G.W. and Rahman, M.N. (2022) 'A two-staged SEM-artificial neural network approach to analyze the impact of FinTech adoption on the sustainability performance of banking firms: the mediating effect of green finance and innovation', *Systems*, Vol. 10, No. 5. Doi: 10.3390/systems10050148.
- Yasa, N.K., Adnyani, I.G.A.D., Rahyuda, H., Rahmayanti, P.L.D. and Wijaya, P.Y. (2017) 'Business strategies implementation to enhance competitive advantage (A Study of Ikat Weaving in Bali)', *European Journal of Business and Management*, Vol. 9, No. 8. Available online at: www.iiste.org
- Yasa, N.N.K., Adnyani, I.G.A.D. and Rahmayanti, P.L.D. (2023) *Peran Adopsi Media Sosial Untuk Meningkatkan Kinerja Bisnis: Konsep dan Studi Kasus*, Media Pustaka Indo.
- Ye, J. and Kulathunga, K. (2019) 'How does financial literacy promote sustainability in SMEs? A developing country perspective', *Sustainability*, Vol. 11, No. 10. Doi: 10.3390/su11102990.
- Yewei, Y., Pereira, R., Jarrar, H., Salloum, C. and Youssef, I.S. (2025) 'Innovative resource management for strategic entrepreneurship and competitive advantage', *International Journal of Technology Transfer and Commercialisation*, Vol. 21, No. 2, pp.89–104. Doi: 10.1504/IJTTC.2025.145561.

Appendix**Appendix 1:** Results of the – PLS algorithm in evaluating the MSME's performance

<i>Description</i>	<i>Outer loading</i>	<i>CA (0,7)</i>	<i>CR (0,7)</i>	<i>AVE (0,5)</i>
MSME Performance (MP)		0.897	0.918	0.582
MP1	0.783			
MP2	0.812			
MP3	0.763			
MP4	0.727			
MP5	0.749			
MP6	0.749			
MP7	0.782			
MP8	0.736			
Financial Technology Literacy (FTL)		0.920	0.933	0.557
FTL1	0.733			
FTL2	0.778			
FTL3	0.762			
FTL4	0.760			
FTL5	0.739			
FTL6	0.716			
FTL7	0.765			
FTL8	0.752			
FTL9	0.739			
FTL10	0.706			
FTL11	0.758			
Financial Literacy (FL)		0.913	0.928	0.563
FL1	0.715			
FL2	0.742			
FL3	0.731			
FL4	0.724			
FL5	0.749			
FL6	0.740			
FL7	0.803			
FL8	0.787			
FL9	0.728			
FL10	0.776			
Competitive Pressure (CP)		0.885	0.91	0.592
CP1	0.766			
CP2	0.749			
CP3	0.776			
CP4	0.769			
CP5	0.810			
CP6	0.708			
CP7	0.803			

Source: Author's calculation with SEM-PLS.

Appendix 2

<i>Variable</i>	<i>Item</i>	<i>Measurements</i>	<i>Source</i>
MSME Performance (MP)	MP1	My business has experienced an increase in sales every month	(Wicaksono and Kramadibrata (2022))
	MP2	The number of customers in my business has increased in the past three months.	
	MP3	My business capital is always increasing	
	MP4	My business has experienced an increase in profit from the previous month	
	MP5	My business is adding employees because the workload is increasing	
	MP6	Many potential employees want to apply for jobs at my business	
	MP7	I am marketing my business to other regions and even overseas	
	MP8	My customers do not only come from my local area, but also from other regions or overseas	
Financial Technology Literacy (FTL)	FTL1	The use of technology can save costs in my business operations	Sijabat et al. (2019)
	FTL2	The use of technology can improve the efficiency of my business performance in terms of time and effort	
	FTL3	The use of technology can provide benefits for my business operations	
	FTL4	The use of technology makes it easy to conduct financial transactions	
	FTL5	The use of technology can provide benefits and convenience for saving and investing	
	FTL6	Technology is very easy to understand and use for my business operations	
	FTL7	The HR in my business understands the risks of fraud that can occur when using technology	
	FTL8	The HR in my business understands the applicable regulations	
	FTL9	The HR in my business understands the risk of data breaches	
	FTL10	Our customers feel safe when making transactions online	
	FTL11	We gain the trust of our customers because of our openness to information.	

Appendix 2 (continued)

<i>Variable</i>	<i>Item</i>	<i>Measurements</i>	<i>Source</i>
Financial Literacy (FL)	FL1	The HR in my business understands how to manage operational finances and utilize my business's financial products or services properly and correctly	Bongomin et al. (2017) .
	FL2	The HR in my business has the ability to create a budget for personal use	
	FL3	My business always uses operating costs in accordance with the existing budget	
	FL4	In my business, we always save regularly	
	FL5	In my business, we have been actively saving for the past few years	
	FL6	The HR in my business has the ability to manage business finances properly and correctly	
	FL7	The HR in my business has the ability to calculate interest rates	
	FL8	The HR in my business is always interested in current financial issues	
	FL9	The HR in my business always compares prices before choosing financial products or services	
	FL10	The HR in my business is always interested in transacting with banks	
Competitive Pressure (CP)	CP1	The presence of competitors has decreased my sales	Herman and Nohong (2022)
	CP2	Competition can reduce my business performance	
	CP3	Competition makes me use technology to innovate	
	CP4	Competition can make my business continue to innovate, which can improve my business performance	
	CP5	Technology has an impact on the efficiency of my business operations	
	CP6	My business has advantages over existing competitors to survive competition	
	CP7	My business always makes innovation updates to overcome competition	

Source: Adoption from TOE framework.