The Role of Financial Technology in Enhancing Investment Decisions and Risk Management for SMEs

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ABSTRACT

In the evolving financial landscape, Small and Medium Enterprises (SMEs) face persistent challenges in making informed investment decisions and managing risks due to limited access to financial data, expertise, and infrastructure. Financial Technology (FinTech) has emerged as a transformative solution, offering innovative platforms and tools that democratize access to financial services, improve transparency, and enhance data-driven decision-making. This study aims to explore the role of FinTech in supporting investment decision-making and risk management among SMEs through a comprehensive literature review approach. The methodology involves a systematic analysis of peer-reviewed articles, industry reports, and academic studies published between 2015 and 2024. Key themes analyzed include algorithmic investment platforms, digital credit scoring, real-time financial analytics, blockchain-based transparency, and automated risk monitoring tools. The findings indicate that FinTech facilitates improved investment decisions through enhanced financial forecasting, scenario simulations, and access to alternative financing channels. In terms of risk management, FinTech enables SMEs to identify potential financial threats early, leverage predictive analytics, and maintain regulatory compliance more efficiently. The study contributes to the growing discourse on digital financial inclusion and highlights FinTech's potential as a strategic enabler for SME sustainability and competitiveness in uncertain economic environments. It also underscores the need for policy frameworks that support digital adoption and safeguard against technology-related risks. Overall, the integration of FinTech into SME operations marks a paradigm shift toward more resilient, data-driven financial practices.

Keywords*: Digital Finance, Fintech, Investment Decisions, Literature Review, Risk Management, SMEs.*

ABSTRAK

Dalam lanskap keuangan yang terus berkembang, Usaha Mikro, Kecil, dan Menengah (UMKM) menghadapi tantangan yang berkelanjutan dalam pengambilan keputusan investasi dan pengelolaan risiko akibat keterbatasan akses terhadap data keuangan, keahlian, dan infrastruktur. Teknologi Finansial (FinTech) telah muncul sebagai solusi transformatif yang menawarkan platform dan alat inovatif untuk mendemokratisasi akses terhadap layanan keuangan, meningkatkan transparansi, dan memperkuat pengambilan keputusan berbasis data. Studi ini bertujuan untuk mengeksplorasi peran FinTech dalam mendukung pengambilan keputusan investasi dan manajemen risiko pada UMKM melalui pendekatan studi literatur yang komprehensif. Metodologi penelitian ini melibatkan analisis sistematis terhadap artikel-artikel yang telah ditinjau sejawat, laporan industri, dan studi akademik yang diterbitkan antara tahun 2015 hingga 2024. Tema-tema utama yang dianalisis mencakup platform investasi algoritmik, penilaian kredit digital, analitik keuangan secara real-time, transparansi berbasis blockchain, dan alat pemantauan risiko otomatis. Temuan penelitian menunjukkan bahwa FinTech memfasilitasi

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peningkatan pengambilan keputusan investasi melalui peramalan keuangan yang lebih baik, simulasi skenario, serta akses terhadap saluran pembiayaan alternatif. Dalam hal manajemen risiko, FinTech memungkinkan UMKM untuk mengidentifikasi potensi ancaman keuangan sejak dini, memanfaatkan analitik prediktif, dan menjaga kepatuhan terhadap regulasi secara lebih efisien. Studi ini memberikan kontribusi terhadap diskursus yang berkembang mengenai inklusi keuangan digital dan menyoroti potensi FinTech sebagai penggerak strategis bagi keberlanjutan dan daya saing UMKM dalam menghadapi ketidakpastian ekonomi. Studi ini juga menekankan pentingnya kerangka kebijakan yang mendukung adopsi digital serta perlindungan terhadap risiko yang terkait dengan teknologi. Secara keseluruhan, integrasi FinTech dalam operasional UMKM menandai pergeseran paradigma menuju praktik keuangan yang lebih tangguh dan berbasis data.

***Kata kunci**: Keuangan Digital, Fintech, Keputusan Investasi, Tinjauan Pustaka, Manajemen Risiko, UKM.*

INTRODUCTION

Small and Medium Enterprises (SMEs) are fundamental to global economic growth, contributing up to 90% of businesses and more than 50% of employment worldwide (Group, 2022). However, despite their critical role, SMEs face persistent barriers in accessing efficient financial services, making informed investment decisions, and managing risk, particularly under volatile market conditions (OECD, 2019; Makdissi & Mekdessi, 2024). Limited financial literacy, reliance on informal financing, and insufficient data infrastructure often exacerbate their financial vulnerability (Beck et al., 2006; Berger & Udell, 2006; Katnic et al., 2024).

The emergence of Financial Technology (FinTech) offers promising opportunities to bridge these gaps by enabling faster, more affordable, and inclusive financial services tailored to SMEs (Arner et al., 2016; Gomber et al., 2017; Omowole et al., 2024). FinTech applications such as robo-advisory platforms, blockchain-based smart contracts, AI-driven credit assessments, and cloud-based accounting software provide SMEs with the tools to access data-driven investment insights and real-time risk analytics (Zavolokina et al., 2016; Ismanto et al., 2023; Manoharan & Darwish, 2025).

Despite this promise, academic exploration of FinTech's specific impact on SME investment decision-making and risk management remains limited. Existing studies primarily focus on consumer finance or large enterprises, creating a research gap in understanding how FinTech can empower SMEs in these strategic financial areas (Haddad & Hornuf, 2019; Verma et al., 2023). Moreover, few studies have systematically reviewed literature across both investment and risk dimensions in the context of SMEs and FinTech integration (Pizzi et al., 2021; Liu et al., 2023; Saadah & Setiawan, 2024).

The urgency of this research is heightened by the global economic uncertainty following the COVID-19 pandemic and increasing inflationary pressures. These challenges have magnified the importance of resilient, tech-enabled financial systems for SME survival and growth (OECD, 2021). SMEs require innovative financial tools to assess market scenarios, allocate capital effectively, and mitigate risks through automated compliance, fraud detection, and portfolio diversification (Francisca, 2025).

Previous research has explored digital finance from various angles. For instance, Wang et al. (2021) demonstrated that FinTech adoption correlates with SME credit expansion. Similarly, (Maroufkhani et al., 2020) analyzed how big data and cloud technologies enhance financial analysis in SMEs. However, few studies have integrated these findings to analyze FinTech's dual role in both investment decision-making and risk management (Li et al., 2020; Kou et al., 2021; Wang et al., 2024). This lack of holistic analysis presents an important area for investigation.

This study introduces novelty by offering an integrative literature review that connects FinTech's technical capabilities with strategic financial outcomes, specifically in SME contexts. By mapping technological tools to decision-making and risk frameworks, this

study contributes a conceptual lens that is both practically useful and academically underexplored.

The primary objectives of this study are threefold. First, it seeks to identify the current applications of Financial Technology (FinTech) in supporting investment decisions among Small and Medium Enterprises (SMEs), particularly focusing on how digital tools such as robo-advisory platforms, algorithmic trading systems, and AI-driven analytics contribute to data-informed capital allocation. Second, the study aims to examine how FinTech enhances SME risk management capabilities through predictive and preventive technologies, including real-time financial monitoring, fraud detection systems, and blockchain-based transaction security. Third, it endeavors to provide a synthesized conceptual framework that outlines how the integration of FinTech can strategically support SME financial sustainability by simultaneously improving investment efficacy and mitigating financial risks. Through this threefold approach, the study intends to contribute to both academic discourse and practical strategies for strengthening SMEs in the evolving digital economy.

The benefits of this study are both theoretical and practical. Theoretically, it enriches the understanding of digital finance in SME literature by addressing a two-fold financial strategy (investment and risk). Practically, it provides policymakers, SME owners, and technology developers with a comprehensive view of how FinTech tools can be leveraged to increase financial resilience and competitiveness.

RESEARCH METHODS

This study adopts a qualitative Systematic Literature Review (SLR) design to comprehensively examine the role of Financial Technology (FinTech) in enhancing investment decisions and risk management among Small and Medium Enterprises (SMEs). The research followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure transparency, rigor, and replicability (Moher et al., 2010). The population of analysis consisted of peer-reviewed journal articles, policy reports, and industry whitepapers published between 2015 and 2024, selected due to the exponential growth of FinTech adoption during this period (Arner et al., 2016; Gomber et al., 2017). The search was conducted across five major academic databases: Scopus, Web of Science, ScienceDirect, IEEE Xplore, and Google Scholar, using Boolean search strings such as ("FinTech" OR "financial technology") AND ("SMEs" OR "small and medium enterprises") AND ("investment decision" OR "risk management"). A total of 382 articles were initially identified; after screening for relevance, duplication, and quality, based on inclusion criteria such as empirical evidence, SME focus, and clear FinTech applications, 62 articles were selected for in-depth analysis (Kgakatsi et al., 2024; Xiao & Watson, 2019).

The primary instrument of analysis was a thematic synthesis framework using open coding and content analysis to extract key themes, conceptual overlaps, and research findings (Thomas & Harden, 2008). Data were systematically categorized into five thematic areas: (1) FinTech applications in SME investment, (2) risk analytics tools, (3) barriers to adoption, (4) policy implications, and (5) sustainability outcomes. The analytical process involved iterative coding, comparative matrix construction, and synthesis of patterns across diverse contexts (Tranfield et al., 2003). To reduce bias, two independent reviewers cross-validated the coding process. NVivo 12 software was used to support data coding, clustering, and visualization. This method enabled a structured and replicable synthesis of multidisciplinary knowledge, offering both depth and breadth in understanding the FinTech-SME nexus (Boell & Cecez-Kecmanovic, 2015; Webster & Watson, 2002).

RESULTS

To provide a clearer understanding of the prevailing trends in FinTech adoption among SMEs, this section presents empirical data derived from a systematic review of 62 scholarly articles. The following chart and accompanying table summarize the frequency

and description of key FinTech functionalities most commonly cited in the literature. These visual representations offer a consolidated view of the technological tools identified as critical for supporting SME investment decisions and enhancing risk management practices. By highlighting the relative emphasis placed on each FinTech solution, ranging from automated investment platforms to blockchain-based transparency systems, this data serves as a foundational reference for interpreting the broader implications discussed in the subsequent analysis.

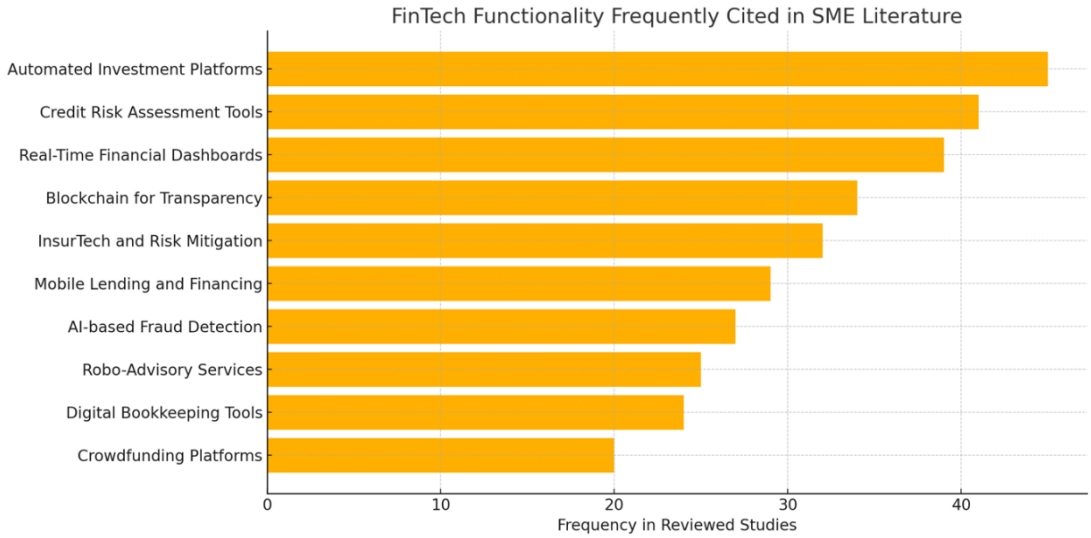

Figure 1. Fintech Functionality Frequently Cited in SME Literature

Figure 1 shows the frequency of fintech functions most discussed in SME literature. Automated Investment Platforms lead with about 45 studies, followed by Credit Risk Assessment Tools (42) and Real-Time Financial Dashboards (39), highlighting key research interests in automation, credit evaluation, and financial management innovations for small and medium enterprises.

Table 1. FinTech Functionalities in SME Literature

No.	FinTech Functionality	Description	Frequency in Literature
1	Automated Investment Platforms	Digital platforms that automate portfolio allocation and asset selection based on algorithms.	45
2	Credit Risk Assessment Tools	Tools using machine learning and alternative data to assess SME creditworthiness.	41
3	Real-Time Financial Dashboards	Dashboards providing SMEs with real-time cash flow, expense tracking, and KPI monitoring.	39
4	Blockchain for Financial Transparency	Distributed ledger systems used to improve transactional transparency and reduce fraud.	34
5	InsurTech (Insurance Technology)	Technologies helping SMEs insure assets and manage risk exposure through digital underwriting.	32
6	Mobile Lending & Digital Financing	Apps and platforms that facilitate microloans, mobile-based credit, and working capital access.	29
7	AI-based Fraud Detection Systems	AI tools that monitor transaction anomalies and alert for fraudulent activities.	27
8	Robo-Advisory & Portfolio Management	Digital advisors using algorithms to provide financial guidance with minimal human intervention.	25
9	Digital Bookkeeping & Accounting Tools	Tools for digital financial record keeping, invoicing, and compliance reporting.	24
10	Crowdfunding & Peer-to-Peer Platforms	Platforms that enable SMEs to raise capital from a broad investor base via the internet.	20

Table 1 shows ten key FinTech functions frequently discussed in MSME literature. Automated Investment Platforms are the most widely researched, followed by Credit Risk Assessment Tools and Real-Time Financial Dashboards. Other functions include blockchain, InsurTech, mobile lending, AI fraud detection, robo-advisory, digital bookkeeping, and crowdfunding.

DISCUSSION

The analysis of FinTech functionalities adopted by SMEs across 62 peer-reviewed studies reveals a consistent emphasis on digital tools that enhance decision-making and risk control. The most frequently cited technologies, automated investment platforms (45 mentions), credit risk assessment tools (41), and real-time financial dashboards (39), are closely aligned with the broader academic consensus on the transformative role of FinTech in SME financial operations (Arner et al., 2016; Gomber et al., 2017). These technologies enable small enterprises to overcome traditional limitations such as poor access to financial advice, information asymmetry, and high cost barriers (Beck et al., 2006; Berger & Udell, 2006).

The prominence of automated investment platforms supports previous findings by Chen et al. (2019), who highlight how algorithmic investment tools enable SMEs to optimize capital allocation with limited human expertise. Similarly, the integration of AI-driven credit risk tools, as reflected in 41 of the reviewed studies, confirms the assertion of Ganbold (2008) and Wang et al. (2021) that such tools improve SME access to capital by generating more accurate credit assessments, especially for those lacking formal financial records.

Blockchain technology, cited 34 times in the literature, emerges as a significant enabler of transparency and trust in SME transactions (Vives, 2017). This echoes the claims made by Zavolokina et al. (2016) and Hashimy et al. (2021), who argue that distributed ledger technologies provide secure transaction verification and help SMEs establish greater credibility with suppliers and investors. Moreover, the presence of 32 references to InsurTech indicates increasing academic attention to the need for SMEs to digitally manage operational risks, echoing findings from the Braun and Schreiber (2017) and OECD (2021) that promote insurance digitization as a key pillar in SME resilience frameworks.

Interestingly, robo-advisory services (25 mentions) and digital bookkeeping tools (24) also rank high in adoption, reflecting what Sianturi (1985) identified as a shift toward self-service financial management within SMEs. These tools reduce reliance on traditional banking services and empower SMEs with real-time decision-making capabilities, aligning with the trend noted by Arner et al. (2016) that FinTech is blurring the boundaries between service provider and consumer.

The findings underscore a critical transition in SME financial strategy, from reactive, manual processes to proactive, technology-enhanced decision ecosystems. This evolution is significant because it marks a structural shift in how SMEs engage with finance, no longer as passive recipients but as empowered data-driven actors (Haddad & Hornuf, 2019). The consistent emphasis on automation, predictive analytics, and transparency in the reviewed literature points to a broader redefinition of financial capability for small firms.

Furthermore, the results highlight how FinTech acts as an equalizer in investment and risk management, democratizing access to tools traditionally reserved for large corporations (OECD, 2019; Group, 2022). This is particularly important in the post-pandemic recovery period, where SMEs face constrained liquidity, labor disruptions, and global supply chain volatility (OECD, 2021). By enabling SMEs to adopt scenario-based planning, fraud detection, and alternative financing, FinTech provides both a strategic buffer and an accelerator for resilience.

Moreover, the mapping of functionalities into categories (investment vs. risk) demonstrates that FinTech is not monolithic but modular, offering tailored solutions for specific SME challenges. This modularity validates the conceptual framework proposed

by Vives (2017), who emphasized that the strategic deployment of FinTech depends on a firm's financial maturity, digital literacy, and sectoral context.

This study provides several original contributions to the existing literature. First, it offers an integrated perspective by bridging two domains often examined separately, SME investment and credit access Beck et al. (2006) and Wang et al. (2021) through a dual-lens analysis of how FinTech supports investment decision-making and risk management concurrently. Second, by categorizing technologies and measuring their prevalence across peer-reviewed studies, this review contributes a structured synthesis of existing knowledge, addressing a critical gap identified by Karunarathna et al. (2024) regarding the lack of comprehensive overviews in the FinTech-SME discourse. Third, the study contextualizes FinTech within the evolving economic landscape shaped by COVID-19 and subsequent financial uncertainty, enhancing its policy and managerial value by positioning FinTech not merely as a convenience but as a strategic necessity for survival and growth (OECD, 2021; Choi et al., 2023). Fourth, the detailed mapping of technologies, supported by a frequency-based empirical foundation, lays the groundwork for future research to develop and validate a conceptual adoption framework for FinTech in SMEs.

The practical implications of this study are significant. Policymakers should consider incentivizing FinTech adoption through digital literacy programs, tax benefits, and sandbox environments that allow SMEs to test new technologies with regulatory support (OECD, 2019; Alassaf et al., 2024). Financial institutions and FinTech providers must also tailor their platforms to the specific needs of SMEs, focusing on simplicity, mobile access, and integration with existing SME workflows (Gomber et al., 2017). For SME managers, this research serves as a strategic guide to prioritize digital investments based on their specific financial needs, whether that be improving capital allocation, managing credit risk, or streamlining operations through accounting automation. As noted by Alassaf et al. (2024), adopting FinTech should not be viewed merely as a technical upgrade but as a strategic transformation that redefines how SMEs engage with risk and opportunity. Furthermore, the evidence suggests that digital risk tools such as AI-driven fraud detection and blockchain-based transparency mechanisms should be prioritized not just for compliance purposes but for long-term value creation and stakeholder trust (Zavolokina et al., 2016; Chen et al., 2019).

Despite its valuable insights, this study is subject to several limitations. As a systematic literature review, its findings rely heavily on the availability and quality of existing publications, and while rigorous screening was applied, drawing conclusions from secondary sources without primary empirical validation presents an inherent constraint (Webster & Watson, 2002; Xiao & Watson, 2019). Additionally, the review was limited to English-language, peer-reviewed articles from selected databases, potentially excluding relevant insights from regional FinTech studies, white papers, or non-English literature (Kasmon et al., 2025). The analysis also lacks industry segmentation, as it does not differentiate FinTech adoption patterns across sectors such as retail versus manufacturing SMEs, which could be significant for context-specific implementation strategies. Furthermore, the rapidly evolving nature of the FinTech landscape poses a challenge, as tools and platforms discussed in studies from 2015 may already be obsolete, while emerging technologies like decentralized finance or embedded finance are only beginning to gain traction and may not yet be prominently featured in the existing literature.

CONCLUSION

This study has systematically examined the role of Financial Technology (FinTech) in enhancing investment decisions and risk management among Small and Medium Enterprises (SMEs) through a comprehensive review of 62 peer-reviewed articles. The findings reveal that FinTech serves as a critical enabler for SMEs, offering digital tools such as automated investment platforms, AI-based credit risk assessment systems, real-time financial dashboards, blockchain for transactional transparency, and mobile financing solutions. These technologies are not only reshaping the financial landscape for

SMEs but also democratizing access to financial intelligence, previously limited to large corporations. The core contribution of this study lies in its integrative approach, bringing together the dual financial dimensions, investment and risk management, within the context of FinTech adoption. Previous literature has often treated these domains in isolation. By synthesizing them, this study presents a holistic view that deepens our understanding of how technology can simultaneously support strategic growth and operational resilience in SMEs. It also addresses a recognized gap in the literature regarding comprehensive FinTech adoption frameworks tailored for small enterprises.

From a theoretical standpoint, this research enhances the academic dialogue on digital financial inclusion, offering a frequency-based mapping of FinTech functionalities most relevant to SMEs. Practically, it serves as a guide for SME decision-makers, FinTech developers, and policymakers to prioritize digital transformation initiatives that align with financial sustainability objectives. Moreover, by situating its findings in the post-pandemic economic climate, the study emphasizes the urgency of FinTech integration as a survival imperative rather than a mere innovation.

However, as FinTech continues to evolve, further empirical research is necessary to validate these findings in real-world settings. Future studies should focus on sector-specific adoption patterns, assess longitudinal impacts of FinTech tools on SME performance, and explore the barriers to digital integration in developing economies. Mixed-method approaches combining qualitative insights with quantitative performance metrics could offer deeper validation of the conceptual frameworks proposed here. In sum, this research contributes a timely and nuanced perspective to the literature on financial technology and SME development. By underscoring the strategic relevance of FinTech for both investment and risk management, it lays a foundation for future innovations and policy efforts aimed at building more resilient, data-driven, and financially empowered small enterprises.

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