FINTECH LENDING AND MSME: A PATHWAY TO ECONOMIC DEVELOPMENT

ABSTRACT

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| This review article examines how fintech lending platforms open access to finance for MSMEs, measures the impact of this access on MSME performance and economic outcomes, and identifies the key factors for sustainability and scalability of fintech solutions in the MSME sector. Keywords like “fintech lending”, “MSME” and “economic development” were used for a systematic search across Scopus, Web of Science, JSTOR, ScienceDirect, and Google Scholar. Empirical evidence or conceptual discussions between 2015 and 2024, linking fintech lending to economic development outcomes were included if these were the studies published. A structured framework was used to extract data, and these data were subject to thematic analysis in order to discover recurring patterns. The finding of this study revealed that digital lending platforms also do a great job in overcoming some of the existing barriers to access to MSME finance by using alternative information for credit assessment. Furthermore, fintech lending is beneficial in improving the MSME performance, creating jobs and stimulating entrepreneurial activity. Variety of strategic partnership between fintech providers and traditional banks is important together with supportive regulatory framework for scaling fintech solutions. However, challenges like cybersecurity and digital literacy gaps are persistent and technological advancements and policy are continually needed. The review finds that the fintech lending is a key driver of inclusive economic growth for the massive MSMEs and enhance the financial system resiliency and dynamism.  |

*Keywords: Digital Finance, Economic Development, Financial Inclusion, Fintech Lending, MSMEs*

1. INTRODUCTION

Micro, Small and Medium Enterprises (MSMEs) are important to economic growth and development, especially in emerging economies. MSMEs are major job creators, poverty alleviators and sources of innovation, with their share exceeding 90 percent of global businesses (Gherghina et al., 2020). In regions such as Sub-Saharan Africa, which are economically important in sustaining such growth, they play a major role (Endris & Kassegn, 2022). However, although MSMEs are economically significant, they have great difficulties in accessing formal financial services. Mainstream financial institutions regard these businesses as high risk due to lack of collateral, credit history, or any formal financial records leading the process to be difficult to get the needed funding (Bhattacharjee et al., 2024). Access to and the cost of private capital constrains MSMEs’ ability to invest in expansion, innovation and vertical or horizontal scalablity, thereby limiting their contribution to economic growth (Salim, 2024). Often, MSMEs resort to informal lending sources charging high interest rates, which makes matters worse and makes it difficult for business growth (Falaiye et al., 2024). The financial gap persists, as it has always been, especially in emerging markets where MSMEs are an important part of the economy. There is a promising solution to this financing gap in the rise of financial technology (fintech). However, with the growth of fintech platforms that use technologies such as artificial intelligence, big data, and machine learning, MSMEs can still access credit as fintech platforms offer more inclusive financial services due to their lack of traditional financial records or collateral (Hasan et al., 2024). These platforms evaluate the creditworthiness using alternative data such as transaction histories, mobile phone activity, and social media presence to allow businesses to circumvent the barriers that would prevent traditional banks from doing business with them (Kumalasari & Farida, 2024). Moreover, fintech helps in lowering transaction costs, offers faster and more transparent services, bridging the gap between MSMEs and traditional financial firms, especially in those places that are underserved by traditional banking (Falaiye et al., 2024).

Fintech lending not only fuels MSMEs growth, but for a significant period, it has significantly contributed to broader economic goals such as job creation, reduction of poverty and innovation (Arewa et al., 2022). This is why fintech lending has the potential to help development and a more inclusive finance system for businesses and the community (Kumalasari & Farida, 2024; Bhattacharjee et al., 2024). This is pertinent to policymakers, businesses, and the academics alike. The findings of this study will prove useful for policymakers to learn how fintech can empower them with appropriate ways of enhancing financial inclusion and economic growth. The study will also highlight the opportunities of fintech lending for growth and innovation for businesses (particularly MSMEs). This research will benefit academics looking to the debate on the subject of fintech and its impact on economic development. The study’s outcomes will also inform the design of financial policies that can aid financial innovation while the innovations also targeted at underserved sections of the economy.

1.1. **Research Aims/Objectives**

The study’s main aim is to understand the impact of fintech lending on MSMEs and its potential as a means to economic development. The objectives of the research are as below:

1. To examine how fintech lending platforms are facilitating access to finance for MSMEs;
2. To assess the impact of fintech-driven credit access on MSME performance and economic outcomes; and

To identify key factors contributing to the sustainability and scalability of fintech solutions in the MSME sector

2. LITERATURE REVIEW

**2.1 Overview of MSME Financing Landscape**

Micro, Small and Medium Enterprises (MSMEs) are key to the global economy, providing employment as well as innovation and growth to countries via entrepreneurship and flexible, responsive modern organizations (Verma, 2019). MSMEs are the major source of employment and GDP in developing economies. For example, MSMEs in Sub-Saharan Africa constitute more than 60 percent of employment and about 30 percent of GDP (Al-Haddad et al., 2019). Though, MSMEs do not have access to finance. These businesses are considered high risk by traditional financial institutions who are unable to assess collateral, credit histories and lack formal financial documentation (Murinde et al., 2022).

This means that MSMEs are often left out of the formal financial service offering, hindering their capacity to grow, innovate and contribute to the growth of the economy. Since historical times, MSMEs have relied on informal sources of finances such as family loans or microfinance institutions. Nevertheless, these options usually have high interest rates and small loan amount, especially in emerging markets where the formal banking infrastructure is weak (Falaiye et al., 2024). Due to the financing gap in these regions, MSMEs are restricted to grow and economic underdevelopment remains.

**2.2 Traditional vs. Fintech Lending Mechanisms**

For a long time, the bulk of businesses’ capital came from traditional financing methods such as bank loans. However, these methods do not satisfy the needs of MSMEs as they require collateral, credit scores, and long approval processes (Palladino, 2020). This is unlike fintech lending platforms, which leverage on technology to reduce the stress involved in lending procedures. Fintech platforms use the data analytics, artificial intelligence (AI) and machine learning to assess the creditworthiness from alternative data like the transaction history, mobile usage and social media activity rather than conventional credit scores (Kumalasari & Farida, 2024). Fintech platforms are faster and also cheaper when it comes to accessing credit because of shorter approval periods and lower transaction costs than traditional banks (Omowole et al., 2024). The good thing about this is that it is very helpful for MSMEs that require fast financing for operations or expansion. In addition, fintech platforms usually have more flexible lending criteria, which enables smaller or riskier businesses, that are normally barred from the formal financial sectors, to obtain capital (Nwoke, 2024). Therefore, it is now increasingly seen as a way to fill the financing gap in developing economies through fintech lending.

**2.3 Global and Regional Fintech Trends**

Fintech lending platform has become a very important part of the global fintech landscape which has grown rapidly to reshape the financial services sector (Ezie et al., 2023). Fintech platforms such as LendingClub and Funding Circle have surged up the ranks of platforms to deal with this problem, trending toward developed markets, however, it is in the emerging economy markets where this practice is most important (Mashamba & Gani, 2024). Fintech is particularly relevant in Sub Saharan Africa and Southeast Asia, having a potential of increasing financial inclusion. Mobile money platforms like M-Pesa have transformed the way of access to financial services in Africa where people in remote areas could be able to do financial transactions (Falaiye et al., 2024). LendingKart and Capital Float in India provide quick and collateral free loans to MSMEs based on alternative data, filling the gap where traditional banking services are largely unavailable (Kumalasari & Farida, 2024). Given that these platforms are essentially a virtual version of these markets that are inaccessible or too expensive using traditional financial services, these platforms are a must. The provision of better access to capital to among others will improve access for many of the socially excluded into the formal economy and can play a much larger role in the creation of jobs and reduction to poverty. Fintech platforms allow MSMEs to access the needed funds for growth, which stimulates innovation and economic development (Omowole et al., 2024).

**2.4 Economic Development Frameworks Involving MSMEs**

MSMEs are universally known to be engines of economic growth to the extent that they create jobs, generate innovations, and industry diversification (Adeosun & Shittu, 2022). MSMEs are more than 90% of global businesses and 60 to 70% of employment in many developing countries (Al-Haddad et al., 2019) according to World Bank. Therefore, improving access to finance for MSMEs is a direct means of supporting broader economic development goals such as poverty reduction and sustainable economic growth. This framework acknowledges the role that fintech lending plays in its framework by allowing MSMEs to acquire capital more effectively. Affordable and timely loans help businesses invest in new technologies, increase workforce and productivity (Kumalasari & Farida, 2024). For instance, fintech loans can be used by MSMEs to scale up production, enhance supply chains, and bring new products for enhanced job creation and local economic stability. Fintech platforms that increase financial inclusion enable the underserved populations to join the formal economy and helps strengthen economic development (Palladino, 2020).

**2.5 Gaps in the Existing Literature**

However, although a lot of literature exists on fintech and MSME financing, there are still some gaps. They focus most of the studies on short term impacts of fintech lending on improving access to finance and business performance. Nevertheless, little is known about the long-term sustainability of fintech lending solutions in terms of the growth and profitability that fintech lending solutions can drive for MSMEs (Murinde et al., 2022). Research needs to be conducted further to find out if fintech platforms can help MSMEs succeed in the long run. In addition, while the emerging trends of the fintech around Sub Saharan Africa and India have been documented well, more comparative studies are needed to assess how fintech lending operates in different geographical contexts. Financial infrastructure, regulatory frameworks, and market conditions vary across regions and may impact the effectiveness of fintech solutions (Falaiye et al., 2024). As the fintech solutions affect the fiat transaction cycles, the market baseline or underlying conditions would vary across regions with different financial infrastructure, regulatory framewoks, and market conditions. Therefore, in many countries, the regulatory landscape in relation to fintech lending is also underdeveloped, carrying risks concerning consumer protection, data privacy as well as financial stability. Research on the environmental issues and best practices of fintech lending are crucial for the healthy development of this industry (Nwoke, 2024).

**2.6 THEORETICAL FRAMEWORK**

Everett Rogers’ developed the Innovation Diffusion Theory (IDT) in 1962, which is a very great framework for understanding the process of diffusion of new technologies and ideas in the society over the time. Relative advantage, compatibility, complexity, trialability, and observability are the key factors affecting adoption in this theory. These attributes determine how quickly and widely an innovation is adopted across a target population. Relative advantage describes the perceived benefits of the new technology over existing ones; compatibility implies the match between the introduction and the current values, practices and needs of users. Complexity addresses the ease of use, trialability concerns the opportunity to try it out before the full adoption, and observability refers to the visibility of the innovation’s benefits to others. IDT also categorizes adopters into five groups: innovators, early adopters, early majority, late majority and laggards who play different roles in the diffusion process. Also, this theoretical framework is useful to explain why MSMEs adopt fintech lending. With the clear advantages that fintech platforms provide over traditional financial systems, loan approvals are faster, there are less bureaucratic hurdles, collateral requirements are lower, and the platforms are more accessible, particularly to underbanked populations (Kumalasari & Farida, 2024). These are the characteristics of IDT and also the essence of why many MSMEs is starting to use fintech solutions to finance. Additionally, early adopters of digital financial tools by MSMEs, those that are ready to adopt fintech innovations in their businesses, can act as early movers to influence others thus accelerating the diffusion of fintech innovations across sectors. Nevertheless, there are some challenges with the adoption of fintech. Complexity and compatibility are slowed due to factors which includes digital literacy gaps, regulatory concerns, infrastructure limitations (Murinde et al., 2022). However, with the use of IDT this research can, nonetheless, unveil the pathways through which fintech lending supports MSME development and through it, broader economic growth, particularly in emerging markets where lack of access to traditional finance is still prevalent

**3.** **METHODOLOGY**

This study adopts a systematic review methodology to examine the impact of fintech lending on the growth and sustainability of the Micro, Small, and Medium Enterprises (MSMEs) and how the connection facilitates wider economic growth. The systematic review can adequately synthesize varied literature, determine the gaps in evidence and draw conceptual connections. To promote transparency, reproducibility and methodological rigour, the review process adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.

**3.1 Research Questions**

This review is guided by three core research questions:

1. How does fintech lending impact MSME access to finance?
2. What is the relationship between MSME growth through fintech lending and broader economic development?
3. What are the main challenges and enablers affecting the adoption of fintech lending in the MSME sector?

**3.2 Review Protocol**

A pre-defined protocol guided the review, with clear inclusion and exclusion criteria. The inclusion criteria specified that only peer-reviewed articles published between 2015 and 2024 would be considered. Studies had to be written in English and present either quantitative or qualitative research related to fintech or digital lending within the MSMEs environment. Furthermore, eligible articles needed to address outcomes in the areas of financial access, sustainability, or economic development. Conversely, the exclusion criteria ruled out non-English or non-peer-reviewed studies, articles not focused on MSMEs or fintech lending, and studies that lacked methodological transparency.

**3.3 Literature Search Strategy**

The databases that were searched include: Scopus, Web of Science, JSTOR, ScienceDirect, and Google Scholar, as they are the five largest academic databases. The following search terms were used in the form of Boolean combinations: "fintech lending" OR "digital lending" OR "alternative finance" AND "MSME" OR "SME" OR "small business" AND "economic development" OR "financial inclusion" OR "entrepreneurship". Only English-language publications were sought and reference lists of reviewed articles were also used to find more sources.

**3.4 Summary of Included Articles**

Out of over 200 initial results, a total of **10 articles** met the inclusion criteria and were retained for final synthesis.

Table 1: Summary of Included Articles

|  |  |  |  |
| --- | --- | --- | --- |
| **Database** | **Articles Retrieved** | **Articles Screened** | **Articles Included** |
| Scopus | 45 | 20 | 2 |
| Web of Science | 37 | 18 | 2 |
| JSTOR | 22 | 10 | 1 |
| ScienceDirect | 31 | 16 | 2 |
| Google Scholar | 80 | 36 | 3 |
| Total | 215 | 100 | 10 |

(The author)

**3.5 Data Extraction and Analysis**

A structured form was used to extract information on the study objectives, country or region focus, fintech lending models, methodologies employed, key outcomes for MSMEs, and links to broader economic development. Thematic analysis, as described by Vasileiou et al. (2018), was employed to identify recurring themes across the selected studies. These themes include the promotion of financial inclusion through technology, the reduction of traditional lending barriers for MSMEs, increased access to working capital and growth funding, and the enhancement of MSME resilience, job creation, and contributions to GDP.

**3.6 Analytical Focus**

The analysis critically interprets how fintech lending reshapes MSME financing and how this transformation contributes to inclusive, innovation-driven economic development. The systematic review also highlights key barriers (e.g., digital literacy, regulatory issues) and enablers (e.g., mobile penetration, supportive policy) influencing fintech adoption in the MSME space.

Full-text articles excluded, with reasons (Methodological flaws, lack of outcomes, unclear intervention)
(n = 10)

 Screening

Additional records identified through MEDLINE
(n = 80)

 Identification

Records excluded, after abstract screening – (n-75) (focus on fintech lending or MSMEs, outside the 2015–2024 window, not peer-reviewed)

 Eligibility

 Included

Studies included in analysis

(n = 10)

Records after duplicates removed
(n = 160)

Records identified through database searching
(n = 135)

Scopus – 45, Web of science – 37, JSTOR – 22, ScienceDirect - 31

Records screened
(n = 100)

Full-text articles assessed for eligibility
(n =25)

Records excluded for duplicates
(n = 55)

Figure 1: PRISMA Flow (The author)

4. RESULT & DISCUSSION

**4.1 Fintech Lending and Enhanced Access to Finance for MSMEs**

Led by fintech lending, there has been rapid emergence of fintech as a catalyst for democratizing finance for Micro Small and medium enterprises (MSMEs) by disrupting the orthodox standards of credit markets. Digital lending platforms are using the advance technologies like artificial intelligence, machine learning, big data analytics for evaluating the creditworthiness based on nonconventional data sources. According to the studies of Abebe and Meles (2020), these innovations lower the entry barriers by making use of different data sources beyond the provided data such as mobile money transactions or even Social Media fingerprint. This expands the data scope which allows lenders to find creditworthy MSMEs that were previously excluded by conventional banks (Choudhury et al., 2021).

Building on this, Palladino (2020) highlights that fintech impacts on small business borrowing are multifold (improving accessibility and optimizing the borrowing process to be more agile and less bureaucratically encumbered). The credit delivery mechanism is made faster and more responsive to the fluid demands of MSMEs by reducing processing times as well as paperwork through electronic platforms. Furthermore, Omowole et al. (2024) have made it clear that the endeavor to integrate fintech with microfinance innovation changes the way in which access to credit is provided, which makes it possible for the lending process to be completed faster, thus aiding in sustaining and growing businesses appropriately in exigent circumstances. Meanwhile, the Innovation Diffusion Theory (IDT), posits that innovations are adopted in a social system over time as a function of relative advantage, compatibility, complexity, trialability and observability (Rogers, 2003). Fintech lending platforms are a high relative advantage as they are fast and cheap way to access funds compared to traditional banks. Furthermore, as these platforms get more user friendly and aligned with the reality of operations of MSMEs, their adoption rate increases in a positive cycle of diffusion (Rogers, 2003; Nwoke, 2024). A prominent place in this ecosystem has also been taken by the sustainable finance and environmental, social, and governance (ESG) criteria. According to Diallo (2022) and Ibrahim and Muriithi (2023), it is not just integrating ESG factors into fintech lending that helps drive financial performance, but also creates long term resilience for MSMEs. In particular, credit landscape is transformed by initiatives dedicated to sustainable finance in parts of East Africa. According to Murinde, Rizopoulos and Zachariadis (2022), the FinTech revolution is changing the face of banking by balancing opportunities with risks, and this is the core issue of consumer protection and financial inclusion.

Regulatory frameworks which give support to the diffusion process of fintech solutions are key to the adoption of fintech solutions. By enabling regulated controlled experiments with new methods in the form of fintech innovations, Jenkins (2020) states that regulatory sandboxes and pro-active government policies provided a good environment for fintech innovation. This regulatory support for these supports is necessary to foster transparency and consumer confidence, while marginalizing innovation from endangering the financial stability (Kiprop, 2022). According to Al-Haddad et al. (2019), SMEs are pivotal for employment generation and economic growth, and thus improving their access to finance through fintech is not only a technological innovation but an economic necessity. There are also the operational efficiencies inherent in the digital lending. Lema (2021) observes that processes like underwriting and disbursement can be heavily automated, dramatically shortening turnaround time for MSMEs to access financing to capture new opportunities in the market. On the one hand, these advantages seem to be pretty obvious, on the other hand, Abebe & Meles (2020) warns about the some difficulties as well, such as cybersecurity risks, digital literacy gaps and the current digital divide. To address these challenges and minimize inherent biases, data models need to be constantly refined, all in the field of a more inclusive setting to assess credit (Choudhury et al., 2021).

**4.2 Impact of Fintech-Driven Credit Access on MSME Performance and Economic Outcomes**

The integration of fintech credit resulted in unprecedented performance outcomes of MSME, and enhances overall economic outcomes. For many years traditional financing channels have been held to task for being slow and reaching only a small portion of the sertraline market. However, they are much different than digital lending solutions as reported in the study by Diallo (2022) and Jenkins (2020), which offer rapid access to credit to businesses to solve liquidity constraints and seize growth opportunities quickly. Full potential of MSMEs to grow is dependent on rapid access as such the MSMEs with restricted cash reserves, necessitate timely intervention to sustain themselves. Empirical studies show that the fintech lending has a positive effect on MSME performance through improved revenue generation, operational efficiency and market competitiveness. As documented by Abebe and Meles (2020), those MSMEs that receive fintech credit experience marked improvements. Additionally, Palladino (2020) argues that these improvements in borrowing efficiency not only promote immediate business growth, but also make a business competitive in the long run as a very dynamic economic milieu. Fintech lending benefits extends beyond business performance but also has an effect on wider economic indicators. According to Adeosun and Shittu (2022), enhanced access to credit has a direct impact on national economic growth through the promotion of employment and entrepreneurship within the MSMEs. The positive spillover effects of MSMEs are job creation, technological advancements and an entrepreneurial culture that plays a role in sustaining economic growth (Verma, 2019).

Secondly, fintech lending provides the agility during times of economic stress that really matters. MSMEs that are digitally lended are more resilient during crises or market downturns because of the speedy availability of funds. As Choudhury et al. (2021) point out, digital platform processes are highly streamlined and can prove to be efficient for short-term liquidity management, as its important to combat the adverse impacts of economic shocks. Not just for business continuity, but this agility helps saving the other segment of the country's economy by reducing the extent of MSME failures. The integration of ESG considerations in fintech lending further enhances its role in enhancing MSME performance. In the study of Ibrahim and Muriithi (2023), fintech platforms where they adopt sustainable finance practices go beyond supporting financial health of MSMEs because it also entails environmentally responsible and socially inclusive business practices. The cycle of growth and sustainability is reinforced with the new wave of investment from socially responsible investors attracted by convergence of financial and ESG priorities.

In explaining how fintech solutions alter the performance of MSMEs, the Innovation Diffusion Theory (IDT) (Rogers, 2003) also plays a vital role. It is perceived that the adoption of a new technology is rapid if it offers perceived benefits over existing solutions, as reported by IDT. For fintech lending, with speed, convenience, and cost effectiveness, MSMEs are more encouraged to use digital borrowing (Guo et al., 2015). They become more observable and trialable as these innovations, and their impact on business performance becomes more pronounced (Rogers, 2003; Nwoke, 2024). There are some challenges despite the obvious benefits. As Diallo (2022) notes, there are more longitudinal studies needed to evaluate the long-term impact fintech credit has on a firm’s performance. In addition, limits of digital infrastructure, in particular in areas that are underdeveloped, may impede the potential of fintech being fully realized. According to Kiprop (2022), without adequate technological infrastructure, the fintech lending can be scaled, ultimately limiting sustainable economic growth.

**4.3 Sustainability and Scalability of Fintech Solutions in the MSME Sector**

Effective and lasting impact of fintech lending platforms in MSME sector hinges on the ability of the same to realize the scalability and sustainability side for it. It is stated in the literature that the success of fintech solutions largely depends on constant innovation of technology, strategic partnership with local financial institutions, and responsive regulatory environment. According to the study of Fitzgerald and Mwenda (2020) and Gonzalez et al. (2021) claim that sustained growth in the fintech space is possible if continuous technological infrastructure update is made by the platform to address growing demands from consumers as well as market. Sustainability of fintech solutions is driven by core driver of technological adaptability. By adopting such advanced platforms, their use helps features the security and accuracy as well as minimizing the cost and turnaround times (Ibrahim & Muriithi, 2023). In addition, as Murinde, Rizopoulos, and Zachariadis (2022) further point out, the FinTech revolution brings with it both opportunities and risks, a duality that guides future technological innovation by means of which one can continue to enjoy competitive advantage while at the same time preventing emergent threats such as cyber-attacks and data breaches.

Equally, scalability is also crucial, and the underlying business model has a huge bearing on it. According to Jenkins (2020), fintech models vary from peer-to-peer lending, direct and marketplace lending in terms of different level of scalability potentials. Abebe and Meles (2020) offer the following examples for instance peer to peer platforms enjoy network effects and have lower overhead costs, while direct lending models that integrate with traditional financial institutions can utilize existing customer bases and regulatory infrastructures. According to Omowole et al. (2024), strategic partnerships are essential for scaling up fintech operations and help fintech platforms to achieve market reach and secure the capital for growth.

This is further supported by a supportive regulatory framework for both sustainability and scalability. Since regulatory sandboxes and forward-thinking government policies enable fintech innovations to be safely trialed and refined before mass deployment, it got wider acceptance (Choudhury et al., 2021). Such frameworks, according to Al-Haddad et al. (2019), went even further to protect consumers while building investors’ trust, which is important to attract capital for the expansion. This is supported by Adeosun and Shittu (2022) who note that SMEs have an important role to play in national economic growth, and policies that encourage innovative lending practices are likely to have a large multiplier effect on employment and overall development.

The third dimension of sustainability enabled by ESG principles is ESG principles integrated into fintech lending. According to Ibrahim and Muriithi (2023), when fintech platforms prioritise sustainable finance practices, it improves the financial outcomes of MSMEs while also helping in the environmental and social wellbeing. This alignment brings in investors, oriented toward sustainability, a virtuous cycle of innovation, growth and responsible in action. Verma (2019) goes on to state that such practices must be adopted for the achievement of long-term sustainable development goals so that MSMEs can transition into resilient units capable of competing in an increasingly competitive global market.

The Innovation Diffusion Theory (IDT) (Rogers, 2003) also offers valuable insights into the scalability of fintech innovations. Based on the perceived attributes of the technology, IDT suggests the diffusion of the innovations is a consequence of compatibility with existing practice and the relative advantage provided by the technology. The more successful fintech platforms become as well as the more quantifiable impact they make, the more the adoption spreads and the more scalable fintech platforms become. When the innovation is trialable and benefits can readily be observed, the process is accelerated and the innovation diffuses quickly across the MSME sector (Rogers, 2003; Nwoke, 2024). However, challenges persist. Fintech solutions faced with cybersecurity risk, data privacy concern and digital divide pose few hurdles as it could pose a great impediment to the sustainable growth. According to Diallo (2022) if there is no ongoing push for capable cybersecurity and consumer education to be provided on both the vendor and customer side, the potential for scalability may be defeated. The responses to these challenges will therefore need to be an integrated one, in which both fintech innovators, as well as regulators, and traditional financial institutions all collaborate within a team looking to ensure the security and continued expansion of digital finance abilities (Elomari, 2024). In order to better comprehend the way in which fintech lending can root and grow in the real world markets, it would be nice to combine the academic research with the case studies and reports about the industry. As an example, the M1xchange platform in India, approved by the RBI, can be discussed since it is currently revolutionizing MSME access to working capital by closing the much-needed liquidity gap through invoice financing (Wamba et al., 2023). In the same way, fintech projects such as Verqor in Mexico and Apollo Agriculture in Kenya show how the contextualization, data literacy, and rural market focus of solutions can keep the rate of non-performing loans to a minimum of 1.7 %, even in risky settings (Stubbington, 2023). Such industry-level insights, coupled with the frameworks of peer-reviewed studies, enable the researcher to monitor not only the theoretical concepts such as Innovation Diffusion Theory but also the realities of an innovator and the market mechanics, i.e., the onboarding mechanisms and repayment schemes that stimulate fintech adoption. With this duality the mapping of the dynamics of fintech lending is richer and more actionable across the variety of institutional landscapes and the real economies.

**4.4 Emerging Themes and Critical Challenges in Fintech Lending for MSMEs**

In addition to the benefits and enablers discussed in Sections 4.1–4.3, several critical themes are reshaping the fintech‑MSME landscape. These emerging topics highlight both opportunities and risks that warrant attention in future research and practice.

**4.4.1 Artificial Intelligence and Algorithmic Lending**

With fintech platforms steadily using machine learning and artificial intelligence to originate loans, there has been increased concern over the issue of algorithmic bias and transparency. Alternative data such as social media activity, transaction histories, can be used to enhance the risk assessment with AI-driven credit-scoring models, but they, in turn, can replicate existing socioeconomic bias or be inexplicable to borrowers (Nwoke, 2024). Furthermore, the validity of such scores is still debatable: in the absence of industry norms, the banks and fintechs tend to use different metrics, which negatively affects cross‐platform comparability and trust on the part of borrowers (Ismanto, Wibowo, & Shofwatin, 2023). It will be necessary to explain how AI models rate creditworthiness and provide common yardsticks to allow a wider adoption by institutions.

**4.4.2 Cybersecurity and Data Privacy**

The high rate of digitalization has created new security risks to MSMEs. Data leaks, phishing scams, and false loan deals undermine the trust of online platforms, particularly those of businesses that have low IT capabilities (Murinde, Rizopoulos, & Zachariadis, 2022). Fintech providers should consider investing in strong encryptions, constant surveillance, and user awareness to protect confidential financial information as cyber risk continues to increase. The inability to deal with such weaknesses may undo financial inclusion progress by scaring away risk averse entrepreneurs.

**4.4.3 Regulatory Inadequacy and Market Fragmentation**

The regulatory frameworks tend to lag behind fintech innovation, and thus there are so-called sandbox experiments where the exit rules are unclear as are the consumer protections (Al Haddad, Sial, Ali, & Thai, 2019). Fragmentation is caused by inconsistent policies across jurisdictions: a solution that is allowed in one market can be banned outright or subject to harsh demands in another. Moreover, fintech credit scores are differentially treated, as mentioned in AI lending, further fragmenting this data, such that it is hard to scale lending operations or port credit histories. Standardizing rules and setting up universal rules of compliance will become important to the sustainable growth of fintech (Mashamba & Gani, 2024).

**4.4.4 Convenience, User Experience, and Digital Literacy**

Although convenience and simplified work processes are presented as primary fintech benefits, the badly designed interfaces may exclude the users with low literacy or the ones who do not possess smartphone experience (Falaiye et al., 2024). User experience (UX) affects uptake and repayment behaviour: uptake is favoured by clear instructions, local language choices and easy on-boarding, but is discouraged by complex menus and jargon. In addition to interface design, specific digital literacy programs should be introduced to allow MSMEs to know loan terms, repayment plans, and platform features (Ahmed, 2024).

**4.4.5 Impact on Traditional Banking and Brick‑and‑Mortar Services**

The speed of Fintech lending development raises strategic questions to incumbent banks and merchant lenders. The peer to peer and marketplace have drained the high yield segment in some markets, leaving banks to either form partnerships with fintechs or build their own (Mashamba & Gani, 2024). This displacement effect can undermine the brick‑and‑mortar branch network, particularly in semi‑urban areas where banks rely on low‑volume transactions to justify overheads. A comprehensive theme on fintech’s sectoral impact would examine not only MSME outcomes but also the evolving role of traditional financial intermediaries in a digital ecosystem.

**4.4.6 Green Finance and ESG Assessment**

Although ESG considerations have been mentioned in relation to sustainable finance, they often focus on credit‑risk mitigation rather than on environmental impact or social inclusion metrics (Hasan, Hoque, Abedin, & Gasbarro, 2024). Fintech platforms are uniquely positioned to incorporate paperless green‑finance products—such as climate‑linked loan discounts or carbon‑footprint tracking—but few have fully operationalized these features. Moreover, the lack of standardized ESG scoring tools means small firms with limited reporting capacity may be excluded from sustainability‑focused credit programs. Integrating robust, accessible ESG assessment into digital lending would advance both financial performance and developmental goals.

**4.5 Practical Implications**

 Fintech lending integration into the MSME financing landscape is rapid and carries substantial practical implications for stakeholders across the financial ecosystem. For MSMEs themselves, the adoption of digital lending platforms will bring about a phase change in capital access. Fintech solutions accelerate the efficient and inclusive financing, because they remove bureaucratic delays and make use of alternative data sources. It enables MSMEs to get their funds quickly, enabling them to implement immediate business improvements, expansion and be able to navigate short-term liquidity challenges. An improved flow of credit can also translate into faster accomplishing of operations and greater competitiveness in markets, which makes it possible for innovation and consistent growth. The findings implied the need for ever more elaborated digital underwriting process and risk assessment models for profit and fintech institutions. Accurately making credit decisions requires balancing the speed of reaching the decision with the accuracy of the decision.

Additionally, this not only prevents default risks but instead, it enables fintech research to be scalable, a necessary condition for continuing growth. Other efforts that can be made collaboratively are forming strategic partnerships with traditional banks to streamline operations and extend market reach. Fintech innovation is a role that policymakers have a major stake in supporting an enabling environment. The creation of supportive regulatory framework and creation of fintech sandboxes will ensure that the interests of the consumers are safeguarded as fintech flourishes. Precisely this balance is necessary when it comes down to risks of cybersecurity and data privacy. Additionally, the combined lending practice with ESG criteria proves the significance of sustainable finance which excludes the toxic flows and attracts the socially responsible investment to accelerate the environmental and social benefits alongside economic growth. Taking an overall view of the practical implications of fintech lending for MSMEs, there are implications in many aspects. These include improved access to finance and operation efficiencies for businesses, scarce risk management and plug and play portfolio commercialization for lenders and finally progressive regulatory and policy adjustments that promotes a thriving, sustainable, and an inclusive and creative economic development environment.

5.1 RECOMMENDATION

Some key recommendations based on the comprehensive analysis of fintech lending and its effects on MSMEs emerge to help stakeholders of digital finance to maximise its potential as a means to economic development. Digital lending platforms for MSMEs are not a luxury but a necessity for them to combat traditional credit barriers. To well utilize these platforms, businesses have to train -+themselves to do so digitally, digital literacy, to maintain the best utilization of such platforms via training. Additionally, MSMEs should look for collaboration with fintech providers to tailor several financial products that conform to their operational need and growth trajectory (Abebe & Meles, 2020; Palladino, 2020). To harness AI and ML to better risk assessment, fintech providers need to increase the speed of development of their technological capabilities. This will reduce credit risk and increase the number of MSMEs that are covered by underwriting processes that are both fast and accurate. In addition, providers must enter into strategic partnerships with traditional banks in order to leverage technological innovation with the substantial customer bases and the well-established regulatory expertise of traditional banks (Omowole et al., 2024; Nwoke, 2024).

Fintech lending’s sustainable growth is needed by the policymakers, which means they hold a pivotal role. To do so, governments should create and institute regulatory frameworks that strike an innovation balance with protect consumer. It includes both fintech sandboxes to test new financial products in sandboxed environments, as well as policies around data security, and cybersecurity in general. Integrating Environmental Social and Governance (ESG) criteria in the lending rules can influence responsible financing, enhance social investments and contribute to sustainable economic development (Murinde, Rizopoulos, & Zachariadis, 2022; Ibrahim & Muriithi, 2023). Finally, there is need for further research and dialogue among all stakeholders. Monitoring and evaluation of fintech lending on a continuous basis will be helpful in tuning technologies, establishing a regulatory framework, and enabling fintech lending to effectively contribute to MSMEs resilience and long-term growth for more inclusion and dynamism in the financial ecosystem.

5.2 Conclusion

Fintech lending is the emerging force in the democratization of finance for MSMEs and economic development. It is demonstrated in this review that digital lending platforms leveraging sophisticated technologies such as artificial intelligence, machine learning, and big data analytics are effectively overcoming traditional credit constraints by incorporating alternative data sources. By integrating ESG principles into financing models, the resilience and sustainability of models are improved, while Rogers (2003) talks about the rapid adoption of these innovations among MSMEs based on the theory of Innovation Diffusion. Diverse studies provide empirical evidence that fintech lending for enhanced liquidity in MSMEs not only raises operational performance and competitiveness of MSMEs but also fuels economic indicators like job creation and entrepreneurial dynamism. On top of that, the strategic partnership between fintech providers and traditional banks, as well as favourable regulatory frameworks and fintech sandboxes, are advocating for the scalability and sustainable growth. However, even today, challenges persist like the digital divide, the cybersecurity threats, and the digital literacy gaps, and therefore there has been a continuous technological improvement and necessary intervention in policy. This study clearly indicates that fintech lending is a major enabling factor for the inclusive economic development. With the use of technology and fostering of sustainable practice, fintech lending can actually provide effective support for MSMEs to grow and ultimately help to build a more vibrant and resilient, dynamic and inclusive financial ecosystem.

COMPETING INTERESTS:

Authors have declared that they have no known competing financial interests OR non-financial interests OR personal relationships that could have appeared to influence the work reported in this paper.

Disclaimer (Artificial intelligence)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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