

## The Role of Fintech Lending in Increasing Access to MSME Financing and Systemic Risk

Edi Nur Prasetyo<sup>1</sup>

<sup>1</sup> Universitas Islam Balitar, Blitar, Indonesia  
*nurprasetyoedi04@gmail.com*

### Abstract

The development of financial technology, or fintech lending, has brought about significant transformations in the financing ecosystem for MSMEs in Indonesia. This study examines the role of fintech lending in increasing access to financing for MSMEs and analyzes the potential systemic risks it poses. Using a literature review approach and secondary data analysis from various sources, this study found that fintech lending can address the MSME financing gap through faster processes, lower costs, and broader reach compared to conventional financial institutions. However, the rapid growth of this industry also poses systemic risks in the form of credit risk, liquidity risk, operational risk, and regulatory compliance risk. The results indicate that fintech lending significantly enhances MSMEs' access to financing through digitalization, alternative credit scoring, broad geographic reach, and diversified, flexible financing products, thereby contributing to financial inclusion and regional economic development. However, the findings also reveal substantial systemic risks that stem from alternative data-based scoring, technological dependence, and the pass-through risk model. These results imply that while fintech lending plays a critical role in addressing financing gaps for underserved MSMEs, its sustainability depends on robust risk management, transparency of algorithms, and strong cybersecurity practices.

### Keywords

*Access to Financing, Financial Inclusion, Fintech Lending, MSMEs, Systemic Risk.*

## 1. Introduction

Micro, Small, and Medium Enterprises (MSMEs) are the backbone of the Indonesian economy, contributing approximately 61.1 percent of Gross Domestic Product (GDP) and absorbing around 97 percent of the national workforce. Despite their substantial economic role, MSMEs continue to face serious constraints in accessing formal financing from conventional financial institutions. The financing gap for MSMEs in Indonesia is estimated to have reached IDR 1.650 trillion by 2023, reflecting a persistent mismatch between funding demand and supply. This condition is mainly driven by structural challenges, including limited collateral ownership, inadequate financial records, and low levels of financial literacy. In addition, complex credit application procedures and stringent administrative requirements further hinder MSMEs from obtaining bank financing. These barriers not only restrict business expansion but also reduce the productivity and competitiveness of MSMEs, highlighting the urgent need for more inclusive and accessible financing alternatives (Iswoyo et al., 2019; Sutopo, 2024).

In this context, financial technology, specifically fintech lending, presents an alternative solution. Fintech lending is a digital platform that connects lenders with borrowers through a peer-to-peer lending system or marketplace lending. This platform utilizes technologies such as big data analytics, artificial intelligence, and machine learning to conduct credit scoring and risk assessment more accurately and efficiently. The emergence of fintech lending has transformed the MSME financing landscape by offering faster approval processes, more flexible requirements, and easier access through digital platforms (Hiyanti et al., 2019; Winarto, 2020).

According to data from the Financial Services Authority (*Otoritas Jasa Keuangan/OJK*), the fintech lending industry has experienced exponential growth, with the number of licensed providers reaching 102 as of December 2024 and cumulative financing disbursement reaching IDR 598.4 trillion since 2016. This growth demonstrates the growing trust of the public and MSMEs in fintech lending services as an alternative source of financing. However, this rapid growth has also raised concerns regarding potential systemic risks that could threaten financial system stability (Renn et al., 2022). The development of the fintech lending industry in Indonesia during the 2020–2023 period shows notable dynamics. The number of fintech lending providers gradually declined from 149 in 2020 to 101 in 2023, indicating industry consolidation and tighter regulatory oversight. Despite this decline, lending performance continued to improve, as reflected in the steady increase in loan disbursement from IDR 28.7 trillion in 2020 to IDR 68.4 trillion in 2023. In parallel, the number of user accounts grew significantly, rising from 14.2 million to 33.9 million over the same period, which highlights the increasing adoption of fintech lending services by the public. In terms of credit quality, the 90-day repayment success rate remained relatively stable and consistently above 97 percent throughout the observed period, indicating that credit risk in the fintech lending industry has been well maintained.

Grounded in the foregoing background, this study addresses two central issues. First, it examines the role of fintech lending in expanding access to financing for MSMEs in Indonesia. Second, it investigates the systemic risks associated with the rapid growth of the fintech lending industry and their potential implications for the stability of the national financial system. A comprehensive understanding of these dimensions is crucial for formulating policies that maximize the benefits of fintech lending while effectively managing risks that may undermine financial stability (Hiyanti et al., 2019; Ruslina et al., 2021). This study aims to analyze the fintech lending's contribution to MSME financing access and to identify and assess emerging systemic risks by examining the mechanisms through which fintech lending alleviates financing constraints, evaluating factors affecting the effectiveness of fund distribution, identifying key sources of systemic risk, and proposing policy recommendations to strengthen the positive role of fintech lending while mitigating its associated risks.

## **2. Literature Review**

### ***2.1. Fintech Lending Concept***

Fintech lending, or financial technology-based lending, is an innovation in financial services that leverages digital platforms to facilitate the distribution of funds from lenders to borrowers efficiently and transparently. According to Indonesian regulations, fintech lending is defined as the provision of financial services that connect lenders and borrowers to enter into loan agreements in rupiah directly through an electronic system using the internet. This model differs fundamentally from conventional financial institutions, as fintech lending platforms do not channel their own funds but instead act as intermediaries that facilitate interactions between lenders and borrowers, thereby reducing operational costs and improving accessibility (Sihite & Cahyono, 2022; Judijanto et al., 2024).

Fintech lending business models can be categorized into several types based on their transaction characteristics and target users. Consumer peer-to-peer lending connects individual lenders with individual borrowers primarily for consumptive purposes. Productive peer-to-peer lending focuses on financing business activities or productive sectors, particularly MSMEs. Invoice financing enables MSMEs to access short-term funding secured by invoices or trade receivables, while crowd lending involves multiple lenders collectively funding a specific project or business initiative. Each of these models exhibits distinct risk and return profiles, influenced by factors such as borrower characteristics, loan purpose, and repayment structure. Consequently, effective risk management and regulatory oversight are essential to ensure the sustainability and stability of fintech lending operations (Retnosari et al., 2020; Cuadros-Solas et al., 2024).

## ***2.2. Characteristics of MSMEs and Financing Challenges***

Micro, Small, and Medium Enterprises (MSMEs) have unique characteristics that distinguish them from large companies. According to Law Number 20 of 2008, a microenterprise is a productive business owned by an individual or a sole proprietorship that has maximum assets of IDR 50 million and a maximum annual turnover of IDR 300 million. Small businesses are defined as having assets of IDR 50 million to 500 million and a turnover of IDR 300 million to 2.5 billion. Medium-sized businesses have assets of IDR 500 million to 10 billion and a turnover of IDR 2.5 billion to 50 billion. This classification is important because it determines the type of assistance and facilities MSMEs can receive from the government (De Menezes & Kelliher, 2011; Susdarwono, 2021).

The financing challenges faced by MSMEs are multidimensional and interconnected. Limited collateral is a major obstacle because most MSMEs lack assets that can be used as collateral for credit. The lack of adequate financial records makes it difficult for MSMEs to prove their business viability to financial institutions. Information asymmetry between lenders and MSMEs creates moral hazard and adverse selection, which increases transaction costs. High transaction costs make small-scale lending uneconomical for conventional banks. Complicated administrative requirements and lengthy approval processes make MSMEs more likely to use more expensive informal financing sources (Hadiana et al., 2021; Mekaniwati et al., 2021; Teruna & Ardiansyah, 2021)

## ***2.3. Financial Inclusion Theory***

Financial inclusion is defined as a condition where everyone has full access and opportunity to use quality, affordable, formal financial services in a comfortable and dignified manner. The concept of financial inclusion encompasses four main dimensions: access, use, quality, and impact. The access dimension relates to the public's ease of access to financial services, both physical and non-physical. The use dimension measures the intensity and continuity of financial product use. The quality dimension relates to the relevance of financial products to community needs. The impact dimension measures positive changes in community welfare resulting from access to financial services (Febrianto et al., 2020; Habibi et al., 2022; Aprayuda & Dalam, 2022).

The role of technology in driving financial inclusion is becoming increasingly important in the digital era. Financial technology enables financial service providers to reach previously unserved or underserved segments of society at lower costs. The use of digital platforms eliminates the need for physical infrastructure such as branch offices, which require significant investment. Alternative data-based credit scoring algorithms enable creditworthiness assessments without requiring formal banking history. End-to-end digital processes reduce operational costs, which can be passed on to customers as more competitive interest rates (Suci & Rikumahu, 2019; Sudrajat et al., 2024).

#### ***2.4. Systemic Risk in the Financial System and Fintech Lending Regulatory***

Systemic risk refers to the risk of disruption to financial system stability that can lead to widespread economic impacts. Systemic risk is characterized by contagion effects that spread across the financial system. Its significance became particularly evident after the 2008 global financial crisis, which showed how the failure of financial institutions could trigger domino effects and undermine overall economic stability (Arno, 2017). In fintech lending, systemic risk arises from several interrelated factors, including credit risk from borrower defaults, liquidity risk due to asset-liability mismatches, operational risk related to technology failures or cybersecurity threats, legal and compliance risks from regulatory issues, and concentration risk resulting from excessive exposure to specific sectors or borrowers (Balogun et al., 2025; Iftinan & Sukarmanto, 2022; Kim, 2024).

The fintech lending regulatory framework in Indonesia has evolved significantly since the industry's emergence, with the current primary regulation being Financial Services Authority Regulation Number 10 of 2022 on Information Technology-Based Joint Funding Services, which replaces the previous POJK and sets comprehensive requirements related to licensing, minimum capital, governance, risk management, consumer protection, reporting obligations, disbursement limits, transparency, dispute resolution, and administrative sanctions (Hiyanti et al., 2019; Parsaulian, 2021). This framework is guided by the principle of "same activity, same risk, same regulation," ensuring equivalent regulatory standards for similar activities, while also applying proportionality and risk-based supervision that take into account business scale and complexity, thereby enabling the OJK to focus oversight on higher-risk providers in order to balance innovation with financial system stability and consumer protection (Suyanto et al., 2018; Sati, 2022).

### **3. Methods**

This research employs a qualitative approach using a Systematic Literature Review (SLR) method. The qualitative approach is chosen because it is well suited to the research objective of gaining an in-depth understanding of complex, multidimensional phenomena related to the role of fintech lending and the systemic risks associated with its development. Through this approach, the study can explore conceptual frameworks, empirical findings, and regulatory perspectives comprehensively and in context. The systematic literature review method enables researchers to critically analyze, synthesize, and integrate findings from diverse sources in order to develop a structured and holistic understanding of the research topic.

The secondary data used in this study are derived from a wide range of credible sources, including scientific publications, official government reports, and publications issued by international financial institutions. The primary literature sources consist of reputable peer-reviewed journals indexed in Scopus and Web of Science, OJK publications, including fintech lending statistics and industry

development reports, and Bank Indonesia reports on financial system stability and financial inclusion. In addition, this study also draws on publications from international institutions such as the World Bank and the International Monetary Fund, as well as relevant laws, regulations, and policy documents governing fintech lending in Indonesia.

Data sources were selected based on strict criteria for relevance, credibility, and timeliness, with particular emphasis on publications from the last five years to ensure the analysis is current. The data analysis process was conducted through several systematic stages. First, relevant literature was identified and collected from various databases and official sources using predefined keywords. Second, the literature was screened and selected based on clear inclusion and exclusion criteria to ensure both quality and relevance. Third, data extraction focused on key findings related to the role of fintech lending and systemic risk. Fourth, the extracted findings were synthesized and analyzed by identifying recurring patterns, dominant themes, and relationships between concepts. Finally, the results of the analysis were interpreted and discussed in relation to the research objectives and research questions, allowing for well-grounded conclusions and policy-relevant insights

## **4. Results**

### ***4.1. The Role of Fintech Lending in Increasing Access to Financing for MSMEs***

Fintech lending has significantly improved the efficiency of the MSME financing process through end-to-end digitization. Loan application processes that previously took weeks can now be completed in days or even hours through digital platforms. The use of artificial intelligence and machine learning technologies enables automated creditworthiness analysis by utilizing alternative data such as digital transaction history, online behavior, and social media data. This reduces reliance on formal documents and collateral, which are often obstacles for MSMEs (Campanella et al., 2025; Subagja et al., 2025). Digitalization of processes also results in significant reductions in operational costs. Fintech lending platforms eliminate the need for physical branch offices, which require significant infrastructure investments. Automated underwriting, disbursement, and collection processes reduce the need for manual labor. These cost savings can be passed on to borrowers as more competitive interest rates than those offered by conventional financial institutions. However, these cost efficiencies must be balanced with ongoing investment in technology and cybersecurity to maintain service quality and protect customer data.

Digital fintech lending platforms have the advantage of reaching MSMEs in remote areas underserved by conventional banking. The increasing penetration of the internet and smartphones allows MSMEs in various regions to access financing services without having to visit a bank branch. Data shows that 45 percent of fintech lending borrowers are from outside Java, demonstrating a significant contribution to equitable financial access. This broad reach has a positive impact on national

financial inclusion and regional economic development (Azimi et al., 2022). Fintech lending's ability to reach underserved segments also includes MSMEs that lack access to formal banking for various reasons. This group includes informal business owners, small traders, and gig economy workers with irregular incomes. Fintech lending uses an alternative credit-scoring approach that relies not only on banking history but also on daily cash flow, e-commerce transaction history, and other digital indicators. This approach opens up opportunities for segments previously categorized as unbankable to access formal financing.

Fintech lending offers a variety of financing products tailored to the specific needs of MSMEs. Invoice financing products allow MSMEs to obtain liquidity by using accounts receivable as collateral without having to wait for payment due from buyers. Supply chain financing facilitates financing across the supply chain by integrating suppliers, manufacturers, and distributors (Zaman et al., 2024). Working capital loans provide short-term financing through a fast process to meet daily operational needs. This product diversification gives MSMEs more options to choose the financing scheme that best suits their business characteristics. Flexibility is also reflected in customizable financing structures. Fintech lenders offer loan tenors ranging from very short to medium, allowing MSMEs to choose a term that aligns with their business cycle. Flexible repayment systems with daily, weekly, or monthly payment options provide convenience for MSMEs with varying cash flow patterns. Some platforms also offer top-up or additional loan features for borrowers with a good payment history, helping build a positive credit history.

#### ***4.2. Systemic Risk Analysis of Fintech Lending***

The fintech lending industry faces multiple sources of systemic risk with varying levels of severity. Credit risk, operational risk, and contagion risk are classified as high-risk factors because they can trigger significant financial losses, erode funder confidence, and spread instability across the financial system. Liquidity, concentration, and compliance risks are assessed as medium, as they can cause operational disruptions and regulatory consequences if not properly managed. Table 1 highlights that effective risk management and regulatory oversight are essential to mitigate systemic vulnerabilities in the fintech lending industry.

**Table 1.** Systemic Risk Analysis in the Fintech Lending Industry

<b>Risk Categories</b>	<b>Sources of Risk</b>	<b>Potential Impact</b>	<b>Risk Level</b>
Credit Risk	Borrower defaults, inaccurate credit scores	Loss of funders, loss of trust	Height
Liquidity Risk	Asset-liability mismatch, mass withdrawal of funds	Operational disruptions, service interruptions	Medium
Operational Risk	IT system failures, cyberattacks, and fraud	Data leaks, service interruptions, and financial losses	Height

Risk Categories	Sources of Risk	Potential Impact	Risk Level
Concentration Risk	Overexposure to specific sectors/borrowers	Huge losses during certain sector shocks	Medium
Compliance Risks	Violation of regulations, legal uncertainty	Regulatory sanctions, revocation of permits, and bad reputation	Medium
Risk of Contagion	Interconnection with the financial system, herding behavior	Spread of crisis to other institutions, panic withdrawal	Height
Credit Risk	Borrower defaults, inaccurate credit scores	Loss of funders, loss of trust	Height
Liquidity Risk	Asset-liability mismatch, mass withdrawal of funds	Operational disruptions, service interruptions	Medium

Credit risk is the most fundamental risk in the fintech lending industry, related to the possibility of borrowers defaulting on their obligations. Unlike conventional banks, which have strong capital buffers, fintech lenders use a pass-through model where credit risk is borne directly by the lender. This creates higher risk exposure for individual investors who may lack adequate risk analysis capabilities (Sachse et al., 2012). The rate of non-performing loans in fintech lending tends to be higher than in banks, averaging 2.8 percent in 2024, though it remains within manageable limits.

The use of alternative data-based credit-scoring algorithms presents unique challenges for credit risk management (Dwivedi et al., 2024). While machine learning technology can identify patterns invisible to conventional analysis, these algorithms can also introduce systematic biases that disadvantage certain groups. The lack of transparency in credit scoring models, known as the “black box problem,” makes it difficult to verify the accuracy and fairness of assessments. The reliance on digital data is also vulnerable to manipulation, as borrowers can intentionally alter their digital footprints to artificially inflate credit scores.

Liquidity risk in fintech lending arises from a mismatch between the loan tenor extended to borrowers and the repayment commitments made to lenders (Berg et al., 2022). While fintech lending platforms theoretically do not use their own funds, in practice, some platforms provide auto-lending mechanisms or secondary markets, creating liquidity exposure. When lenders withdraw funds *en masse* due to a loss of trust, the platform can experience serious liquidity problems because existing loans have not yet matured. The maturity mismatch problem is exacerbated by the nature of MSME financing, which tends to be short-term with high renewal or rollover rates. When economic conditions worsen, MSMEs may be unable to renew their loans, while lenders become more cautious about disbursing new funds. This can create a liquidity spiral, in which declining platform liquidity worsens conditions for MSMEs, which in turn further tightens platform liquidity. Without access to emergency

liquidity facilities like those available to banks, fintech lending platforms are highly vulnerable to liquidity shocks.

Total reliance on digital technology makes fintech lending highly vulnerable to operational and cybersecurity risks (Onwuegbuchi et al., 2023). A failure in an information technology system can halt entire platform operations and cause significant financial and reputational losses. Cyberattacks such as distributed denial-of-service attacks, phishing, or ransomware can result in the leakage of customer personal data, theft of funds, or prolonged service disruptions. A cybersecurity incident on one platform can trigger panic and mass withdrawals on other platforms through a contagion effect. The risk of fraud is also a serious concern in the fintech lending industry (Una & Prabowo, 2022). Cases of identity theft, where perpetrators use fake identities to apply for loans, are increasingly prevalent due to increasingly sophisticated digital document forgery techniques. Platforms also face the risk of internal fraud by employees with access to sensitive systems and data. To mitigate these risks, platforms need to invest significant resources in cybersecurity infrastructure, fraud detection systems, and employee security training programs, which can substantially increase operational costs.

The fintech lending industry operates in a constantly evolving and changing regulatory environment (Kandpal et al., 2025). Regulatory uncertainty creates significant compliance risks for fintech lending platforms. Sudden regulatory changes can force platforms to make costly adjustments to their operations and business models. Some platforms may struggle to meet new regulatory requirements, particularly those related to minimum capital, governance, and risk management systems. Non-compliance with regulations can result in administrative sanctions, fines, and even revocation of operating licenses.

Regulatory challenges also include balancing the need to encourage innovation, protect consumers, and maintain financial stability. Overly stringent regulations can stifle innovation and industry growth, while overly lax regulations can open up opportunities for abuse and increase systemic risk. Coordination among regulators is also critical, given that fintech lending intersects with various regulatory areas, including finance, information technology, consumer protection, and taxation (Berg et al., 2022). The lack of regulatory harmonization can create regulatory arbitrage, with platforms seeking jurisdictions with the least stringent regulations

## **5. Discussion**

The rapid growth of fintech lending presents dual implications for financial system stability. On the positive side, fintech lending contributes to financial inclusion by expanding access to financing, particularly for MSMEs that are traditionally underserved by the banking sector. This finding is consistent with previous studies emphasizing the role of fintech and financial inclusion in improving MSME performance and supporting economic growth (Winarto, 2020; Retnosari et al., 2020; Azimi, 2022; Aprayuda & Dalam, 2022). By diversifying financing sources,

fintech lending reduces excessive dependence on banks and can enhance the resilience of the financial system, as highlighted by Berg et al. (2022) and Cuadros-Solas et al. (2024).

The increasing interconnection between fintech platforms and conventional financial institutions through funding partnerships, data sharing, and technological integration creates new channels for risk transmission. This condition supports Renn et al.'s (2022) argument that systemic risk arises not merely from the size of financial institutions but from their interconnectedness and complexity. Similar concerns are raised by Arno (2017) and Kandpal et al. (2025), who stress the importance of regulatory oversight to prevent financial instability arising from emerging financial innovations.

Systemic risks in fintech lending manifest through multiple channels. Credit risk remains a primary concern, particularly when borrower defaults increase during economic downturns. This finding is consistent with Iswoyo et al. (2019) and Dwivedi et al. (2024), who highlight weaknesses in credit assessment and the reliance on alternative data as potential sources of mispricing risk. Liquidity risk may emerge when platforms face sudden mass withdrawals, potentially triggering digital bank-run-like dynamics, as discussed by Berg et al. (2022). Operational and cybersecurity risks, including system failures and fraud, further amplify systemic vulnerability, supporting the findings of Una and Prabowo (2022) and Onwuegbuchi et al. (2023). In addition, concentration and compliance risks reflect structural weaknesses that can exacerbate losses during sector-specific shocks, as emphasized by Kim (2024) and Balogun et al. (2025).

Despite these risks, the fintech lending industry's relatively small size compared to the national banking sector currently provides a buffer against immediate systemic threats. With fintech lending assets accounting for less than one percent of total banking assets, the potential for large-scale financial disruption remains limited. Nevertheless, this condition mirrors the early stages of fintech development in other countries, such as China, where unchecked growth and weak regulation eventually led to systemic instability. This comparison reinforces the argument of Parsaulian (2021) and Subagja et al. (2025) that proactive regulatory measures are crucial before risks accumulate beyond control.

In response to these challenges, systemic risk mitigation requires a coordinated and comprehensive approach. Strengthening prudential regulation, including capital adequacy requirements, governance standards, and stress-testing mechanisms, is essential, as suggested by Suyanto et al. (2018) and Kandpal et al. (2025). Enhancing transparency and investor protection aligns with the need to maintain trust in digital financial services. Furthermore, the development of supporting infrastructure, such as an integrated fintech credit bureau and national cybersecurity frameworks, is consistent with recommendations from Hadiana et al. (2021) and Onwuegbuchi et al. (2023).

From an industry perspective, stronger self-regulation through industry associations and the adoption of responsible lending principles are critical for sustaining long-term growth. Collaboration with banks, insurers, and guarantors can further diversify risks and strengthen the fintech ecosystem, as supported by Teruna and Ardiansyah (2021) and Zaman et al. (2024). Taken together, these findings reinforce the view that while fintech lending offers substantial benefits for financial inclusion and MSME development, its sustainability depends on effective risk management and regulatory vigilance to safeguard financial system stability.

## **6. Conclusion**

This study finds that fintech lending plays a significant role in expanding MSMEs' access to financing in Indonesia by enhancing process efficiency, widening geographic reach, and providing flexible, tailored financing products that help overcome structural barriers such as limited collateral, weak credit histories, and complex procedures. The results also show that fintech lending contributes meaningfully to financial inclusion, particularly for underserved and unbanked MSMEs beyond the reach of conventional banking. However, the rapid growth of the industry is accompanied by rising systemic risks, including credit risk from alternative data-based scoring, liquidity risk due to maturity mismatches, operational and cybersecurity vulnerabilities, and contagion risk arising from increased financial interconnectedness. Although fintech lending remains smaller in scale than traditional banking, its high growth rate and deepening integration highlight the need for strengthened risk management and adaptive regulatory oversight to ensure sustainable development while safeguarding financial system stability.

Based on these findings, several policy recommendations are proposed. Strengthening the prudential regulatory framework should be conducted regularly to address emerging risks, including capital requirements, risk management standards, and stress testing. Supporting infrastructure such as integrated credit bureaus, resolution mechanisms, and early warning systems should be accelerated, alongside enhanced regulatory capacity through the use of regulatory technology and inter-agency coordination. In addition, large-scale digital financial literacy programs are needed to promote responsible borrowing among MSMEs. Finally, stronger collaboration between fintech lenders and conventional financial institutions can expand financing access while improving risk management.

This study has limitations. The reliance on secondary data restricts insight into internal platform operations, while the systemic risk analysis remains qualitative. Future research is encouraged to employ primary data and quantitative models, as well as to explore behavioral aspects of fintech lending users to deepen understanding of industry dynamics.

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